Science.gov

Your Gateway to U.S. Federal Science

Sample records for elderberry sambucus nigra

1. Seasonal Fluctuations of Lectins in Barks of Elderberry (Sambucus nigra) and Black Locust (Robinia pseudoacacia) 1

   PubMed Central

   Nsimba-Lubaki, Makuta; Peumans, Willy J.

   1986-01-01

   Elderberry (Sambucus nigra) and black locust (Robinia pseudoacacia) agglutinins, which are abundantly present in the bark of both species, display seasonal fluctuations with regard to their content in this tissue. These seasonal changes result apparently from a circa-annual rhythm of lectin accumulation and depletion during autumn and spring, respectively. Because the bark of trees can be considered as a type of vegetative storage tissue, the results suggest that bark lectins behave as typical storage proteins. Images Fig. 4 PMID:16664696

2. An evidence-based systematic review of elderberry and elderflower (Sambucus nigra) by the Natural Standard Research Collaboration.

   PubMed

   Ulbricht, Catherine; Basch, Ethan; Cheung, Lisa; Goldberg, Harley; Hammerness, Paul; Isaac, Richard; Khalsa, Karta Purkh Singh; Romm, Aviva; Rychlik, Idalia; Varghese, Minney; Weissner, Wendy; Windsor, Regina C; Wortley, Jayme

2014-03-01

An evidence-based systematic review of elderberry and elderflower (Sambucus nigra) by the Natural Standard Research Collaboration consolidates the safety and efficacy data available in the scientific literature using a validated, reproducible grading rationale. This article includes written and statistical analysis of clinical trials, plus a compilation of expert opinion, folkloric precedent, history, pharmacology, kinetics/dynamics, interactions, adverse effects, toxicology, and dosing.

3. Polyphenolic content, antiradical activity, stability and microbiological quality of elderberry (Sambucus nigra L.) extracts.

   PubMed

   Pliszka, Barbara

   2017-01-01

   The pharmaceutical and food industries expect detailed knowledge on the physicochemical properties of elderberry fruit extracts, their stability and microbiological quality, as well as the polyphenol content in elderberry cultivars. The characteristics of the extracts might be additionally modified by citric acid, which improves the stability of anthocyanins and protects processed fruits and syrups from pathogenic microorganisms. The choice of the method with citric acid was a consequence of the physicochemical charac teristics of elderberry pigments, which are not stable under the effect of light in alcoholic solutions. The aim of study was to analyze the properties of elderberry fruit extracts regarding polyphenol content and antiradical activity, as well as their stability and microbiological quality. The plant material consisted of fruit from four cultivars (Alleso, Korsor, Sampo, Samyl) of black elderberry (Sambucus nigra L.). The following were determined in fruit extracts: polyphe- nolic content (HPLC), antiradical activity (ABTS and DPPH) and stability and microbiological quality. The HPLC analysis of polyphenols demonstrated that the extracts from fruits collected from cv. Samyl had the highest 3-sambubioside cyanidin content and those from cv. Korsor contained the highest quantity of 3-glucoside cyanidin. The extracts from cv. Sampo fruit had a dominant 3-sambubioside-5-gluco- side cyanidin and 3,5-diglucoside cyanidin content. The highest quercetin (5.92 mg 100 mg-1 of extract) and caffeic acid (1.21 mg 100 mg-1 of extract) content was found in fruit extracts from cv. Alleso. The cultivars Samyl and Korsor had a higher level of anthocyanins and higher antiradical activity (ABTS) in fruit extracts than cv. Alleso and Sampo. The antiradical activity (DPPH) of fruit extracts from elderberry cultivars as- sessed in this research was similar. The degradation index for all fruit extracts was similar (DI = 1.035). The microbiological species detected in

4. Effect-directed analysis of fresh and dried elderberry (Sambucus nigra L.) via hyphenated planar chromatography.

   PubMed

   KrÃ¼ger, S; Mirgos, M; Morlock, G E

   2015-12-24

   A healthy diet is an important factor in a healthy lifestyle that is becoming increasingly important in today's society. The fruits of European elder (Sambucus nigra L.) are a rich source of bioactive compounds like anthocyanins. In this study, dried and fresh fruits of four cultivated and six wild growing plants were investigated for their anthocyanin pattern and content as well as their bioactive compounds. After separation on HPTLC plates silica gel 60 F254 with a mixture of ethyl acetate, 2-butanone, formic acid and water, the plates were quantitatively evaluated by densitometry and also subjected to various (bio)assays to investigate the samples for compounds acting as radical-scavengers, antimicrobials, estrogens, and acetylcholinesterase or tyrosinase inhibitors. The mean contents for the two most abundant

anthocyanins in European elderberries, confirmed by HPTLC-ESI-MS, ranged from 159 to 647mg/100g in fresh and from 166 to 2764mg/100g in dried fruits for cyanidin-3-sambubioside, and from 112 to 521mg/100g in fresh and 95 to 226mg/100g in dried fruits for cyanidin-3-glucoside. Additionally, the anthocyanin content was higher in berries of cultivars than of wild growing plants. The anthocyanins' radical scavenging activity and antimicrobial effect against Aliivibrio fischeri were confirmed. Further, a radical scavenging compound affecting A. fischeri and acting as acetylcholinesterase inhibitor was tentatively assigned by its protonated molecule at m/z 456 as either ursolic or oleanolic acid by HPTLC-ESI-MS. HPTLC hyphenated with bioassays and mass spectrometry was selected as method of choice for fingerprinting, pattern recognition, and bioprofiling of elderberry samples as well as quantitation and confirmation of bioactive compounds therein.

5. Phenology of lilac (Syringa vulgaris) and elderberry (Sambucus nigra) as the indicator of spring warming

   NASA Astrophysics Data System (ADS)

   Vincze, E.; HunkÃ¡r, M.; Dunkel, Z.

   2012-04-01

   Phenological observations in Hungary started in 1871. The observation system collapsed and revived time by time. The aim of the observations as well as the locations, the methods and observed plants have been changed many times, therefore data series for a given plant species derived from the same place are rare. If we want to study the responses of biosphere to climate variability we need long time data series from the same places, especially phenological data of native plants. Phenological observations organized by the Hungarian Meteorological Service between 1983- 1999 contain valuable data for lilac (Syringa vulgaris) and elderberry (Sambucus nigra). Those perennial native plants are good indicators of spring warming therefore it is worth to study their phenological development concerning to climate variability. Eight locations in Hungary were selected where the site of the observations remaind the same year by year. Observed phenological phases were: Sprouting of leaves (SL, BBCH:11); Begin of Flowers (BF, BBCH:61); Fall of leaves (FO, BBCH:95). Spatial and temporal trends and variability of phenophases will be presented. The effect of meteorological conditions is studied to build up phenological model controlled by the temperature. Growing degree days above the base temperature was involved together with the duration and severeness of the chilling period. The study is supported by the National Scientific Foundation (OTKA-81979).

6. Type I allergy to elderberry (Sambucus nigra) is elicited by a 33.2 kDa allergen with significant homology to ribosomal inactivating proteins.

   PubMed

   FÃ¶rster-Waldl, E; Marchetti, M; SchÃ¶ll, I; Focke, M; Radauer, C; Kinaciyan, T; Nentwich, I; JÃ¤ger, S; Schmid, E R; Boltz-Nitulescu, G; Scheiner, O; Jensen-Jarolim, E

   2003-12-01

   Patients suffering from allergic rhinoconjunctivitis and dyspnoea during summer may exhibit these symptoms after contact with flowers or dietary products of the elderberry tree Sambucus nigra. Patients with a history of summer hayfever were tested in a routine setting for sensitization to elderberry. Nine patients having allergic symptoms due to elderberry and specific sensitization were investigated in detail. We studied the responsible allergens in extracts from elderberry pollen, flowers and berries, and investigated cross-reactivity with allergens from birch, grass and mugwort. Sera from patients were tested for IgE reactivity to elderberry proteins by one-dimensional (1D) and 2D electrophoresis/immunoblotting. Inhibition studies with defined allergens and elderberry-specific antibodies were used to evaluate cross-reactivity. The main elderberry allergen was purified by gel filtration and reversed-phase HPLC, and subjected to mass spectrometry. The in-gel-digested allergen was analysed by the MS/MS sequence

analysis and peptide mapping. The N-terminal sequence of the predominant allergen was analysed. 0.6% of 3668 randomly tested patients showed positive skin prick test and/or RAST to elderberry. IgE in patients' sera detected a predominant allergen of 33.2 kDa in extracts from elderberry pollen, flowers and berries, with an isoelectric point at pH 7.0. Pre-incubation of sera with extracts from birch, mugwort or grass pollen rendered insignificant or no inhibition of IgE binding to blotted elderberry proteins. Specific mouse antisera reacted exclusively with proteins from elderberry. N-terminal sequence analysis, as well as MS/MS spectrometry of the purified elderberry allergen, indicated homology with ribosomal inactivating proteins (RIPs). We present evidence that the elderberry plant S. nigra harbours allergenic potency. Independent methodologies argue for a significant homology of the predominant 33.2 kDa elderberry allergen with homology to RIPs. We

7. Sambucus nigra linn., a new record from valley of flowers.

   PubMed

   Vikramaditya; Sharma, K N

   1999-01-01

   Under the present paper, authors have reposted finding of Sambucus nigra L. as new introduction in medicinal plans in the flora of "Valley of flowers'. Sambucus nigra L. Originally is an European plant and is very important for its medicinal potential, being used in various systems of medicine to cure number of ailments. In natural order Sambucus nigra L. belongs to family caprifoliaceae.

8. SAMBUCUS NIGRA LINN., A NEW RECORD FROM VALLEY OF FLOWERS

   PubMed Central

   Vikramaditya; Sharma, Kedar Nath

   1999-01-01

   Under the present paper, authors have reposted finding of Sambucus nigra L. as new introduction in medicinal plans in the flora of â€œValley of flowersâ€™. Sambucus nigra L. Originally is an European plant and is very important for its medicinal potential, being used in various systems of medicine to cure number of ailments. In natural order Sambucus nigra L. belongs to family caprifoliaceae. PMID:22556907

9. Identification of Peptides in Flowers of Sambucus nigra with Antimicrobial Activity against Aquaculture Pathogens.

   PubMed

   Ã□lvarez, Claudio AndrÃ©s; Barriga, AndrÃ©s; Albericio, Fernando; Romero, MarÃa Soledad; GuzmÃ¡n, Fanny

   2018-04-27

   The elder (Sambucus spp.) tree has a number of uses in traditional medicine. Previous studies have demonstrated the antimicrobial properties of elderberry liquid extract against human pathogenic bacteria and also influenza viruses. These properties have been mainly attributed to phenolic compounds. However, other plant defense molecules, such as antimicrobial peptides (AMPs), may be present. Here, we studied peptide extracts from flowers of Sambucus nigra L. The mass spectrometry analyses determined peptides of 3 to 3.6 kDa, among them, cysteine-rich peptides were identified with antimicrobial activity against various Gram-negative bacteria, including recurrent pathogens of Chilean aquaculture. In addition, membrane blebbing on the bacterial surface after exposure to the cyclotide was visualized by SEM microscopy and SYTOX Green permeabilization assay showed the ability to disrupt

the bacterial membrane. We postulate that these peptides exert their action by destroying the bacterial membrane.

10. Effect of variety on content of bioactive phenolic compounds in common elder (Sambucus nigra L.).

    PubMed

    VrchotovÃ¡, NadÄ›Å¾da; DadÃ¡kovÃ¡, Eva; MatÄ›jÃ□ek, AleÅ¡; TÅ™Ãska, Jan; Kaplan, JiÅ™Ã

    2017-03-01

    The inflorescence of common elder (Sambucus nigra L., Adoxaceae) is known to be rich in phenolic compounds. The content of five selected phenolic compounds (rutin, chlorogenic acid, isoquercitrin, isorhamnetin-3-O- rutinoside and dicaffeoylquinic acid) was determined in methanolic extracts from flowers and floral stems by HPLC in samples obtained from 20 varieties of S. nigra cultivated in Czech Republic. In all samples, there were determined rutin (11-54Â mg/g), chlorogenic acid (23-46Â mg/g), isoquercitrin (0.6-18Â mg/g), isorhamnetin-3-O-rutinoside (3-10Â mg/g), calculated on air-dried material. The content of dicaffeoylquinic acid was 0-13Â mg/g of air-dried material. The amount of the analysed compounds in floral stems was lower than the flowers. The results are a unique set of information on the content of main phenolics in the inflorescence of cultured elderberry varieties.

11. The Phenolic Contents and Antioxidant Activities of Infusions of Sambucus nigra L.

    PubMed

    Viapiana, Agnieszka; Wesolowski, Marek

    2017-03-01

    The aim of this work was to evaluate the antioxidant potential of teas prepared from twenty-four commercially available berries and flowers of Sambucus nigra L. in relation to their phenolic profile, as reflected by the most representative phenolic acids (caffeic, chlorogenic, p-coumaric, ferulic, gallic and syringic acids); flavonols (quercetin, kaempferol, myricetin and rutin); and total phenolic (TPC), phenolic acid (TAC) and flavonoid (TFC) contents. The infusions prepared from elderflowers contained more abundant phenolic compounds than the elderberry infusions. The TPC of these infusions ranged from 19.81 to 23.90Â mg of gallic acid equivalents/g dry weight of sample (GAE/g DW) for elderberries and from 15.23 to 35.57Â mg GAE/g DW for elderflowers, whereas the TFC ranged from 2.60 to 4.49Â mg of rutin equivalents/g dry weight of sample (RUTE/g DW) in elderberry infusions and from 5.27 to 13.19Â mg RUTE/g DW in elderflower infusions. Among the phenolic compounds quantified in this study, quercetin (2.07-9.48Â mg/g DW) and myricetin (1.17-9.62Â mg/g DW) had the highest concentrations in the teas prepared from berries and flowers, respectively. Moreover, the antioxidant potential of elder infusions assessed by 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical and ferric reducing antioxidant power (FRAP) assays revealed that the teas prepared from flowers had higher mean DPPH and FRAP activities than the teas prepared from berries. Therefore, elder beverages could be important dietary sources of natural antioxidants that contribute to the prevention of diseases caused by oxidative stress.

12. Total phenolic, anthocyanin contents and antioxidant capacity of selected elderberry (Sambucus canadensis L.) accessions

    PubMed Central

    Ã–zgen, Mustafa; Scheerens, Joseph C.; Reese, R. Neil; Miller, Raymond A.

    2010-01-01

Fourteen purple-black American elderberry accessions (Sambucus canadensis L.) obtained from various sites in midwestern USA and then grown at a single Ohio production site in USA were analyzed for their total phenolic (TP) and total monomeric anthocyanin (TMA) contents and for their antioxidant capacity by the ferric reducing antioxidant power (FRAP) and DPPH radical scavenging assays. Total phenolic and anthocyanin contents were measured using the Folin-Ciocalteu reagent and the pH differential methods, respectively. Overall, the phytonutrient contents and antioxidant capacity of our elderberry accessions were similar to those typically reported for black raspberries, blackberries and other dark-fleshed small fruits. Variability among accessions was greatest for TMA content (CV 37.5%); individuals ranged nearly threefold from 1308 to 4004 Î¼g cy3-GE/g on a fresh weight basis. Variation among accessions was also evident for TP, FRAP and DPPH values (CV 14.4, 21.7 and 26.8%, respectively). TP and TMA values were very highly correlated (r = 0.93), although individuals differed in the estimated proportion of total phenolics attributable to anthocyanins. Both TP and TMA also highly correlated to antioxidant capacity values (r = 0.70â€“0.85). Within this limited study of 14 accessions, variability for phytonutrient content and antioxidant capacity suggested the employment of wild germplasm within an elderberry improvement program to incorporate an array of superior horticultural, post-harvest or processing traits into new or existing cultivars with superior phytonutrient profiles. PMID:20931079

13. Effects of Sambucus nigra and Aronia melanocarpa extracts on immune system disorders within diabetes mellitus.

    PubMed

    Badescu, Magda; Badulescu, Oana; Badescu, Laurentiu; Ciocoiu, Manuela

    2015-04-01

    The fruits of Aronia melanocarpa Elliot (Rosaceae), (black chokeberry), and Sambucus nigra L. (Caprifoliaceae), elderberries are rich in anthocyanins. Many studies have reported that anthocyanins are beneficial in diabetes due to their capacity to stimulate insulin secretion and reduce oxidative stress. The purpose of this study is to prove the biologically active properties of polyphenols extracted from S. nigra and A. melanocarpa fruit. The study also details the influence of plant polyphenols on immune system imbalances within diabetes mellitus. Polyphenolic extract was administered to Wistar rats 0.040â€‰g/kg body every 2â€‰d for 16 weeks. The absorbencies of all the solutions were determined using a V-550 Able Jasco UV-VIS spectrophotometer. The immunomodulatory capacity of vegetal extracts was assessed by studying cytokines TNF-Î± and IFN-Î³ through the ELISA method and fibrinogen values. At 48â€‰h, the anti-inflammatory effects of S. nigra and A. melanocarpa substances have been revealed by an increase of the TNF-Î± and IFN-Î³ levels in the diabetic group protected by these extracts. Seventy-two hours post-administration of both substances in the diabetic groups, the TNF-Î± level returns to the values read 24â€‰h after substance administration. The vegetal extracts limit the production of fibrinogen in the diabetic rats under polyphenolic protection, the values being highly significant compared with the diabetic group. Natural polyphenols extracted from S. nigra and A. melanocarpa modulate specific and non-specific immune defenses in insulin-deficiency diabetes and reduce the inflammatory status and self-sustained pancreatic insulitis.

14. The higher the better? Differences in phenolics and cyanogenic glycosides in Sambucus nigra leaves, flowers and berries from different altitudes.

    PubMed

    Senica, Mateja; Stampar, Franci; Veberic, Robert; Mikulic-Petkovsek, Maja

    2017-06-01

    Elderberry (Sambucus nigra L.) possesses high antioxidant activity and has been used to treat numerous medicinal disorders. In addition to their antioxidant properties, elderberry parts accumulate toxic

cyanogenic glycosides (CGG). It has been proven that altitude influences the biosynthesis of many secondary metabolites. In the present study we investigated the change of phenolics and CGG in elder leaves, flowers, and berries induced by different altitudes and locations. The data indicate that the accumulation of CGG and phenolics is affected by the altitude of the growing site. An increase of anthocyanin content was recorded in elder berries collected at higher elevations in both locations. Fruit collected at the foothills of location 2 contained 3343 Âµg g -1 anthocyanins as opposed to fruit from the hilltop, which contained 7729 Âµg g -1 . Elder berries contained the lowest levels of harmful CGG compared to other analysed plant parts. However, more cyanogenic glycosides were always present in plant parts collected at the hilltop. Accordingly, berries accumulated 0.11 Âµg g -1 CGG at the foothills and 0.59 Âµg g -1 CGG at the hilltop. Elder berries and flowers collected at the foothill were characterised by the lowest levels of both beneficial (phenolics) and harmful compounds (CGG) and are suitable for moderate consumption. Â© 2016 Society of Chemical Industry. Â© 2016 Society of Chemical Industry.

15. 'Marge': a European Elderberry for North American Producers.

    PubMed

    Thomas, A L; Byers, P L; Avery, J D; Kaps, M; Gu, S; Johnson, H-Y; Millican, M

    Elderberries are being increasingly produced and consumed in North America for their edible and medicinal flowers and fruits. The American elderberry (Sambucus nigra subsp. canadensis) is native to, and most often cultivated in North America. The European elderberry (S. nigra subsp. nigra) has been developed into an economically-important horticultural crop in Europe, but most European cultivars do not perform well in the midwestern USA. The genotype S. nigra subsp. nigra 'Marge' is an open-pollinated seedling of S. nigra subsp. nigra 'Haschberg', which is one of the most popular elderberry cultivars grown in Europe. In a four-year study (one establishment year followed by 3 production years; 2008-2011) at three Missouri (USA) locations, 'Marge' significantly out-performed and out-yielded eight American elderberry genotypes within the same replicated field plots. Across 3 production years at all three sites, 'Marge' achieved budbreak later, flowered earlier, suffered less Eriophyid mite damage, was taller, produced larger berries, and yielded significantly greater amounts of fruit compared with all eight American elderberry genotypes in the study. At one site, 'Marge' produced three times the yield (1.89 kg/plant) compared with the next highest-producing American elderberry genotype (0.65 kg/plant). It is an exceptionally robust and drought-resistant elderberry. The phenotypic attributes of 'Marge' are similar to that of European elderberry except that it performs exceptionally well in the midwestern USA. DNA marker results, along with phenological and morphological characteristics, indicate that 'Marge' is a European elderberry (S. nigra subsp. nigra). As with most European genotypes, 'Marge' does not fruit on first-year wood, and will therefore require a different pruning regimen compared with American elderberry for success in North American production. We do not yet know how 'Marge' will perform outside the midwestern USA, but it is so productive, unique

16. â€˜Margeâ€™: a European Elderberry for North American Producers

    PubMed Central

    Thomas, A.L.; Byers, P.L.; Avery, J.D.; Kaps, M.; Gu, S.; Johnson, H.-Y.; Millican, M.

    2016-01-01

    Elderberries are being increasingly produced and consumed in North America for their edible and medicinal flowers and fruits. The American elderberry (Sambucus nigra subsp. canadensis) is native to, and most often cultivated in North America. The European elderberry (S. nigra subsp. nigra) has been developed into an economically-important horticultural crop in Europe, but most European cultivars do not perform well in the midwestern USA. The genotype S. nigra subsp. nigra â€˜Margeâ€™ is an open-pollinated seedling of S. nigra subsp. nigra â€˜Haschbergâ€™, which is one of the most popular

elderberry cultivars grown in Europe. In a four-year study (one establishment year followed by 3 production years; 2008â€“2011) at three Missouri (USA) locations, â€˜Margeâ€™ significantly out-performed and out-yielded eight American elderberry genotypes within the same replicated field plots. Across 3 production years at all three sites, â€˜Margeâ€™ achieved budbreak later, flowered earlier, suffered less Eriophyid mite damage, was taller, produced larger berries, and yielded significantly greater amounts of fruit compared with all eight American elderberry genotypes in the study. At one site, â€˜Margeâ€™ produced three times the yield (1.89 kg/plant) compared with the next highest-producing American elderberry genotype (0.65 kg/plant). It is an exceptionally robust and drought-resistant elderberry. The phenotypic attributes of â€˜Margeâ€™ are similar to that of European elderberry except that it performs exceptionally well in the midwestern USA. DNA marker results, along with phenological and morphological characteristics, indicate that â€˜Margeâ€™ is a European elderberry (S. nigra subsp. nigra). As with most European genotypes, â€˜Margeâ€™ does not fruit on first-year wood, and will therefore require a different pruning regimen compared with American elderberry for success in North American production. We do not yet know how â€˜Margeâ€™ will perform outside the midwestern USA

17. Acyl spermidines in inflorescence extracts of elder (Sambucus nigra L., Adoxaceae) and elderflower drinks.

    PubMed

    Kite, Geoffrey C; Larsson, Sonny; Veitch, Nigel C; Porter, Elaine A; Ding, Ning; Simmonds, Monique S J

    2013-04-10

    LC-UV-MS analyses of inflorescence extracts of Sambucus nigra L. (elder, Adoxaceae) revealed the presence of numerous acyl spermidines, with isomers of N,N-diferuloylspermidine and N-acetyl-N,N-diferuloylspermidine being most abundant. Pollen was the main source of the acyl spermidines in the inflorescence. Three of the major acyl spermidines were isolated and their structures determined by NMR spectroscopy as Nâ□µ,NÂ¹â□°-di-(E,E)-feruloylspermidine and the new compounds NÂ¹-acetyl-Nâ□µ,NÂ¹â□°-di-(Z,E)-feruloylspermidine and NÂ¹-acetyl-Nâ□µ,NÂ¹â□°-di-(E,E)-feruloylspermidine. An isomer of N,N,N-triferuloylspermidine was also obtained and identified as NÂ¹,Nâ□µ,NÂ¹â□°-tri-(E,E,E)-feruloylspermidine. In addition to stereoisomers of the isolated acyl spermidines, other acyl spermidines detected by the positive ion LC-UV-MS were isomers of N-caffeoyl-N,N-diferuloylspermidine, N-coumaroyl-N,N-diferuloylspermidine, N-caffeoyl-N-feruloylspermidine, N-coumaroyl-N-feruloylspermidine, N-acetyl-N-caffeoyl-N-feruloylspermidine, and N-acetyl-N-coumaroyl-N-feruloylspermidine. Analysis of commercial elderflower drinks showed that acyl spermidines were persistent in these processed elderflower products. Examination of inflorescence extracts from Sambucus canadensis L. (American elder) revealed the presence of acyl spermidines that were different from those of S. nigra.

18. Comparative analysis of Sambucus nigra and Sambucus australis flowers: development and validation of an HPLC method for raw material quantification and preliminary stability study.

    PubMed

    Scopel, Marina; Mentz, LÃlian Auler; Henriques, AmÃ©lia Teresinha

    2010-07-01

    This work was designed to develop a simple, effective, and reliable LC system to identify a chemical marker and compare Sambucus nigra L. and Sambucus australis Cham. et Schltdl. flower extracts (American and European elder). Rutin was the main constituent of both species. The developed method showed a linear response in the range of 10 to 45 microg x mL(-1) for rutin and 1.75 to 3.25 microg x mL(-1) for samples of the Sambucus species. Precision was determined and the relative standard deviations were 1.75 % for HSN and 1.28 % for HSA for intraday precision and 1.28 % and 1.51 % for

inter-day precision, respectively, while accuracy was 97.9 % for HSN and 99.41 % for HSA. Quantification and detection limits as well as robustness were determined, presenting adequate results. The LC method showed an adequate performance for the separation of flavonoid glycosides in S. nigra and S. australis extracts, since the presence of interference had been previously evaluated. The analysis of thirty different samples of S. NIGRA and S. australis of different origins did not show significant variability among them. An accelerated stability study revealed a significant decrease in the first 30 days reaching 57 % in 90 days for S. australis samples and a total decrease of 25 % in 90 days for S. nigra samples, considering rutin as the chemical marker. These results will contribute to quality control analysis routines of these raw materials in pharmaceutical production facilities. Georg Thieme Verlag KG Stuttgart.New York.

19. Nonsaponifiable lipid components of the pollen of elder (Sambucus nigra L.).

    PubMed

    StrÃ¡nsky, K; ValterovÃ¡, I; Fiedler, P

    2001-11-30

    Pollen of the elder (Sambucus nigra L.) was extracted with chloroform-methanol. The extract was separated by column chromatography into the following groups of compounds: hydrocarbons (8.7%). polycyclic aromatic hydrocarbons (0.2%), complex esters (5.2%), triglycerides (18.7%), hydroxy esters (27.9%), free fatty acids and alcohols (16.8%), free sterols (6.8%), and triterpenic alcohols (4.0%). The nonsaponifiable components (hydrocarbons, fatty acids, alcohols, and sterols) were examined in detail using spectroscopic and chromatographic methods (IR spectroscopy, GC, and GC-MS). The identified compounds were characterized by their mass spectra and KovÃ¡ts retention indices. The double bond positions and their configurations in unsaturated compounds are also reported.

20. Sambucus nigra extracts inhibit infectious bronchitis virus at an early point during replication

    PubMed Central

    2014-01-01

    Background Infectious bronchitis virus (IBV) is a pathogenic chicken coronavirus. Currently, vaccination against IBV is only partially protective; therefore, better preventions and treatments are needed. Plants produce antimicrobial secondary compounds, which may be a source for novel anti-viral drugs. Non-cytotoxic, crude ethanol extracts of Rhodiola rosea roots, Nigella sativa seeds, and Sambucus nigra fruit were tested for anti-IBV activity, since these safe, widely used plant tissues contain polyphenol derivatives that inhibit other viruses. Results Doseâ€“response cytotoxicity curves on Vero cells using trypan blue staining determined the highest non-cytotoxic concentrations of each plant extract. To screen for IBV inhibition, cells and virus were pretreated with extracts, followed by infection in the presence of extract. Viral cytopathic effect was assessed visually following an additional 24Â h incubation with extract. Cells and supernatants were harvested separately and virus titers were quantified by plaque assay. Variations of this screening protocol determined the effects of a number of shortened S. nigra extract treatments. Finally, S. nigra extract-treated virions were visualized by transmission electron microscopy with negative staining. Virus titers from infected cells treated with R. rosea and N. sativa extracts were not substantially different from infected cells treated with solvent alone. However, treatment with S. nigra extracts reduced virus titers by four orders of magnitude at a multiplicity of infection (MOI) of 1 in a dose-responsive manner. Infection at a low MOI reduced viral titers by six orders of magnitude and pretreatment of virus was necessary, but not sufficient, for full virus inhibition. Electron microscopy of virions treated with S. nigra extract showed compromised envelopes and the presence of membrane vesicles, which suggested a mechanism of action. Conclusions These results demonstrate that S. nigra extract can inhibit IBV at

«

- 1
- 2
- 3
- 4
- 5
- »

- «
- 1
- 2
- 3
- 4
- 5
- »

21. Density and Egg Parasitism of Stink Bugs (Hemiptera: Pentatomidae) in Elderberry and Dispersal Into Crops

    PubMed Central

    Tillman, P. Glynn; Cottrell, Ted E.

    2016-01-01

    Chinavia hilaris (Say), Euschistus servus (Say), Euschistus tristigmus (Say), and Thyanta custator custator (F.) (Hemiptera: Pentatomidae) are serious pests of crops in the southeastern United States but little is known concerning their dispersal from noncrop hosts in woodlands into crops. This 2-yr study was conducted to investigate whether elderberry [Sambucus nigra subsp. canadensis (L.) R. Bolli] in woodlands serves as a source of stink bugs dispersing into adjacent crops and to examine parasitism of C. hilaris and E. servus eggs on this plant. Elderberry was a reproductive host for each of the four stink bug species; females oviposited on plants with subsequent nymphs feeding on elderberry and developing into adults. Anastatus mirabilis (Walsh & Riley) (Hymenoptera: Eupelmidae), Anastatus reduvii (Howard), and Trissolcus edessae Fouts (Hymenoptera: Scelionidae) were prevalent egg parasitoids of C. hilaris but A. reduvii was the prevalent parasitoid of E. servus. Newly developed stink bug adults were first detected on elderberry around mid-July. Then in late July and early August, as elderberry fruit senesced and cotton bolls became available, stink bugs began dispersing from elderberry into cotton based on recapture of stink bugs on cotton that had previously been marked on elderberry. In addition, in 2015, density of C. hilaris, E. servus, and E. tristigmus was higher in cotton with elderberry than in cotton without it. Over the study, economic threshold was reached for four of seven cotton fields. Elimination of elderberry in woodlands adjacent to cotton may be a viable management tactic for control of stink bugs in cotton. PMID:27773875

22. Inhibition of proinflammatory activities of major periodontal pathogens by aqueous extracts from elder flower (Sambucus nigra).

    PubMed

    Harokopakis, Evlambia; Albzreh, Mohamad H; Haase, Elaine M; Scannapieco, Frank A; Hajishengallis, George

    2006-02-01

    Prolonged induction of excessive levels of inflammatory mediators contributes to the pathogenesis of chronic disease states, such as periodontitis. It is thus important to develop safe and effective anti-inflammatory strategies for therapeutic reasons. In this study, we determined the ability of aqueous

extracts from elder flower (Sambucus nigra) to inhibit the proinflammatory activity of major virulence factors from the periodontal pathogens Porphyromonas gingivalis and Actinobacillus actinomycetemcomitans. Monocytes/macrophages or neutrophils were incubated with whole cells of P. gingivalis, A. actinomycetemcomitans, or purified components thereof (lipopolysaccharide and fimbriae) in the absence or presence of elder flower extract and were assayed for cytokine production, integrin activation, or induction of the oxidative burst. The elder flower extract was found to potently inhibit all proinflammatory activities tested. Investigation of the underlying mechanisms revealed that the anti-inflammatory extract inhibited activation of the nuclear transcription factor kappaB and of phosphatidylinositol 3-kinase. The elder flower extract displays useful anti-inflammatory properties that could be exploited therapeutically for the control of inflammation in human periodontitis.

23. Interfering With Lipid Raft Association: A Mechanism to Control Influenza Virus Infection By Sambucus Nigra

    PubMed Central

    Shahsavandi, Shahla; Ebrahimi, Mohammad Majid; Hasaninejad Farahani, Ameneh

    2017-01-01

    Sambucus nigra (elder) are broadly used species to treat microbial infections. The potential antiviral activity and mechanism action of elder fruit (EF) in human epithelium cell (A549) cultures infected with H9N2 influenza virus were determined. The effect of various concentrations of EF on influenza virus replication was examined by using virus titration, quantitative real time RT-PCR, fusion and lipid raft assays following two treatment procedures: A) pre-treated H9N2 virus with each concentration of EF extract and transfection of A549 cell cultures, and B) each concentrations of EF was added to H9N2 virus infected-cell cultures following virus adsorption. In both treatments with lower doses of EF increased viral titer as well as synthesized viral nucleoprotein as indicating the herb had no inhibitory effects on virus replication. In (B) trial with higher doses, 40 and 80 Î¼g/mL of EF, a significant decrease in virus titer and viral protein synthesis were shown in EF treated cells indicating the herb affect either entry of viruses or inhibition virus particle release. The results suggest that EF treatment of the influenza virus infected-human epithelial cells may involve in lipid raft association which function as platform for formation of viral membrane fusion and budding. Differencesin treatment time and dose of EF extract in infected cells with influenza virus have a marked effect on the efficacy of the herb. PMID:29201101

24. The effect of Sambucus nigra L. extract and phytosinthesized gold nanoparticles on diabetic rats.

    PubMed

    Opris, Razvan; Tatomir, Corina; Olteanu, Diana; Moldovan, Remus; Moldovan, Bianca; David, Luminita; Nagy, Andras; Decea, Nicoleta; Kiss, Mihai Ludovic; Filip, Gabriela Adriana

    2017-02-01

    Nanomaterials such as gold nanoparticles (NPs) conjugated with natural products have shown good results in lowering the glycated hemoglobin and have an anti-inflamatory effect. The aim of our study is to evaluate the antidiabetic effect of NPs functionalized with Sambucus nigra L. (SN) extract on experimental model of diabetes in rats. Diabetes was induced to 18 Wistar male rats (n=6) by a single intramuscular injection of streptozotocin (30mg/kg body weight - b.w.). SN extract (15mg/kg b.w.), NPs (0.3mg/kg b.w.) and vehicle (normal saline) were administered by gavage once a day, every morning, for 2 weeks. Other 18 animals were used as control groups and were treated with the same compounds, at the same time. Afterwards, blood, liver and muscle samples were taken to assess the oxidant/antioxidant status and the liver for the evaluation of metalloproteinases (MMP)-2 and 9 activities, COX-2 and NFKB expressions and for immunohistochemistry. Serum glycemia, cholesterol, alanine aminotransferase (ALAT), aspartate aminotransferase (ASAT) were also measured. The administration of NPs extract

increased the muscle and systemic GSH/GSSG ratio in the diabetic group vs. diabetic ($p<0.03$) or non-diabetic groups treated with vehicle ($p<0.05$) and decreased MDA levels compared to non-diabetic group ($p<0.05$). COX-2 expression ($p<0.0001$) and proMMP-2 activity ($p<0.05$) decreased after pretreatment with NPs in parallel with the reduction of Kupffer cells percent (<0.001). No morphological abnormalities were detected in histopathology. NPs present a great potential for further usage as adjuvants in the diabetic therapy due to the increase of antioxidant defence and reduction of MMPs activity and inflammation in liver tissue.

25. Targeted apoptosis in ovarian cancer cells through mitochondrial dysfunction in response to Sambucus nigra agglutinin.

    PubMed

    Chowdhury, Shreya Roy; Ray, Upasana; Chatterjee, Bishnu P; Roy, Sib S

    2017-05-04

    Ovarian carcinoma (OC) patients encounter the severe challenge of clinical management owing to lack of screening measures, chemoresistance and finally dearth of non-toxic therapeutics. Cancer cells deploy various defense strategies to sustain the tumor microenvironment, among which deregulated apoptosis remains a versatile promoter of cancer progression. Although recent research has focused on identifying agents capable of inducing apoptosis in cancer cells, yet molecules efficiently breaching their survival advantage are yet to be classified. Here we identify lectin, Sambucus nigra agglutinin (SNA) to exhibit selectivity towards identifying OC by virtue of its specific recognition of Î±-2, 6-linked sialic acids. Superficial binding of SNA to the OC cells confirm the hyper-sialylated status of the disease. Further, SNA activates the signaling pathways of AKT and ERK1/2, which eventually promotes de-phosphorylation of dynamin-related protein-1 (Drp-1). Upon its translocation to the mitochondrial fission loci Drp-1 mediates the central role of switch in the mitochondrial phenotype to attain fragmented morphology. We confirmed mitochondrial outer membrane permeabilization resulting in ROS generation and cytochrome-c release into the cytosol. SNA response resulted in an allied shift of the bioenergetics profile from Warburg phenotype to elevated mitochondrial oxidative phosphorylation, altogether highlighting the involvement of mitochondrial dysfunction in restraining cancer progression. Inability to replenish the SNA-induced energy crunch of the proliferating cancer cells on the event of perturbed respiratory outcome resulted in cell cycle arrest before G2/M phase. Our findings position SNA at a crucial juncture where it proves to be a promising candidate for impeding progression of OC. Altogether we unveil the novel aspect of identifying natural molecules harboring the inherent capability of targeting mitochondrial structural dynamics, to hold the future for

26. Assessment of extracts of Helichrysum arenarium, Crataegus monogyna, Sambucus nigra in photoprotective UVA and UVB; photostability in cosmetic emulsions.

    PubMed

    Jarzycka, Anna; LewiÅ„ska, Agnieszka; Gancarz, Roman; Wilk, Kazimiera A

    2013-11-05

    The aim of our study was to investigate the photoprotective activity and photostability efficacy of sunscreen formulations containing Helichrysum arenarium, Sambucus nigra, Crataegus monogyna extracts and their combination. UV transmission of the emulsion films was performed by using diffuse transmittance measurements coupling to an integrating sphere. In vitro photoprotection and photostability efficacy were evaluated according to the following parameters: sun protection factor (SPF), UVA protection factor (PF-UVA), UVA/UVB ratio and critical wavelength (Î»c) before and after UV irradiation. The results obtained show that the formulations containing polyphenols fulfill the official requirements for sunscreen products due to their broad spectrum of UV protection combined with their

high photostability and remarkable antioxidant properties. Therefore H. arenarium, S. nigra, C. monogyna extracts represent useful additives for cosmetic formulation. Copyright Â© 2013 Elsevier B.V. All rights reserved.

27. European Elder (Elderberry)

    MedlinePlus

    ... Name: Sambucus nigra Background European elder is a tree native to Europe and parts of Asia and ... on European elder. Various parts of the elder tree, including the bark, leaves, flowers, fruits, and roots, ...

28. [Lectins from Sambucus nigra L inflorescences: isolation and investigation of biological activity using procaryotic test-systems].

    PubMed

    Karpova, I S; Korets'ka, N V; Pal'chykovs'ka, L H; Nehruts'ka, V V

    2007-01-01

    Isolation of lectins from extracts of the Sambucus nigra inflorescences and of pollen material have been performed using isoelectric focusing without carrier ampholytes (autofocusing). Fractions active in agglutination tests with different carbohydrate specificity were subjected to SDS-PAGE. The major lectin found in whole inflores-cences was GalNAc specific and is proposed to be a heterotetramer with subunits of about 30 and 33 kDa. It was called SNAflu-I. At least two other lectins were present in the pollen material and supposed to consist of identical subunits. Major positively charged lectin was Glc/Man specific with subunit of 26 kDa and called SNApol-I. Other pollen component (SNApol-II) was Gal specific with subunit of about 20 kDa. In order to elucidate cell targets sensitive for the S. nigra lectin's activity the combined effects of the lectins and transcriptional of phenazine origin on B. subtilis cells growth have been studied. Only SNApol-I demonstrated the antagonistic activity against these inhibitors in vivo. This lectin but not the SNAflu-I can also inhibit transcription in vitro. It is supposed that lectins from the same source may act in different directions on cell metabolism. Particularly one of the common targets may be the DNA-dependent synthesis of RNA.

29. A new method for determining water uptake in elderberry plantation

    NASA Astrophysics Data System (ADS)

    TÅ‘kei, LÃ¡szlÃ³; Dunkel, ZoltÃ¡n; Jung, AndrÃ¡s

    A considerable quantity of elderberry (Sambucus nigra L.) fruit gets yearly on the market in Hungary. The decisive majority of this quantity is harvested from feral plants. The area of elderberry plantations is only 150-180 ha in spite of the fact that it would be possible to produce this valuable fruit on larger surface if suitable watering system were applied. The fruit of elderberry is important from the aspect of food industry. The goal of present study is promoting the effective irrigation of elder berry plantation. The experiments were carried out in the Experimental Farm of the University for Horticulture and Food Industry in SzigetcsÃ©p from 1989. The measuring of the water demand of elderberry using the heat pulse method was started in 1996. The measurement of the sap-flow in the trunk is a new element of phyto-climate researches. The development of the equipment was started in 1991 and improvement of the method is still going on. In this phase, first of all the connections between sap-flow velocity and meteorological data were investigated. Summarising the experiences of the trials it can be announced that: (1) The water circulation of elder plants principally depends on the conditions of atmosphere. It is barely sensitive to the water content of the soil. (2) The transpiration intensity reacts sensitively to the change of meteorological conditions. (3) The changing rate of the transpiration coefficient is particularly large in certain intervals of the meteorological elements.

30. Separation of flavonol-2-O-glycosides from Calendula officinalis and Sambucus nigra by high-performance liquid and micellar electrokinetic capillary chromatography.

    PubMed

    Pietta, P; Bruno, A; Mauri, P; Rava, A

    1992-02-28

    Calendula officinalis and Sambucus nigra flowers were analysed by reversed-phase high-performance liquid chromatography (RP-HPLC) and micellar electrokinetic capillary chromatography (MECC). RP-HPLC was performed on C8 Aquapore RP 300 columns with eluents containing 2-propanol and tetrahydrofuran. MECC was carried out on a 72-cm fused-silica capillary using sodium dodecyl sulphate and sodium borate (pH 8.3) as the running buffer. The results obtained by these techniques are compared.

31. Olfactory and quantitative analysis of aroma compounds in elder flower (Sambucus nigra L.) drink processed from five cultivars.

    PubMed

    JÃ¸rgensen, U; Hansen, M; Christensen, L P; Jensen, K; Kaack, K

    2000-06-01

    Fresh elder flowers (Sambucus nigra L.) were extracted with an aqueous solution containing sucrose, peeled lemon slices, tartaric acid, and sodium benzoate to make elder flower syrup. Aroma compounds emitted from the elder flower syrup were collected by the dynamic headspace technique and analyzed by GC-FID and GC-MS. A total of 59 compounds were identified, 18 of which have not previously been detected in elder flower products. The concentrations of the identified volatiles were measured in five elder cultivars, Allesoe, Donau, Sambu, Sampo, and Samyl, and significant differences were detected among cultivars in the concentration levels of 48 compounds. The odor of the volatiles was evaluated by the GC-sniffing technique. cis-Rose oxide, nerol oxide, hotrienol, and nonanal contributed to the characteristic elder flower odor, whereas linalool, alpha-terpineol, 4-methyl-3-penten-2-one, and (Z)-beta-ocimene contributed with floral notes. Fruity odors were associated with pentanal, heptanal, and beta-damascenone. Fresh and grassy odors were primarily correlated with hexanal, hexanol, and (Z)-3-hexenol.

32. Reliable cues and signals of fruit quality are contingent on the habitat in black elder (Sambucus nigra).

    PubMed

    Schaefer, H Martin; Braun, Julius

    2009-06-01

    Communication mediates interactions between organisms and can be based on signals or cues. Signals are selected for their signaling function, whereas cues evolve for reasons other than signaling. To be evolutionarily stable, communication needs to be reliable on average, but the mechanisms that enforce reliability are hotly debated in light of strong environmental influence on signals and cues. While fruit quality in black elder (Sambucus nigra) is unrelated to fruit color, it is indicated by alternative pedicel phenotypes. Information on fruit quality has thus been transferred from the fruit to the developmentally associated pedicels, which are environmentally determined cues. Within each phenotype, color variation indicates fruit quality. Communication by black elder is thus reliable, but the proximate mechanisms enforcing reliability are habitat specific. High irradiance increases both the contrasts of the visual cue and fruit quality in the anthocyanin-based red pedicel phenotype, while shaded plants of the chlorophyll-based green phenotype apparently use signals by forgoing photosynthesis. This is because lower chlorophyll content in green pedicels creates contrasting pedicels, and higher contrasts indicate higher sugar content in

the fruits of green pedicels. Because anthocyanins are light-induced, plants use cues when exposed to high irradiance, whereas they apparently use costly signals in the shade by reducing chlorophyll content in the pedicels. In behavioral field and laboratory experiments we document that avian seed dispersers select among pedicel phenotypes that indicate different fruit quality. Plants can thus increase their reproductive success by sending highly informative cues. Our results indicate how reliable information transfer can be maintained both in cues and signals in spite of substantial environmental influence on visual traits.

33. Randomized clinical trial of a phytotherapic compound containing Pimpinella anisum, Foeniculum vulgare, Sambucus nigra, and Cassia augustifolia for chronic constipation

    PubMed Central

    2010-01-01

    Background A phytotherapic compound containing Pimpinella anisum L., Foeniculum vulgare Miller, Sambucus nigra L., and Cassia augustifolia is largely used in Brazil for the treatment of constipation. However, the laxative efficacy of the compound has never been tested in a randomized clinical trial. The aim of this study was to evaluate the efficacy and safety of the product. Methods This randomized, crossover, placebo-controlled, single-blinded trial included 20 patients presenting with chronic constipation according to the criteria of the American Association of Gastroenterology. The order of treatments was counterbalanced across subjects: half of the subjects received the phytotherapic compound for a 5-day period, whereas the other half received placebo for the same period. Both treatment periods were separated by a 9-day washout period followed by the reverse treatment for another 5-day period. The primary endpoint was colonic transit time (CTT), measured radiologically. Secondary endpoints included number of evacuations per day, perception of bowel function, adverse effects, and quality of life. Results Mean CTT assessed by X ray was 15.7 hours (95%CI 11.1-20.2) in the active treatment period and 42.3 hours (95%CI 33.5-51.1) during the placebo treatment ($p < 0.001$). Number of evacuations per day increased during the use of active tea; significant differences were observed as of the second day of treatment ($p < 0.001$). Patient perception of bowel function was improved ($p < 0.01$), but quality of life did not show significant differences among the study periods. Except for a small reduction in serum potassium levels during the active treatment, no significant differences were observed in terms of adverse effects throughout the study period. Conclusions The findings of this randomized controlled trial allow to conclude that the phytotherapic compound assessed has laxative efficacy and is a safe alternative option for the treatment of constipation. Trial

34. Triterpenoid Acids as Important Antiproliferative Constituents of European Elderberry Fruits.

    PubMed

    GleÅ„sk, MichaÅ‚; CzapiÅ„ska, ElÅ¼bieta; WoÅºniak, Marta; Ceremuga, Ireneusz; WÅ‚odarczyk, Maciej; Terlecki, Grzegorz; ZiÃ³Å‚kowski, Piotr; Seweryn, Ewa

    2017-01-01

    In Europe, both the fruits and flowers of Sambucus nigra L. have been used against cold, as well as laxative, diaphoretic, and diuretic remedies. There are also a number of commercially available food products that contain elderberry juice, purÃ©ed or dried elderberries. Recent comprehensive literature data on pharmacology and chemistry of Sambuci fructus have encouraged us to screen extracts with different polarities from this plant material against cancer cell lines. The cytotoxic activity of the ethyl acetate and aqueous acetone extracts from elderberries as well as detected triterpenoids on human colon adenocarcinoma cell line (LoVo) and human breast cancer cell line (MCF-7) was investigated by sulforhodamine B assay. Moreover, cell migration assay was conducted for triterpenoid fraction and pure compounds. Aqueous acetone extract possessed much lower IC 50 value in cancer cell lines compared to ethyl acetate extract. The latter manifested high cytotoxicity against studied cell lines, suggesting that nonpolar compounds are responsible for the cytotoxic activity. Indeed, the phytochemical analysis

revealed that ursolic and oleanolic acids are the main triterpenoids in the mentioned extract of which ursolic acid showed the highest activity with IC 50 values of 10.7Â Âµg/mL on MCF-7 and 7.7Â Âµg/mL on LoVo cells.

35. Inhibition of microglial activation by elderberry extracts and its phenolic components

    PubMed Central

    Simonyi, Agnes; Chen, Zihong; Jiang, Jinghua; Zong, Yijia; Chuang, Dennis Y.; Gu, Zezong; Lu, Chi-Hua; Fritsche, Kevin L.; Greenlief, C. Michael; Rottinghaus, George E.; Thomas, Andrew L.; Lubahn, Dennis B.; Sun, Grace Y.

    2015-01-01

    Aims Elderberry (Sambucus spp.) is one of the oldest medicinal plants noted for its cardiovascular, anti-inflammatory, and immune-stimulatory properties. In this study, we investigated the anti-inflammatory and anti-oxidant effects of the American elderberry (Sambucus nigra subsp. canadensis) pomace as well as some of the anthocyanins (cyanidin chloride and cyanidin 3-O-glucoside) and flavonols (quercetin and rutin) in bv-2 mouse microglial cells. Main methods The bv-2 cells were pretreated with elderberry pomace (extracted with ethanol or ethyl acetate) or its anthocyanins and flavonols and stimulated by either lipopolysaccharide (LPS) or interferon-Î³ (IFNÎ³). Reactive oxygen species (ROS) and nitric oxide (NO) production (indicating oxidative stress and inflammatory response) were measured using the ROS detection reagent DCF-DA and the Griess reaction, respectively. Key findings Analysis of total monomeric anthocyanin (as cyanidin 3-O-glucoside equivalents) indicated five-fold higher amount in the freeze-dried ethanol extract as compared to that of the oven-dried extract; anthocyanin was not detected in the ethyl acetate extracts. Elderberry ethanol extracts (freeze-dried or oven-dried) showed higher anti-oxidant activities and better ability to inhibit LPS or IFNÎ³-induced NO production as compared with the ethyl acetate extracts. The phenolic compounds strongly inhibited LPS or IFNÎ³-induced ROS production, but except for quercetin, they were relatively poor in inhibiting NO production. Significance These results demonstrated difference in anti-oxidative and anti-inflammatory effects of elderberry extracts depending on solvents used. Results further identified quercetin as the most active component in suppressing oxidative stress and inflammatory responses on microglial cells. PMID:25744406

36. Influence of altitudinal variation on the content of phenolic compounds in wild populations of Calluna vulgaris, Sambucus nigra, and Vaccinium myrtillus.

    PubMed

    Rieger, Gudrun; MÃ¼ller, Maria; Guttenberger, Helmut; Bucar, Franz

    2008-10-08

    This study deals with the effect of altitudinal variation on the content of phenolic compounds in three traditional herbal plants, which are also consumed as food in Central Europe. Herbs of Calluna vulgaris (L.) HULL, flowers and fruits of Sambucus nigra L., and berries of Vaccinium myrtillus L. collected in the Naturpark Solktaler (Austria) were extracted using accelerated solvent extraction (ASE). Identification and quantification of the constituents in the polar extracts (methanol 80%, v/v) were achieved by means of RP-HPLC-PDA and/or LC-PDA-MS analysis with external standards. 3,5- O-Dicaffeoylquinic acid was identified in flowers of S. nigra for the first time. Rising concentrations of flavonoids and especially flavonol-3- O-glycosides with adjacent hydroxyl groups in ring B in C. vulgaris and S. nigra with increasing altitude were observed. Anthocyanins from the berries of both S. nigra and V. myrtillus occurred in decreasing amounts with rising altitude. C. vulgaris showed the best radical scavenging capacity based on the DPPH assay.

37. Horticultural Performance of Eight American Elderberry Genotypes at Three Missouri Locations

PubMed Central

Thomas, A.L.; Byers, P.L.; Avery, J.D.; Kaps, M.; Gu, S.

2016-01-01

American elderberry (Sambucus nigra subsp. canadensis) is being increasingly cultivated in North America for its edible and medicinal fruit and flowers, yet remains largely undeveloped as a horticultural crop. Productive genotypes with desirable horticultural attributes, including disease and insect resistance, precocity, uniform fruit ripening, and large berry size are needed in order to advance the commercial production of elderberries. A four-year study of eight elderberry genotypes was established in 2008 at three diverse Missouri (USA) locations. Phenology, plant morphology, pest susceptibility, productivity, and fruit characteristics data were collected over three growing seasons, 2009â€“2011. Significant differences for most phenological, horticultural, and fruit juice characteristics were observed among the three sites, three years, and eight genotypes. The genotype â€˜Ozarkâ€™ was the earliest to break bud, produced fruit with high levels of soluble solids, and out-yielded most other genotypes at the three sites over the three-year study. None of the new genotypes produced berries as large as or larger than the standard â€˜Yorkâ€™ which is known for its large fruit. Some of the genotypes tested, especially â€˜Ozarkâ€™ show promise as potential cultivars and as breeding stock for further development of elderberry as a commercially-viable horticultural crop. PMID:27158183

38. Horticultural Performance of Eight American Elderberry Genotypes at Three Missouri Locations.

PubMed

Thomas, A L; Byers, P L; Avery, J D; Kaps, M; Gu, S

2015-01-12

American elderberry (Sambucus nigra subsp. canadensis) is being increasingly cultivated in North America for its edible and medicinal fruit and flowers, yet remains largely undeveloped as a horticultural crop. Productive genotypes with desirable horticultural attributes, including disease and insect resistance, precocity, uniform fruit ripening, and large berry size are needed in order to advance the commercial production of elderberries. A four-year study of eight elderberry genotypes was established in 2008 at three diverse Missouri (USA) locations. Phenology, plant morphology, pest susceptibility, productivity, and fruit characteristics data were collected over three growing seasons, 2009-2011. Significant differences for most phenological, horticultural, and fruit juice characteristics were observed among the three sites, three years, and eight genotypes. The genotype 'Ozark' was the earliest to break bud, produced fruit with high levels of soluble solids, and out-yielded most other genotypes at the three sites over the three-year study. None of the new genotypes produced berries as large as or larger than the standard 'York' which is known for its large fruit. Some of the genotypes tested, especially 'Ozark' show promise as potential cultivars and as breeding stock for further development of elderberry as a commercially-viable horticultural crop.

39. Comparison of 226Ra nuclide from soil by three woody species Betula pendula, Sambucus nigra and Alnus glutinosa during the vegetation period.

PubMed

Soudek, Petr; PetrovÃ¡, SÃ¡rka; BenesovÃ¡, Dagmar; Tykva, Richard; VankovÃ¡, RadomÃra; Vanek, TomÃ¡s

2007-01-01

The uptake of 226Ra from the contaminated soil was compared in three woody species: alder (Alnus glutinosa), birch (Betula pendula) and elder (Sambucus nigra). The 226Ra activities increased during the vegetation periods (in 2003, 2004 and 2005) both in the leaves and flowers+seeds. The highest accumulation was found in birch, reaching 0.41 Bq/g DW in the leaves (at the end of the vegetation period in 2003). The lowest 226Ra accumulation was determined in alder. The extent of 226Ra accumulation in the leaves of woody species demonstrates that these pioneer woody species can be used as remediation alternative to the use of herbs, provided that the removal of fallen leaves could be achieved in the end of vegetation period.

40. Comparison of major taste compounds and antioxidative properties of fruits and flowers of different Sambucus species and interspecific hybrids.

    PubMed

    Mikulic-Petkovsek, Maja; Ivancic, Anton; Schmitzer, Valentina; Veberic, Robert; Stampar, Franci

    2016-06-01

    Differences in the content of sugars, organic acids, total phenolics and antioxidative activity have been evaluated among three different elderberry species (Sambucus nigra, Sambucus cerulea, Sambucus javanica) and seven interspecific hybrids. The highest content of sugars has been determined in the fruits of JAÃ—CER hybrid and the lowest in fruits of (JAÃ—NI)Ã—cv. Black Beauty hybrid. S. nigra berries contained highest levels of total organic acids. S. nigra and (JAÃ—NI)Ã—CER flower extracts were characterized by 1.3- to 2.8-fold higher content of total sugars compared to other species/hybrids analyzed. Total phenolic content (TPC) in berries ranged from 3687 to 6831 mg GAE per kg FW. The highest TPC has been determined in S. nigra fruits and flowers. The ABTS scavenging activity differed significantly among species and hybrids and ranged from 3.2 to 39.59 mM trolox/kgF W in fruits and 44.87-118.26 mM trolox/kg DW in flowers. Copyright Â© 2016 Elsevier Ltd. All rights reserved.

- «
- 1
- 2
- 3
- 4
- 5
- »

- «
- 1
- 2
- 3
- 4
- 5
- »

41. The adhesion of Pseudomonas aeruginosa to high molecular weight human tear film species corresponds to glycoproteins reactive with Sambucus nigra lectin.

    PubMed

    Aristoteli, Lina Panayiota; Willcox, Mark D P

    2006-11-01

Pseudomonas aeruginosa is a pathogen gaining prevalence in contact lens-related corneal ulcers. Tear outflow protects the ocular surface, where high molecular weight tear glycoproteins bind bacteria for removal from the eye. The purpose of the present study was to identify glycoproteins in human tears involved in the adhesion of ocular P. aeruginosa isolates. Basal human tears were applied to a bacterial adhesion assay involving electrophoretic separation of tear components, transfer to nitrocellulose and incubation with biotin-labelled bacteria. Glycoproteins were further characterised using lectin profiling. The results showed large-dimension agarose gels were imperative for the detection of at least four glycoproteins with a migration >200 kDa, including species not previously identified. P. aeruginosa 6294 preferentially bound to a well-defined glycoprotein near the origin of the gel that, unlike other glycoproteins >200 kDa, reacted with Sambucus nigra lectin (sialic acid alpha2-6) but not WGA lectin (N-acetylglucosamine, sialic acid alpha2-3). Adhesion did not involve free biotin label or hydrophobic interactions. Also, the pre-incubation of separated tear glycoproteins with S. nigra lectin increased subsequent adhesion of 6294 to this tear glycoprotein. The less virulent Paer1 strain showed diffuse adhesion in the S. nigra-reactive region at the gel origin. In conclusion, an overlay adhesion assay was developed that identified slow-migrating sialylated glycoprotein species in human tears preferentially bound by P. aeruginosa ocular strains, and S. nigra lectin seemed to enhance the interaction. The study provides a basis for direct investigation of bacterial adhesion to glycoproteins with an apparent migration >200 kDa in tear fluid.

42. A Gene Encoding a Hevein-Like Protein from Elderberry Fruits Is Homologous to PR-4 and Class V Chitinase Genes1

    PubMed Central

    Van Damme, Els J.M.; Charels, Diana; Roy, Soma; Tierens, Koenraad; Barre, Annick; Martins, JosÃ© C.; RougÃ©, Pierre; Van Leuven, Fred; Does, Mirjam; Peumans, Willy J.

    1999-01-01

    We isolated SN-HLPf (Sambucus nigra hevein-like fruit protein), a hevein-like chitin-binding protein, from mature elderberry fruits. Cloning of the corresponding gene demonstrated that SN-HLPf is synthesized as a chimeric precursor consisting of an N-terminal chitin-binding domain corresponding to the mature elderberry protein and an unrelated C-terminal domain. Sequence comparisons indicated that the N-terminal domain of this precursor has high sequence similarity with the N-terminal domain of class I PR-4 (pathogenesis-related) proteins, whereas the C terminus is most closely related to that of class V chitinases. On the basis of these sequence homologies the gene encoding SN-HLPf can be considered a hybrid between a PR-4 and a class V chitinase gene. PMID:10198114

43. Identification of bioactive compounds from flowers of black elder (Sambucus nigra L.) that activate the human peroxisome proliferator-activated receptor (PPAR) gamma.

    PubMed

    Christensen, Kathrine B; Petersen, Rasmus K; Kristiansen, Karsten; Christensen, Lars P

    2010-06-01

    Obesity is one of the predisposing factors for the development of overt Type 2 diabetes (T2D). T2D is caused by a combination of insulin resistance and beta-cell failure and can be treated with insulin sensitizing drugs that target the nuclear receptor peroxisome proliferator-activated receptor (PPAR) gamma. Extracts of elderflowers (Sambucus nigra) have been found to activate PPARgamma and to stimulate insulin-dependent glucose uptake suggesting that they have a potential use in the prevention and/or treatment of insulin resistance. Bioassay-guided chromatographic fractionation of a methanol extract of elderflowers resulted in the identification of two well-known PPARgamma agonists; alpha-linolenic acid and linoleic acid as well as the flavanone naringenin. Naringenin was found to activate

PPARgamma without stimulating adipocyte differentiation. However, the bioactivities of these three metabolites were not able to fully account for the observed PPARgamma activation of the crude elderflower extracts and further studies are needed to determine whether this is due synergistic effects and/or other ligand-independent mechanisms. Elderflower metabolites such as quercetin-3-O-rutinoside, quercetin-3-O-glucoside, kaempferol-3-O-rutinoside, isorhamnetin-3-O-rutinoside, isorhamnetin-3-O-glucoside, and 5-O-caffeoylquinic acid were unable to activate PPARgamma. These findings suggest that flavonoid glycosides cannot activate PPARgamma, whereas some of their aglycones are potential agonists of PPARgamma.

44. Bioactive components from flowers of Sambucus nigra L. increase glucose uptake in primary porcine myotube cultures and reduce fat accumulation in Caenorhabditis elegans.

    PubMed

    Bhattacharya, Sumangala; Christensen, Kathrine B; Olsen, Louise C B; Christensen, Lars P; Grevsen, Kai; FÃ¦rgeman, Nils J; Kristiansen, Karsten; Young, Jette F; Oksbjerg, Niels

    2013-11-20

    Obesity and insulin resistance in skeletal muscles are major features of type 2 diabetes. In the present study, we examined the potential of Sambucus nigra flower (elderflowers) extracts to stimulate glucose uptake (GU) in primary porcine myotubes and reduce fat accumulation (FAc) in Caenorhabditis elegans. Bioassay guided chromatographic fractionations of extracts and fractions resulted in the identification of naringenin and 5-O- caffeoylquinic acid exhibiting a significant increase in GU. In addition, phenolic compounds related to those found in elderflowers were also tested, and among these, kaempferol, ferulic acid, p-coumaric acid, and caffeic acid increased GU significantly. FAc was significantly reduced in C. elegans, when treated with elderflower extracts, their fractions and the metabolites naringenin, quercetin-3-O-rutinoside, quercetin-3-O-glucoside, quercetin-3-O-5â€³-acetylglycoside, kaempferol-3-O-rutinoside, isorhamnetin-3-O-rutinoside, and isorhamnetin-3-O-glucoside and the related phenolic compounds kaempferol and ferulic acid. The study indicates that elderflower extracts contain bioactive compounds capable of modulating glucose and lipid metabolism, suitable for nutraceutical and pharmaceutical applications.

45. [Antiurolithiasic effect of a plant mixture of Herniaria glabra, Agropyron repens, Equisetum arvense and Sambucus nigra (HerbensurinaÂ®) in the prevention of experimentally induced nephrolithiasis in rats].

    PubMed

    Crescenti, Anna; PuiggrÃ²s, Francesc; ColomÃ©, Arnau; Poch, Josep AntÃ³n; Caimari, Antoni; Bas, Josep Maria; BoquÃ©, NoemÃ; Arola, LluÃs

    2015-12-01

    To determine the effect of a botanical formulation of Herniaria glabra, Agropyron repens, Equisetum arvense, and Sambucus nigra as a preventive agent in an experimentally induced nefrolithiasis model in rats. Six groups of six Wistar male rats each were induced for nefrolithiasis by treatment with 0.75% ethylene glycol (EG) and 1% ammonium chloride for three days and then EG only for 15 days. One group was treated with placebo (control group) and the other groups (treated groups) were treated with 30 mg/Kg, 60 mg/Kg, 125 mg/Kg, 250 mg/Kg and 500 mg/Kg of the plant extract formulation (PEF). 24-h urine and water samples were collected one day before EG administration and at 7, 13 and 18 days to determine diuresis, crystalluria and urine biochemistry. The kidneys were removed for histological analysis. The phytochemical characterization of PEF and each of its component plant extracts was performed using gas chromatography-mass spectrometry and liquid chromatography-mass spectrometry. Animals treated with 125 mg/Kg of the PEF had statistically significantly lower calcium oxalate crystals deposits content compared to the control group. All PEF doses statistically significantly decreased the

number of microcalcifications compared to the control group. Furthermore, the number of kidneys affected by subcapsular fibrosis was statistically significantly higher in control group than in treated groups with the PEF. The diuresis of the 125 mg/Kg and 500 mg/Kg PEF-treated groups was statistically significantly higher than that of the control group. A phytochemical analysis demonstrated the presence of flavonoids, dicarboxylic acids and saponins. Treatment with PEF prevents deposits of calcium oxalate crystals formation and of microcalcifications in the kidney, and reduces the risk of fibrosis subcapsular. 125 mg/Kg of PEF is the dose that has a greater effect on the studied parameters.

46. Inhibitory activity of a standardized elderberry liquid extract against clinically-relevant human respiratory bacterial pathogens and influenza A and B viruses

    PubMed Central

    2011-01-01

    Background Black elderberries (Sambucus nigra L.) are well known as supportive agents against common cold and influenza. It is further known that bacterial super-infection during an influenza virus (IV) infection can lead to severe pneumonia. We have analyzed a standardized elderberry extract (Rubini, BerryPharma AG) for its antimicrobial and antiviral activity using the microtitre broth micro-dilution assay against three Gram-positive bacteria and one Gram-negative bacteria responsible for infections of the upper respiratory tract, as well as cell culture experiments for two different strains of influenza virus. Methods The antimicrobial activity of the elderberry extract was determined by bacterial growth experiments in liquid cultures using the extract at concentrations of 5%, 10%, 15% and 20%. The inhibitory effects were determined by plating the bacteria on agar plates. In addition, the inhibitory potential of the extract on the propagation of human pathogenic H5N1-type influenza A virus isolated from a patient and an influenza B virus strain was investigated using MTT and focus assays. Results For the first time, it was shown that a standardized elderberry liquid extract possesses antimicrobial activity against both Gram-positive bacteria of Streptococcus pyogenes and group C and G Streptococci, and the Gram-negative bacterium Branhamella catarrhalis in liquid cultures. The liquid extract also displays an inhibitory effect on the propagation of human pathogenic influenza viruses. Conclusion Rubini elderberry liquid extract is active against human pathogenic bacteria as well as influenza viruses. The activities shown suggest that additional and alternative approaches to combat infections might be provided by this natural product. PMID:21352539

47. Elderberry Supplementation Reduces Cold Duration and Symptoms in Air-Travellers: A Randomized, Double-Blind Placebo-Controlled Clinical Trial

    PubMed Central

    Tiralongo, Evelin; Wee, Shirley S.; Lea, Rodney A.

    2016-01-01

    Intercontinental air travel can be stressful, especially for respiratory health. Elderberries have been used traditionally, and in some observational and clinical studies, as supportive agents against the common cold and influenza. This randomized, double-blind placebo-controlled clinical trial of 312 economy class passengers travelling from Australia to an overseas destination aimed to investigate if a standardised membrane filtered elderberry (Sambucus nigra L.) extract has beneficial effects on physical, especially respiratory, and mental health. Cold episodes, cold duration and symptoms were noted in a daily diary and assessed using the Jackson score. Participants also completed three surveys containing questions regarding upper respiratory symptoms (WURSS-21) and quality of life (SF-12) at baseline, just before travel and at 4-days after travel. Most cold episodes occurred in the placebo group (17 vs. 12), however the difference was not significant ($p = 0.4$). Placebo group participants had a significantly longer duration of cold episode days (117 vs. 57, $p = 0.02$) and the average symptom score over these days was also significantly higher (583 vs. 247, $p = 0.05$). These data suggest a significant reduction of cold duration and severity in

air travelers. More research is warranted to confirm this effect and to evaluate elderberryâ€™s physical and mental health benefits. PMID:27023596

48. Elderberry: Botany, Horticulture, Potential

    USDA-ARS?s Scientific Manuscript database

    Horticultural Review allows extensive reviews of the state of the knowledge on certain topics or crops. Elderberry: Botany, Horticulture, Potential, is outlined with an Introduction, Botany, Horticulture, Propagation, Uses and Conclusion sections. This review compiles literature from around the w...

49. What is Sambucus mexicana (Adoxaceae)?

    USDA-ARS?s Scientific Manuscript database

    Inconsistent application of the name Sambucus mexicana Presl ex DC. has resulted in confusion in the literature and in herbaria, so Preslâ€™s original material (a Haenke collection, made on the Malaspina Expedition) was located and characterized. It matches plants from the area around Monterey, Califo...

50. Occurrence of Polyphenols, Organic Acids, and Sugars among Diverse Elderberry Genotypes Grown in Three Missouri (USA) Locations

    PubMed Central

    Thomas, A.L.; Byers, P.L.; Gu, S.; Avery, J.D.; Kaps, M.; Datta, A.; Fernando, L.; Grossi, P.; Rottinghaus, G.E.

    2016-01-01

    Elderberry (Sambucus spp.) is an emerging horticultural crop used in a variety of foods, wines, and dietary supplements. A better understanding of the elderberry juice complex including its putative health-promoting compounds in relation to genetic and environmental parameters is needed. A multi-location planting of nine elderberry genotypes was established in 2008 at three geographically-diverse sites in Missouri, USA. Fruits were harvested from replicated plots 2009-2011, frozen, and later prepared for laboratory analysis. Polyphenols, organic acids, and sugars were quantified by HPLC and the results evaluated for response to genotype, site, and year. The American genotypes â€˜Ocoeeâ€™ and â€˜Ozarkâ€™ were consistently higher in chlorogenic acids compared to other genotypes, whereas â€˜Ocoeeâ€™ was significantly higher in rutin than â€˜Ozarkâ€™. The European â€˜Margeâ€™ was significantly higher in isoquercitrin and other flavonoids compared to most North American genotypes. Significant differences in polyphenols were also detected among sites and production years. Malic, citric, and tartaric acids varied significantly among genotypes, sites, and years, whereas succinic, shikimic, and fumaric acids generally did not. Levels of lactic, acetic, and propionic acids were negligible in most samples. The American genotype â€˜Ocoeeâ€™ was higher in citric and tartaric acids, while lower in malic acid. The sugars glucose and fructose also responded significantly to genotype, site, and year. â€˜Ocoeeâ€™, â€˜Ozarkâ€™, and â€˜Margeâ€™ perform very well in Missouri horticulturally and appear to have additional potential as cultivars based on their unique juice characteristics. PMID:27156707

51. Total phenolic contents, antioxidant activities, and lipid fractions from berry pomaces obtained by solid-state fermentation of two Sambucus species with Aspergillus niger.

    PubMed

    Dulf, Francisc Vasile; Vodnar, Dan Cristian; Dulf, Eva-Henrietta; ToÅŸa, Monica Ioana

    2015-04-08

The aim of this study was to investigate the effect of solid-state fermentation (SSF) by Aspergillus niger on phenolic contents and antioxidant activity in Sambucus nigra L. and Sambucus ebulus L. berry pomaces. The effect of fermentation time on the total fats and major lipid classes (neutral and polar) was also investigated. During the SSF, the extractable phenolics increased with 18.82% for S. ebulus L. and 11.11% for S. nigra L. The levels of antioxidant activity of methanolic extracts were also significantly enhanced. The HPLC-MS analysis indicated that the cyanidin 3-sambubioside-5-glucoside is the major phenolic compound in both fermented Sambucus fruit residues. In the early stages of fungal growth, the extracted oils (with TAGs as major lipid fraction) increased with 12% for S. nigra L. and 10.50% for S. ebulus L. The GC-MS analysis showed that the SSF resulted in a slight increase of the linoleic and oleic acids level.

52. Understanding the Ecology of Blue Elderberry to Inform Landscape Restoration in Semiarid River Corridors

    NASA Astrophysics Data System (ADS)

    Vaghti, Mehrey G.; Holyoak, Marcel; Williams, Amy; Talley, Theresa S.; Fremier, Alexander K.; Greco, Steven E.

    2009-01-01

    Societal constraints often limit full process restoration in large river systems, making local rehabilitation activities valuable for regeneration of riparian vegetation. A target of much mitigation and restoration is the federally threatened Valley elderberry longhorn beetle and its sole host plant, blue elderberry, in upper riparian floodplain environments. However, blue elderberry ecology is not well understood and restoration attempts typically have low success rates. We determined broad-scale habitat characteristics of elderberry in altered systems and examined associated plant species composition in remnant habitat. We quantified vegetation community composition in 139 remnant riparian forest patches along the Sacramento River and elderberry stem diameters along this and four adjacent rivers. The greatest proportion of plots containing elderberry was located on higher and older floodplain surfaces and in riparian woodlands dominated by black walnut. Blue elderberry saplings and shrubs with stems <5.0 cm in diameter were rare, suggesting a lack of recruitment. A complex suite of vegetation was associated with blue elderberry, including several invasive species which are potentially outcompeting seedlings for light, water, or other resources. Such lack of recruitment places increased importance on horticultural restoration for the survival of an imperiled species. These findings further indicate a need to ascertain whether intervention is necessary to maintain functional and diverse riparian woodlands, and a need to monitor vegetative species composition over time, especially in relation to flow regulation.

53. Report on the Threatened Valley Elderberry Longhorn Beetle and its Elderberry Food Plant at the Lawrence Livermore National Laboratory--Site 300

    SciTech Connect

    Arnold, Ph.D., R A; Woollett, J

    2004-11-16

    This report describes the results of an entomological survey in 2002 to determine the presence of the federally-listed, threatened Valley Elderberry Longhorn Beetle or "VELB" (Desmocerus culifornicus dimorphus: Coleoptera, Cerambycidae) and its elderberry food plant (Sumbucus mexicana: Caprifoliaceae) on the Lawrence Livermore National Laboratory's (LLNL) Experimental Test Site, known as Site 300. In addition, an area located immediately southeast of Site 300, which is owned and managed by the California Department of Fish and Game (CDFG), but secured by LLNL, was also included in this survey. This report will refer to the survey areas as the LLNL-Site 300 and themoreÂ Â» CDFG site. The 2002 survey included mapping the locations of elderberry plants that were observed using a global

positioning system (GPS) to obtain positional coordinates for every elderberry plant at Site 300. In addition, observations of VELB adults and signs of their infestation on elderberry plants were also mapped using GPS technology. LLNL requested information on the VELB and its elderberry food plants to update earlier information that had been collected in 1991 (Arnold 1991) as part of the 1992 EIS/EIR for continued operation of LLNL. No VELB adults were observed as part of this prior survey. The findings of the 2002 survey reported herein will be used by LLNL as it updates the expected 2004 Environmental Impact Statement for ongoing operations at LLNL, including Site 300.Â«Â less

54. Variation of Select Flavonols and Chlorogenic Acid Content of Elderberry Collected Throughout the Eastern United States

    PubMed Central

    Mudge, Elizabeth; Applequist, Wendy L.; Finley, Jamie; Lister, Patience; Townesmith, Andrew K.; Walker, Karen M.; Brown, Paula N.

    2016-01-01

    American elderberries are commonly collected from wild plants for use as food and medicinal products. The degree of phytochemical variation amongst wild populations has not been established and might affect the overall quality of elderberry dietary supplements. The three major flavonols identified in elderberries are rutin, quercetin and isoquercetin. Variation in the flavonols and chlorogenic acid was determined for 107 collections of elderberries from throughout the eastern United States using an optimized high performance liquid chromatography with ultraviolet detection method. The mean content was 71.9 mg per 100g fresh weight with variation ranging from 7.0 to 209.7 mg per 100 g fresh weight within the collected population. Elderberries collected from southeastern regions had significantly higher contents in comparison with those in more northern regions. The variability of the individual flavonol and chlorogenic acid profiles of the berries was complex and likely influenced by multiple factors. Several outliers were identified based on unique phytochemical profiles in comparison with average populations. This is the first study to determine the inherent variability of American elderberries from wild collections and can be used to identify potential new cultivars that may produce fruits of unique or high-quality phytochemical content for the food and dietary supplement industries. PMID:26877585

55. Impact of Frozen Storage on the Anthocyanin and Polyphenol Content of American Elderberry Fruit Juice

    PubMed Central

    Johnson, Mitch C.; Thomas, Andrew L.; Greenlief, C. Michael

    2015-01-01

    The effects of frozen storage on the anthocyanin and polyphenol content of elderberry fruit juice are investigated. Juice from three genotypes of American elderberry (Adams II, Bob Gordon, and Wyldewood) was screened for total phenolic (TP) and total monomeric anthocyanin (TMA) content with spectrophotometric methods. The individual anthocyanin content (IAC) of the juice was tested by coupling solid phase extraction with ultra-performance liquid chromatography/tandem mass spectrometry. Juice samples were tested initially upon harvest, then again after 3, 6, and 9 months of frozen storage. Juice from the three different genotypes had significantly different TP, TMA, and IAC profiles initially ($p<0.05$). The TP,, TMA, and IAC content of the juice from different genotypes were significantly affected ($p<0.05$) by the frozen storage time, suggesting that both genotype and length of frozen storage time can affect the anthocyanin content of elderberry fruit juice. PMID:26028422

56. 77 FR 60237 - Endangered and Threatened Wildlife and Plants; Removal of the Valley Elderberry Longhorn Beetle...

Federal Register 2010, 2011, 2012, 2013, 2014

2012-10-02

... coloration, where males of the listed subspecies have predominantly red elytra with four dark spots, whereas... groups, on the leaves or stems of living elderberry shrubs (Barr 1991, p. 4). The larvae hatch in a few... occurrences do not necessarily indicate the number and size of interbreeding populations (defined as groups of...

57. Habitat and Populations of the Valley Elderberry Longhorn Beetle Along the Sacramento River

Treesearch

F. Jordan Lang; James D. Jokerst; Gregory E. Sutter

1989-01-01

Prior to 1985, the valley elderberry longhorn beetle, a threatened species protected under the federal Endangered Species Act, was known only from northern California riparian areas along the American River and Putah Creek in the Sacramento Valley, and along several rivers in the northern San Joaquin Valley. During 1985-1987, our study extended the known range of the...

58. Antioxidant activities of methanol extract of Sambucus ebulus L. flower.

PubMed

Ebrahimzadeh, M A; Nabavi, S F; Nabavi, S M

2009-03-01

In this study antioxidant activity of methanol extract of Sambucus ebulus L. flower was investigated employing various in vitro assay systems, i.e., DPPH and nitric oxide radical scavenging, hydrogen peroxide scavenging, reducing power, iron ion chelating power and linoleic acid. IC50 for DPPH radical-scavenging activity was 228 +/- 12 microg mL(-1). The extract showed very high activity in the reducing power assay that was comparable with positive control, vitamin C. The extract showed good nitric oxide-scavenging activity (IC50 = 309 +/- 14 microg mL(-1). It was found that antioxidant activity was dose dependent i.e., activity was increased with the increase of their concentrations. The extract showed very weak activity in iron ion chelating (IC50 = 1.3 +/- 0.07 mg mL(-1)). It is showed very good activity in scavenging of hydrogen'peroxide. IC50 for scavenging of extract was 59.5 +/- 3.3 mcirog mL(-1). The extracts exhibited no activity in linoleic acid model. The total phenolic content of flower was 56.3 +/- 2.81 mg gallic acid equivalent g(-1) of extract powder and total flavonoid content was 14.5 +/- 0.72 mg quercetin equivalent g(-1) of extract powder by reference to standard curve.

59. Assessment of colour changes during storage of elderberry juice concentrate solutions using the optimization method.

PubMed

Walkowiak-Tomczak, Dorota; Czapski, Janusz; MÅ‚ynarczyk, Karolina

2016-01-01

Elderberries are a source of dietary supplements and bioactive compounds, such as anthocyanins. These dyes are used in food technology. The aim of the study was to assess the changes in colour parameters, anthocyanin contents and sensory attributes in solutions of elderberry juice concentrates during storage in a model system and to determine predictability of sensory attributes of colour in solutions based on

regression equations using the response surface methodology. The experiment was carried out according to the 3-level factorial design for three factors. Independent variables included pH, storage time and temperature. Dependent variables were assumed to be the components and colour parameters in the CIE L*a*b* system, pigment contents and sensory attributes. Changes in colour components X, Y, Z and colour parameters L*, a*, b*, C* and h* were most dependent on pH values. Colour lightness L* and tone h* increased with an increase in experimental factors, while the share of the red colour a* and colour saturation C* decreased. The greatest effect on the anthocyanin concentration was recorded for storage time. Sensory attributes deteriorated during storage. The highest correlation coefficients were found between the value of colour tone h* and anthocyanin contents in relation to the assessment of the naturalness and desirability of colour. A high goodness-of-fit of the model to data and high values of R2 for regression equations were obtained for all responses. The response surface method facilitates optimization of experimental factor values in order to obtain a specific attribute of the product, but not in all cases of the experiment. Within the tested range of factors, it is possible to predict changes in anthocyanin content and the sensory attributes of elderberry juice concentrate solutions as food dye, on the basis of the lack of a fit test. The highest stability of dyes and colour of elderberry solutions was found in the samples at pH 3.0, which confirms

60. New beverages of lemon juice with elderberry and grape concentrates as a source of bioactive compounds.

    PubMed

    GonzÃ¡lez-Molina, Elena; GironÃ©s-Vilaplana, Amadeo; Mena, Pedro; Moreno, Diego A; GarcÃa-Viguera, Cristina

    2012-06-01

    Considering the health potential of lemon and berry fruits, different functional beverages rich in antioxidant phytochemicals, which demonstrated beneficial effects, were developed. To fulfill this objective, lemon juice was combined with 2 different concentrates, elderberry and grape, in a proportion of 5% (w/v). Bioactive composition (flavonoids and vitamin C) and color stability, as well as the antioxidant capacity of mixtures, during a period of 56 d of storage, were studied. A protective role of anthocyanins on ascorbic acid preservation was noted for both lemon-berry blends, keeping vitamin C stable until the end of the storage. In addition, the new drink combining lemon and elderberry performed better than the grape-lemon mixture in terms of health-promoting phytochemicals content, just as in vitro antioxidant capacity and color characteristics. Beverages made from lemon juice and berries could contribute to develop new drinks with a prolonged preservation of bioactive compounds throughout storage, keeping an attractive color and a high antioxidant activity during long periods of time. The information obtained in the present work is in agreement to the rules of health and safety for juices established by the Directive of European Commission Dir2001/112/CE incorporated to the Spanish law through the RD1050/2003 regulation. Consequently, an improved performance of industrial products would be achieved. Â© 2012 Institute of Food TechnologistsÂ®

- 6
- »

61. Quantitation of anthocyanins in elderberry fruit extracts and nutraceutical formulations with paper spray ionization mass spectrometry.

    PubMed

    Cody, Robert B; Tamura, Jun; Downard, Kevin M

    2018-01-01

    The ability to rapidly identify and quantitate, over a wide range of concentrations, anthocyanins in food and therapeutic products is important to ensuring their presence at medicinally significant levels. Sensitive, yet mild, analysis conditions are required given their susceptibility to degradation and transformation. Paper spray ionization has been used to detect and quantify the levels of anthocyanin levels in extracts of fresh and dried elderberries, and elderberry stems, as well as 3 commercially available nutraceutical formulations. The component cyanidin glucosides, including cyanidin-3-sambubioside, cyanidin-3-glucoside, cyanidin-3,5-diglucoside, cyanidin-3-sambubioside-5-glucoside, and the aglycone cyanidin, were readily detected in a range of sources. Quantitation was achieved by establishing a calibration plot from dilutions of a stock solution of cyanidin-3,5-diglucoside containing malvidin-3,5-diglucoside as an internal standard at a fixed concentration. The same standard was used to quantify the anthocyanin content in the fruit and nutraceutical formulations. Wide 5-fold variations in anthocyanin concentration were detected in the nutraceutical formulations from different suppliers ranging from 1050 to 5430Â mg/100Â g. These concentrations compared with 500 to 2370Â mg/100Â g measured in the dried stems and fruit, respectively. Copyright Â© 2017 John Wiley & Sons, Ltd.

62. Separation of Dalbergia nigra from Dalbergia spruceana

    Treesearch

    Regis B. Miller; Michael C. Wiemann

    2006-01-01

    The wood anatomical characteristics of Dalbergia nigra and Dalbergia spruceana are too similar to permit reliable species separation, which is sometimes important because D. nigra is a Convention on International Trade in Endangered Species-protected species whereas D. spruceana is not. However, the density, water fluorescence, and ethanol fluorescence of heartwood...

63. Antimicrobial activity of methanolic extracts of Sambucus ebulus and Urtica dioica against clinical isolates of methicillin resistant Staphylococcus aureus.

    PubMed

    Salehzadeh, Ali; Asadpour, Leila; Naeemi, Akram Sadat; Houshmand, Elham

    2014-01-01

    Increase in the emergence of drug -resistant pathogens led to the development of natural antimicrobials. In this study the antimicrobial effect of methanolic extracts of Sambucus ebulus and Urtica dioica on 16 skin and wound infections isolates of methicillin resistant S. aureus have been studied. Solvent extraction procedure was done using soxhlet apparatus for extracting antimicrobial agents from freeze dried plants. Antibacterial activity was measured using agar well diffusion method. The MIC of Sambucus ebulus and Urtica dioica extracts against the standard strain of S. aureus ATCC 6538 were determined using the micro dilution method at 15 mg and 20 mg respectively. All the test bacteria were found sensitive to the

Sambucus ebulus extract and only one isolate was resistant to Urtica dioica extract. Extracts of Sambucus ebulus and Urtica dioica possess antibacterial potency against MRSA isolates and may be used as a natural antiseptics and antimicrobial agents in medicine.

64. Micelle-mediated extraction of elderberry blossom by whey protein and naturally derived surfactants.

    PubMed

    Åšliwa, Karolina; Tomaszkiewicz-PotÄ™pa, Anna; Sikora, ElÅ¼bieta; Ogonowski, Jan

    2013-01-01

    Classical methods of the extraction of active ingredients from the plant material are expensive, complicated and often environmentally unfriendly. The micelle-mediated extraction method (MME) seems to be a good alternative. In this work, extractions of elderberry blossoms (Flos Sambuci) were performed using MME methods. Several popular surfactants and whey protein concentrate (WPC) was applied in the process. The obtained results were compared with those obtained in extraction by means of water. Antioxidant properties of the extracts were analyzed by using two different methods: reaction with di(phenyl)-(2,4,6-trinitrophenyl)iminoazanium (DPPH) reagent and Follin's method. Furthermore, the flavonoid content in the extracts was determined. The results confirmed that the MME method with using whey protein might be an alternative method for obtaining, rich in natural antioxidants, plant extracts.

65. Black elderberry extract attenuates inflammation and metabolic dysfunction in diet-induced obese mice.

    PubMed

    Farrell, Nicholas J; Norris, Gregory H; Ryan, Julia; Porter, Caitlin M; Jiang, Christina; Blesso, Christopher N

    2015-10-28

    Dietary anthocyanins have been shown to reduce inflammation in animal models and may ameliorate obesity-related complications. Black elderberry is one of the richest sources of anthocyanins. We investigated the metabolic effects of anthocyanin-rich black elderberry extract (BEE) in a diet-induced obese C57BL/6J mouse model. Mice were fed either a low-fat diet (n 8), high-fat lard-based diet (HFD; n 16), HFD+0Â·25 % (w/w) BEE (0Â·25 %-BEE; n 16) or HFD+1Â·25 % BEE (1Â·25 %-BEE; n 16) for 16 weeks. The 0Â·25 % BEE (0Â·034 % anthocyanin, w/w) and 1Â·25 % BEE (0Â·17 % anthocyanin, w/w) diets corresponded to estimated anthocyanin doses of 20-40 mg and 100-200 mg per kg of body weight, respectively. After 16 weeks, both BEE groups had significantly lower liver weights, serum TAG, homoeostasis model assessment and serum monocyte chemoattractant protein-1 compared with HFD. The 0Â·25 %-BEE also had lower serum insulin and TNFÎ± compared with HFD. Hepatic fatty acid synthase mRNA was lower in both BEE groups, whereas PPARÎ³2 mRNA and liver cholesterol were lower in 1Â·25 %-BEE, suggesting decreased hepatic lipid synthesis. Higher adipose PPARÎ³ mRNA, transforming growth factor Î² mRNA and adipose tissue histology suggested a pro-fibrogenic phenotype that was less inflammatory in 1Â·25 %-BEE. Skeletal muscle mRNA expression of the myokine IL-6 was higher in 0Â·25 %-BEE relative to HFD. These results suggest that BEE may have improved some metabolic disturbances present in this mouse model of obesity by lowering serum TAG, inflammatory markers and insulin resistance.

66. Scanning electron microscopy of tinea nigra.

    PubMed

    Guarenti, Isabelle Maffei; Almeida, Hiram Larangeira de; LeitÃ£o, Aline Hatzenberger; Rocha, Nara Moreira; Silva, Ricardo Marques E

2014-01-01

Tinea nigra is a rare superficial mycosis caused by Hortaea werneckii. This infection presents as asymptomatic brown to black maculae mostly in palmo-plantar regions. We performed scanning electron microscopy of a superficial shaving of a tinea nigra lesion. The examination of the outer surface of the sample showed the epidermis with corneocytes and hyphae and elimination of fungal filaments. The inner surface of the sample showed important aggregation of hyphae among keratinocytes, which formed small fungal colonies. The ultrastructural findings correlated with those of dermoscopic examination - the small fungal aggregations may be the dark spicules seen on dermoscopy - and also allowed to document the mode of dissemination of tinea nigra, showing how hyphae are eliminated on the surface of the lesion.

67. Scanning electron microscopy of tinea nigra*

PubMed Central

Guarenti, Isabelle Maffei; de Almeida, Hiram Larangeira; LeitÃ£o, Aline Hatzenberger; Rocha, Nara Moreira; Silva, Ricardo Marques e

2014-01-01

Tinea nigra is a rare superficial mycosis caused by Hortaea werneckii. This infection presents as asymptomatic brown to black maculae mostly in palmo-plantar regions. We performed scanning electron microscopy of a superficial shaving of a tinea nigra lesion. The examination of the outer surface of the sample showed the epidermis with corneocytes and hyphae and elimination of fungal filaments. The inner surface of the sample showed important aggregation of hyphae among keratinocytes, which formed small fungal colonies. The ultrastructural findings correlated with those of dermoscopic examination - the small fungal aggregations may be the dark spicules seen on dermoscopy - and also allowed to document the mode of dissemination of tinea nigra, showing how hyphae are eliminated on the surface of the lesion. PMID:24770516

68. Dermoscopy revealing a case of Tinea Nigra*

PubMed Central

Criado, Paulo Ricardo; Delgado, LÃvia; Pereira, Gustavo Alonso

2013-01-01

Dermoscopy has being used over the past twenty years as a noninvasive aid in the diagnosis of innumerable skin conditions, including infectious diseases and infestations (Entodermoscopy).Tinea nigra is a superficial phaeohyfomycosis that affects mainly the glabrous skin of palms and soles. We describe a 14 year-old girl with a three-month history of an enlarging brown patch of her hand diagnosed as Tinea Nigra following clinical and dermoscopy examination.These images emphasize the importance of dermoscopy as a diagnostic tool in the daily routine of dermatologists. PMID:23539019

69. Possible protective role of elderberry fruit lyophilizate against selected effects of cadmium and lead intoxication in Wistar rats.

PubMed

KopeÄ‡, Aneta; Sikora, ElÅ¼bieta; PiÄ…tkowska, Ewa; Borczak, Barbara; Czech, Tomasz

2016-05-01

The objective of this study was the investigation whether the administration of the elderberry fruit lyophilizate under exposure to cadmium(Cd) and (Pb) lead may protect against some effects of their toxic

action in Wistar rats. Rats were fed with diets containing Cd (Cd 0.025Â mg/kg b.m.) or Pb (Pb 0.025Â mg /kg b.m.) with the addition of the freeze-dried elderberry fruits (BEF) in the amount of 5Â %. BEF added to the diet with Cd significantly decreased the activity of AST and ALT compared to the rats fed with the control diet with Cd (Câ€‰+â€‰Cd). Activity of glutathione peroxidase was significantly higher in the blood of rats fed with BEF diet compared with animals fed with BEFâ€‰+â€‰Cd, BEFâ€‰+â€‰Pb, and Câ€‰+â€‰Pb diets. Addition of BEF to the diets with Cd or Pb significantly decreased the uric acid concentration compared to the level of this parameter in the serum of animals fed with control diets containing Cd or Pb. The level of the Cd significantly decreased in the livers of rodents fed with BEFâ€‰+â€‰Cd diet as compared to the concentration of this metal in the livers of rats fed with Câ€‰+â€‰Cd diet. Elderberry fruit lyophilizate did not protect against the increased concentration of Cd or Pb in kidneys and bones of experimental rats; however, it improved the function of livers and kidneys, especially of rats intoxicated with Cd.

70. Adventitious shoot regeneration of Fraxinus nigra Marsh

    Treesearch

    Rochelle R. Beasley; Paula M. Pijut

    2010-01-01

    Fraxinus nigra Marsh. (black ash) is a native ash species occurring in Newfoundland west to Manitoba and south to Iowa, Illinois, West Virginia, and Virginia. Although it is not a commercially important species, it has significant ethnobotanical importance to Native American tribes of the eastern United States.

71. Genetic transformation of black walnut (Juglans nigra)

    Treesearch

    Michael J. Bosela; Gurpreet S. Smagh; Charles H. Michler

    2004-01-01

    Disarmed Agrobacterium tumefaciens strains with binary vectors carrying transgenes for kanamycin resistance (npt II) and Î²-glucuronidase (GUS, uidA) were used for the genetic transformation of Eastern black walnut (Juglans nigra) somatic embryos. In total, explants from 16 embryo lines...

72. Tinea nigra: successful treatment with topical butenafine*

    PubMed Central

    Rossetto, AndrÃ© Luiz; Cruz, Rosana CÃ© Bella

    2012-01-01

    The authors report a case of Tinea nigra in an 8-year-old child, male, from ItajaÃ, SC, Brazil, with lesions of the macular hyperchromic type, unique, asymptomatic, localized in the right palmar area. The lesion was treated with the topical antifungal butenafine, with remission of symptoms and without recurrence at follow-up for two years. PMID:23197223

73. Dermatosis papulosa nigra in a young child.

    PubMed

    Babapour, R; Leach, J; Levy, H

1993-12-01

Dermatosis papulosa nigra was diagnosed in a 3-year-old black boy. This follicular nevoid condition, which is common in adult blacks, is seldom diagnosed in prepubescent children. The diagnosis was confirmed by the biopsy specimen that showed features of epidermal acanthosis and papillomatosis, similar to seborrheic keratosis.

74. Biological Effects and Clinical Applications of Dwarf Elder (Sambucus ebulus L): A Review

PubMed Central

Jabbari, Marzie; Emtiazy, Majid; Khiveh, Ali; Hashempur, Mohammad Hashem

2017-01-01

Dwarf elder (Sambucus ebulus L) is one of the best known medicinal herbs since ancient times. In view of its benefits as a widely applicable phytomedicine, it is still used in folk medicine of different parts of the world. In addition to its nutritional values, dwarf elder contains different phytochemicals among which flavonoids and lectins are responsible for most of its therapeutic effects. Dwarf elder has been used for different ailments including: joint pains, cold, wounds, and infections. Nevertheless, recent evidence has revealed its potentials for making attempts at treating cancer and metabolic disorders. This review aimed to provide a comprehensive description of dwarf elder regarding its traditional uses and modern findings which may contribute to the development of novel natural-based therapeutic agents. PMID:28397551

75. Use of Ribosome-Inactivating Proteins from Sambucus for the Construction of Immunotoxins and Conjugates for Cancer Therapy

PubMed Central

Ferreras, JosÃ© M.; Citores, LucÃa; Iglesias, Rosario; JimÃ©nez, Pilar; GirbÃ©s, TomÃ¡s

2011-01-01

The type 2 ribosome-inactivating proteins (RIPs) isolated from some species belonging to the Sambucus genus, have the characteristic that although being even more active than ricin inhibiting protein synthesis in cell-free extracts, they lack the high toxicity of ricin and related type 2 RIPs to intact cells and animals. This is due to the fact that after internalization, they follow a different intracellular pathway that does not allow them to reach the cytosolic ribosomes. The lack of toxicity of type 2 RIPs from Sambucus make them good candidates as toxic moieties in the construction of immunotoxins and conjugates directed against specific targets. Up to now they have been conjugated with either transferrin or anti-CD105 to target either transferrin receptor- or endoglin-overexpressing cells, respectively. PMID:22069717

76. Substantia Nigra Free Water Increases Longitudinally in Parkinson Disease.

PubMed

Guttuso, T; Bergsland, N; Hagemeier, J; Lichter, D G; Pasternak, O; Zivadinov, R

2018-02-01

Free water in the posterior substantia nigra obtained from a bi-tensor diffusion MR imaging model has been shown to significantly increase over 1- and 4-year periods in patients with early-stage idiopathic Parkinson disease compared with healthy controls, which suggests that posterior substantia nigra free water may be an idiopathic Parkinson disease progression biomarker. Due to the known temporal posterior-to-anterior substantia nigra degeneration in idiopathic Parkinson disease, we assessed longitudinal changes in free water in both the posterior and anterior substantia nigra in patients with later-

stage idiopathic Parkinson disease and age-matched healthy controls for comparison. Nineteen subjects with idiopathic Parkinson disease and 19 age-matched healthy control subjects were assessed on the same 3T MR imaging scanner at baseline and after approximately 3 years. Baseline mean idiopathic Parkinson disease duration was 7.1 years. Both anterior and posterior substantia nigra free water showed significant intergroup differences at baseline (P < .001 and P = .014, respectively, idiopathic Parkinson disease versus healthy controls); however, only anterior substantia nigra free water showed significant longitudinal group Ã— time interaction increases (P = .021, idiopathic Parkinson disease versus healthy controls). There were no significant longitudinal group Ã— time interaction differences found for conventional diffusion tensor imaging or free water-corrected DTI assessments in either the anterior or posterior substantia nigra. Results from this study provide further evidence supporting substantia nigra free water as a promising disease-progression biomarker in idiopathic Parkinson disease that may help to identify disease-modifying therapies if used in future clinical trials. Our novel finding of longitudinal increases in anterior but not posterior substantia nigra free water is potentially a result of the much longer disease duration of our cohort compared

77. Elderberry and Elderflower Extracts, Phenolic Compounds, and Metabolites and Their Effect on Complement, RAW 264.7 Macrophages and Dendritic Cells

    PubMed Central

    Ho, Giang Thanh Thi; Wangensteen, Helle; Barsett, Hilde

    2017-01-01

    Modulation of complement activity and inhibition of nitric oxide (NO) production by macrophages and dendritic cells may have therapeutic value in inflammatory diseases. Elderberry and elderflower extracts, constituents, and metabolites were investigated for their effects on the complement system, and on NO production in lipopolysaccharide (LPS)-activated RAW 264.7 macrophages and murine dendritic D2SC/I cells. The EtOH crude extracts from elderberry and elderflower and the isolated anthocyanins and procyanidins possessed strong complement fixating activity and strong inhibitory activity on NO production in RAW cells and dendritic cells. Phenolic compounds in the range of 0.1â€“100 ÂµM showed a dose-dependent inhibition of NO production, with quercetin, rutin, and kaempferol as the most potent ones. Among the metabolites, caffeic acid and 3,4-dihydroxyphenylacetic acid showed the strongest inhibitory effects on NO production in both cell lines, without having cytotoxic effect. Only 4-methylcatechol was cytotoxic at the highest tested concentration (100 ÂµM). Elderberry and elderflower constituents may possess inflammatory modulating activity, which increases their nutritional value. PMID:28282861

78. Elderberry and Elderflower Extracts, Phenolic Compounds, and Metabolites and Their Effect on Complement, RAW 264.7 Macrophages and Dendritic Cells.

    PubMed

    Ho, Giang Thanh Thi; Wangensteen, Helle; Barsett, Hilde

    2017-03-08

    Modulation of complement activity and inhibition of nitric oxide (NO) production by macrophages and dendritic cells may have therapeutic value in inflammatory diseases. Elderberry and elderflower extracts, constituents, and metabolites were investigated for their effects on the complement system, and on NO production in lipopolysaccharide (LPS)-activated RAW 264.7 macrophages and murine dendritic D2SC/I cells. The EtOH crude extracts from elderberry and elderflower and the isolated anthocyanins and procyanidins possessed strong complement fixating activity and strong inhibitory activity on NO production in RAW cells and dendritic cells. Phenolic compounds in the range of 0.1-100 ÂµM showed a dose-dependent inhibition of NO production, with quercetin, rutin, and kaempferol as the most potent

ones. Among the metabolites, caffeic acid and 3,4-dihydroxyphenylacetic acid showed the strongest inhibitory effects on NO production in both cell lines, without having cytotoxic effect. Only 4-methylcatechol was cytotoxic at the highest tested concentration (100 ÂµM). Elderberry and elderflower constituents may possess inflammatory modulating activity, which increases their nutritional value.

79. Astragalus Root and Elderberry Fruit Extracts Enhance the IFN-Î² Stimulatory Effects of Lactobacillus acidophilus in Murine-Derived Dendritic Cells

    PubMed Central

    FrÃ¸kiÃ¦r, Hanne; Henningsen, Louise; Metzdorff, Stine Broeng; Weiss, Gudrun; Roller, Marc; Flanagan, John; Fromentin, Emilie; Ibarra, Alvin

    2012-01-01

    Many foods and food components boost the immune system, but little data are available regarding the mechanisms by which they do. Bacterial strains have disparate effects in stimulating the immune system. Indendritic cells, the gram-negative bacteria Escherichia coli upregulates proinflammatory cytokines, whereas gram-positive Lactobacillus acidophilus induces a robust interferon (IFN)-Î² response. The immune-modulating effects of astragalus root and elderberry fruit extracts were examined in bone marrow-derived murine dendritic cells that were stimulated with L. acidophilus or E. coli. IFN-Î² and other cytokines were measured by ELISA and RT-PCR. Endocytosis of fluorescence-labeled dextran and L. acidophilus in the presence of elderberry fruit or astragalus root extract was evaluated in dendritic cells. Our results show that both extracts enhanced L. acidophilus-induced IFN-Î² production and slightly decreased the proinflammatory response to E. coli. The enhanced IFN-Î² production was associated with upregulation of toll-like receptor 3 and to a varying degree, the cytokines IL-12, IL-6, IL-1Î² and TNF-Î±. Both extracts increased endocytosis in immature dendritic cells, and only slightly influenced the viability of the cells. In conclusion, astragalus root and elderberry fruit extracts increase the IFN-Î² inducing activity of L. acidophilus in dendritic cells, suggesting that they may exert antiviral and immune-enhancing activity. PMID:23118903

80. Isolation and molecular characterization of two lectins from dwarf elder (Sambucus ebulus L.) blossoms related to the Sam n1 allergen.

    PubMed

    Jimenez, Pilar; Cabrero, Patricia; Basterrechea, JosÃ© E; Tejero, JesÃºs; Cordoba-Diaz, Damian; Girbes, Tomas

    2013-10-14

    Sambucus species contain a number of lectins with and without antiribosomal activity. Here, we show that dwarf elder (Sambucus ebulus L.) blossoms express two D-galactose-binding lectins that were isolated and purified by affinity chromatography and gel filtration. These proteins, which we named ebulin blo (A-B toxin) and SELblo (B-B lectin)--blo from blossoms--were subjected to molecular characterization and analysis by MALDI-TOF mass spectrometry and tryptic peptide fingerprinting. Both lectins share a high degree of amino acid sequence homology with Sambucus lectins related to the Sam n1 allergen. Ebulin blo, but not SELblo, was highly toxic by nasal instillation to mice. Overall, our results suggested that both lectins would belong to an allergen family exemplified by Sam n1 and could trigger allergy responses. Furthermore, they raise a concern about ebulin blo toxicity.

- 5
- 6
- »

- «
- 3
- 4
- 5
- 6
- 7
- »

81. Isolation and Molecular Characterization of Two Lectins from Dwarf Elder (Sambucus ebulus L.) Blossoms Related to the Sam n1 Allergen

    PubMed Central

    Jimenez, Pilar; Cabrero, Patricia; Basterrechea, JosÃ© E.; Tejero, JesÃºs; Cordoba-Diaz, Damian; Girbes, Tomas

    2013-01-01

    Sambucus species contain a number of lectins with and without antiribosomal activity. Here, we show that dwarf elder (Sambucus ebulus L.) blossoms express two d-galactose-binding lectins that were isolated and purified by affinity chromatography and gel filtration. These proteins, which we named ebulin blo (A-B toxin) and SELblo (B-B lectin)â€”blo from blossomsâ€”were subjected to molecular characterization and analysis by MALDI-TOF mass spectrometry and tryptic peptide fingerprinting. Both lectins share a high degree of amino acid sequence homology with Sambucus lectins related to the Sam n1 allergen. Ebulin blo, but not SELblo, was highly toxic by nasal instillation to mice. Overall, our results suggested that both lectins would belong to an allergen family exemplified by Sam n1 and could trigger allergy responses. Furthermore, they raise a concern about ebulin blo toxicity. PMID:24129061

82. Potential anti-inflammatory, antioxidant and antimicrobial activities of Sambucus australis.

    PubMed

    Benevides Bahiense, JhÃ©ssica; Marques, Franciane Martins; Figueira, Mariana Moreira; Vargas, Thais Souza; Kondratyuk, Tamara P; Endringer, Denise Coutinho; Scherer, Rodrigo; Fronza, Marcio

    2017-12-01

    Sambucus australis Cham. & Schltdl. (Adoxaceae) is used in Brazilian folk medicine to treat inflammatory disorders. To evaluate the in vitro anti-inflammatory, antioxidant and antimicrobial properties of S. australis. The anti-inï¬ammatory activity of ethanol extracts of the leaf and bark of S. australis (1-100â€‰Î¼g/mL) were studied in lipopolysaccharide/interferon Î³ stimulated murine macrophages RAW 264.7 cells (24â€‰h incubation) by investigating the release of nitric oxide (NO) and tumour necrosis factor-alpha (TNF-Î±) and in the TNF-Î±-induced nuclear factor kappa (NF-ÎºB) assay. Minimum inhibitory concentration (MIC) was determined by the microdilution test (24â€‰h incubation). Antioxidant activity was determined by 2,2-diphenyl-1-picrylhydrazyl (DPPH), ferric reducing antioxidant power (FRAP) and the NO scavenging assays. Chemical composition was assessed by LC-MS/MS. Antioxidant activities in the DPPH (IC 50 43.5 and 66.2â€‰Î¼g/mL), FRAP (IC 50 312.6 and 568.3â€‰Î¼g/mL) and NO radical scavenging assays (IC 50 285.0 and 972.6â€‰Î¼g/mL) were observed in the leaf and bark ethanol extracts, respectively. Solely the leaf extract showed significant inhibition of NO and TNF-Î± production in RAW264.7 cells at concentrations of 2 and 100â€‰Î¼g/mL, respectively, and suppression of TNF-Î± inhibition of NF-ÎºB by 12.8 and 20.4% at concentrations of 50

and 100â€‰Î¼g/mL, respectively. The extract also exhibited antibacterial activity against Salmonella typhimurium (MIC 250â€‰Î¼g/mL) and Klebsiella pneumoniae (MIC 250â€‰Î¼g/mL). LC-MS/MS revealed the presence of chlorogenic acid and rutin as major compounds. The results indicate that the ethanol leaf extract of S. australis exhibit prominent anti-inï¬ammatory effects.

83. Root bark of Sambucus Williamsii Hance promotes rat femoral fracture healing by the BMP-2/Runx2 signaling pathway.

    PubMed

    Yang, Bingyou; Lin, Xiaoying; Tan, Jinyan; She, Xian; Liu, Yan; Kuang, Haixue

    2016-09-15

    Sambucus Williamsii Hance (SWH) is a plant from a family of Caprifoliaceae, which has a long medical history of use as an effective folk treatment for fracture bruises. To evaluate the effects of 50% ethanol extracts of root-bark of Sambucus Williamsii Hance(EE-rbSWH) on fracture healing of rats and explore its mechanism of actions related to the BMP-2 signaling pathway. EE-rbSWH was orally administered at the doses of 340 and 680mg/kg to adult Sprague-Dawley rats with operation of open femur fracture completely for 2, 4 and 8 weeks. And the rats of sham operation and Model groups were administered Vehicle (distilled water 0.8mL/200g/day). Firstly, the bone X-ray morphology and bone mineral density(BMD) of the fracture site were observed and measured after anesthesia the rats at weeks 2, 4, and 8 after surgery, then the serum levels of alkaline phosphatase(ALP) and osteocalcin (BGP) were measured; Secondly, the tissue morphology of the fracture site was observed after sacrificed the rats; Thirdly, the formation of mineralized nodules in bone marrow stromal cells(BMSC) were evaluated at week 2; Lastly, the genes levels of BMP-2 and Runx2 in the femur were detected at week 2 and 4, and the proteins expression of BMP-2 signaling pathway (BMP-2, BMPRIB, BMPRII and Runx2) in the femur also were detected at week 2. EE-rbSWH remarkably accelerated fracture healing by promoting bone formation at all the time points of fracture healing. Mainly by increasing the BMD level at the fracture site, the levels of serum ALP and BGP, and also the numbers increasing of calcified nodules in BMSC. The mechanism studies, EE-rbSWH can promote fracture healing by enhancing the expressions of BMP-2 and Runx2 mRNA, and also the proteins of BMP-2, BMPRIB, BMPRII and Runx2 at the fracture site of rats. Our results suggested that 50% ethanol extracts of root-bark of Sambucus Williamsii Hance can accelerate fracture healing by recruitment of osteoblasts at the fracture site and through up

84. Identification and pharmacological characterization of the anti-inflammatory principal of the leaves of dwarf elder (Sambucus ebulus L.)

    PubMed Central

    Schwaiger, Stefan; Zeller, Iris; PÃ¶lzelbauer, Petra; Frotschnig, Sandra; Laufer, GÃ¼nther; Messner, Barbara; Pieri, Valerio; Stuppner, Hermann; Bernhard, David

    2011-01-01

    Aim of the study The performed investigations aimed on the identification of the anti-inflammatory principal of extracts of leaves of Sambucus ebulus L. (dwarf elder) in order to rationalize the traditional use of this plant for the treatment of chronically inflammatory diseases. Materials and methods Dwarf elder leaf extract was subjected to activity guided fractionation using inhibition of TNFÎ± induced expression of vascular cell adhesion molecule 1 (VCAM-1) on the surface of human umbilical vein endothelial cells (HUVECs) as monitoring tool (positive control: parthenolide 10Â Î¼M, VCAM-1 expression (% of control): 5.35Â Â±Â 0.38%). Results Bio-guided isolation resulted in identification of ursolic acid as anti-inflammatory principal. Besides its inhibitory effects against TNFÎ± induced expression of VCAM-1 (IC50 6.25Â Î¼M), ursolic acid inhibits also TNFÎ± induced expression of ICAM-1 (IC50 value between 3.13 and 6.25Â Î¼M) (positive control: parthenolide 10Â Î¼M, ICAM-1

expression (% of control): 38.89Â Â±Â 16.6%). Toxic effects of ursolic acid on HUVECs can be drastically reduced using an enriched extract instead of the pure compound. Conclusions Our findings suggest an additional mechanism of the anti-inflammatory activity of ursolic acid by demonstrating its ability to inhibit TNFÎ±-stimulated expression of VCAM-1 and ICAM-1 and support the traditional use of extracts and preparations of Sambucus ebulus L., rich in ursolic acid, for the treatment of chronically inflammatory processes. PMID:21040770

85. Chemical composition and bioactivity studies of Alpinia nigra essential oils

    USDA-ARS?s Scientific Manuscript database

    Free radical scavenging, bactericidal and bitting deterrent properties of Alpinia nigra essential oils (EOs) were investigated in the present study. Chemical composition of the EOs were analyzed using GC-MS/GC-FID which revealed the presence of 63 constituents including ÃŸ-caryophyllene as major comp...

86. Effects of mild running on substantia nigra during early neurodegeneration.

    PubMed

    Almeida, Michael F; Silva, Carolliny M; Chaves, Rodrigo S; Lima, Nathan C R; Almeida, Renato S; Melo, Karla P; Demasi, Marilene; Fernandes, Tiago; Oliveira, Edilamar M; Netto, Luis E S; Cardoso, Sandra M; Ferrari, Merari F R

    2018-06-01

    Moderate physical exercise acts at molecular and behavioural levels, such as interfering in neuroplasticity, cell death, neurogenesis, cognition and motor functions. Therefore, the aim of this study is to analyse the cellular effects of moderate treadmill running upon substantia nigra during early neurodegeneration. Aged male Lewis rats (9-month-old) were exposed to rotenone 1mg/kg/day (8Â weeks) and 6Â weeks of moderate treadmill running, beginning 4Â weeks after rotenone exposure. Substantia nigra was extracted and submitted to proteasome and antioxidant enzymes activities, hydrogen peroxide levels and Western blot to evaluate tyrosine hydroxylase (TH), alpha-synuclein, Tom-20, PINK1, TrkB, SLP1, CRMP-2, Rab-27b, LC3II and Beclin-1 level. It was demonstrated that moderate treadmill running, practiced during early neurodegeneration, prevented the increase of alpha-synuclein and maintained the levels of TH unaltered in substantia nigra of aged rats. Physical exercise also stimulated autophagy and prevented impairment of mitophagy, but decreased proteasome activity in rotenone-exposed aged rats. Physical activity also prevented H 2 O 2 increase during early neurodegeneration, although the involved mechanism remains to be elucidated. TrkB levels and its anterograde trafficking seem not to be influenced by moderate treadmill running. In conclusion, moderate physical training could prevent early neurodegeneration in substantia nigra through the improvement of autophagy and mitophagy.

87. Assessment of black ash (Fraxinus nigra) decline in Minnesota

    Treesearch

    Kathleen Ward; Michael Ostry; Robert Venette; Brian Palik; Mark Hansen; Mark Hatfield

    2009-01-01

    Black ash (Fraxinus nigra) is an important component of wetland forests throughout the Upper Midwest and northeastern United States and is highly valued for paneling, furniture, and basketry. Decline of black ash has been noted with increasing frequency, although no detailed studies of the pattern of decline across the region have been done. From...

88. Regeneration of plants from Fraxinus nigra Marsh. hypocotyls

Treesearch

Rochelle R. Beasley; Paula M. Pijut

2013-01-01

Fraxinus nigra Marsh. (black ash) is a native North American hardwood tree species that is ecologically important and has ethnobotanical significance to American Indian communities of the eastern United States. Black ash has immature embryos at seed set, combined with complex stratification requirements, making natural regeneration difficult. This,...

89. Genetic homogeneity in Juglans nigra(Juglanaceae) at nuclear microsatellites

Treesearch

Erin R. Victory; Jeffrey C. Glaubitz; Olin E., Jr. Rhodes; Keith E. Woeste

2006-01-01

Broad-scale studies of genetic structure and diversity are indicative of the recent evolutionary history of a species and are relevant to conservation efforts. We have estimated current levels of genetic diversity and population structure for black walnut (Juglans nigra L.), a highly valuable timber species, in the central hardwood region of the...

90. Tinea nigra presenting speckled or "salt and pepper" pattern.

PubMed

Rossetto, AndrÃ© Luiz; Cruz, Rosana CÃ© Bella; Haddad, Vidal Junior

2014-06-01

A 7-year-old Caucasian female resident of the southern coast of Brazil presented dark spots on the left palm that converged to a unique macule with speckled pattern at about 1 month. The mycological exam and the fungi culture were typical of Hortaea werneckii, the agent of the superficial mycosis Tinea nigra. The patient received butenafine hydrochloride 1% for 30 days, resulting in a complete remission of the lesion. At a follow-up visit 12 months after treatment, there was no lesion recurrence. We describe a form of rare geographical Tinea nigra with a speckled pattern. The "salt and pepper" aspect should be taken into consideration when the mycosis was suspected. Â© The American Society of Tropical Medicine and Hygiene.

91. Substantia nigra neuromelanin: structure, synthesis, and molecular behaviour

PubMed Central

Zecca, L; Tampellini, D; Gerlach, M; Riederer, P; Fariello, R G; Sulzer, D

2001-01-01

The pigmented neurones of the substantia nigra are typically lost in Parkinson's disease; however, the possible relation between neuronal vulnerability and the presence of neuromelanin has not been elucidated. Early histological studies revealed the presence of increasing amounts of neuromelanin in the substantia nigra with aging in higher mammals, showed that the neuromelanin granules are surrounded by a membrane, and comparatively evaluated the pigmentation of the substantia nigra in different animal species. Histochemical studies showed the association of neuromelanin with lipofuscins. However, systematic investigations of the structure, synthesis, and molecular interactions of neuromelanin have been

undertaken only during the past decade. In these later studies, neuromelanin was identified as a genuine melanin with a strong chelating ability for iron and an affinity for compounds such as lipids, pesticides, and MPP+. The affinity of neuromelanin for a variety of inorganic and organic toxins is consistent with a postulated protective function for neuromelanin. Moreover, the neuronal accumulation of neuromelanin during aging and the link between its synthesis and a high cytosolic concentration of catechols suggest a protective role. However, its putative neuroprotective effects could be quenched in conditions of toxin overload. PMID:11724917

92. Bidirectional Modulation of Substantia Nigra Activity by Motivational State

    PubMed Central

    Rossi, Mark A.; Fan, David; Barter, Joseph W.; Yin, Henry H.

    2013-01-01

    A major output nucleus of the basal ganglia is the substantia nigra pars reticulata, which sends GABAergic projections to brainstem and thalamic nuclei. The GABAergic (GABA) neurons are reciprocally connected with nearby dopaminergic neurons, which project mainly to the basal ganglia, a set of subcortical nuclei critical for goal-directed behaviors. Here we examined the impact of motivational states on the activity of GABA neurons in the substantia nigra pars reticulata and the neighboring dopaminergic (DA) neurons in the pars compacta. Both types of neurons show short-latency bursts to a cue predicting a food reward. As mice became sated by repeated consumption of food pellets, one class of neurons reduced cue-elicited firing, whereas another class of neurons progressively increased firing. Extinction or pre-feeding just before the test session dramatically reduced the phasic responses and their motivational modulation. These results suggest that signals related to the current motivational state bidirectionally modulate behavior and the magnitude of phasic response of both DA and GABA neurons in the substantia nigra. PMID:23936522

93. In vitro study of biological activities of anthocyanin-rich berry extracts on porcine intestinal epithelial cells.

    PubMed

    KÅ¡onÅ¾ekovÃ¡, Petra; Mariychuk, Ruslan; EliaÅ¡ovÃ¡, Adriana; MudroÅˆovÃ¡, Dagmar; Csank, TomÃ¡Å¡; KirÃ¡ly, JÃ¡n; MarcinÄ□Ã¡kovÃ¡, Dana; Pistl, Juraj; TkÃ¡Ä□ikovÃ¡, L'udmila

    2016-03-15

    Anthocyanins, compounds that represent the major group of flavonoids in berries, are one of the most powerful natural antioxidants. The aim of this study was to evaluate biological activities and comparison of anthocyanin-rich extracts prepared from chokeberry (Aronia melanocarpa), elderberry (Sambucus nigra), bilberry (Vaccinium myrtillus) and blueberry (V. corymbosum) on the porcine intestinal epithelial IPEC-1 cell line. The IC50 values calculated in the antioxidant cell-based dichlorofluorescein assay (DCF assay) were 1.129 mg L(-1) for chokeberry, 1.081 mg L(-1) for elderberry, 2.561 mg L(-1) for bilberry and 2.965 mg L(-1) for blueberry, respectively. We found a significant negative correlation ($P < 0.001$) between cyanidin glycosides content and IC50 values. Moreover, extracts rich in cyanidin glycosides stimulated proliferation of IPEC-1 cells and did not have cytotoxic effect on cells at an equivalent in vivo concentration. We found that the chokeberry and elderberry extracts rich in cyanidin glycosides possess better antioxidant and anticytotoxic activities in comparison to blueberry or bilberry extracts with complex anthocyanin profiles. Â© 2015 Society of Chemical Industry.

94. Assessment of the antiproliferative and antigenotoxic activity and phytochemical screening of aqueous extracts of Sambucus australis Cham. & Schltdl. (ADOXACEAE).

PubMed

Tedesco, MarÃlia; Kuhn, Andrielle W; Frescura, Viviane Dal-Souto; Boligon, Aline A; Athayde, Margareth L; Tedesco, Solange B; Silva, Antonio C F DA

2017-01-01

The purpose of this study was to evaluate the antiproliferative and antigenotoxic activity of Sambucus australis Cham. & Schltdl. aqueous extracts on the cell cycle of Allium cepa L. as well as determine the phenolic compounds in such extracts. S. australis inflorescences and leaves of two accessions were used for aqueous extract preparation at concentrations: 0.003 g/ml and 0.012 g/ml. A. cepa bulbs were rooted in distilled water and, subsequently, placed in treatments for 24 hours. Rootlets were collected and fixed in modified Carnoy's solution for 24 hours and kept. The squash technique was performed for slide preparation. Root tips were smashed and stained with 2% acetic orcein, and a total of 4000 cells per treatment were analyzed. The phenolic compounds were determined using high-performance liquid chromatography and data was analyzed using the Scott-Knott test. The results show that S. australis aqueous extracts have antiproliferative potential. Besides, the extracts prepared from S. australis leaves of both accessions at a concentration of 0.012 g/ml have shown antigenotoxic activity. The phytochemical analysis allowed us to determine the presence of flavonoids and phenolic acids, of which kaempferol and chrologenic acid were the most predominant compounds in the extracts from the inflorescences and leaves, respectively.

95. Antioxidant effect of Morus nigra on Chagas disease progression.

PubMed

Montenote, Michelly Cristina; Wajsman, Vithor Zuccaro; Konno, Yoichi Takaki; Ferreira, Paulo CÃ©sar; Silva, Regildo MÃ¡rcio GonÃ§alves; Therezo, Altino Luiz Silva; Silva, Luciana Pereira; Martins, LuciamÃ¡re Perinetti Alves

2017-11-06

Considering the widespread popular use of Morus nigra and the amount of scientific information on its antioxidant and anti-inflammatory activity, the effectiveness of this phytotherapeutic compound in the parasitemia progression during the acute phase of Chagas disease and its role in the development of the inflammatory process as well as its effects on the oxidative damage in the chronic phase of infection were evaluated. Thus, 96 male Swiss mice were randomly divided into eight groups, four groups were uninfected controls, and four groups were intraperitoneally infected with 5.0 x 104 blood trypomastigotes forms of T. cruzi QM2 strain. Four batches composed of one uninfected and one infected group were respectively treated with 70% alcohol solution and 25 Î¼L, 50 Î¼L and 75 Î¼L of the phytotherapeutic compound. Levels of antioxidant elements (TBARS, FRAP, GSH and Sulfhydryl groups) were measured in plasma samples. The phytotherapeutic compound's antioxidant activity was measured by polyphenol and total flavonoid quantification, DPPH, NO, and FRAP method. Our results showed that the vehicle influenced some of the results that may have physiological relevance in Chagas disease. However, an important action of M. nigra tincture was observed in the progression of Chagas disease, since our results demonstrated a reduction in parasitemia of treated groups when compared to controls, especially in the group receiving 25 ÂµL. However, in the chronic phase, the 50-ÂµL dosage presented a better activity on some antioxidant defenses and minimized the tissue inflammatory process. Results indicated an important action of M. nigra tincture on the Chagas disease progression.

96. Glutamate neurons in the substantia nigra compacta and retrorubral field

PubMed Central

Yamaguchi, Tsuyoshi; Wang, Hui-Ling; Morales, Marisela

2013-01-01

Dopaminergic neurons of the substantia nigra compacta (SNC), ventral tegmental area (VTA) and retrorubral field (RRF) play a role in reward, motivation, learning, memory, and movement. These neurons are intermingled with GABAergic neurons. Recent evidence shows that the VTA contains glutamatergic neurons expressing vesicular glutamate transporter type 2 (VGluT2); some of them co-express tyrosine hydroxylase (TH). Here, we used a combination of radioactive in situ hybridization and immunohistochemistry to explore whether any of the vesicular glutamate transporters [vesicular glutamate transporter type 1 (VGluT1), VGluT2, or vesicular glutamate transporter type 3 (VGluT3)] were encoded by neurons in the SNC or RRF. We found expression of VGluT2 mRNA, but not of VGluT1 or VGluT3, in the SNC and RRF. These VGluT2 neurons rarely showed TH immunoreactivity. Within the SNC, the VGluT2 neurons were infrequently found at the rostral level, but were often seen at the medial and caudal levels intercalated in the mediolateral portion of the dorsal tier, at a ratio of one VGluT2 neuron per 4.4 TH neurons. At this level, VGluT2 neurons were also found in the adjacent substantia nigra reticulata and substantia nigra pars lateralis. Within the RRF, the VGluT2 neurons showed an increasing rostrocaudal gradient of distribution. The RRF proportion of VGluT2 neurons in relation to TH neurons was constant throughout the rostrocaudal levels, showing an average ratio of one VGluT2 neuron per 1.7 TH neurons. In summary, we provide evidence indicating that the SNC and RRF, which are traditionally considered to be dopaminergic areas, have neurons with the ability to participate in glutamate signaling.
PMID:24102658

97. Glutamate neurons in the substantia nigra compacta and retrorubral field.

PubMed

Yamaguchi, Tsuyoshi; Wang, Hui-Ling; Morales, Marisela

2013-12-01

Dopaminergic neurons of the substantia nigra compacta (SNC), ventral tegmental area (VTA) and retrorubral field (RRF) play a role in reward, motivation, learning, memory, and movement. These neurons are intermingled with GABAergic neurons. Recent evidence shows that the VTA contains glutamatergic neurons expressing vesicular glutamate transporter type 2 (VGluT2); some of them co-express tyrosine hydroxylase (TH). Here, we used a combination of radioactive in situ hybridisation and immunohistochemistry to explore whether any of the vesicular glutamate transporters [vesicular glutamate transporter type 1 (VGluT1), VGluT2, or vesicular glutamate transporter type 3 (VGluT3)] were encoded by neurons in the SNC or RRF. We found expression of VGluT2 mRNA, but not of VGluT1 or VGluT3, in the SNC and RRF. These VGluT2 neurons rarely showed TH immunoreactivity. Within the SNC, the VGluT2 neurons were infrequently found at the rostral level, but were often seen at the medial and caudal levels intercalated in the mediolateral portion of the dorsal tier, at a ratio of one VGluT2 neuron per 4.4 TH neurons. At this level, VGluT2 neurons were also found in the adjacent substantia nigra reticulata and substantia nigra pars lateralis. Within the RRF, the VGluT2 neurons showed an increasing rostrocaudal gradient of distribution. The RRF proportion of VGluT2 neurons in relation to TH neurons was constant throughout the rostrocaudal levels, showing an average ratio of one VGluT2 neuron per 1.7 TH neurons. In summary, we provide evidence indicating that the SNC and RRF, which are traditionally considered to be dopaminergic areas, have neurons with the ability to participate in glutamate signaling. Â© 2013 Federation of European Neuroscience Societies and John Wiley & Sons Ltd.

98. Tinea versicolor, tinea nigra, white piedra, and black piedra.

PubMed

Bonifaz, Alexandro; GÃ³mez-Daza, Fernando; Paredes, Vanessa; Ponce, Rosa MarÃa

2010-03-04

Superficial mycoses are fungal infections limited to the stratum corneum and its adnexal structures. The most frequent types are dermatophytoses or tineas. Tinea versicolor involves the skin in the form of hypochromic or hyperchromic plaques, and tinea nigra affects the skin of the palms with dark plaques. White piedra and black piedra are parasitic infections of scalp hairs in the form of concretions caused by fungal growth. Diagnosis of these mycoses is made from mycologic studies, direct examination, stains, and isolation, and identification of the fungi. Treatment includes systemic antifungals, topical antifungals, and keratolytics. Copyright 2010 Elsevier Inc. All rights reserved.

99. Chalcone dimethylallyltransferase from Morus nigra cell cultures. Substrate specificity studies.

    PubMed

    Vitali, Alberto; Giardina, Bruno; Delle Monache, Giuliano; Rocca, Filippo; Silvestrini, Andrea; Tafi, Andrea; Botta, Bruno

    2004-01-16

    A new prenyltransferase (PT) enzyme derived from the microsomal fractions of cell cultures of Morus nigra was shown to be able to prenylate exclusively chalcones with a 2',4'-dihydroxy substitution and the isoflavone genistein. Computational studies were performed to shed some light on the relationship between the structure of the substrate and the enzymatic activity. PT requires divalent cations, particularly Mg(2+), to be effective. The apparent K(m) values for gamma,gamma-dimethylallyldiphosphate and 2',4'-dihydroxychalcone were 63 and 142 microM, respectively. The maximum activity of the enzyme was expressed during the first 10 days of cell growth.

100. Phenolic acids in the flowers of Althaea rosea var. nigra.

    PubMed

    Dudek, Marlena; MatÅ‚awska, Irena; Szkudlarek, Maurycy

    2006-01-01

    Distribution of phenolic acids in the flowers of Althaea rosea var. nigra has been studied by 2D-TLC and HPLC methods. The phenolic acids occurring in these fractions have been identified as ferulic, vanillic, syringic, p-coumaric, p-hydroxybenzoic, p-hydroxyphenylacetic and caffeic acids. By means of the HPLC methods the contents of major phenolic acids were estimated. From among the phenolic acids analyzed the syringic, p-hydroxybenzoic and p-coumaric acids are dominant. Total content of phenolic acids was determined by the Arnov's method.

101. Adventitious shoot regeneration from in vitro leaf explants of Fraxinus nigra

Treesearch

Jun Hyung Lee; Paula M. Pijut

2017-01-01

Black ash (Fraxinus nigra) is an endangered hardwood tree species under threat of extirpation by the emerald ash borer (EAB), an aggressive exotic phloemfeeding beetle. We have developed an efficient regeneration system through adventitious shoot organogenesis in F. nigra using in vitro-derived leaf explants. Two types of leaf...

102. Fraxinus nigra (black ash) dieback in Minnesota: Regional variation and potential contributing factors

Treesearch

Brian J. Palik; Michael E. Ostry; Robert C. Venette; Ebrahim Abdela

2011-01-01

Extensive tree dieback is a recurrent issue in many regions. Crown dieback of Fraxinus nigra Marsh. (black ash; brown ash) in the northeastern and north central United States is an example. F. nigra is a widely distributed hardwood that is often the dominant species in wetland forests from Manitoba to Newfoundland and West...

103. Diversity in tree species in southeastern Ohio Betula nigra L. communities

Treesearch

Larry D. Cribben; Dina D. Scacchetti

1976-01-01

Quantitative data were obtained for arboreal species within 50 lowland forests in southeastern Ohio. Thirty-seven communities were dominated by Betula nigra L. and 13 were dominated by Acer saccharinum L. The acidic soils collected from B. nigra communities contained toxic concentrations of exchangeable aluminum...

104. [Contents of heavy metals, nitrate (V), and nitrate (III) in fruits of elderberry and black chokeberry depending on harvest site and vegetation period].

PubMed

Ognik, Katarzyna; Rusinek, Elzbieta; Sembratowicz, Iwona; TruchliÅ„ski, Jerzy

2006-01-01

Lead, cadmium, nitrate V and nitrate III contents were determined in elderberry and black chokeberry fruits harvested in Lublin region. Samples were taken from areas that were potentially exposed and not exposed to pollution. Fruits analyzed in 2003 and 2004 harvested from area exposed to pollution were characterized by higher lead concentration (0.043-0.098 mg kg(-1) fresh mass and 0.048-0.081 mg kg(-1) fresh mass, respectively) than those collected from potentially not polluted area. Levels of tested metals in fruits harvested from both areas in 2004 were fairly similar to those from 2003. However, cadmium content in all collected fruits from both areas (in both vegetation periods) appeared to be high and much exceeded its permissible value (0.03 mg kg(-1) fresh mass). Levels of nitrate V was low and similar in

fruits harvested in both seasons from both areas not exceeding 3.4 mg kg(-1) fresh mass. Content of nitrate III was also low and oscillated within the range 0.68-0.89 mg kg(-1) fresh mass.

105. (R)-Desmolactone Is a Sex Pheromone or Sex Attractant for the Endangered Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus and Several Congeners (Cerambycidae: Lepturinae)

PubMed Central

Ray, Ann M.; Arnold, Richard A.; Swift, Ian; Schapker, Philip A.; McCann, Sean; Marshall, Christopher J.; McElfresh, J. Steven; Millar, Jocelyn G.

2014-01-01

We report here that (4R,9Z)-hexadec-9-en-4-olide [(R)-desmolactone] is a sex attractant or sex pheromone for multiple species and subspecies in the cerambycid genus Desmocerus. This compound was previously identified as a female-produced sex attractant pheromone of Desmocerus californicus californicus. Headspace volatiles from female Desmocerus aureipennis aureipennis contained (R)-desmolactone, and the antennae of adult males of two species responded strongly to synthetic (R)-desmolactone in coupled gas chromatography-electroantennogram analyses. In field bioassays in California, Oregon, and British Columbia, traps baited with synthetic (R)-desmolactone captured males of several Desmocerus species and subspecies. Only male beetles were captured, indicating that this compound acts as a sex-specific attractant, rather than as a signal for aggregation. In targeted field bioassays, males of the US federally threatened subspecies Desmocerus californicus dimorphus responded to the synthetic attractant in a dose dependent manner. Our results represent the first example of a â€œgenericâ€ sex pheromone used by multiple species in the subfamily Lepturinae, and demonstrate that pheromone-baited traps may be a sensitive and efficient method of monitoring the threatened species Desmocerus californicus dimorphus, commonly known as the valley elderberry longhorn beetle. PMID:25521293

106. Complementary therapies in allergic rhinitis.

PubMed

Sayin, Ibrahim; Cingi, Cemal; Oghan, Fatih; Baykal, Bahadir; Ulusoy, Seckin

2013-01-01

Objective. To determine the prevalence of herbal treatment of allergic rhinitis. Methods. In this prospective study, patients who were diagnosed with perennial allergic rhinitis were questioned about their use of natural products/herbal therapies for their symptoms. Results. In total, 230 patients were enrolled. Overall, 37.3% of the patients stated that they had used natural products/herbal therapies at least once. Women were more likely than men to use herbal supplements (38.3% versus 32.4%). Ten different types of herbal supplements were identified, with stinging nettle (Urtica dioicath), black elderberry (Sambucus nigra), and Spirulina being the most common (12.6%, 6.1%, and 5.7%, resp.). Conclusion. This study found a high prevalence of herbal treatment usage for the relief of allergic rhinitis symptoms in Turkey. The herbal products identified in this study and in the literature are discussed.

107. Complementary Therapies in Allergic Rhinitis

PubMed Central

Sayin, Ibrahim; Cingi, Cemal; Baykal, Bahadir

2013-01-01

Objective. To determine the prevalence of herbal treatment of allergic rhinitis. Methods. In this prospective study, patients who were diagnosed with perennial allergic rhinitis were questioned about their

use of natural products/herbal therapies for their symptoms. Results. In total, 230 patients were enrolled. Overall, 37.3% of the patients stated that they had used natural products/herbal therapies at least once. Women were more likely than men to use herbal supplements (38.3% versus 32.4%). Ten different types of herbal supplements were identified, with stinging nettle (Urtica dioicath), black elderberry (Sambucus nigra), and Spirulina being the most common (12.6%, 6.1%, and 5.7%, resp.). Conclusion. This study found a high prevalence of herbal treatment usage for the relief of allergic rhinitis symptoms in Turkey. The herbal products identified in this study and in the literature are discussed. PMID:24324897

108. Polyphenolic extracts of edible flowers incorporated onto atelocollagen matrices and their effect on cell viability.

PubMed

LÃ³pez-GarcÃa, Jorge; KucekovÃ¡, Zdenka; HumpolÃÄek, Petr; MlÄek, JiÅ™i; SÃ¡ha, Petr

2013-10-30

The phenolic extract of chives flowers (Allium schoenoprasum, Liliaceae), introduced Sage (Salvia pratensis, Lamiaceae), European elderberry (Sambucus nigra, Caprifoliaceae) and common dandelion (Taraxacum officinale, Asteraceae) were characterised by High Performance Liquid Chromatography and incorporated in different concentrations onto atelocollagen thin films. In order to assess the biological impact of these phenolic compounds on cell viability, human immortalised non-tumorigenic keratinocyte cell line was seeded on the thin films and cell proliferation was determined by using an MTT assay. In addition, their antimicrobial activity was estimated by using an agar diffusion test. Data indicated the concomitance between cell viability and concentration of polyphenols. These findings suggest that these phenolic-endowed atelocollagen films might be suitable for tissue engineering applications, on account of the combined activity of polyphenols and collagen.

109. Proteome analysis of human substantia nigra in Parkinson's disease

PubMed Central

Werner, Cornelius J; Heyny-von Haussen, Roland; Mall, Gerhard; Wolf, Sabine

2008-01-01

Background Parkinson's disease (PD) is the most common neurodegenerative disorder involving the motor system. Although not being the only region involved in PD, affection of the substantia nigra and its projections is responsible for some of the most debilitating features of the disease. To further advance a comprehensive understanding of nigral pathology, we conducted a tissue based comparative proteome study of healthy and diseased human substantia nigra. Results The gross number of differentially regulated proteins in PD was 221. In total, we identified 37 proteins, of which 16 were differentially expressed. Identified differential proteins comprised elements of iron metabolism (H-ferritin) and glutathione-related redox metabolism (GST M3, GST P1, GST O1), including novel redox proteins (SH3BGRL). Additionally, many glial or related proteins were found to be differentially regulated in PD (GFAP, GMFB, galectin-1, sorcin), as well as proteins belonging to metabolic pathways sparsely described in PD, such as adenosyl homocysteinase (methylation), aldehyde dehydrogenase 1 and cellular retinol-binding protein 1 (aldehyde metabolism). Further differentially regulated proteins included annexin V, beta-tubulin cofactor A, coactosin-like protein and V-type ATPase subunit 1. Proteins that were similarly expressed in healthy or diseased substantia nigra comprised housekeeping proteins such as COX5A, Rho GDI alpha, actin gamma 1, creatin-kinase B, lactate dehydrogenase B, disulfide isomerase ER-60, Rab GDI beta, methyl glyoxalase 1 (AGE metabolism) and glutamine synthetase. Interestingly, also DJ-1 and UCH-L1 were expressed similarly. Furthermore, proteins believed to serve as internal standards were found to be expressed in a constant manner, such as 14-3-3 epsilon and hCRMP-2, thus lending further validity to our

results. Conclusion Using an approach encompassing high sensitivity and high resolution, we show that alterations of SN in PD include many more proteins than

110. Microstimulation of the human substantia nigra alters reinforcement learning.

PubMed

Ramayya, Ashwin G; Misra, Amrit; Baltuch, Gordon H; Kahana, Michael J

2014-05-14

Animal studies have shown that substantia nigra (SN) dopaminergic (DA) neurons strengthen action-reward associations during reinforcement learning, but their role in human learning is not known. Here, we applied microstimulation in the SN of 11 patients undergoing deep brain stimulation surgery for the treatment of Parkinson's disease as they performed a two-alternative probability learning task in which rewards were contingent on stimuli, rather than actions. Subjects demonstrated decreased learning from reward trials that were accompanied by phasic SN microstimulation compared with reward trials without stimulation. Subjects who showed large decreases in learning also showed an increased bias toward repeating actions after stimulation trials; therefore, stimulation may have decreased learning by strengthening action-reward associations rather than stimulus-reward associations. Our findings build on previous studies implicating SN DA neurons in preferentially strengthening action-reward associations during reinforcement learning. Copyright Â© 2014 the authors 0270-6474/14/346887-09$15.00/0.

111. Tinea corporis, tinea cruris, tinea nigra, and piedra.

PubMed

Gupta, Aditya K; Chaudhry, Maria; Elewski, Boni

2003-07-01

Tinea infections are among the most common dermatologic conditions throughout the world. To avoid a misdiagnosis, identification of dermatophyte infections requires both a fungal culture on Sabouraud's agar media, and a light microscopic mycologic examination from skin scrapings. Topical antifungals may be sufficient for treatment of tinea corporis and cruris and tinea nigra, and the shaving of hair infected by piedra may also be beneficial. Systemic therapy, however, may be required when the infected areas are large, macerated with a secondary infection, or in immunocompromised individuals. Preventative measures of tinea infections include practicing good personal hygiene; keeping the skin dry and cool at all times; and avoiding sharing towels, clothing, or hair accessories with infected individuals.

112. Microstimulation of the Human Substantia Nigra Alters Reinforcement Learning

PubMed Central

Ramayya, Ashwin G.; Misra, Amrit

2014-01-01

Animal studies have shown that substantia nigra (SN) dopaminergic (DA) neurons strengthen actionâ€“reward associations during reinforcement learning, but their role in human learning is not known. Here, we applied microstimulation in the SN of 11 patients undergoing deep brain stimulation surgery for the treatment of Parkinson's disease as they performed a two-alternative probability learning task in which rewards were contingent on stimuli, rather than actions. Subjects demonstrated decreased learning from reward trials that were accompanied by phasic SN microstimulation compared with reward trials without stimulation. Subjects who showed large decreases in learning also showed an increased bias toward repeating actions after stimulation trials; therefore, stimulation may have decreased learning by

strengthening actionâ€“reward associations rather than stimulusâ€“reward associations. Our findings build on previous studies implicating SN DA neurons in preferentially strengthening actionâ€“reward associations during reinforcement learning. PMID:24828643

113. Effects of photooxidation on membrane integrity in Salix nigra seeds

PubMed Central

Roqueiro, Gonzalo; Facorro, Graciela B.; Huarte, MÃ³nica G.; RubÃn de Celis, Emilio; GarcÃa, Fernando; Maldonado, Sara; Maroder, Horacio

2010-01-01

Background and Aims Salix nigra seeds are desiccation-tolerant, as are orthodox seeds, although in contrast to other orthodox seeds they lose viability in a few weeks at room temperature. They also differ in that the chloroplasts of the embryo tissues conserve their chlorophyll and endomembranes. The aim of this paper was to investigate the role of chlorophyll in seed deterioration. Methods Seeds were aged at different light intensities and atmospheric conditions. Mean germination time and normal and total germination were evaluated. The formation of free radicals was assessed using electronic spin resonance spectroscopy, and changes in the fatty acid composition from phospholipids, galactolipids and triglycerides using gasâ€“liquid chromatography. Membrane integrity was studied with electronic spin resonance spin probe techniques, electrolyte leakage and transmission electron microscopy. Key Results Light and oxygen played an important role in free-radical generation, causing a decrease in normal germination and an increase in mean germination time. Both indices were associated with a decrease in polyunsaturated fatty acids derived from membrane lipids as phospholipids and galactolipids. The detection of damage in thylakoid membranes and an increase in plasmalemma permeability were consistent with the decrease in both types of lipids. Triglycerides remained unchanged. Light-induced damage began in outermost tissues and spread inwards, decreasing normal germination. Conclusions Salix nigra seeds were very susceptible to photooxidation. The thylakoid membranes appeared to be the first target of the photooxidative process since there were large decreases in galactolipids and both these lipids and the activated chlorophyll are contiguous in the structure of that membrane. Changes in normal germination and mean germination time could be explained by the deteriorative effects of oxidation. PMID:20338949

114. Dalnigrin, a neoflavonoid marker for the identification of Brazilian rosewood (Dalbergia nigra) in CITES enforcement.

PubMed

Kite, Geoffrey C; Green, Paul W C; Veitch, Nigel C; Groves, Madeleine C; Gasson, Peter E; Simmonds, Monique S J

2010-07-01

International trade in Brazilian rosewood, Dalbergia nigra (Vell.) AllemÃ£o ex Benth., is regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). One problem in enforcing these regulations is the difficulty in distinguishing the wood of D. nigra from that of a closely-related but unregulated species, Dalbergia spruceana Benth. Using LC-MS to analyse methanol extracts of xylaria specimens, we identified a chemical marker for D. nigra heartwood, and determined its structure as the neoflavonoid 6-hydroxy-7-methoxy-4-(4-methoxyphenyl)-2H-1-benzopyran-2-one (4'-O-methylmelanettin; dalnigrin), using spectroscopic techniques. Dalnigrin was present in all nine available heartwood specimens of D. nigra, but it was not detected in extracts of 59 other heartwood samples representing 15 species of Dalbergia, including D. spruceana. Five other phenolic compounds were also isolated from D. nigra heartwood and similarly identified as the neoflavonoids 3'-hydroxymelanettin, melanettin, melannein and dalbergin, and the isoflavone caviunin. In extracts of D. spruceana heartwood,

pseudobaptigenin was identified by LC-MS to be a major phenolic component that was not detected in wood extracts of D. nigra. We conclude that chemical analysis, in combination with anatomical investigation, can provide persuasive evidence to support the positive identification of untreated heartwood of D. nigra. 2010 Elsevier Ltd. All rights reserved.

115. Reflectance confocal microscopy of tinea nigra: comparing images with dermoscopy and mycological examination results.

    PubMed

    Veasey, John Verrinder; Avila, Ricardo Bertozzi de; Ferreira, Marcus AntÃ´nio Maia de Olivas; Lazzarini, Rosana

    2017-01-01

    Tinea nigra is a superficial mycosis whose diagnosis is confirmed by isolating the infectious agent Hortae werneckii through mycological examinations. In vivo reflectance confocal microscopy, initially used in melanocytic dermatosis, has been used with skin infectious diseases to identify the parasite at the cellular level. We report, for the first time in the scientific literature, the use of reflectance confocal microscopy in a case of tinea nigra and compare its findings to dermoscopy and mycological examination results.

116. Reflectance confocal microscopy of tinea nigra: comparing images with dermoscopy and mycological examination results*

    PubMed Central

    Veasey, John Verrinder; de Avila, Ricardo Bertozzi; Ferreira, Marcus AntÃ´nio Maia de Olivas; Lazzarini, Rosana

    2017-01-01

    Tinea nigra is a superficial mycosis whose diagnosis is confirmed by isolating the infectious agent Hortae werneckii through mycological examinations. In vivo reflectance confocal microscopy, initially used in melanocytic dermatosis, has been used with skin infectious diseases to identify the parasite at the cellular level. We report, for the first time in the scientific literature, the use of reflectance confocal microscopy in a case of tinea nigra and compare its findings to dermoscopy and mycological examination results. PMID:28954116

117. Illicit Stimulant Use Is Associated with Abnormal Substantia Nigra Morphology in Humans

    PubMed Central

    Todd, Gabrielle; Noyes, Carolyn; Flavel, Stanley C.; Della Vedova, Chris B.; Spyropoulos, Peter; Chatterton, Barry; Berg, Daniela; White, Jason M.

    2013-01-01

    Use of illicit stimulants such as methamphetamine, cocaine, and ecstasy is an increasing health problem. Chronic use can cause neurotoxicity in animals and humans but the long-term consequences are not well understood. The aim of the current study was to investigate the long-term effect of stimulant use on the morphology of the human substantia nigra. We hypothesised that history of illicit stimulant use is associated with an abnormally bright and enlarged substantia nigra (termed â€˜hyperechogenicityâ€™) when viewed with transcranial sonography. Substantia nigra morphology was assessed in abstinent stimulant users (nâ€Š=â€Š36; 31Â±9 yrs) and in two groups of control subjects: non-drug users (nâ€Š=â€Š29; 24Â±5 yrs) and cannabis users (nâ€Š=â€Š12; 25Â±7 yrs). Substantia nigra morphology was viewed with transcranial sonography and the area of echogenicity at the anatomical site of the

substantia nigra was measured at its greatest extent. The area of substantia nigra echogenicity was significantly larger in the stimulant group (0.273Â±0.078 cm2) than in the control (0.201Â±0.054 cm2; P<0.001) and cannabis (0.202Â±0.045 cm2; P<0.007) groups. 53% of stimulant users exhibited echogenicity that exceeded the 90th percentile for the control group. The results of the current study suggest that individuals with a history of illicit stimulant use exhibit abnormal substantia nigra morphology. Substantia nigra hyperechogenicity is a strong risk factor for developing Parkinson's disease later in life and further research is required to determine if the observed abnormality in stimulant users is associated with a functional deficit of the nigro-striatal system. PMID:23418568

118. Dermoscopy improves diagnosis of tinea nigra: a study of 50 cases.

PubMed

Piliouras, Peter; Allison, Scott; Rosendahl, Cliff; Buettner, Petra G; Weedon, David

2011-08-01

Tinea nigra is a relatively uncommon dematiaceous fungal infection of the palms and soles, which clinically may mimic a melanocytic lesion. We sought to ascertain how frequently misdiagnosis of this infection occurred and whether the use of dermoscopy helped in its diagnosis. Fifty consecutive cases of tinea nigra diagnosed at a dermatopathology laboratory were examined with regard to the clinical diagnosis, use of dermoscopy and the mode of management. Of the 50 cases, 21 (42.0%) were treated by shave or surgical excision. The clinical diagnosis of tinea nigra was made in five cases (10.0%) and suggested along with other diagnoses in a further two cases (4.0%). The dermatologists (n = 9) gave the correct diagnosis in four patients (44.4%), the general practitioners (n = 38) gave the correct diagnosis in one patient (2.6%) and the three surgeons involved did not give the correct diagnosis. When dermoscopy was used, in seven of 13 (53.8%) cases tinea nigra was suggested as a probable diagnosis but when dermoscopy was not used (n = 37) tinea nigra was not clinically diagnosed (P < 0.001). The diagnosis of tinea nigra is significantly improved by dermoscopy, the disease should be considered as a cause of palmar or plantar pigmentation. Â© 2011 The Authors; Australasian Journal of Dermatology Â© 2011 The Australasian College of Dermatologists.

119. Evaluation of phenolic compounds and lipid-lowering effect of Morus nigra leaves extract.

PubMed

Zeni, Ana LÃºcia B; Moreira, Tatianne D; Dalmagro, Ana Paula; Camargo, Anderson; Bini, Larissa A; Simionatto, EdÃ©sio L; Scharf, Dilamara R

2017-01-01

Morus nigra L. (Moraceae) is a tree known as black mulberry and the leaves are used in folk medicine in the treatment of diabetes, high cholesterol and menopause symptoms. The aim of this study was to evaluate the M. nigra leaves phytochemical profile in different extractions and the hypolipidemic effect of the infusion comparing to the fenofibrate. Morus nigra infusion (MN) showed higher amounts of phenolics and flavonoids (83.85 mg/g and 79.96 Âµg/g, respectively), as well as antioxidant activity (83.85%) than decoction or hydromethanolic extracts. Although, decoction showed the best result for ascorbic acid (4.35 mg/100 g) than hydromethanolic or infusion (2.51 or 2.13 mg/100 g, respectively). The phenolic acids gallic, chlorogenic and caffeic and the flavonoids quercetin, rutin and catechin were found in the M. nigra extracts. Hyperlipidemic rats treated with 100, 200 or 400 mg/kg of MN decreased serum cholesterol, triglycerides and normalized lipoproteins. Furthermore, MN inhibited lipid peroxidation in liver, kidney and brain of hyperlipidemic rats. This study provides evidence that M. nigra leaves extracts are rich in polyphenols, mainly chlorogenic acid, which normalized hyperlipidemic disturbance. The results suggest a potential therapeutic effect of the M. nigra leaves infusion on dislipidemic condition and related oxidative stress.

120. Dopamine-dependent neurotoxicity of lipopolysaccharide in substantia nigra.

PubMed

De Pablos, RocÃo M; Herrera, Antonio J; VillarÃ¡n, Ruth F; Cano, Josefina; Machado, Alberto

2005-03-01

Intranigral injection of lipopolysaccharide (LPS), a potent inductor of inflammation, induces degeneration of dopaminergic neurons, along with an inflammatory process that features activation of microglial cells and loss of astrocytes. To test the involvement of dopamine (DA) in this degeneration induced by LPS, we treated albino Wistar rats with different concentrations of alpha-methyl-p-tyrosine (alpha-MPT), an inhibitor of tyrosine hydroxylase (TH) activity. Results showed that alpha-MPT prevented LPS-induced loss of TH immunostaining and expression of mRNA for TH and DA transporter; it also prevented substantial activation of microglial cells. Loss of the astroglial population, a marker of damage in our model, was also prevented. This protective effect resulted from inhibition of TH and the consequent decrease in DA concentration, because treatment with L-DOPA/benserazide, which bypasses TH inhibition induced by alpha-MPT, reversed the protective effect produced by this drug. These results point out the important contribution of DA to the vulnerability and degeneration of dopaminergic neurons of the substantia nigra. Knowledge about the involvement of DA in this process may lead to the possibility of new protection strategies against this important degenerative process.

- «
- 4
- 5
- 6
- 7
- 8
- »

- «
- 5
- 6
- 7
- 8
- 9
- »

121. Personality of Wild Male Crested Macaques (Macaca nigra)

PubMed Central

Neumann, Christof; Agil, Muhammad; Widdig, Anja; Engelhardt, Antje

2013-01-01

Animal personalities, i.e. consistent differences in behavior across time and/or context, have received increased attention of behavioral biologists over the last years. Recent research shows that personalities represent traits on which natural and sexual selection work and which can have substantial fitness consequences. The aim of this study is to establish the personality structure of crested macaque (Macaca nigra) males as foundation for future studies on its adaptive value. We collected behavioral data through focal animal sampling and additionally conducted two sets of playback experiments. Results of a factor analysis on the behavioral data revealed a four factor structure with components we labeled Anxiety, Sociability, Connectedness and Aggressiveness. Results from the experiments revealed an additional and independent Boldness factor but the absence of Neophilia. Overall, this structure resembles other macaque

and animal species with the exception of Connectedness, which might be a consequence of the species' tolerant social style. Our results thus not only form the basis for future studies on the adaptive value of personality in crested macaques but also contribute an important data point for investigating the evolution of personality structure from a comparative perspective by refining, for example, which personality factors characterized the last common ancestor of hominids and macaques. PMID:23940517

122. Substantia nigra depigmentation and exposure to encephalitis lethargica.

PubMed

Hack, Nawaz; Jicha, Gregory A; Abell, Annalisa; Dean, Dawson; Vitek, Jerrold L; Berger, Joseph R

2012-12-01

Parkinsonism has occasionally been reported as a consequence of infectious diseases. The present study examines the clinical and pathological correlates of parkinsonism across birth cohorts in relation to critical exposure to the encephalitis lethargica epidemic in the early 1900s. The study population consisted of 678 participants in the Nun Study, of whom 432 died and came to autopsy. Qualitative indices of substantia nigra (SN) depigmentation were verified in a subset of 40 randomly selected subjects using quantitative stereological techniques. SN depigmentation, detected neuropathologically, was correlated with clinical parameters of Parkinson disease, age, and birth cohort. SN depigmentation was detected in 57 (13.2%) of the cohort. Although qualitative SN depigmentation correlated modestly with age ($p = 0.02$), it correlated best with birth cohort ($p = 0.009$) for women born in the years 1895-1899. Quantitative measures of SN depigmentation were increased in this birth cohort compared to age matched subjects from flanking birth cohorts 1890-1894 and 1900-1904 ($p < 0.001$). SN depigmentation correlated with speed of 6- and 50-foot walk ($p < 0.0001$), up and go test ($p < 0.0001$), and hand coordination ($p < 0.0001$). Subjects in the birth cohort 1895-1899 would have been in their late teens and 20s at the onset and during the peak of the encephalitis lethargica epidemic. These were precisely the age ranges of persons who were most often affected by the illness. These data suggest the possibility that the coexistence of parkinsonism and SN depigmentation in this birth cohort may have resulted from the yet undetermined infectious agent responsible for encephalitis lethargica. Copyright Â© 2012 American Neurological Association.

123. Microstructural changes in the substantia nigra of asymptomatic agricultural workers.

PubMed

Du, Guangwei; Lewis, Mechelle M; Sterling, Nicholas W; Kong, Lan; Chen, Honglei; Mailman, Richard B; Huang, Xuemei

2014-01-01

Parkinson's disease (PD) is marked by the loss of dopamine neurons in the substantia nigra (SN). Although the exact etiology is unknown, sporadic PD is hypothesized to be a result of genetic susceptibility interacting with environmental insult. Epidemiological studies suggest that pesticide exposure is linked to higher PD risk, but there are no studies demonstrating SN changes with chronic pesticide exposure in human subjects. Thus, high resolution T2-weighted magnetic resonance imaging (MRI) and diffusion tensor (DTI) images were obtained from 12 agricultural workers with chronic pesticide exposure, 12 controls, and 12 PD subjects. Neither controls nor pesticide-exposed subjects, had any parkinsonian symptoms. Exposure history to pesticides was assessed by a structured questionnaire. DTI measures in the SN, including fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD), were obtained for all subjects and compared among groups. Compared to controls, PD patients showed the expected significant changes in all DTI measurements in the SN. The pesticide-exposed subjects, compared to controls, had significantly lower FA values ($p=0.022$, after multiple comparisons correction), but no significant differences in RD, MD, or AD measures. The study is the first to demonstrate microstructural changes in the SN of human subjects with chronic pesticide

exposure. The changes detected by MRI may mark "one of the hits" leading to PD, and underlie the increased risk of PD in pesticide users found in epidemiological studies. Further human studies assisted by these imaging markers may be useful in understanding the etiology of PD. Copyright Â© 2013 Elsevier Inc. All rights reserved.

124. Marinesco bodies and substantia nigra neuron density in Parkinson's disease.

PubMed

Abbott, R D; Nelson, J S; Ross, G W; Uyehara-Lock, J H; Tanner, C M; Masaki, K H; Launer, L J; White, L R; Petrovitch, H

2017-12-01

Marinesco bodies (MB) are intranuclear inclusions in pigmented neurons of the substantia nigra (SN). While rare in children, frequency increases with normal ageing and is high in Alzheimer's disease, dementia with Lewy bodies and other neurodegenerative disorders. Coinciding with the age-related rise in MB frequency is initiation of cell death among SN neurons. Whether MB have a role in this process is unknown. Our aim is to examine the association of MB with SN neuron density in Parkinson's disease (PD) in the Honolulu-Asia Aging Study. Data on MB and neuron density were measured in SN transverse sections in 131 autopsied men aged 73-99 years at the time of death from 1992 to 2007. Marinesco body frequency was low in the presence vs. absence of PD (2.3% vs. 6.6%, $P < 0.001$). After PD onset, MB frequency declined as duration of PD increased ($P = 0.006$). Similar patterns were observed for SN neuron density. When MB frequency was low, neuron density was noticeably reduced in the SN ventrolateral quadrant, the region most vulnerable to PD neurodegeneration. Low MB frequency was unique to PD as its high frequency in non-PD cases was unrelated to parkinsonian signs and incidental Lewy bodies. Frequency was high in the presence of Alzheimer's disease and apolipoprotein Îµ4 alleles. While findings confirm that MB frequency is low in PD, declines in MB frequency continue with PD duration. The extent to which MB have a distinct relationship with PD warrants clarification. Further studies of MB could be important in understanding PD processes. Â© 2017 British Neuropathological Society.

125. Midlife milk consumption and substantia nigra neuron density at death.

PubMed

Abbott, Robert D; Ross, G Webster; Petrovitch, Helen; Masaki, Kamal H; Launer, Lenore J; Nelson, James S; White, Lon R; Tanner, Caroline M

2016-02-09

To examine the relationship between midlife milk intake and Parkinson disease (PD) incidence through associations with substantia nigra (SN) neuron density and organochlorine pesticide exposure in decedent brains from the Honolulu-Asia Aging Study. Milk intake data were collected from 1965 to 1968 in 449 men aged 45-68 years with postmortem examinations from 1992 to 2004. Neuron density (count/mm(2)) was measured in quadrants from a transverse section of the SN. Additional measures included brain residues of heptachlor epoxide, an organochlorine pesticide found at excessively high levels in the milk supply in Hawaii in the early 1980s. Neuron density was lowest in nonsmoking decedents who consumed high amounts of milk (>16 oz/d). After removing cases of PD and dementia with Lewy bodies, adjusted neuron density in all but the dorsomedial quadrant was 41.5% lower for milk intake >16 oz/d vs intake that was less (95% confidence interval 22.7%-55.7%, $p < 0.001$). Among those who drank the most milk, residues of heptachlor epoxide were found in 9 of 10 brains as compared to 63.4% (26/41) for those who consumed no milk ($p = 0.017$). For those who were ever smokers, an association between milk intake and neuron density was absent. Milk intake is associated with SN neuron loss in decedent brains unaffected by PD. Whether contamination of milk with organochlorine pesticides has a role in SN neurodegeneration warrants further study. Â© 2015 American Academy of Neurology.

126. Unitary synaptic connections among substantia nigra pars reticulata neurons

PubMed Central

Wilson, Charles J.

2016-01-01

Neurons in substantia nigra pars reticulata (SNr) are synaptically coupled by local axon collaterals, providing a potential mechanism for local signal processing. Because SNr neurons fire spontaneously, these synapses are constantly active. To investigate their properties, we recorded spontaneous inhibitory postsynaptic currents (sIPSCs) from SNr neurons in brain slices, in which afferents from upstream nuclei are severed, and the cells fire rhythmically. The sIPSC trains contained a mixture of periodic and aperiodic events. Autocorrelation analysis of sIPSC trains showed that a majority of cells had one to four active unitary inputs. The properties of the unitary IPSCs (uIPSCs) were analyzed for cells with one unitary input, using a model of periodic presynaptic firing and stochastic synaptic transmission. The inferred presynaptic firing rates and coefficient of variation of interspike intervals (ISIs) corresponded well with direct measurements of spiking in SNr neurons. Methods were developed to estimate the success probability, amplitude distributions, and kinetics of the uIPSCs, while removing the contribution from aperiodic sIPSCs. The sIPSC amplitudes were not increased upon release from halorhodopsin silencing, suggesting that most synapses were not depressed at the spontaneous firing rate. Gramicidin perforated-patch recordings indicated that the average reversal potential of spontaneous inhibitory postsynaptic potentials was âˆ’64 mV. Because of the change in driving force across the ISI, the unitary inputs are predicted to have a larger postsynaptic impact when they arrive late in the ISI. Simulations of network activity suggest that this very sparse inhibitory coupling may act to desynchronize the activity of SNr neurons while having only a small effect on firing rate. PMID:26961101

127. Magnetic Transfer Contrast Accurately Localizes Substantia Nigra Confirmed by Histology

PubMed Central

Bolding, Mark S.; Reid, Meredith A.; Avsar, Kathy B.; Roberts, Rosalinda C.; Gamlin, Paul D.; Gawne, Timothy J.; White, David M.; den Hollander, Jan A.; Lahti, Adrienne C.

2012-01-01

Background Magnetic Resonance Imaging (MRI) has multiple contrast mechanisms. Like various staining techniques in histology, each contrast type reveals different information about the structure of the brain. However, it is not always clear how structures visible in MRI correspond to structures previously identified by histology. The purpose of this study was to determine if magnetic transfer contrast (MTC) or T2 contrast MRI was better at delineating the substantia nigra. Methods MRI scans were acquired in-vivo from two non-human primates (NHPs). The NHPs were subsequently euthanized, perfused, and their brains sectioned for histological analyses. Each slice was photographed prior to sectioning. Each brain was sectioned into approximately 500, 40-micron sections, encompassing most of the cortex, midbrain, and dorsal parts of the hindbrain. Levels corresponding to anatomical MRI images were selected. From these, adjacent sections were stained using Kluver Barrera (myelin and cell bodies) or tyrosine hydroxylase (TH) (dopaminergic neurons) immunohistochemistry. The resulting images were coregistered to the block-face images using a moving least squares algorithm with similarity transformations. MR images were similarly coregistered to the block-face images, allowing the structures in the MRI to be identified with structures in the histological images. Results We found that hyperintense (light) areas in MTC images were coextensive with the SN as delineated histologically. The hypointense (dark) areas in T2-weighted images were not coextensive with the SN, but extended partially into the SN and partially into the cerebral peduncles. Conclusions MTC is a more accurate contrast mechanism than T2-weighting for localizing the SN in vivo. PMID:22981657

128. Intrinsic and integrative properties of substantia nigra pars reticulata neurons

PubMed Central

Zhou, Fu-Ming; Lee, Christian R.

2011-01-01

The GABA projection neurons of the substantia nigra pars reticulata (SNr) are output neurons for the basal ganglia and thus critical for movement control. Their most striking neurophysiological feature is sustained, spontaneous high frequency spike firing. A fundamental question is: what are the key ion channels supporting the remarkable firing capability in these neurons? Recent studies indicate that these neurons express tonically active TRPC3 channels that conduct a Na-dependent inward current even at hyperpolarized membrane potentials. When the membrane potential reaches â^'60 mV, a voltage-gated persistent sodium current (INaP) starts to activate, further depolarizing the membrane potential. At or slightly below â^'50 mV, the large transient voltage-activated sodium current (INaT) starts to activate and eventually triggers the rapid rising phase of action potentials. SNr GABA neurons have a higher density of (INaT), contributing to the faster rise and larger amplitude of action potentials, compared with the slow-spiking dopamine neurons. INaT also recovers from inactivation more quickly in SNr GABA neurons than in nigral dopamine neurons. In SNr GABA neurons, the rising phase of the action potential triggers the activation of high-threshold, inactivation-resistant Kv3-like channels that can rapidly repolarize the membrane. These intrinsic ion channels provide SNr GABA neurons with the ability to fire spontaneous and sustained high frequency spikes. Additionally, robust GABA inputs from direct pathway medium spiny neurons in the striatum and GABA neurons in the globus pallidus may inhibit and silence SNr GABA neurons, whereas glutamate synaptic input from the subthalamic nucleus may induce burst firing in SNr GABA neurons. Thus, afferent GABA and glutamate synaptic inputs sculpt the tonic high frequency firing of SNr GABA neurons and the consequent inhibition of their targets into an integrated motor control signal that is further fine-tuned by neuromodulators

129. [Morphochemical changes in the substantia nigra cellular structures in Parkinson's disease].

PubMed

Salkov, V N; Khudoerkov, R M; Voronkov, D N; Sobolev, V B; Kutukova, K A

to clarify the features of morphochemical changes in the substantia nigra cellular structures in Parkinson's disease. The structural characteristics of the substantia nigra were studied microscopically and quantified using computer morphometric methods at brain autopsies of individuals with Parkinson's disease who had died from intercurrent diseases and those who had no evidence of neurological disorders in their history (a control group). This investigation could clarify the features of morphochemical changes in both the neural network structures and the glial populations of the substantia nigra in Parkinson's disease. The number of neurons containing tyrosine hydroxylase (a marker of dopamine neurons) in the compact part of the substantia nigra (a ventral region) was smaller and the density distribution of Lewy bodies was higher in the patients with Parkinson's disease than in the control group. The accumulation of iron (II) compounds in the cellular elements and neuropile and the increased expression of glial fibrillary acidic protein in Parkinson's disease were more pronounced than those in the controls. Postmortem diagnosis in Parkinson's disease should be based on a full description of a set of neuronal and glial morphochemical and structural changes in the substantia nigra rather than on the identification of cellular markers for the neurodegenerative process.

130. Antibacterial and Antiadhesive Activities of Extracts from Edible Plants against Soft Drink Spoilage by Asaia spp.

PubMed

Antolak, Hubert; Czyzowska, Agata; Kregiel, Dorota

2017-01-01

This study was conducted to investigate the antibacterial and antiadhesive activities of ethanol extracts from five edible plant parts: cinnamon bark (Cinnamomum zeylanicum), licorice root (Glycyrrhiza radix), nettle leaves (Urtica dioica), green tea leaves (Camellia sinensis), and elderberry flowers (Sambucus nigra). The chemical constituents of the extracts were identified using high-performance liquid chromatography and liquid chromatography plus mass spectrometry. Six strains of Asaia lannensis and Asaia bogorensis bacteria isolated from spoiled commercial fruit-flavored noncarbonated mineral water were used. Bacterial adhesion to polystyrene as an attachment substrate in culture media supplemented with 10% plant extract was evaluated using luminometric measurement of the ATP extracted from adhered cells. The viability of the adhered and planktonic cells was assessed using the plate count method, and the relative adhesion coefficient was calculated. All tested crude extracts contained flavonols (kaempferol, quercetin, and their derivatives), flavanols (catechin and derivatives), flavanones (glabrol, licorice glycoside A, and liquiritin), and phenolic acids (gallic, quinic, chlorogenic, neochlorogenic, caffeic, coumaric, and ferulic). The culture medium with 10% elderberry extract provided the least favorable environment for all tested bacterial strains. Extracts from green tea, cinnamon, and licorice also had significant inhibitory effects on the adhesion of the tested bacterial strains. This research suggests that the addition of selected edible plant extracts could improve the microbial stability of noncarbonated soft drinks.

131. Infusion of opiates into substantia nigra protects against maximal electroshock seizures in rats.

PubMed

Garant, D S; Gale, K

1985-07-01

Microinfusion of morphine sulfate (50 nmol), [d-Ala2]-Met-enkephalin (35 nmol) or dynorphin A 1-13 (1 nmol) bilaterally into the substantia nigra significantly attenuated seizures induced by maximal electroshock in rats. This action was accompanied by stereotyped behavioral hyperactivity. These anticonvulsant and behavioral effects were antagonized by systemic naloxone administration; neither effect was observed after intranigral microinjection of dynorphin A 1-17 amide (1 nmol). These results are consistent with a mu opiate receptor-mediated inhibition of substantia nigra efferent neurons, and with the proposal that bilateral inhibition of nigral efferents attenuates seizure propagation. However, intranigral morphine failed to alter the severity of i.v. bicuculline seizures, indicating that opiate-mediated inhibition in substantia nigra is distinct from that produced by gamma-aminobutyric acid.

132. The complete chloroplast genome of two Brassica species, Brassica nigra and B. Oleracea.

PubMed

Seol, Young-Joo; Kim, Kyunghee; Kang, Sang-Ho; Perumal, Sampath; Lee, Jonghoon; Kim, Chang-Kug

2017-03-01

The two Brassica species, Brassica nigra and Brassica oleracea, are important agronomic crops. The chloroplast genome sequences were generated by de novo assembly using whole genome next-generation sequences. The chloroplast genomes of B. nigra and B. oleracea were 153â€‰633â€‰bp and 153â€‰366â€‰bp in size, respectively, and showed conserved typical chloroplast structure. The both chloroplast genomes contained a total of 114 genes including 80 protein-coding genes, 30 tRNA genes, and 4 rRNA genes. Phylogenetic analysis revealed that B. oleracea is closely related to B. rapa and B. napus but B. nigra is more diverse than the neighbor species Raphanus sativus.

133. Adults with a history of illicit amphetamine use exhibit abnormal substantia nigra morphology and parkinsonism.

PubMed

Todd, Gabrielle; Pearson-Dennett, Verity; Wilcox, Robert A; Chau, Minh T; Thoirs, Kerry; Thewlis, Dominic; Vogel, Adam P; White, Jason M

2016-04-01

The sonographic appearance of the substantia nigra is abnormally bright and enlarged (hyperechogenic) in young adults with a history of illicit stimulant use. The abnormality is a risk factor for Parkinson's disease. The aim of the current study was to identify the type of illicit stimulant drug associated with substantia nigra hyperechogenicity and to determine if individuals with a history of illicit stimulant use exhibit clinical signs of parkinsonism. We hypothesised that use of amphetamines (primarily methamphetamine) is associated with substantia nigra hyperechogenicity and clinical signs of parkinsonism. The area of echogenic signal in the substantia nigra was measured in abstinent human amphetamine users (n = 27; 33 Â± 8 years) and in three control groups comprising a) 'ecstasy' users (n = 19; 23 Â± 3 years), b) cannabis users (n = 30; 26 Â± 8 years), and c) non-drug users (n = 37; 25 Â± 7 years). A subset of subjects (n = 55) also underwent a neurological examination comprising the third and fifth part of the Unified Parkinson's Disease Rating Scale. Area of substantia nigra echogenicity was significantly larger in the amphetamine group (0.276 Â± 0.080 cm(2)) than in the control groups (0.200 Â± 0.075, 0.190 Â± 0.049, 0.191 Â± 0.055 cm(2), respectively; P < 0.002). The score on the clinical rating scale was also significantly higher in the amphetamine group (8.4 Â± 8.1) than in pooled controls (3.3 Â± 2.8; P = 0.002). Illicit use of amphetamines is associated with abnormal substantia nigra morphology and subtle clinical signs of parkinsonism. The results support epidemiological findings linking use of amphetamines, particularly methamphetamine, with increased risk of developing Parkinson's disease later in life. Copyright Â© 2016 Elsevier Ltd. All rights reserved.

134. Development of Brassica oleracea-nigra monosomic alien addition lines: genotypic, cytological and morphological analyses.

PubMed

Tan, Chen; Cui, Cheng; Xiang, Yi; Ge, Xianhong; Li, Zaiyun

2017-12-01

We report the development and characterization of Brassica oleracea - nigra monosomic alien addition lines (MAALs) to dissect the Brassica B genome. Brassica nigra (2nÂ =Â 16, BB) represents the diploid Brassica B genome which carries many useful genes and traits for breeding but received limited studies. To dissect the B genome from B. nigra, the triploid F 1 hybrid (2nÂ =Â 26, CCB) obtained previously from the cross B. oleracea var. alboglabra (2nÂ =Â 18, CC)Â Ã—Â B. nigra was used as the maternal parent and backcrossed successively to parental B. oleracea. The progenies in BC 1 to BC 3 generations were analyzed by the methods of FISH and SSR markers to screen the monosomic alien addition lines (MAALs) with each of eight different B-genome chromosomes added to C genome (2nÂ =Â 19, CCÂ +Â 1B 1-8), and seven different MAALs were established, except for the one with chromosome B2 which existed in one triple addition. Most of these MAALs were distinguishable morphologically from each other, as they expressed the characters from B. nigra differently and at variable extents. The alien chromosome remained unpaired as a univalent in 86.24% pollen mother cells at diakinesis or metaphase I, and formed a trivalent with two C-genome chromosomes in 13.76% cells. Transmission frequency of all the added chromosomes was far higher through the ovules (averagely 14.40%) than the pollen (2.64%). The B1, B4 and B5 chromosomes were transmitted by female at much higher rates (22.38-30.00%) than the other four (B3, B6, B7, B8) (5.04-8.42%). The MAALs should be valuable for exploiting the genome structure and evolution of B. nigra.

135. Evaluation of the in vitro/in vivo potential of five berries (bilberry, blueberry, cranberry, elderberry, and raspberry ketones) commonly used as herbal supplements to inhibit uridine diphospho-glucuronosyltransferase.

PubMed

Choi, Eu Jin; Park, Jung Bae; Yoon, Kee Dong; Bae, Soo Kyung

2014-10-01

In this study, we evaluated inhibitory potentials of popularly-consumed berries (bilberry, blueberry, cranberry, elderberry, and raspberry ketones) as herbal supplements on UGT1A1, UGT1A4, UGT1A6, UGT1A9, and UGT2B7 in vitro. We also investigated the potential herb-drug interaction via UGT1A1 inhibition by blueberry in vivo. We demonstrated that these berries had only weak inhibitory effects on the five UGTs. Bilberry and elderberry had no apparent inhibitions. Blueberry weakly inhibited UGT1A1 with an IC50 value of 62.4Â±4.40 Î¼g/mL and a Ki value of 53.1 Î¼g/mL. Blueberry also weakly inhibited UGT2B7 with an IC50 value of 147Â±11.1 Î¼g/mL. In addition, cranberry weakly inhibited UGT1A9 activity (IC50=458Â±49.7 Î¼g/mL) and raspberry ketones weakly inhibited UGT2B7 activity (IC50=248Â±28.2 Î¼g/mL). Among tested berries, blueberry showed the lowest IC50 value in the inhibition of UGT1A1 in vitro. However, the co-administration of blueberry had no effect on the pharmacokinetics of irinotecan and its active metabolite, SN-38, which was mainly eliminated via UGT1A1, in vivo. Our data suggests that these five berries are unlikely to cause clinically significant herb-drug interactions mediated via inhibition of UGT enzymes involved in drug metabolism. These findings should enable an understanding of herb-drug interactions for the safe use of popularly-consumed berries. Copyright Â© 2014 Elsevier Ltd. All rights reserved.

136. Degradation of substance P by membrane peptidases in the rat substantia nigra: effect of selective inhibitors.

PubMed

Oblin, A; Danse, M J; Zivkovic, B

1988-01-11

The hydrolysis of substance P by membrane peptidases prepared from the rat substantia nigra was studied in the presence of selective inhibitors. Substance P degradation by synaptic and mitochondrial membranes was completely inhibited by 1,10-phenanthroline (1 mM), a non-specific metallopeptidase inhibitor. Captopril and bestatine, selective inhibitors of angiotensin converting enzyme and aminopeptidases respectively, were without effects. However, phosphoramidon (1 microM), a putative 'enkephalinase' inhibitor, selectively inhibited substance P degradation by synaptic membranes. These results suggest that a phosphoramidon-sensitive endopeptidase may be the principal enzyme responsible for substance P degradation in substantia nigra.

137. The restoration of the endangered Sambucus palmensis after 30 years of conservation actions in the Garajonay National Park: genetic assessment and niche modeling.

PubMed

RodrÃguez-RodrÃguez, Priscila; FernÃ¡ndez de Castro, Alejandro G; Sosa, Pedro A

2018-01-01

The translocation of individuals or the reinforcement of populations are measures in the genetic rescue of endangered species. Although it can be controversial to decide which and how many individuals must be reintroduced, populations can benefit from reinforcements. Sambucus palmensis is a critically endangered

endemic to the Canary Islands. During the past 30 years, the Garajonay National Park (La Gomera) has carried out an intensive program of translocations using cuttings, due to the low germination rates of seeds. To assess the effect of the restorations on the population genetics of S.Â palmensis in La Gomera, we collected 402 samples from all the restored sites and all known natural individuals, which were genotyped with seven microsatellite markers. In addition, we conducted a species distribution modeling approach to assess how restorations fit the ecological niche of the species. Results show that there is a high proportion of clone specimens due to the propagation method, and the natural clonal reproduction of the species. Nonetheless, the observed heterozygosity has increased with the restorations and there still are private alleles and unique genotypes in the natural populations that have not been considered in the restorations. The population of Liria constitutes a very important genetic reservoir for the species. To optimize future reintroductions, we have proposed a list of specimens that are suitable for the extraction of seeds or cuttings in a greenhouse, as well as new suitable areas obtained by the species distribution models.

138. Tree regeneration in black ash (Fraxinus nigra) stands exhibiting crown dieback in Minnesota

Treesearch

Brian J. Palik; Michael E. Ostry; Robert C. Venette; Ebrahim. Abdela

2012-01-01

Crown dieback and mortality of black ash (Fraxinus nigra) has been noted across the range of the species in North America for several decades. Causes of dieback and mortality are not definitive, but may be related to spring drought or excessive moisture. Where black ash is the dominant tree species in the forest, continued dieback and mortality may...

139. Reproductive characteristics of the Point Arena mountain beaver (Aplodontia rufa nigra)

Treesearch

William Zielinski; M. J. Mazurek

2016-01-01

Little is known about the ecology and life history of the federally endangered Point Arena mountain beaver (Aplodontia rufa nigra). The distribution of this primitive burrowing rodent is disjunct from the balance of the speciesÃ¢Â€Â™ range and occurs in a unique maritime environment of coastal grasslands and forests. Fundamental to protecting this taxon...

140. Antioxidant and anxiolytic activities of Crataegus nigra Wald. et Kit. berries.

PubMed

Popovic-Milenkovic, Marija T; Tomovic, Marina T; Brankovic, Snezana R; Ljujic, Biljana T; Jankovic, Slobodan M

2014-01-01

Hawthorn has been present for a long time in traditional medicine as antihypertensive, hypolipidemic, anti-inflammatory, gastroprotective, antimicrobial agent. Hawthorn can be used for the cure of stress, nervousness but there is no published paper about actions of Crataegus nigra Wald. et Kit. fruits. The present study was carried out to test free-radical-scavenging and anxiolytic activity of C. nigra fruits. DPPH (alpha,alpha-diphenyl-beta-picrylhydrazyl) assay was used to measure antioxidant activity. BHT, BHA, PG, quercetin and rutin were used as standards. The total amount of phenolic compounds, procyanidins, and flavonoids in the extracts, was determined spectrophotometrically. Results were

expressed as equivalents of gallic acid, cyanidin chloride and quercetin equivalents, respectively. LC-MS/MS was used for identification and quantification of phenolic composition. The anxiety effect, expressed as the difference in time spent in the open and closed arms, was measured and compared between groups. Phenolic compound content of Crataegus nigra fruits was 72.7 mg/g. Yield of total flavonoid aglycones was 0.115 mg/g. Procyanidins were 5.6 mg/g. DPPH radical-scavenging capacity of the extracts showed linear concentration dependency, IC50 value were 27.33 microg/mL. Anxiolytic effect was observed. Species Crataegus nigra fruits hydroalcoholic extract showed antioxidant and anxiolytic activity.

- «
- 5
- 6
- 7
- 8
- 9
- »

- «
- 6
- 7
- 8
- 9
- 10
- »

141. A new family of dispersed repeats from Brassica nigra: characterization and localization.

PubMed

Kapila, R; Negi, M S; This, P; Delseny, M; Srivastava, P S; Lakshmikumaran, M

1996-11-01

The 459-bp HindIII (pBN-4) and the 1732-bp Eco RI (pBNE8) fragments from the Brassica nigra genome were cloned and shown to be members of a dispersed repeat family. Of the three major diploid Brassica species, the repeat pBN-4 was found to be highly specific for the B. nigra genome. The family also hybridized to Sinapis arvensis showing that B. nigra had a closer relationship with the S. arvensis genome than with B. oleracea or B. campestris. The clone pBNE8 showed homology to a number of tRNA species indicating that this family of repeats may have originated from a tRNA sequence. The species-specific 459-bp repeat pBN-4 was localized on the B. nigra chromosomes using monosomic addition lines. In addition to the localization of pBN-4, the chromosomal distribution of two other species-specific repeats, pBN34 and pBNBH35 (reported earlier), was studied. The dispersed repeats pBN-4 and pBNBH35 were found to be present on all of the chromosomes, whereas the tandem repeat pBN34 was localized on two chromosomes.

142. Assessment of Black Ash (Fraxinus nigra) Decline in Minnesota. Chapter 12

Treesearch

Brian J. Palik; Michael E. Ostry; Robert C. Venette; Kathleen T. Ward

2012-01-01

Black ash (Fraxinus nigra) is present throughout the upper Midwest and Northeastern United States and is often found in lowland hardwood forests. Black ash seed is an important food for birds and small

mammals, and its twigs and foliage are used by ungulates. Black ash wood is valued for paneling and furniture as well as for Native American basketry...

143. A clinical, dermoscopic, and histopathological study of Dermatosis Papulosa Nigra (DPN) - An Indian perspective.

PubMed

Bhat, Ramesh M; Patrao, Ninon; Monteiro, Rochelle; Sukumar, D

2017-09-01

Dermatosis papulosa nigra (DPN) is a benign cutaneous condition which commonly occurs in dark-skinned people, especially Asians and African Americans. Owing to its benign nature and rarity, very few studies have been conducted to date, and dermoscopic studies are practically nonexistent. To study the clinical and epidemiological characteristics of patients with dermatosis papulosa nigra (DPN) and to correlate the clinical findings with dermoscopic and histopathological findings in DPN. A total of 100 patients attending the Dermatology outpatient department at Father Muller Medical College, Mangalore, India, with clinically diagnosed dermatosis papulosa nigra were included in the study. Histopathology and dermoscopic evaluation of the lesions were done, and the characteristics seen were noted. Earlier onset of lesions was noted in our study, i.e. onset in the 4th decade as compared to the 6th decade in most other studies. A female preponderance, positive family history, history of sun exposure, and involvement of the head and neck were other significant associations. Histopathology revealed an acanthotic variant in all the lesions that were biopsied. The predominant dermoscopic finding was fissures and ridges of the cerebriform pattern followed by comedo-like openings. Dermatosis papulosa nigra is a benign unaesthetic condition seen in Fitzpatrick skin types IV-VI. The diagnosis is mainly clinical; however, in a few cases histopathology and dermoscopy aid in differentiating it from other benign and malignant tumors. Dermoscopy, in particular, being a noninvasive investigative moiety is a rapid and accurate diagnostic tool. Â© 2017 The International Society of Dermatology.

144. Picrotoxin antagonism of Î³ aminobutyric acid inhibitory responses and synaptic inhibition in the rat substantia nigra

PubMed Central

Crossman, A. R.; Walker, R. J.; Woodruff, G. N.

1973-01-01

Neurones in the substantia nigra of the rat, anaesthetized with urethane, are inhibited both by electrical stimulation of the ipsilateral caudate nucleus and by iontophoretically applied Î³-aminobutyric acid (GABA). Iontophoretically applied picrotoxin reversibly blocks both of these inhibitory responses. These results are consistent with the hypothesis that GABA is the transmitter released by the inhibitory striato-nigral pathway. PMID:4362811

145. Rapid in vitro shoot multiplication of the recalcitrant species Juglans nigra L.

Treesearch

Micah E. Stevens; Paula M. Pijut

2018-01-01

Black walnut (Juglans nigra L.) has long been prized for its timber, leading to commercial cultivation and significant breeding efforts for improving marketable traits. Vegetative and in vitro black walnut

propagation techniques, however, are variable and highly genotype dependent. Optimizing plant growth regulator type and...

146. Developing new microsatellite markers in walnut (Juglans regia L.) from Juglans nigra genomic GA enriched library

Treesearch

Hayat Topcu; Nergiz Coban; Keith Woeste; Mehmet Sutyemez; Salih Kafkas

2015-01-01

We attempted to develop new polymorphic SSR primer pairs in walnut using sequences derived from Juglans nigra L. genomic enriched library with GA repeat. The designed 94 SSR primer pairs were subjected to gradient PCR in 12 walnut cultivars to determine their optimum annealing temperatures and to determine whether they produce bands. Then, the...

147. Habitat characteristics at den sites of the Point Arena mountain beaver (Aplodontia rufa nigra)

Treesearch

William J. Zielinski; John E. Hunter; Robin Hamlin; Keith M. Slauson; M. J. Mazurek

2010-01-01

The Point Arena mountain beaver (Aplodontia rufa nigra) is a federally listed endangered species, but has been the subject of few studies. Mountain beavers use burrows that include a single subterranean den. Foremost among the information needs for this subspecies is a description of the above-ground habitat features associated with dens. Using...

148. Cultivar identification and genetic relatedness among 25 black walnut (Juglans nigra) clones based on microsatellite markers

Treesearch

Kejia Pang; Keith Woeste; Charles Michler

2017-01-01

A set of eight microsatellite markers was used to genotype 25 black walnut (Juglans nigra L.) clones within the Purdue University germplasm repository. The identities of 212 ramets were verified using the same eight microsatellite markers. Some trees were mislabeled and corrected as to clone using analysis of microsatellite markers. A genetic...

149. Development and characterization of microsatellite markers in the Point Arena mountain beaver Aplodontia rufa nigra

Treesearch

Kristine L. Pilgrim; William J. Zielinski; Mary J. Mazurek; Frederick V. Schlexer; Michael K. Schwartz

2006-01-01

The Point Arena mountain beaver (Aplodontia rufa nigra) is an endangered subspecies. Efforts to recover this sub-species will be aided by advances in molecular genetics, specifically the ability to estimate

population size using noninvasive genetic sampling. Here we report on the development of nine polymorphic loci for the Point Arena mountain...

150. Ventral Tegmental Area and Substantia Nigra Neural Correlates of Spatial Learning

ERIC Educational Resources Information Center

Martig, Adria K.; Mizumori, Sheri J. Y.

2011-01-01

The ventral tegmental area (VTA) and substantia nigra pars compacta (SNc) may provide modulatory signals that, respectively, influence hippocampal (HPC)- and striatal-dependent memory. Electrophysiological studies investigating neural correlates of learning and memory of dopamine (DA) neurons during classical conditioning tasks have found DAâ€¦

151. Spatiotemporal Distribution of Chinavia hilaris (Hemiptera: Pentatomidae) in Peanut-Cotton Farmscapes

PubMed Central

Tillman, P. Glynn; Cottrell, Ted E.

2015-01-01

The green stink bug, Chinavia hilaris (Say) (Hemiptera: Pentatomidae), is a pest of cotton in the southeastern United States, but little is known concerning its spatiotemporal distribution in agricultural farmscapes. Therefore, spatiotemporal distribution of C. hilaris in farmscapes where cotton fields adjoined peanut was examined weekly. Spatial patterns of C. hilaris counts were analyzed using SADIE (Spatial Analysis by Distance Indices) methodology. Interpolated maps of C. hilaris density were used to visualize abundance and distribution of C. hilaris in crops. For the six peanut-cotton farmscapes studied, the frequency of C. hilaris in cotton (94.8%) was significantly higher than in peanut (5.2%), and nymphs were rarely detected in peanut, indicating that peanut was not a source of C. hilaris into cotton. Significantly, aggregated spatial distributions were detected in cotton. Maps of local clustering indices depicted patches of C. hilaris in cotton, mainly at field edges including the peanut-to-cotton interface. Black cherry (Prunus serotina Ehrh.) and elderberry (Sambucus nigra subsp. canadensis [L.] R. Bolli) grew in habitats adjacent to crops, C. hilaris were captured in pheromone-baited stink bug traps in these habitats, and in most instances, C. hilaris were observed feeding on black cherry and elderberry in these habitats before colonization of cotton. Spatial distribution of C. hilaris in these farmscapes revealed that C. hilaris colonized cotton field edges near these two noncrop hosts. Altogether, these findings suggest that black cherry and elderberry were sources of C. hilaris into cotton. Factors affecting the spatiotemporal dynamics of C. hilaris in peanut-cotton farmscapes are discussed. PMID:26175464

152. Stimulation of the substantia nigra influences the specification of memory-guided saccades

PubMed Central

Mahamed, Safraaz; Garrison, Tiffany J.; Shires, Joel

2013-01-01

In the absence of sensory information, we rely on past experience or memories to guide our actions. Because previous experimental and clinical reports implicate basal ganglia nuclei in the generation of movement in the absence of sensory stimuli, we ask here whether one output nucleus of the basal ganglia, the substantia nigra pars reticulata (nigra), influences the specification of an eye movement in the absence of sensory information to guide the movement. We manipulated the level of activity of neurons in the nigra by introducing electrical stimulation to the nigra at different time intervals while monkeys made

saccades to different locations in two conditions: one in which the target location remained visible and a second in which the target location appeared only briefly, requiring information stored in memory to specify the movement. Electrical manipulation of the nigra occurring during the delay period of the task, when information about the target was maintained in memory, altered the direction and the occurrence of subsequent saccades. Stimulation during other intervals of the memory task or during the delay period of the visually guided saccade task had less effect on eye movements. On stimulated trials, and only when the visual stimulus was absent, monkeys occasionally (âˆ¼20% of the time) failed to make saccades. When monkeys made saccades in the absence of a visual stimulus, stimulation of the nigra resulted in a rotation of the endpoints ipsilaterally (âˆ¼2Â°) and increased the reaction time of contralaterally directed saccades. When the visual stimulus was present, stimulation of the nigra resulted in no significant rotation and decreased the reaction time of contralaterally directed saccades slightly. Based on these measurements, stimulation during the delay period of the memory-guided saccade task influenced the metrics of saccades much more than did stimulation during the same period of the visually guided saccade task. Because these effects

153. Complete mitochondrial genome sequence of black mustard (Brassica nigra; BB) and comparison with Brassica oleracea (CC) and Brassica carinata (BBCC).

PubMed

Yamagishi, Hiroshi; Tanaka, Yoshiyuki; Terachi, Toru

2014-11-01

Crop species of Brassica (Brassicaceae) consist of three monogenomic species and three amphidiploid species resulting from interspecific hybridizations among them. Until now, mitochondrial genome sequences were available for only five of these species. We sequenced the mitochondrial genome of the sixth species, Brassica nigra (nuclear genome constitution BB), and compared it with those of Brassica oleracea (CC) and Brassica carinata (BBCC). The genome was assembled into a 232â€‰145 bp circular sequence that is slightly larger than that of B. oleracea (219â€‰952 bp). The genome of B. nigra contained 33 protein-coding genes, 3 rRNA genes, and 17 tRNA genes. The cox2-2 gene present in B. oleracea was absent in B. nigra. Although the nucleotide sequences of 52 genes were identical between B. nigra and B. carinata, the second exon of rps3 showed differences including an insertion/deletion (indel) and nucleotide substitutions. A PCR test to detect the indel revealed intraspecific variation in rps3, and in one line of B. nigra it amplified a DNA fragment of the size expected for B. carinata. In addition, the B. carinata lines tested here produced DNA fragments of the size expected for B. nigra. The results indicate that at least two mitotypes of B. nigra were present in the maternal parents of B. carinata.

154. Effect of UV radiation on habitat selection by Girella laevifrons and Graus nigra (Kyphosidae).

PubMed

Pulgar, J; Lagos, P; Maturana, D; ValdÃ©s, M; Aldana, M; Pulgar, V M

2015-02-01

The effect of UV radiation on habitat use of two species of intertidal fishes that inhabit the same pools but exhibit different activity levels and diets was measured: the highly active omnivorous Girella laevifrons and the cryptic carnivorous Graus nigra. Individuals of each species were acclimated to a tank divided in three sections with different illumination; no light (NL), ultraviolet light (UV) and white light (WL), and the time spent and number of visits to each section were recorded. Although both species preferred the NL section, G. laevifrons spent more time in UV and less time in WL compared with G. nigra; G. laevifrons also displayed higher number of visits to UV, suggesting a different tendency in space use in response to UV exposure in intertidal fishes. Â© 2015 The Fisheries Society of the British Isles.

155. Tinea nigra by Hortaea werneckii, a report of 22 cases from Mexico

PubMed Central

Bonifaz, A.; Badali, H.; de Hoog, G.S.; Cruz, M.; Araiza, J.; Cruz, M.A.; Fierro, L.; Ponce, R.M.

2008-01-01

Tinea nigra is a superficial mycosis caused by Hortaea werneckii. It is an infrequent asymptomatic infection that affects human palms and soles, and is mostly observed in tropical countries. We evaluate retrospectively twenty-two confirmed cases of tinea nigra from a total of eleven yr (1997â€“2007) and discuss the epidemiology, clinical features and treatment of this disease. In twelve cases, adults were involved, in 10, children. In nineteen cases the disorder was located on palms of hands and in three on soles of feet. In all cases, the obtained isolates were morphologically identified as Hortaea werneckii and the identification of ten isolates was retrospectively confirmed with the help of sequences of the internal transcribed spacer regions of the ribosomal DNA. The patients received topical treatment with Whitfield ointment, ketoconazole, bifonazole, or terbinafine. Treatment with keratolytic agents and topical antifungals was effective. PMID:19287529

156. Tinea nigra by Hortaea werneckii, a report of 22 cases from Mexico.

PubMed

Bonifaz, A; Badali, H; de Hoog, G S; Cruz, M; Araiza, J; Cruz, M A; Fierro, L; Ponce, R M

2008-01-01

Tinea nigra is a superficial mycosis caused by Hortaea werneckii. It is an infrequent asymptomatic infection that affects human palms and soles, and is mostly observed in tropical countries. We evaluate retrospectively twenty-two confirmed cases of tinea nigra from a total of eleven yr (1997-2007) and discuss the epidemiology, clinical features and treatment of this disease. In twelve cases, adults were involved, in 10, children. In nineteen cases the disorder was located on palms of hands and in three on soles of feet. In all cases, the obtained isolates were morphologically identified as Hortaea werneckii and the identification of ten isolates was retrospectively confirmed with the help of sequences of the internal transcribed spacer regions of the ribosomal DNA. The patients received topical treatment with Whitfield ointment, ketoconazole, bifonazole, or terbinafine. Treatment with keratolytic agents and topical antifungals was effective.

157. Tinea nigra Presenting Speckled or â€œSalt and Pepperâ€ Pattern

PubMed Central

Rossetto, AndrÃ© Luiz; Cruz, Rosana CÃ© Bella; Junior, Vidal Haddad

2014-01-01

A 7-year-old Caucasian female resident of the southern coast of Brazil presented dark spots on the left palm that converged to a unique macule with speckled pattern at about 1 month. The mycological exam and the fungi culture were typical of Hortaea werneckii, the agent of the superficial mycosis Tinea nigra. The patient received butenafine hydrochloride 1% for 30 days, resulting in a complete remission of the lesion. At a follow-up visit 12 months after treatment, there was no lesion recurrence. We describe a form of rare geographical Tinea nigra with a speckled pattern. The â€œsalt and pepperâ€ aspect should be taken into consideration when the mycosis was suspected. PMID:24898980

158. Bilateral Tinea Nigra Plantaris with Good Response to Isoconazole Cream: A Case Report.

PubMed

FalcÃ£o, Eduardo Mastrangelo Marinho; Trope, Beatriz Moritz; Martins, NatÃ¡lia Regina Pinto Guedes; Barreiros, Maria da GlÃ³ria Carvalho; Ramos-E-Silva, Marcia

2015-01-01

Tinea nigra is a superficial fungal infection caused by Hortaea werneckii. It typically affects young individuals as an asymptomatic unilateral macule, from light brown to black on the palms and soles, mainly in tropical and subtropical regions. In 1997, Gupta et al. [Br J Dermatol 1997;137:483-484] described the dermoscopic characteristics of tinea nigra. Topical antifungals with or without keratolytic agents can be used for the treatment. The authors report a case of a 47-year-old man with asymptomatic light brown macules bilaterally on the plantar regions. Dermoscopic examination revealed brownish spicules consistent with the pattern described in the literature. Treatment with isoconazole cream was effective with complete resolution.

159. The Interaction between Root Herbivory and Competitive Ability of Native and Invasive-Range Populations of Brassica nigra

PubMed Central

Oduor, Ayub M. O.; Stift, Marc; van Kleunen, Mark

2015-01-01

The evolution of increased competitive ability (EICA) hypothesis predicts that escape from intense herbivore damage may enable invasive plants to evolve higher competitive ability in the invasive range. Below-ground root herbivory can have a strong impact on plant performance, and invasive plants often compete with multiple species simultaneously, but experimental approaches in which EICA predictions are tested with root herbivores and in a community setting are rare. Here, we used Brassica nigra plants from eight invasive- and seven native-range populations to test whether the invasive-range plants have evolved increased competitive ability when competing with Achillea millefolium and with a community (both with and without A. millefolium). Further, we tested whether competitive interactions depend on root herbivory on B. nigra by the specialist Delia radicum. Without the community, competition with A. millefolium reduced biomass of invasive- but not of native-range B. nigra. With the community, invasive-range B. nigra suffered less than native-range B. nigra. Although the overall effect of root herbivory was not significant, it reduced the negative effect of the presence of the community. The community produced significantly less biomass when competing with B. nigra, irrespective of the range of origin, and independent of the presence of A. millefolium. Taken together, these results offer no clear support for the EICA hypothesis. While native-range B. nigra plants appear to be better in dealing with a single competitor, the invasive-range plants appear to be better in dealing with a more realistic multi-species community. Possibly, this ability of tolerating multiple competitors simultaneously has contributed to the invasion success of B. nigra in North America. PMID:26517125

160. White piedra, black piedra, tinea versicolor, and tinea nigra: contribution to the diagnosis of superficial mycosis*

PubMed Central

Veasey, John Verrinder; de Avila, Ricardo Bertozzi; Miguel, Barbara Arruda Fraletti; Muramatu, Laura Hitomi

2017-01-01

Superficial mycoses are fungal infections restricted to the stratum corneum and to the hair shafts, with no penetration in the epidermis; they are: white piedra, black piedra, tinea versicolor, and tinea nigra. This study presents images of mycological tests performed in the laboratory, as well as exams performed at the authors office, in order to improve the dermatologist's knowledge about the diagnosis of these dermatoses, which are common in many countries. PMID:29186263

- «
- 6
- 7
- 8
- 9
- 10
- »

- «
- 7
- 8
- 9
- 10
- 11
- »

161. White piedra, black piedra, tinea versicolor, and tinea nigra: contribution to the diagnosis of superficial mycosis.

    PubMed

    Veasey, John Verrinder; Avila, Ricardo Bertozzi de; Miguel, Barbara Arruda Fraletti; Muramatu, Laura Hitomi

    2017-01-01

    Superficial mycoses are fungal infections restricted to the stratum corneum and to the hair shafts, with no penetration in the epidermis; they are: white piedra, black piedra, tinea versicolor, and tinea nigra. This study presents images of mycological tests performed in the laboratory, as well as exams performed at the authors office, in order to improve the dermatologist's knowledge about the diagnosis of these dermatoses, which are common in many countries.

162. Characterization of species-specific repeated DNA sequences from B. nigra.

    PubMed

    Gupta, V; Lakshmisita, G; Shaila, M S; Jagannathan, V; Lakshmikumaran, M S

    1992-07-01

    The construction and characterization of two genome-specific recombinant DNA clones from B. nigra are described. Southern analysis showed that the two clones belong to a dispersed repeat family. They differ from each other in their length, distribution and sequence, though the average GC content is nearly the same (45%). These B genome-specific repeats have been used to analyse the phylogenetic relationships between cultivated and wild species of the family Brassicaceae.

163. Internal pallidum and substantia nigra control different parts of the mesopontine reticular formation in primate.

    PubMed

Rolland, Anne-Sophie; Karachi, Carine; Muriel, Marie-Paule; Hirsch, Etienne C; FranÃ§ois, Chantal

2011-08-01

The locomotor area has recently emerged as a target for deep brain stimulation to lessen gait disturbances in advanced parkinsonian patients. An important step in choosing this target is to define anatomical limits of its 2 components, the pedunculopontine nucleus and the cuneiform nucleus, their connections with the basal ganglia, and their output descending pathway. Based on the hypothesis that pedunculopontine nucleus controls locomotion whereas cuneiform nucleus controls axial posture, we analyzed whether both nuclei receive inputs from the internal pallidum and substantia nigra using anterograde and retrograde tract tracing in monkeys. We also examined whether these nuclei convey descending projections to the reticulospinal pathway. Pallidal terminals were densely distributed and restricted to the pedunculopontine nucleus, whereas nigral terminals were diffusely observed in the whole extent of both the pedunculopontine nucleus and the cuneiform nucleus. Moreover, nigral terminals formed symmetric synapses with pedunculopontine nucleus and cuneiform nucleus dendrites. Retrograde tracing experiments confirmed these results because labeled cell bodies were observed in both the internal pallidum and substantia nigra after pedunculopontine nucleus injection, but only in the substantia nigra after cuneiform nucleus injection. Furthermore, anterograde tracing experiments revealed that the pedunculopontine nucleus and cuneiform nucleus project to large portions of the pontomedullary reticular formation. This is the first anatomical evidence that the internal pallidum and the substantia nigra control different parts of the brain stem and can modulate the descending reticulospinal pathway in primates. These findings support the functional hypothesis that the nigro-cuneiform nucleus pathway could control axial posture whereas the pallido-pedunculopontine nucleus pathway could modulate locomotion. Copyright Â© 2011 Movement Disorder Society.

164. Striatal infarction in the rat causes a transient reduction of tyrosine hydroxylase immunoreactivity in the ipsilateral substantia nigra.

PubMed

Soriano, M A; Justicia, C; Ferrer, I; RodrÃguez-FarrÃ©, E; Planas, A M

1997-01-01

Dopaminergic neurons of the substantia nigra pars compacta were examined in the rat brain following striatal infarction subsequent to transient focal cerebral ischemia. Rats had the middle cerebral artery occluded for 2 h or were sham-operated, and tyrosine hydroxylase immunoreactivity was evaluated by Western blot and immunohistochemistry at different times ranging from 1 to 60 days after ischemia. The number of tyrosine hydroxylase-immunoreactive cells in the substantia nigra pars compacta was counted under the light microscope and compared to that in the contralateral side and controls. No changes of tyrosine hydroxylase immunoreactivity were detected in the ipsilateral versus the contralateral substantia nigra of sham-operated rats or 1 day after ischemia. However, a statistically significant reduction of tyrosine hydroxylase-immunoreactive cells became apparent in the ipsilateral compared with the contralateral substantia nigra at 7 and 14 days after ischemia. This reduction showed a clear recovery at 30 days after ischemia, and no signs of difference between the ipsilateral and the contralateral side were apparent by 60 days. Therefore, the reduction of tyrosine hydroxylase immunoreactivity in the ipsilateral substantia nigra was only transiently seen from 1 to 2 weeks following ischemia. The observed loss of tyrosine hydroxylase was not accompanied by signs of cell death or gliosis in the ipsilateral pars compacta. The present results show a transitory reduction of tyrosine hydroxylase immunoreactivity in the ipsilateral substantia nigra pars compacta after focal ischemia and suggest that striatal infarction causes a transient deficit of dopaminergic function.

165. Wood identification of Dalbergia nigra (CITES Appendix I) using quantitative wood anatomy, principal components analysis and naive Bayes classification.

PubMed

Gasson, Peter; Miller, Regis; Stekel, Dov J; Whinder, Frances; Zieminska, Kasia

2010-01-01

Dalbergia nigra is one of the most valuable timber species of its genus, having been traded for over 300 years. Due to over-exploitation it is facing extinction and trade has been banned under CITES Appendix I since 1992. Current methods, primarily comparative wood anatomy, are inadequate for conclusive species identification. This study aims to find a set of anatomical characters that distinguish the wood of D. nigra from other commercially important species of Dalbergia from Latin America. Qualitative and quantitative wood anatomy, principal components analysis and naÃ¯ve Bayes classification were conducted on 43 specimens of Dalbergia, eight D. nigra and 35 from six other Latin American species. Dalbergia cearensis and D. miscolobium can be distinguished from D. nigra on the basis of vessel frequency for the former, and ray frequency for the latter. Principal components analysis was unable to provide any further basis for separating the species. NaÃ¯ve Bayes classification using the four characters: minimum vessel diameter; frequency of solitary vessels; mean ray width; and frequency of axially fused rays, classified all eight D. nigra correctly with no false negatives, but there was a false positive rate of 36.36 %. Wood anatomy alone cannot distinguish D. nigra from all other commercially important Dalbergia species likely to be encountered by customs officials, but can be used to reduce the number of specimens that would need further study.

166. Apelin-13 ameliorates cognitive impairments in 6-hydroxydopamine-induced substantia nigra lesion in rats.

PubMed

Haghparast, Elham; Esmaeili-Mahani, Saeed; Abbasnejad, Mehdi; Sheibani, Vahid

2018-04-01

Although Parkinson's disease (PD) is well known with its motor deficits, the patients often suffer from cognitive dysfunction. Apelin, as the endogenous ligand of the APJ receptor, is found in several brain regions such as substantia nigra and mesolimbic pathway. However, the role of apelin in cognition and cognitive disorders has not been fully clarified. In this study the effects of apelin-13 were investigated on cognitive disorders in rat Parkinsonism experimental model. 6-hydroxydopamine (6-OHDA) was administrated into the substantia nigra. Apelin-13 (1, 2 and 3Î¼g/rat) was administered into the substantia nigra one week after the 6-OHDA injection. Morris water maze (MWM), object location and novel object recognition tests were performed one month after the apelin injection. 6-OHDA-treated animals showed a significant impairment in cognitive functions which was revealed by the increased in the escape latency and traveled distance in MWM test and decreased in the exploration index in novel object recognition and object location tasks. Apelin-13 (3Î¼g/rat) significantly attenuates the mentioned cognitive impairments in 6-OHDA-treated animals. In conclusion, the data support the pro-cognitive property of apelin-13 in 6-OHDA-induced cognitive deficit and provided a new pharmacological aspect of the neuropeptide apelin.

167. Comparative Analysis of Growth and Photosynthetic Characteristics of (Populus simonii Ã— P. nigra) Ã — (P. nigra Ã— P. simonii) Hybrid Clones of Different Ploidides

PubMed Central

Bian, Xiuyan; Liu, Mengran; Sun, Yanshuang; Jiang, Jing; Wang, Fuwei; Li, Shuchun; Cui, Yonghong; Liu, Guifeng; Yang, Chuanping

2015-01-01

To evaluate differences among poplar clones of various ploidies, 12 hybrid poplar clones (P. simonii Ã— P. nigra) Ã— (P. nigra Ã— P. simonii) with different ploidies were used to study phenotypic variation in growth traits and photosynthetic characteristics. Analysis of variance showed remarkable differences for each of the investigated traits among these clones ($P < 0.01$). Coefficients of phenotypic variation (PCV) ranged from 2.38% to 56.71%, and repeatability ranged from 0.656 to 0.987. The Pn (photosynthetic rate) photosynthetic photon flux density (PPFD) curves of the 12 clones were S-shaped, but the Pn-ambient CO2 (Ca) curves were shaped like an inverted â€œVâ€□. The stomatal conductance (Gs)-PPFD and transpiration rate (Tr)-PPFD curves had an upward tendency; however, with increasing PFFD, the intercellular CO2 concentration (Ci)-PPFD curves had a downward tendency in all of the clones. The Pn-PPFD and Pn-Ca curves followed the pattern of a quadratic equation. The average light saturation point and light compensation point of the triploid clones were the highest and lowest, respectively, among the three types of clones. For Pn-Ca curves, diploid clones had a higher average CO2 saturation point and average CO2 compensation point compared with triploid and tetraploid clones. Correlation analyses indicated that all investigated traits were strongly correlated with each other. In future studies, molecular methods should be used to analyze poplar clones of different ploidies to improve our understanding of the growth and development mechanisms of polyploidy. PMID:25867100

168. Increased expression of glutamic acid decarboxylase mRNA in rat substantia nigra after an ibotenic acid lesion in the caudate-putamen.

    PubMed

    Lindefors, N; BrenÃ©, S; Persson, H

    1990-04-01

    In situ hybridization histochemistry and RNA blots were used to study expression of glutamic acid decarboxylase (GAD) mRNA in rat caudate-nucleus and substantia nigra. In situ hybridization combined with computerized image analysis revealed that in the intact substantia nigra reticulata the cross-section area of GAD mRNA positive neurons were 25% larger in the dorsolateral part as compared with the ventromedial part. A unilateral ibotenic acid injection in caudate-putamen lesioned neurons, some of which project to the ipsilateral substantia nigra. An increased level of GAD mRNA was observed in substantia nigra ipsilateral to the lesion. Computerized image analysis of sections from in situ hybridization revealed an increase in the number of silver grains over GAD mRNA positive neurons in the dorsolateral substantia nigra reticulata ipsilateral to the lesion. However, no change was observed in the ventromedial part suggesting that GAD mRNA expression in this part of the nigra is less sensitive to inhibition by caudate-putamen afferents. In agreement with in situ experiments, RNA blots showed a 2-fold increased level of GAD mRNA in substantia nigra ipsilateral to the lesion. The increased GAD mRNA expression in the deafferented substantia nigra suggests a disinhibition of nigral GABA neurons, resulting in an increased utilization of GABA in these substantia nigra neurons.

169. In vitro antimicrobial and antiprotozoal activities, phytochemical screening and heavy metals toxicity of different parts of Ballota nigra.

    PubMed

    Ullah, Najeeb; Ahmad, Ijaz; Ayaz, Sultan

    2014-01-01

    The study was done to assess the phytochemicals (flavonoids, terpenoids, saponins, tannin, alkaloids, and phenol) in different parts (root, stem, and leaves) of Ballota nigra and correlated it to inhibition of microbes (bacteria and fungi), protozoan (Leishmania), and heavy metals toxicity evaluation. In root and stem flavonoids, terpenes and phenols were present in ethanol, chloroform, and ethyl acetate soluble fraction; these were found to be the most active inhibiting fractions against all the tested strains of

bacteria, fungi, and leishmania. While in leaves flavonoids, terpenes, and phenols were present in ethanol, chloroform, and n-butanol fractions which were the most active fractions against both types of microbes and protozoan (leishmania) in in vitro study. Ethanol and chloroform fractions show maximum inhibition against Escherichia coli (17 mm). The phytochemical and biological screenings were correlated with the presence of heavy metals in selected plant Ballota nigra. Cr was found above permissible value (above 1.5 mg/kg) in all parts of the plant. Ni was above WHO limit in B. nigra root and leaves (3.35 Â± 1.20 mg/kg and 5.09 Â± 0.47 mg/kg, respectively). Fe was above permissible value in all parts of B. nigra (above 20 mg/kg). Cd was above permissible value in all parts of the plant (above 0.3 mg/kg). Pb was above WHO limit (above 2 mg/kg) in all parts of Ballota nigra.

170. Near-Infrared Confocal Laser Reflectance Cytoarchitectural Imaging of the Substantia Nigra and Cerebellum in the Fresh Human Cadaver.

PubMed

Cheyuo, Cletus; Grand, Walter; Balos, Lucia L

2017-01-01

Cytoarchitectural neuroimaging remains critical for diagnosis of many brain diseases. Fluorescent dye-enhanced, near-infrared confocal in situ cellular imaging of the brain has been reported. However, impermeability of the blood-brain barrier to most fluorescent dyes limits clinical utility of this modality. The differential degree of reflectance from brain tissue with unenhanced near-infrared imaging may represent an alternative technique for in situ cytoarchitectural neuroimaging. We assessed the utility of unenhanced near-infrared confocal laser reflectance imaging of the cytoarchitecture of the cerebellum and substantia nigra in 2 fresh human cadaver brains using a confocal near-infrared laser probe. Cellular images based on near-infrared differential reflectance were captured at depths of 20-180 Î¼m from the brain surface. Parts of the cerebellum and substantia nigra imaged using the probe were subsequently excised and stained with hematoxylin and eosin for histologic correlation. Near-infrared reflectance imaging revealed the 3-layered cytoarchitecture of the cerebellum, with Purkinje cells appearing hyperreflectant. In the substantia nigra, neurons appeared hyporeflectant with hyperreflectant neuromelanin cytoplasmic inclusions. Cytoarchitecture of the cerebellum and substantia nigra revealed on near-infrared imaging closely correlated with the histology on hematoxylin-eosin staining. We showed that unenhanced near-infrared reflectance imaging of fresh human cadaver brain can reliably identify and distinguish neurons and detailed cytoarchitecture of the cerebellum and substantia nigra. Copyright Â© 2016 Elsevier Inc. All rights reserved.

171. Functional recovery of supersensitive dopamine receptors after intrastriatal grafts of fetal substantia nigra

SciTech Connect

Dawson, T.M.; Dawson, V.L.; Gage, F.H.

1991-03-01

Interruption of the ascending dopamine neurons of the nigrostriatal pathway, by 6-hydroxydopamine (6-OHDA) lesion in rats, produced a significant loss of the dopamine transport complexes labeled with the phencyclidine derivative (3H)BTCP. This loss of dopamine innervation in the striatum was present at least 12 to 14 months after lesioning and was functionally manifested by ipsilateral rotation of the animals in response to amphetamine. In these same animals, in comparison to controls, there was a significant increase in the number (Bmax) of (3H)SCH 23390-labeled D-1 receptors in the striatum (36.7%) and the substantia nigra (35.1%) and a 54.4% increase in themoreÂ Â» number (Bmax) of (3H)sulpiride-labeled striatal D-2 receptors without an apparent change in affinity (Kd). Ten to twelve months after the transplantation of homologous fetal substantia nigra into the denervated striatum, there was a significant decrease in amphetamine-induced turning behavior. In these animals, there was an ingrowth of dopamine

nerve terminals in the striatum as demonstrated by a return of (3H)BTCP binding. Accompanying this reinnervation was the normalization of D-1 and D-2 receptors to control values in the striatum as well as the return of D-1 receptors to prelesion densities in the substantia nigra. In a subgroup of transplanted rats, amphetamine continued to induce ipsilateral turning. In these animals both D-1 and D-2 receptors remained supersensitive. These results support the hypothesis that the functional recovery of transplanted animals is due, in part, to reinnervation of the striatum. In addition, long-term alterations in receptor density may be related to the behavioral deficits that are associated with the 6-OHDA-lesioned rat.Â«Â less

172. Diagnostic value of combined assessment of olfaction and sustantia nigra hyperechogenicity for Parkinson's disease.

PubMed

LÃ³pez HernÃ¡ndez, N; GarcÃa EscrivÃ¡, A; Shalabi Benavent, M

2015-10-01

Hyposmia and substantia nigra hyperechogenicity (SN+) are characteristic markers of Parkinson's disease (PD), although their diagnostic value in isolation may be limited. We evaluated the combined prevalence of both disorders in patients diagnosed with PD and assessed their diagnostic yield compared to a sample with essential tremor (ET) and another group of healthy subjects. Patients diagnosed with PD and ET and treated in our outpatient clinic were enrolled. Olfaction was assessed using the "Sniffin' Sticks" odour identification test (SS-12) and hyperechogenicity of the substantia nigra (SN+) was assessed by transcranial duplex ultrasound. A total of 98 subjects were analysed, comprising 30 with PD, 21 with ET, and 47 controls. The respective prevalence rates of hyposmia (SS-12 < 8) and SN+ (area > .24cm(2)) were 70% and 83.3% in PD, 33.3% and 9.5% in ET, and 17% and 10.6% in controls. Both markers were present in 63% of patients with PD, none of the patients with ET, and only 2 of the controls. Combined use of substantia nigra sonography and olfactory testing with SS-12, two rapid, safe, and accessible tests, was more specific than each isolated marker for distinguishing patients with PD from patients with ET and control subjects. Since both markers have been described in very early phases of PD, combined use may be helpful in providing early diagnosis of PD. Copyright Â© 2013 Sociedad EspaÃ±ola de NeurologÃa. Published by Elsevier EspaÃ±a, S.L.U. All rights reserved.

173. Nutritional pattern and eco-physiology of Hortaea werneckii, agent of human tinea nigra.

PubMed

de Hoog, G S; Gerrits van den Ende, A H

1992-11-01

The life cycle of Hortaea werneckii includes yeast-like, hyphal and meristematic growth. The preponderance of each form of propagation can be influenced by environmental conditions. The clinical entity 'tinea nigra' is explained by ecological similarities between supposed natural niches and human hyperhydrotic skin. The species is recognizable by assimilation of lactose, nitrate and nitrite, no or little growth with L-lysine, cadaverine, creatine and creatinine, and tolerance of 10% NaCl. It generally does not grow at 36 degrees C.

174. Evaluation of anti-inflammatory activity of prenylated substances isolated from Morus alba and Morus nigra.

PubMed

ZelovÃ¡, Hana; HanÃ¡kovÃ¡, Zuzana; ÄŒermÃ¡kovÃ¡, Zuzana; Å mejkal, Karel; DalÄº Acqua, Stefano; Babula, Petr; CvaÄ□ka, Josef; HoÅ¡ek, Jan

2014-06-27

Chromatographic separation of root extracts of Morus alba and M. nigra led to the identification of the 2-arylbenzofurans moracin C (1), mulberrofuran Y (2), and mulberrofuran H (3), and the prenylated flavonoids kuwanon E (4), kuwanon C (5), sanggenon H (6), cudraflavone B (7), and morusinol (8), and the Diels-Alder adducts soroceal (9), and sanggenon E (10). The cytotoxicity and their antiphlogistic activity, determined as the attenuation of the secretion of TNF-Î± and IL-1Î² and the inhibition of NF-ÎºB nuclear translocation in LPS-stimulated macrophages, were evaluated for compounds 1-10.

175. Ultrasonic surface measurements at the Porta Nigra, Trier, and the Neptungrotte, Park Sanssouci Potsdam

NASA Astrophysics Data System (ADS)

Meier, Thomas; Auras, Michael; Fehr, Moritz; KÃ¶hn, Daniel

2015-04-01

Ultrasonic measurements along profiles at the surface of an object are well suited to characterize non-destructively weathering of natural stone near the surface. Ultrasonic waveforms of surface measurements in the frequency range between 10 kHz and 300 kHz are often dominated by the Rayleigh wave - a surface wave that is mainly sensitive to the velocity and attenuation of S-waves in the upper 0.3 cm to 3 cm. The frequency dependence of the Rayleigh wave velocity may be used to analyze variations of the material properties with depth. Applications of ultrasonic surface measurements are shown for two buildings: the Roman Porta Nigra in Trier from the 3rd century AD and the Neptungrotte at Park Sanssouci in Potsdam designed by von Knobelsdorff in the 18th century. Both buildings belong to the world cultural heritage and restorations are planned for the near future. It is interesting to compare measurements at these two buildings because they show the applicability of ultrasonic surface measurements to different natural stones. The Porta Nigra is made of local sandstones whereas the facades of the Neptungrotte are made of Carrara and Kauffunger marble. 71 and 46 surface measurements have been carried out, respectively. At both buildings, Rayleigh-wave group velocities show huge variations. At the Porta Nigra they vary between ca. 0.4 km/s and 1.8 km/s and at the Neptungrotte between ca. 0.7 km/s and 3.0 km/s pointing to alterations in the Rayleigh- and S-wave velocities of more than 50 % due to weathering. Note that velocities of elastic waves may increase e.g. because of the formation of black crusts like at the Porta Nigra or they may be strongly reduced due to weathering. The accuracy of the ultrasonic surface measurements, its reproducibility, and the influence of varying water saturation are discussed. Options for the analysis of ultrasonic waveforms are presented ranging from dispersion analysis to full waveform inversions for one-dimensional and two

176. Sequence analysis of 497 mouse brain ESTs expressed in the substantia nigra

SciTech Connect

Stewart, G.J.; Savioz, A.; Davies, R.W.

1997-01-15

The use of subtracted, region-specific cDNA libraries combined with single-pass cDNA sequencing allows the discovery of novel genes and facilitates molecular description of the tissue or region involved. We report the sequence of 497 mouse expressed sequence tags (ESTs) from two subtracted libraries enriched for cDNAs expressed in the substantia nigra, a brain region with important roles in movement control and Parkinson disease. Of these, 238 ESTs give no database matches and therefore derive from novel genes. A further 115 ESTs show sequence similarity to ESTs from other organisms, which

themselves do not yield any significant database matches to genesmoreÂ Â» of known function. Fifty-six ESTs show sequence similarity to previously identified genes whose mouse homologues have not been reported. The total number of ESTs reported that are new for the mouse is 407, which, together with the 90 ESTs corresponding to known mouse genes or cDNAs, contributes to the molecular description of the substantia nigra. 21 refs., 4 tabs.Â«Â less

177. Brazilian Morus nigra Attenuated Hyperglycemia, Dyslipidemia, and Prooxidant Status in Alloxan-Induced Diabetic Rats

PubMed Central

JÃºnior, Ivanildo I. da S.; Barbosa, Humberto de Moura; Carvalho, DÃ©bora C. R.; Barros, Ruideglan de Alencar; Albuquerque, FlÃ¡via Peixoto; da Silva, DionÃsio Henrique Amaral; Souza, Grasielly R.; Souza, NathÃ¡lia A. C.; Silva, Flaviane M. M.; Duarte, GlÃ³ria I. B. P.; de Oliveira JÃºnior, FlÃ¡vio Monteiro; Gomes, Dayane A.

2017-01-01

Morus nigra has been used popularly for several proposes, including diabetic. In an attempt to support medicinal value, the acute hypoglycemic, hypolipidemic, and antioxidant effects of the ethanolic extract of Morus nigra (EEMn 200 or 400â€‰mg/kg b.w.) were evaluated in normal and alloxan-induced diabetic treated for 14 days. Serum biochemical and antioxidant analysis were performed at the end of experiment. Oral glucose tolerance test was performed at 10th and 15th days. Chromatographic analysis by HPLC-DAD of EEMn was performed. Insulin was used as positive control to glycemic metabolism as well as fenofibrate to lipid metabolism. EEMn (400â€‰mg/kg/day) reduced fasting and postprandial glycaemia, improved oral glucose tolerance, and reduced lipolysis and proteolysis in diabetic rats. EEMn decreased the blood levels of total cholesterol and increased HDL level when compared to the diabetic control rats. At higher levels, EEMn reduced triglycerides and VLDL levels in diabetic rats. Also, EEMn reduced malondialdehyde and increased the reduced glutathione levels in liver of diabetic rats. Chromatographic analysis identified the presence of the flavonoids rutin, isoquercetin, and kaempferitrin. Acute EEMn treatment reduced hyperglycemia, improved oral glucose tolerance, and minimized dyslipidemia and oxidative stress leading to a reduction in atherogenic index in alloxan-induced diabetic rats. PMID:28567440

178. Boron accumulation and toxicity in hybrid poplar (Populus nigra Ã— euramericana).

PubMed

Rees, Rainer; Robinson, Brett H; Menon, Manoj; Lehmann, Eberhard; GÃ¼nthardt-Goerg, Madeleine S; Schulin, Rainer

2011-12-15

Poplars accumulate high B concentrations and are thus used for the phytomanagement of B contaminated soils. Here, we performed pot experiments in which Populus nigra Ã— euramericana were grown on a substrate with B concentrations ranging from 13 to 280 mg kg(-1) as H(3)BO(3). Salix viminalis, Brassica juncea, and Lupinus albus were grown under some growing conditions for comparison. Poplar growth was unaffected at soil B treatment levels up to 93 mg kg(-1). Growth was progressively reduced at levels of 168 and 280 mg kg(-1). None of the other species survived at these substrate B levels. At leaf B concentrations <900 mg kg(-1) only <10% of the poplar leaf area showed signs of toxicity. Neutron radiography revealed that chlorotic leaf tissues had B concentrations of 1000-2000 mg kg(-1), while necrotic tissues had >2000 mg kg(-1). Average B concentrations of up to 3500 mg kg(-1) were found in leaves, while spots within leaves had concentrations >7000 mg kg(-1), showing that B accumulation in leaf tissue continued even after the onset of necrosis. The B accumulation ability of P. nigra Ã— euramericana is associated with B hypertolerance in the living tissue and storage of B in dead leaf tissue.

179. Increased Frequency of Î±-Synuclein in the Substantia Nigra in HIV Infection

PubMed Central

Khanlou, Negar; Moore, David J.; Chana, Gursharan; Cherner, Mariana; Lazzaretto, Deborah; Dawes, Sharron; Grant, Igor; Masliah, Eliezer; Everall, Ian P.

2014-01-01

The frequency of neurodegenerative markers among long surviving HIV infected individuals is unknown, therefore, the present study investigated the frequency of Î±-synuclein, Î²-amyloid and HIV-associated brain pathology in the brains of older HIV infected individuals. We examined the substantia nigra of 73 clinically well-characterized HIV infected individuals aged 50 to 76 years from the National NeuroAIDS Tissue Consortium. We also examined the frontal and temporal cortical regions of a subset of 36 individuals. The brain regions were examined for the presence of Î±-synuclein, Î²-amyloid and HIV-associated brain pathology. Neuritic Î±-synuclein expression was found in 16% (12/73) of the substantia nigra of the HIV+ cases and none of the older control cases (0/18). Î²-amyloid deposits were prevalent and found in nearly all of the HIV+ cases (35/36). Despite these increases of degenerative pathology, HIV-associated brain pathology was present in only 10% of cases. Among older HIV+ adults HIV-associated brain pathology does not appear elevated; however, the frequency of both Î±-synuclein and Î²-amyloid is higher than that found in older healthy persons. The increased prevalence of Î±-synuclein and Î²-amyloid in the brains of older HIV-infected individuals may predict an increased risk of developing neurodegenerative disease. PMID:19115126

180. Protection of the aged substantia nigra of the rat against oxidative damage by (-)-deprenyl.

PubMed Central

de la Cruz, C. P.; Revilla, E.; Steffen, V.; RodrÃguez-GÃ³mez, J. A.; Cano, J.; Machado, A.

1996-01-01

1. We have studied the effect of (-)-deprenyl on the oxidative damage that the rat substantia nigra suffers during aging. 2. (-)-Deprenyl (2 mg kg-1, three times a week) administered for two months, beginning at 22 months of age, produced a significant increase in tyrosine hydroxylase (TH) activity (2.67 +/- 0.40 and 3.64 +/- 0.38 nmol mg-1 protein h-1 in untreated aged rats and treated aged rats respectively, $P < 0.05$) and in TH amount (0.072 +/- 0.012 and 0.128 +/- 0.38 absorbance 405 nm in untreated aged and treated aged rats respectively, $P < 0.05$). 3. The proteins of aged rat substantia nigra showed a significant decrease of carbonyl groups in treated animals compared with saline-injected control rats (136.2 +/- 21.8 and 71.5 +/- 13.2 c.p.m. microgram-1 protein in untreated aged and treated aged rats respectively, $P < 0.05$). 4. The carbonyl groups measured in TH enzyme showed a statistically significant decrease (42.3%) after (-)-deprenyl treatment (471.4 +/- 73.0 and 271.9 +/- 50.00 c.p.m. in untreated aged and treated aged rats respectively, $P < 0.001$). 5. All these results suggest that oxidative damage produced during aging is prevented by (-)-deprenyl treatment and could explain the effect of this drug in Parkinson's disease (PD) and other degenerative diseases such as Alzheimer's disease. PMID:8732287

- 8
- 9
- 10
- 11
- 12
- »

181. Adaptive mechanisms and genomic plasticity for drought tolerance identified in European black poplar (Populus nigra L.)

    PubMed Central

    Viger, Maud; Smith, Hazel K.; Cohen, David; Dewoody, Jennifer; Trewin, Harriet; Steenackers, Marijke; Bastien, Catherine; Taylor, Gail

    2016-01-01

    Summer droughts are likely to increase in frequency and intensity across Europe, yet long-lived trees may have a limited ability to tolerate drought. It is therefore critical that we improve our understanding of phenotypic plasticity to drought in natural populations for ecologically and economically important trees such as Populus nigra L. A common garden experiment was conducted using âˆ¼500 wild P. nigra trees, collected from 11 river populations across Europe. Phenotypic variation was found across the collection, with southern genotypes from Spain and France characterized by small leaves and limited biomass production. To examine the relationship between phenotypic variation and drought tolerance, six genotypes with contrasting leaf morphologies were subjected to a water deficit experiment. â€˜Northâ€™ easternâ€™ genotypes were collected at wet sites and responded to water deficit with reduced biomass growth, slow stomatal closure and reduced water use efficiency (WUE) assessed by Î”13C. In contrast, â€˜southernâ€™ genotypes originating from arid sites showed rapid stomatal closure, improved WUE and limited leaf loss. Transcriptome analyses of a genotype from Spain (Sp2, originating from an arid site) and another from northern Italy (Ita, originating from a wet site) revealed dramatic differences in gene expression response to water deficit. Transcripts controlling leaf development and stomatal patterning, including SPCH, ANT, ER, AS1, AS2, PHB, CLV1, ERL1â€“3 and TMM, were down-regulated in Ita but not in Sp2 in response to drought. PMID:27174702

182. Navigation-supported diagnosis of the substantia nigra by matching midbrain sonography and MRI

    NASA Astrophysics Data System (ADS)

    Salah, Zein; Weise, David; Preim, Bernhard; Classen, Joseph; Rose, Georg

    2012-03-01

    Transcranial sonography (TCS) is a well-established neuroimaging technique that allows for visualizing several brainstem structures, including the substantia nigra, and helps for the diagnosis and differential diagnosis of various movement disorders, especially in Parkinsonian syndromes. However, proximate brainstem anatomy can hardly be recognized due to the limited image quality of B-scans. In this paper, a visualization system for the diagnosis of the substantia nigra is presented, which utilizes neuronavigated TCS to reconstruct tomographical slices from registered MRI datasets and visualizes them simultaneously with corresponding TCS planes in realtime. To generate MRI tomographical slices, the tracking data of the calibrated ultrasound probe are passed to an optimized slicing algorithm, which computes cross sections at arbitrary positions and orientations from the registered MRI dataset. The extracted MRI cross sections are finally fused with the region of interest from the ultrasound image. The system allows for the computation and visualization of slices at a near real-time rate. Primary tests of the system show an added value to the pure sonographic imaging. The system also allows for reconstructing volumetric (3D) ultrasonic data of the region of interest, and thus contributes to enhancing the diagnostic yield of midbrain sonography.

183. Culturable heterotrophic bacteria from the marine sponge Dendrilla nigra: isolation and phylogenetic diversity of actinobacteria

NASA Astrophysics Data System (ADS)

Selvin, Joseph; Gandhimathi, R.; Kiran, G. Seghal; Priya, S. Shanmugha; Ravji, T. Rajeetha; Hema, T. A.

2009-09-01

Culturable heterotrophic bacterial composition of marine sponge Dendrilla nigra was analysed using different enrichments. Five media compositions including without enrichment (control), enriched with sponge extract, with growth regulator (antibiotics), with autoinducers, and complete enrichment containing sponge extract, antibiotics, and autoinducers were developed. DNA hybridization assay was performed to explore host specific bacteria and ecotypes of culturable sponge-associated bacteria. Enrichment with selective inducers (AHLs and sponge extract) and regulators (antibiotics) considerably enhanced the cultivation potential of sponge-associated bacteria. It was found that Marinobacter (MSI032), Micromonospora (MSI033), Streptomyces (MSI051), and Pseudomonas (MSI057) were sponge-associated obligate symbionts. The present findings envisaged that â€œ Micromonospora-Saccharomonospora-Streptomycesâ€ group was the major culturable actinobacteria in the marine sponge D. nigra. The DNA hybridization assay was a reliable method for the analysis of culturable bacterial community in marine sponges. Based on the culturable community structure, the sponge-associated bacteria can be grouped (ecotypes) as general symbionts, specific symbionts, habitat flora, and antagonists.

184. Regulation of dopaminergic neuron firing by heterogeneous dopamine autoreceptors in the substantia nigra pars compacta.

PubMed

Jang, Jin Young; Jang, Miae; Kim, Shin Hye; Um, Ki Bum; Kang, Yun Kyung; Kim, Hyun Jin; Chung, Sungkwon; Park, Myoung Kyu

2011-03-01

Dopamine (DA) receptors generate many cellular signals and play various roles in locomotion, motivation, hormone production, and drug abuse. According to the location and expression types of the receptors in the brain, DA signals act in either stimulatory or inhibitory manners. Although DA autoreceptors in the substantia nigra pars compacta are known to regulate firing activity, the exact expression patterns and roles of DA autoreceptor types on the firing activity are highly debated. Therefore, we performed individual correlation studies between firing activity and receptor expression patterns using acutely isolated rat substantia nigra pars compacta DA neurons. When we performed single-cell RT-PCR experiments, D(1), D(2)S, D(2)L, D(3), and D(5) receptor mRNA were heterogeneously expressed in the order of D(2)L > D(2)S > D(3) > D(5) > D(1). Stimulation of D(2) receptors with quinpirole suppressed spontaneous firing similarly among all neurons expressing mRNA solely for D(2)S, D(2)L, or D(3) receptors. However, quinpirole most strongly suppressed spontaneous firing in the neurons expressing mRNA for both D(2) and D(3) receptors. These data suggest that D(2) S, D(2)L, and D(3) receptors are able to equally suppress firing activity, but that D(2) and D(3) receptors synergistically suppress firing. This diversity in DA autoreceptors could explain the various actions of DA in the brain. Â© 2011 The Authors. Journal of Neurochemistry Â© 2011 International Society for Neurochemistry.

185. Canopy treatment influences growth of replacement tree species in Fraxinus nigra forests threatened by the emerald ash borer in Minnesota, USA

Treesearch

Christopher E. Looney; Anthony W. D' Amato; Brian J. Palik; Robert A. Slesak

2017-01-01

Fraxinus nigra Marsh. (black ash), a dominant tree species of wetland forests in northern Minnesota, USA, is imperiled by the invasive insect emerald ash borer (EAB; Agrilus planipennis Fairmaire, 1888). Regeneration of associated tree species is generally low in F. nigra forests and could be impacted...

186. Substrates and materials used for nesting by North American Osmia bees (Hymenoptera: Apiformes: Megachilidae)

Treesearch

James H. Cane; Terry L. Griswold; Frank D. Parker

2007-01-01

Nesting substrates and construction materials are compared for 65 of North America's 139 described native species of Osmia bees. Most accounts report Osmia bees nesting in preexisting cavities in dead wood or pithy stems such as elderberry (Sambucus spp.), with cell partitions and plugs made from a pulp of finely masticated leaf tissue. Mud is widely used by...

187. GREAT I Study of the Upper Mississippi River. Technical Appendixes. Volume 5. Fish and Wildlife.

DTIC Science & Technology

1980-09-01

Midwest , put into and State agencies have heritage. motion an object lesson in joined in partnership to government cooperation. take action toward...Slippery Elm Shrubs Cornus stolonifera Michx. Red Osier Dogwood Sambucus canadensis L. Elderberry Xanthoxylum americanum Mill. Prickly Ash...Toxicodendron radicans (L.) Kuntze. Poison Ivy Vines Menispermum canadense L. Moonseed Parthenocissus guincquifolia (L.) Planch. Virginia Creeper Parthenocissus

188. Cultural Resource Survey of Carrollton Bend Revetment, Mississippi River M-105.7 to 101.7-L, Jefferson and Orleans Parishes, Louisiana

DTIC Science & Technology

1993-02-26

Myrica cerifera), dwarf palmetto (Sabal minor), marsh elder, elderberry (Sambucus canadensis), and yaupon (//ex vomitoria). Vines such as trumpet creeper...The spacious walks are lined with the choicest flowers , whose bloom and fragrance are especially attractive to those who come from the North

189. Cultural Resources Investigations in the Vicinity of Fort Jackson, Plaquemines Parish, Louisiana: The Proposed Solari Borrow Area

DTIC Science & Technology

1989-08-01

vrgniana) can be found, while other plants requiring some drainage for root growth like palmet- to (Sabal minor), elderberry (Sambucus canadensis...certainly in full flower by A.D. 100, is generally regarded as a southern extension of the Hope- well Culture associated with the Ohio Valley. The

190. Snohomish Estuary Wetlands Study. Volume IV. Delineation of Wetland Boundaries

DTIC Science & Technology

1978-08-01

elderberry (Sambucus race- mosa) form the understory, along with hedge nettle (Stachys cooleyae), -48- nettle (Urtica spp.) and thistles (Cirsium spp...identified aquatic lands as areas supporting certain flowering plants and algae common to intertidal areas. NEC noted that mosspecies listed occurred low

191. Cultural Resources Survey of Palmetto and Coochie Revetments, Mississippi River M-326 to 315

DTIC Science & Technology

1993-11-11

oils . . . . . 8 Sedim entary...wildlife are asters (Aster sp.), buck vine (Amelopsis arborea), dewberry (Rubus sp.), elderberry (Sambucus canadensis), and various maples (Acer sp...time characterized by a "filling in" of regional areas by peoples adapting to essentially modern natural environments. The concept of an Archaic Stage

192. Small geographic range but not panmictic: how forests structure the endangered Point Arena mountain beaver (Aplodontia rufa nigra)

Treesearch

William J. Zielinski; Fredrick V. Schlexer; Sean A. Parks; Kristine L. Pilgrim; Michael K. Schwartz

2012-01-01

The landscape genetics framework is typically applied to broad regions that occupy only small portions of a species' range. Rarely is the entire range of a taxon the subject of study. We examined the landscape genetic structure of the endangered Point Arena mountain beaver (Aplodontia rufa nigra), whose isolated geographic range is found in a...

193. Vegetation responses to simulated emerald ash borer infestation in Fraxinus nigra dominated wetlands of Upper Michigan, USA

Treesearch

Joshua C. Davis; Joseph P. Shannon; Nicholas W. Bolton; Randall K. Kolka; Thomas G. Pypker

2017-01-01

The invasive emerald ash borer (EAB) (Agrilus planipennis Fairmaire (Coleoptera: Buprestidae)) is a significant threat to biodiversity and ecosystem processes in North American forests. Of particular concern is the fate of Fraxinus nigra (black ash), which is frequently a dominant canopy species across much of its range. To...

194. Hydrogen Peroxide Response in Leaves of Poplar (Populus simonii Ã— Populus nigra) Revealed from Physiological and Proteomic Analyses

PubMed Central

Jin, Xin; Sun, Xiaomei; Gao, Tianxiang; Chen, Xiaomei; She, Yimin; Jiang, Tingbo; Chen, Sixue; Dai, Shaojun

2017-01-01

Hydrogen peroxide (H2O2) is one of the most abundant reactive oxygen species (ROS), which plays dual roles as a toxic byproduct of cell metabolism and a regulatory signal molecule in plant development and stress response. Populus simonii Ã— Populus nigra is an important cultivated forest species with resistance to cold, drought, insect and disease, and also a key model plant for forest genetic engineering. In this study, H2O2 response in P. simonii Ã— P. nigra leaves was investigated using physiological and proteomics approaches. The seedlings of 50-day-old P. simonii Ã— P. nigra under H2O2 stress exhibited stressful phenotypes, such as increase of in vivo H2O2 content, decrease of photosynthetic rate, elevated osmolytes, antioxidant accumulation, as well as increased activities of several ROS scavenging enzymes. Besides, 81 H2O2-responsive proteins were identified in the poplar leaves. The diverse abundant patterns of these proteins highlight the H2O2-responsive pathways in leaves, including 14-3-3 protein and nucleoside diphosphate kinase (NDPK)-mediated signaling, modulation of thylakoid membrane structure, enhancement of various ROS scavenging pathways, decrease of photosynthesis, dynamics of proteins conformation, and changes in carbohydrate and other metabolisms. This study provides valuable information for understanding H2O2-responsive mechanisms in leaves of P. simonii Ã— P. nigra. PMID:28974034

195. Development of a reliable method for determining sex for a primitive rodent, the Point Arena mountain beaver (Aplodontia rufa nigra)

Treesearch

Kristine L. Pilgrim; William J. Zielinski; Fredrick V. Schlexer; Michael K. Schwartz

2012-01-01

The mountain beaver (Aplodontia rufa) is a primitive species of rodent, often considered a living fossil. The Point Arena mountain beaver (Aplodontia rufa nigra) is an endangered subspecies that occurs in a very restricted range in northern California. Efforts to recover this taxon have been limited by the lack of knowledge on their demography, particularly sex and age...

196. A range-wide occupancy estimate and habitat model for the endangered Point Arena mountain beaver (Aplodontia rufa nigra)

Treesearch

William J. Zielinski; Fredrick V. Schlexer; Jeffrey R. Dunk; Matthew J. Lau; James J. Graham

2015-01-01

The mountain beaver (Aplodontia rufa) is notably the most primitive North American rodent with a restricted distribution in the Pacific Northwest based on its physiological limits to heat stress and water needs. The Point Arena subspecies (A. r. nigra) is federally listed as endangered and is 1 of 2 subspecies that have extremely...

197. Oxidative stress-dependent changes in immune responses and cell death in the substantia nigra after ozone exposure in rat

PubMed Central

Rivas-Arancibia, Selva; ZimbrÃ³n, Luis Fernando HernÃ¡ndez; RodrÃguez-MartÃnez, Erika; Maldonado, Perla D.; Borgonio PÃ©rez, Gabino; SepÃºlveda-Parada, MarÃa

2015-01-01

Parkinson's disease has been associated with the selective loss of neurons in the substantia nigra pars compacta. Increasing evidence suggests that oxidative stress plays a major role. The resulting increase in reactive oxygen species triggers a sequence of events that leads to cell damage, activation of microglia cells and neuroinflammatory responses. Our objective was to study whether chronic exposure to low doses of ozone, which produces oxidative stress itself, induces progressive cell death in conjunction with glial alterations in the substantia nigra. Animals were exposed to an ozone-free air stream (control) or to low doses of ozone for 7, 15, 30, 60, or 90 days. Each group underwent (1) spectrophotometric analysis for protein oxidation; (2) western blot testing for microglia reactivity and nuclear factor kappa B expression levels; and (3) immunohistochemistry for cytochrome c, GFAP, Iba-1, NFkB, and COX-2. Our results indicate that ozone induces an increase in protein oxidation levels, changes in activated astrocytes and microglia, and cell death. NFkB and cytochrome c showed an increase until 30 days of exposure, while cyclooxygenase 2 in the substantia nigra increased from 7 days up to 90 days of repetitive ozone exposure. These results suggest that oxidative stress caused by ozone exposure induces changes in inflammatory responses and progressive cell death in the substantia nigra in rats, which could also be occurring in Parkinson's disease. PMID:25999851

198. Chemotaxonomic significance of the terpene composition in natural populations of Pinus nigra J.F.Arnold from Serbia.

PubMed

Sarac, Zorica; BojoviÄ‡, Srdjan; NikoliÄ‡, Biljana; TeÅ¡eviÄ‡, Vele; EthorÄ‘eviÄ‡, Iris; Marin, Petar D

2013-08-01

The essential-oil variability in seven native populations belonging to different infraspecific taxa of Pinus nigra (ssp. nigra, var. gocensis, ssp. pallasiana, and var. banatica) growing wild in Serbia was analyzed. In the needles of 195 trees from seven populations, 58 essential-oil components were identified. The major components were Î±-pinene (43.6%) and germacrene D (29.8%), comprising together 73.4% of the total oil composition. Based on the average chemical profile of the main terpene components (with contents >5%), the studied populations were found to be the most similar to populations from central Italy and Greece (ssp. nigra). Cluster analysis showed the division of the populations into three principal groups: the first group consisted of Populationsâ€…I, II, III, IV, and V (considered as ssp. nigra group), the second of Populationâ€…VI (ssp. pallasiana group), and the third of Populationâ€…VII, which had the most distinct oil composition (ssp. banatica group). The taxonomic implications of the essential-oil profiles of the investigated taxa of this very complex species are discussed. Copyright Â© 2013 Verlag Helvetica Chimica Acta AG, ZÃ¼rich.

199. Origin of adventitious roots in black walnut (Juglans nigra) softwood cuttings rooted under optimized conditions in a fog chamber

Treesearch

Micah E. Stevens; Paula M. Pijut

2017-01-01

High-quality black walnut (Juglans nigra L.) logs are of great economic value and are used in the manufacture of high-end products. Indigenous to the central hardwood region, black walnut has been commercially cultivated for many years, and genetic improvement and selections have resulted in superior timber genotypes. The recalcitrance of black...

200. First report of Geosmithia morbida on ambrosia beetles emerged from thousand cankers-diseased Juglans nigra in Ohio

Treesearch

Jennifer Juzwik; M. McDermott-Kubeczko; T. J. Stewart; M. D. Ginzel

2016-01-01

Eastern black walnut (Juglans nigra) is a highly-valued species for timber and nut production in the eastern United States. Thousand cankers disease (TCD), caused by the interaction of the walnut twig beetle (Pityophthorus juglandis) and the canker fungus Geosmithia morbida (Tisserat et al. 2009), was first...

- «
- 8
- 9
- 10
- 11
- 12
- »

- «
- 9
- 10
- 11
- 12
- 13
- »

201. Winter variation in physiological status of cold stored and freshly lifted semi-evergreen quercus nigra seedlings

Treesearch

Rosa C. Goodman; Douglass F. Jacobs; Kent G. Apostol; Barrett C. Wilson; Emile S. Gardiner

2009-01-01

Water oak (Quercus nigra L.) is a tardily deciduous species commonly planted in afforestation projects in the Lower Mississippi River Alluvial Valley, USA. Field performance is often marked by low survival rates and top dieback, which may be associated with poor physiological quality of planting stock.

202. Encephalitis Lethargica With Isolated Substantia Nigra Lesions Followed by a Second Encephalitis in a Child With Humoral Immunodeficiency.

PubMed

Yang, Lu; Jia, Guijuan; Li, Baomin; Lei, Gefei; Sun, Ruopeng

2015-12-01

Encephalitis lethargica is an encephalitic illness with multiple nervous system symptoms. Lesions only involving substantia nigra on magnetic resonance imaging are uncommon, especially in children. A second encephalitis illness after encephalitis lethargica has never been reported before. We describe a 7-year-old boy with humoral immunity deficiency who developed encephalitis lethargica associated with bilateral substantia nigra lesions on magnetic resonance imaging. After a nearly complete recovery, he developed encephalitis once again. He was diagnosed with encephalitis lethargica with somnolence, akinetic mutism, and ophthalmoplegia after intermittent fever. Cerebrospinal fluid pleocytosis and positive

oligoclonal bands were documented. Symmetrical substantia nigra lesions on high-intensity magnetic resonance imaging gradually evolved into a liquid signal. He had almost recovered when he developed fatigue and hypersomnia and was diagnosed with encephalitis again, supported by mild pleocytosis in cerebrospinal fluid and subcortical white matter lesions in the frontal lobes. His symptoms resolved following administration of corticosteroids and immunoglobulins. This is the first report of an immune-deficient child to develop encephalitis lethargica with isolated substantia nigra lesions on magnetic resonance imaging and a second encephalitis illness after recovery from encephalitis lethargica. Copyright Â© 2015. Published by Elsevier Inc.

203. Sapflow of hybrid poplar (Populus nigra L. x P. maximowiczii A. Henry 'NM6') during phytoremediation of landfill leachate

    Treesearch

    Ronald S., Jr. Zalesny; Adam H. Wiese; Edmund O. Bauer; Don E. Riemenschneider

    2006-01-01

    Poplars are ideal for phytoremediation because of their high water usage, fast growth, and deep root systems. We measured in 2002 and 2003 the sapflow of hybrid poplars (Populus nigra L. x P. maximowiczii A. Henry 'NM6') planted in 1999 for phytoremediation of a landfill in Rhinelander, WI, USA (45.6?N, 89.4?W).

204. Species verification of Dalbergia nigra and Dalbergia spruceana samples in the wood collection of the Forest Products Laboratory

    Treesearch

    Michael C. Wiemann; Edgard O. Espinoza

    2017-01-01

    To evade endangered timber species laws, unscrupulous importers sometimes attempt to pass protected Dalbergia nigra as look-alike but unprotected, Dalbergia Spruceana. Wood density and fluorescence properties are sometimes used to identify the species. Although these properties are useful and do not require special equipment,...

205. Oxidative stress-dependent changes in immune responses and cell death in the substantia nigra after ozone exposure in rat.

    PubMed

    Rivas-Arancibia, Selva; ZimbrÃ³n, Luis Fernando HernÃ¡ndez; RodrÃguez-MartÃnez, Erika; Maldonado, Perla D; Borgonio PÃ©rez, Gabino; SepÃºlveda-Parada, MarÃa

    2015-01-01

    Parkinson's disease has been associated with the selective loss of neurons in the substantia nigra pars compacta. Increasing evidence suggests that oxidative stress plays a major role. The resulting increase in reactive oxygen species triggers a sequence of events that leads to cell damage, activation of microglia cells and neuroinflammatory responses. Our objective was to study whether chronic exposure to low doses of ozone, which produces oxidative stress itself, induces progressive cell death in conjunction with glial alterations in the substantia nigra. Animals were exposed to an ozone-free air stream (control) or to low doses of ozone for 7, 15, 30, 60, or 90 days. Each group underwent (1) spectrophotometric analysis for protein oxidation; (2) western blot testing for microglia reactivity and nuclear factor kappa B expression levels; and (3) immunohistochemistry for cytochrome c, GFAP, Iba-1, NFkB, and COX-2. Our results

indicate that ozone induces an increase in protein oxidation levels, changes in activated astrocytes and microglia, and cell death. NFkB and cytochrome c showed an increase until 30 days of exposure, while cyclooxygenase 2 in the substantia nigra increased from 7 days up to 90 days of repetitive ozone exposure. These results suggest that oxidative stress caused by ozone exposure induces changes in inflammatory responses and progressive cell death in the substantia nigra in rats, which could also be occurring in Parkinson's disease.

206. Chronic Nicotine Treatment Increases nAChRs and Microglial Expression in Monkey Substantia Nigra after Nigrostriatal Damage

PubMed Central

Campos, Carla; Parameswaran, Neeraja; William Langston, J.; Michael McIntosh, J.; Yeluashvili, Michael

2010-01-01

Our previous work had shown that long-term nicotine administration improved dopaminergic markers and nicotinic receptors (nAChRs) in the striatum of monkeys with nigrostriatal damage. The present experiments were done to determine whether nicotine treatment also led to changes in the substantia nigra, the region containing dopaminergic cell bodies. Monkeys were chronically treated with nicotine in the drinking water for 6 months after which they were injected with low dose MPTP for a further 6-month period. Nicotine was administered until the monkeys were euthanized 2 months after the last MPTP injection. Nicotine treatment did not affect the dopamine transporter or the number of tyrosine hydroxylase positive cells in the substantia nigra of lesioned monkeys. However, nicotine administration did lead to a greater increase in Î±3/Î±6Î²2* and Î±4Î²2* nAChRs in lesioned monkeys compared to controls. Nicotine also significantly elevated microglia and reduced the number of extracellular neuromelanin deposits in the substantia nigra of MPTP-lesioned monkeys. These findings indicate that long-term nicotine treatment modulates expression of several molecular measures in monkey substantia nigra that may result in an improvement in nigral integrity and/or function. These observations may have therapeutic implications for Parkinsonâ€™s disease. PMID:19685015

207. Fatty acids composition of Spanish black (Morus nigra L.) and white (Morus alba L.) mulberries.

PubMed

SÃ¡nchez-Salcedo, Eva M; Sendra, Esther; Carbonell-Barrachina, Ã□ngel A; MartÃnez, Juan JosÃ©; HernÃ¡ndez, Francisca

2016-01-01

This research has determined qualitatively and quantitatively the fatty acids composition of white (Morus alba) and black (Morus nigra) fruits grown in Spain, in 2013 and 2014. Four clones of each species were studied. Fourteen fatty acids were identified and quantified in mulberry fruits. The most abundant fatty acids were linoleic (C18:2), palmitic (C16:0), oleic (C18:1), and stearic (C18:0) acids in both species. The main fatty acid in all clones was linoleic (C18:2), that ranged from 69.66% (MN2) to 78.02% (MA1) of the total fatty acid content; consequently Spanish mulberry fruits were found to be rich in linoleic acid, which is an essential fatty acid. The fatty acid composition of mulberries highlights the nutritional and health benefits of their consumption. Copyright Â© 2015 Elsevier Ltd. All rights reserved.

208. Anatomical and functional organization of the human substantia nigra and its connections

PubMed Central

Zhang, Yu; Larcher, Kevin Michel-Herve; Misic, Bratislav

2017-01-01

We investigated the anatomical and functional organization of the human substantia nigra (SN) using diffusion and functional MRI data from the Human Connectome Project. We identified a tripartite connectivity-based parcellation of SN with a limbic, cognitive, motor arrangement. The medial SN connects with limbic striatal and cortical regions and encodes value (greater response to monetary wins than losses during fMRI), while the ventral SN connects with associative regions of cortex and striatum and encodes salience (equal response to wins and losses). The lateral SN connects with somatomotor regions of striatum and cortex and also encodes salience. Behavioral measures from delay discounting and flanker tasks supported a role for the value-coding medial SN network in decisional impulsivity, while the salience-coding ventral SN network was associated with motor impulsivity. In sum, there is anatomical and functional heterogeneity of human SN, which underpins value versus salience coding, and impulsive choice versus impulsive action. PMID:28826495

209. Ozone affects growth and development of Pieris brassicae on the wild host plant Brassica nigra.

PubMed

Khaling, Eliezer; Papazian, Stefano; Poelman, Erik H; Holopainen, Jarmo K; Albrectsen, Benedicte R; Blande, James D

2015-04-01

When plants are exposed to ozone they exhibit changes in both primary and secondary metabolism, which may affect their interactions with herbivorous insects. Here we investigated the performance and preferences of the specialist herbivore Pieris brassicae on the wild plant Brassica nigra under elevated ozone conditions. The direct and indirect effects of ozone on the plant-herbivore system were studied. In both cases ozone exposure had a negative effect on P. brassicae development. However, in dual-choice tests larvae preferentially consumed plant material previously fumigated with the highest concentration tested, showing a lack of correlation between larval preference and performance on ozone exposed plants. Metabolomic analysis of leaf material subjected to combinations of ozone and herbivore-feeding, and focussing on known defence metabolites, indicated that P. brassicae behaviour and performance were associated with ozone-induced alterations to glucosinolate and phenolic pools.

210. In Vitro Antimicrobial and Antiprotozoal Activities, Phytochemical Screening and Heavy Metals Toxicity of Different Parts of Ballota nigra

PubMed Central

Ullah, Najeeb; Ahmad, Ijaz; Ayaz, Sultan

2014-01-01

The study was done to assess the phytochemicals (flavonoids, terpenoids, saponins, tannin, alkaloids, and phenol) in different parts (root, stem, and leaves) of Ballota nigra and correlated it to inhibition of microbes (bacteria and fungi), protozoan (Leishmania), and heavy metals toxicity evaluation. In root and stem flavonoids, terpenes and phenols were present in ethanol, chloroform, and ethyl acetate soluble fraction; these were found to be the most active inhibiting fractions against all the tested strains of bacteria, fungi, and leishmania. While in leaves flavonoids, terpenes, and phenols were present in ethanol, chloroform, and n-butanol fractions which were the most active fractions against both types of microbes and protozoan (leishmania) in in vitro study. Ethanol and chloroform fractions show maximum inhibition against Escherichia coli (17â€‰mm). The phytochemical and biological screenings were correlated with the presence of heavy metals in selected plant Ballota nigra. Cr was found above permissible value (above 1.5â€‰mg/kg) in all parts of the plant. Ni was above WHO limit in B. nigra root and leaves (3.35 Â± 1.20â€‰mg/kg and 5.09 Â± 0.47â€‰mg/kg, respectively). Fe was above permissible value in all parts of

B. nigra (above 20â€‰mg/kg). Cd was above permissible value in all parts of the plant (above 0.3â€‰mg/kg). Pb was above WHO limit (above 2â€‰mg/kg) in all parts of Ballota nigra. PMID:25054139

211. Mimetic Muscles in a Despotic Macaque (Macaca mulatta) Differ from Those in a Closely Related Tolerant Macaque (M. nigra).

PubMed

Burrows, Anne M; Waller, Bridget M; Micheletta, JÃ©rÃ´me

2016-10-01

Facial displays (or expressions) are a primary means of visual communication among conspecifics in many mammalian orders. Macaques are an ideal model among primates for investigating the co-evolution of facial musculature, facial displays, and social group size/behavior under the umbrella of "ecomorphology". While all macaque species share some social behaviors, dietary, and ecological parameters, they display a range of social dominance styles from despotic to tolerant. A previous study found a larger repertoire of facial displays in tolerant macaque species relative to despotic species. The present study was designed to further explore this finding by comparing the gross morphological features of mimetic muscles between the Sulawesi macaque (Macaca nigra), a tolerant species, and the rhesus macaque (M. mulatta), a despotic species. Five adult M. nigra heads were dissected and mimetic musculature was compared to those from M. mulatta. Results showed that there was general similarity in muscle presence/absence between the species as well as muscle form except for musculature around the external ear. M. mulatta had more musculature around the external ear than M. nigra. In addition, M. nigra lacked a zygomaticus minor while M. mulatta is reported to have one. These morphological differences match behavioral observations documenting a limited range of ear movements used by M. nigra during facial displays. Future studies focusing on a wider phylogenetic range of macaques with varying dominance styles may further elucidate the roles of phylogeny, ecology, and social variables in the evolution of mimetic muscles within Macaca Anat Rec, 299:1317-1324, 2016. Â© 2016 Wiley Periodicals, Inc. Â© 2016 Wiley Periodicals, Inc.

212. Constructing a new nigrostriatal pathway in the Parkinsonian model with bridged neural transplantation in substantia nigra.

PubMed

Zhou, F C; Chiang, Y H; Wang, Y

1996-11-01

The physical repair and restoration of a completely damaged pathway in the brain has not been achieved previously. In a previous study, using excitatory amino acid bridging and fetal neural transplantation, we demonstrated that a bridged mesencephalic transplant in the substantia nigra generated an artificial nerve pathway that reinnervated the striatum of 6-hydroxydopamine (6-OHDA)-lesioned rats. In the current study, we report that a bridged mesencephalic transplant can anatomically, neurochemically, and functionally reinstate the 6-OHDA-eradicated nigro-striatal pathway. An excitatory amino acid, kainic acid, laid down in a track during the transplant generated a trophic environment that effectively guided the robust growth of transplanted neuronal fibers in a bundle to innervate the distal striatum. Growth occurred at the remarkable speed of approximately 200 microm/d. Two separate and distinct types of dopamine (DA) innervation from the transplant have been achieved for the first time: (1) DA innervation of the striatum, and (2) DA innervation of the pars reticularis of the substantia nigra. In addition, neuronal tracing revealed that reciprocal connections were achieved. The grafted DA neurons in the SNr innervated the host's striatum, whereas the host's striatal neurons, in turn, innervated the graft within 3-8 weeks. Electrochemical volt- ammetry recording revealed the restoration of DA release and clearance in a broad striatal area associated with the DA reinnervation. Furthermore, the amphetamine-induced rotation was

attenuated, which indicates that the artificial pathways were motor functional. This study provides additional evidences that our bridged transplantation technique is a potential means for the repair of a completely damaged neuronal pathway.

213. Cytotoxic activity of a methanol extract of Phallusia nigra (Tunicata, Ascidiacea).

PubMed

Costa, L V; Malpezzi, E L; Matsui, D H; Machado-Santelli, G M; Freitas, J C

1996-03-01

Tunicates have been reported to be a rich source of biologically active compounds. In this study, we demonstrate the presence of cytotoxic substances in Phallusia nigra, a common tunicate from Brazilian coastal waters. An extract of tunicate tissue was obtained by homogenizing the visceral organs from 50 specimens in methanol, followed by filtration and concentration in a rotary vacuum evaporator. Finally, the concentrate was partitioned with chloroform to remove lipids. The resulting extract possessed antimitotic and hemolytic activity. The former was demonstrated as a delay in the development of sea urchin eggs by partially inhibiting the process of cleavage (first cleavage, EC50 +/- SEM = 3.44 +/- 0.84 mg/ml). The < 500 molecular fraction of the extract obtained by ultrafiltration also inhibited cell proliferation (the number of viable cells was decreased by 68% with 500 micrograms/ml) and DNA synthesis of T47D cells derived from human breast carcinoma as measured by [3H]-thymidine incorporation (66% of the control value after 24-h incubation with 100 micrograms/ml). Dose-dependent hemolysis obtained with P. nigra extract on mouse erythrocytes had an EC50 +/- SEM = 1.12 +/- 0.02 mg/ml for a 0.5% erythrocyte suspension. Hemolysis could be reduced by pre-incubating the cells with choline-containing phospholipid. Sphingomyelin (40 micrograms/ml) increased the EC50 by two-fold to 2.86 +/- 0.04 mg/ml, but phosphatidylcholine (80 micrograms/ml) did not modify hemolysis.

214. Safety assessment of Morus nigra L. leaves: Acute and subacute oral toxicity studies in Wistar rats.

PubMed

Figueredo, Kassia Caroline; Guex, Camille Gaube; Reginato, Fernanda Ziegler; Haas da Silva, Andreia Regina; Cassanego, Gabriela Buzatti; Lhamas, Cibele Lima; Boligon, Aline Augusti; Lopes, Gilberti Helena HÃ¼bscher; de Freitas Bauermann, Liliane

2018-05-14

Morus nigra L. is a plant native to Asia, and well adapted to the Brazilian climate. It is popularly known as "amoreira preta", and is part of the National List of Plants of Interest to the Brazilian Unified Health System. It is used in folk medicine mainly to soften the effects of menopause, as anti-inflammatory, antidiabetic and antihypertensive. However, information on safe doses and use is still precarious. To identify the chemical composition of the ethanolic extract of Morus nigra L. leaves (EEMN), as well as perform a toxicological study in male and female rats. The chemical composition of the extract was performed by HPLC/DAD. In the acute study, the dose administered was 2000 mg/kg, and signs of toxicity and mortality was observed. In the sub-acute study, the extract was administered at doses of 500, 750 and 1000mg/kg for 28 days. Behavioral changes, object recognition test, renal and hepatic tissue assessments, biochemical and hematological parameters were determined. The extract was administered orally to male and female rats in both studies. Quercetin and caffeic acid showed as major compounds in the extract. In the acute treatment, the extract was classified as safe (category 5), according to the protocol. In the subacute study, there was a decrease in AST in males (750 and 1000mg/kg) and females (1000mg/kg), reduction of total cholesterol in females (750 and 1000mg/kg), and increase in renal and hepatic change the LPO levels. The present investigation showed that EEMN did not present significant toxic effects when administered orally. Moreover, presented a potentially protective action of organs and

possesses hypocholesterolemic activity, thus, it is shown as a promising natural source to be used in pharmacology. Copyright Â© 2018. Published by Elsevier B.V.

215. Functional analysis of embolism induced by air injection in Acer rubrum and Salix nigra

PubMed Central

Melcher, Peter J.; Zwieniecki, Maciej A.

2013-01-01

The goal of this study was to assess the effect of induced embolism with air injection treatments on the function of xylem in Acer rubrum L. and Salix nigra Marsh. Measurements made on mature trees of A. rubrum showed that pneumatic pressurization treatments that created a pressure gradient of 5.5 MPa across pit membranes (Î”Ppit) had no effect on stomatal conductance or on branch-level sap flow. The same air injection treatments made on 3-year-old potted A. rubrum plants also had no effect on whole plant transpiration. A separate study made on mature A. rubrum trees showed that 3.0 and 5.5 MPa of Î”Ppit values resulted in an immediate 100% loss in hydraulic conductance (PLC) in petioles. However, the observed change in PLC was short lived, and significant hydraulic recovery occurred within 5â€“10 min post air-pressurization treatments. Similar experiments conducted on S. nigra plants exposed to Î”Ppit of 3 MPa resulted in a rapid decline in whole plant transpiration followed by leaf wilting and eventual plant death, showing that this species lacks the ability to recover from induced embolism. A survey that measured the effect of air-pressurization treatments on seven other species showed that some species are very sensitive to induction of embolism resulting in leaf wilting and branch death while others show minimal to no effect despite that in each case, the applied Î”Ppit of 5.5 MPa significantly exceeded any native stress that these plants would experience naturally. PMID:24069025

216. Functional analysis of embolism induced by air injection in Acer rubrum and Salix nigra.

PubMed

Melcher, Peter J; Zwieniecki, Maciej A

2013-01-01

The goal of this study was to assess the effect of induced embolism with air injection treatments on the function of xylem in Acer rubrum L. and Salix nigra Marsh. Measurements made on mature trees of A. rubrum showed that pneumatic pressurization treatments that created a pressure gradient of 5.5 MPa across pit membranes (Î”P pit) had no effect on stomatal conductance or on branch-level sap flow. The same air injection treatments made on 3-year-old potted A. rubrum plants also had no effect on whole plant transpiration. A separate study made on mature A. rubrum trees showed that 3.0 and 5.5 MPa of Î”P pit values resulted in an immediate 100% loss in hydraulic conductance (PLC) in petioles. However, the observed change in PLC was short lived, and significant hydraulic recovery occurred within 5-10 min post air-pressurization treatments. Similar experiments conducted on S. nigra plants exposed to Î”P pit of 3 MPa resulted in a rapid decline in whole plant transpiration followed by leaf wilting and eventual plant death, showing that this species lacks the ability to recover from induced embolism. A survey that measured the effect of air-pressurization treatments on seven other species showed that some species are very sensitive to induction of embolism resulting in leaf wilting and branch death while others show minimal to no effect despite that in each case, the applied Î”P pit of 5.5 MPa significantly exceeded any native stress that these plants would experience naturally.

217. SAXS and other spectroscopic analysis of 12S cruciferin isolated from the seeds of Brassica nigra

NASA Astrophysics Data System (ADS)

Khaliq, Binish; Falke, Sven; Negm, Amr; Buck, Friedrich; Munawar, Aisha; Saqib, Maria; Mahmood, Seema; Ahmad, Malik Shoaib; Betzel, Christian; Akrem, Ahmed

2017-06-01

Oilseeds of the plant family Brassicaceae are important for providing both lipid and protein contents to human nutrition. Cruciferins (12S globulins) are seed storage proteins, which are getting attention due to their allergenic and pathogenicity related nature. This study describes the purification and characterization of a trimeric (âˆ¼190 kDa) cruciferin protein from the seeds of Brassica nigra (L.). Cruciferin was first partially purified by ammonium sulfate precipitation (30% saturation constant) and further purified by size exclusion chromatography. The N-terminal amino-acid sequence analysis showed 82% sequence homology with cruciferin from Arabidopsis thaliana. The 50-55 kDa monomeric cruciferin produced multiple bands of two major molecular weight ranges (Î±-polypeptides of 28-32 kDa and Î²-polypeptides of 17-20 kDa) under reduced conditions of SDS-PAGE. The 2D gel electrophoretic analysis showed the further separation of the bands into their isoforms with major pI ranges between 5.7 and 8.0 (Î±-polypeptides) and 5.5-8.5 (Î²-polypeptides). The Dynamic Light Scattering (DLS) showed the monodisperse nature of the cruciferin with hydrodynamic radius of 5.8 Â± 0.1 nm confirming the trimeric nature of the protein. The Circular Dichroism (CD) spectra showed both Î±-helices and Î²-sheets in the native conformation of the trimeric protein. The pure cruciferin protein (40 mg/ml) was successfully crystallized; however, the crystals diffracted only to low resolution data (8 Ã…). Small-angle x-ray scattering (SAXS) was applied to gain insights into the three-dimensional structure in solution. SAXS showed that the radius of gyration is 4.24 Â± 0.25 nm and confirmed the nearly globular shape. The SAXS based ab initio dummy model of B. nigra cruciferin was compared with 11S globulins.

218. Novel interactions of complex carbohydrates with peanut (PNA), Ricinus communis (RCA-I), Sambucus nigra (SNA-I) and wheat germ (WGA) agglutinins as revealed by the binding specificities of these lectins towards mucin core-2 O-linked and N-linked glycans and related structures.

PubMed

Chandrasekaran, E V; Xue, Jun; Xia, Jie; Khaja, Siraj D; Piskorz, Conrad F; Locke, Robert D; Neelamegham, Sriram; Matta, Khushi L

2016-10-01

Plant lectins through their multivalent quaternary structures bind intrinsically flexible oligosaccharides. They recognize fine structural differences in carbohydrates and interact with different sequences in mucin core 2 or complex-type N-glycan chain and also in healthy and malignant tissues. They are used in characterizing cellular and extracellular glycoconjugates modified in pathological processes. We study here, the complex carbohydrate-lectin interactions by determining the effects of substituents in mucin core 2 tetrasaccharide GalÎ²1-4GlcNAcÎ²1-6(GalÎ²1-3)GalNAcÎ±-O-R and fetuin glycopeptides on their binding to agarose-immobilized lectins PNA, RCA-I, SNA-I and WGA. Briefly, in mucin core 2 tetrasaccharide (i) structures modified by Î±2-3/6-Sialyl LacNAc, LewisX and Î±1-3-Galactosyl LacNAc resulted in regular binding to PNA whereas compounds with 6-sulfo LacNAc displayed no-binding; (ii) strucures bearing Î±2-6-sialyl 6-sulfo LacNAc, or 6-sialyl LacdiNAc carbohydrates displayed strong binding to SNA-I; (iii) structures with Î±2-3/6-sialyl, Î±1-3Gal LacNAc or LewisX were non-binder to RCA-I and compounds with 6-sulfo LacNAc only displayed weak binding; (iv) structures containing LewisX, 6-Sulfo LewisX, Î±2-3/6-sialyl LacNAc, Î±2-3/6-sialyl 6-sulfo LacNAc and GalNAc Lewis-a were non-binding to WGA, those with Î±1-2Fucosyl, Î±1-3-Galactosyl LacNAc, Î±2-3-sialyl T-hapten plus 3'/6'sulfo LacNAc displayed weak binding, and compounds with Î±2-3-sialyl T-hapten, Î±2.6-Sialyl LacdiNAc, Î±2-3-sialyl D-FucÎ²1-3 GalNAc and FucÎ±-1-2 D-FucÎ²-1-3GalNAc displaying regular binding and GalNAc LewisX and LacdiNAc plus D-Fuc Î²-1-3 GalNAcÎ± resulting in tight binding. RCA-I binds Fetuin triantennary asialoglycopeptide 100Â % after Î±-2-3 and 25Â % after Î±-2-6 sialylation, 30Â % after Î±-1-2 and 100Â % after Î±-1-3 fucosylation, and 50Â % after Î±-1-3 galactosylation. WGA binds 3-but not 6-Fucosyl chitobiose core. Thus, information on the influence of complex carbohydrate

chain constituents on lectin binding is apparently essential for the potential application of lectins in glycoconjugate research.

219. Trapping system comparisons for and factors affecting populations of Drosophila suzukii and Zaprionus indianus in winter-grown strawberry.

PubMed

Renkema, Justin M; Iglesias, Lindsy E; Bonneau, Phanie; Liburd, Oscar E

2018-03-08

Drosophila suzukii (Matsumura) is a major fruit pest in temperate regions worldwide, but in subtropical Florida, winter-grown strawberries have not been severely affected. Zaprionus indianus Gupta is another invasive drosophilid species and a pest of some tropical fruits. To improve monitoring, trapping systems for D. suzukii and Z. indianus were tested. Morphology, ovarian status and the suitability and availability of non-crop hosts as possible D. suzukii population-limiting factors were assessed. Traps with commercial attractants captured more D. suzukii but fewer Z. indianus than those with a homemade mixture. In central and northern Florida, < 10% and 30-80% of D. suzukii, respectively, exhibited darker, winter morph coloration, and 55-75% of females from central Florida were carrying mature and/or immature eggs. Adult D. suzukii were reared from fruits of two of 28 potential hosts: elderberry (Sambucus nigra) and nightshade (Solanum americanum). Nightshade, but not elderberry, was common on field perimeters (21 and six of 36 fields, respectively). Traps placed in wooded or partially wooded field edges yielded the most D. suzukii. Florida strawberry is at risk of D. suzukii infestation, as flies were captured throughout the growing season. However, fly captures remained relatively low, peaking at 1.5 flies per trap per day. In central Florida, the low availability and suitability of non-crop hosts likely limit population growth. The finding of few flies in northern Florida may additionally be attributable to a greater proportion of flies displaying winter morph coloration than in central Florida. Â© 2018 Society of Chemical Industry. Â© 2018 Society of Chemical Industry.

220. Effect of glucuronosylation on anthocyanin color stability.

PubMed

Osmani, Sarah Anne; Hansen, Esben Halkjaer; Malien-Aubert, CÃ©line; Olsen, Carl-Erik; Bak, SÃ¸ren; MÃ¸ller, Birger Lindberg

2009-04-22

The effect of glucuronosylation on the color stability of anthocyanins was investigated using glucuronosylated anthocyanins isolated from the flower petals of the red daisy (Bellis perennis) or obtained by enzymatic in vitro synthesis using heterologously expressed red daisy glucuronosyltransferase BpUGT94B1. Color stability toward light and heat stress was assessed by monitoring CIELAB color coordinates and stability at pH 7.0 by A(550). Cyanidin-3-O-2''-O-glucuronosylglucoside showed improved color stability in response to light compared to both cyanidin 3-O-glucoside and cyanidin 3-O-2''-O-diglucoside. A similar increase in color stability was not observed following heat treatment. Glucuronosylation did not increase the stability of anthocyanins at pH 7.0 as determined by A(550). To test for a possible effect of glucuronosylation on the color stability of anthocyanins in plant extracts used for food coloration, an elderberry (Sambucus nigra) extract was glucuronosylated in vitro. Glucuronosylation of approximately 50% of total anthocyanins proceeded fast and resulted in increased color stability in response to both heat and light. The data show that glucuronosylation may be used to stabilize industrially used extracts of natural colorants.

- «
- 9

- 10
- 11
- 12
- 13
- »

- «
- 10
- 11
- 12
- 13
- 14
- »

221. Lateral Asymmetry and Spatial Difference of Iron Deposition in the Substantia Nigra of Patients with Parkinson Disease Measured with Quantitative Susceptibility Mapping.

    PubMed

    Azuma, M; Hirai, T; Yamada, K; Yamashita, S; Ando, Y; Tateishi, M; Iryo, Y; Yoneda, T; Kitajima, M; Wang, Y; Yamashita, Y

    2016-05-01

    Quantitative susceptibility mapping is useful for assessing iron deposition in the substantia nigra of patients with Parkinson disease. We aimed to determine whether quantitative susceptibility mapping is useful for assessing the lateral asymmetry and spatial difference in iron deposits in the substantia nigra of patients with Parkinson disease. Our study population comprised 24 patients with Parkinson disease and 24 age- and sex-matched healthy controls. They underwent 3T MR imaging by using a 3D multiecho gradient-echo sequence. On reconstructed quantitative susceptibility mapping, we measured the susceptibility values in the anterior, middle, and posterior parts of the substantia nigra, the whole substantia nigra, and other deep gray matter structures in both hemibrains. To identify the more and less affected hemibrains in patients with Parkinson disease, we assessed the severity of movement symptoms for each hemibrain by using the Unified Parkinson's Disease Rating Scale. In the posterior substantia nigra of patients with Parkinson disease, the mean susceptibility value was significantly higher in the more than the less affected hemibrain substantia nigra ($P < .05$). This value was significantly higher in both the more and less affected hemibrains of patients with Parkinson disease than in controls ($P < .05$). Asymmetry of the mean susceptibility values was significantly greater for patients than controls ($P < .05$). Receiver operating characteristic analysis showed that quantitative susceptibility mapping of the posterior substantia nigra in the more affected hemibrain provided the highest power for discriminating patients with Parkinson disease from the controls. Quantitative susceptibility mapping is useful for assessing the lateral asymmetry and spatial difference of iron deposition in the substantia nigra of patients with Parkinson disease. Â© 2016 by American Journal of Neuroradiology.

222. A case of Tinea nigra associated to a bite from a European rabbit (Oryctolagus cuniculus, Leporidae): the role of dermoscopy in diagnosis.

    PubMed

    Rossetto, AndrÃ© Luiz; CorrÃªa, Patricia Rossetto; Cruz, Rosana CÃ© Bella; Pereira, Eduardo Figueiredo; Haddad Filho, Vidal

    2014-01-01

We report a case of Tinea nigra in an adolescent living in Itapema, Santa Catarina, Brazil, who presented a hyperchromic macule on the palm of the left hand, close to another erythematous macule caused by a rabbit bite. The patient received guidance on accidents and animal bites and evolved well treated with topical butenafine for the dermatomycosis. The authors also highlight the efficacy of the dermoscopic exam in diagnosing Tinea nigra with animal bite lesions and other traumas.

223. A case of Tinea nigra associated to a bite from a European rabbit (Oryctolagus cuniculus, Leporidae): the role of dermoscopy in diagnosis*

PubMed Central

Rossetto, AndrÃ© Luiz; CorrÃªa, Patricia Rossetto; Cruz, Rosana CÃ© Bella; Pereira, Eduardo Figueiredo; Haddad Junior, Vidal

2014-01-01

We report a case of Tinea nigra in an adolescent living in Itapema, Santa Catarina, Brazil, who presented a hyperchromic macule on the palm of the left hand, close to another erythematous macule caused by a rabbit bite. The patient received guidance on accidents and animal bites and evolved well treated with topical butenafine for the dermatomycosis. The authors also highlight the efficacy of the dermoscopic exam in diagnosing Tinea nigra with animal bite lesions and other traumas. PMID:24626667

224. Composition, diffusion, and antifungal activity of black mustard (Brassica nigra) essential oil when applied by direct addition or vapor phase contact.

PubMed

MejÃa-Garibay, Beatriz; Palou, Enrique; LÃ³pez-Malo, Aurelio

2015-04-01

In this study, we characterized the essential oil (EO) of black mustard (Brassica nigra) and quantified its antimicrobial activity, when applied by direct contact into the liquid medium or by exposure in the vapor phase (in laboratory media or in a bread-type product), against the growth of Aspergillus niger, Aspergillus ochraceus, or Penicillium citrinum. Allyl-isothiocyanate (AITC) was identified as the major component of B. nigra EO with a concentration of 378.35 mg/ml. When B. nigra EO was applied by direct contact into the liquid medium, it inhibited the growth of A. ochraceus and P. citrinum when the concentration was 2 Î¼l/ml of liquid medium (MIC), while for A. niger, a MIC of B. nigra EO was 4 Î¼l/ml of liquid medium. Exposure of molds to B. nigra EO in vapor phase showed that 41.1 Î¼l of B. nigra EO per liter of air delayed the growth of P. citrinum and A. niger by 10 days, while A. ochraceus growth was delayed for 20 days. Exposure to concentrations â‰¥ 47 Î¼l of B. nigra EO per liter of air (MIC) inhibited the growth of tested molds by 30 days, and they were not able to recover after further incubation into an environment free of EO (fungicidal effect). Adsorbed AITC was quantified by exposing potato dextrose agar to B. nigra EO in a vapor phase, exhibiting that AITC was retained at least 5 days when testing EO at its MIC or with higher concentrations. Mustard EO MIC was also effective against the evaluated molds inhibiting their growth for 30 days in a bread-type product when exposed to EO by vapor contact, demonstrating its antifungal activity.

225. Comparative analyses of seeds of wild fruits of Rubus and Sambucus species from Southern Italy: fatty acid composition of the oil, total phenolic content, antioxidant and anti-inflammatory properties of the methanolic extracts.

PubMed

Fazio, Alessia; Plastina, Pierluigi; Meijerink, Jocelijn; Witkamp, Renger F; Gabriele, Bartolo

2013-10-15

Fruit seeds are byproducts from fruit processing. Characterisation of the bioactive compounds present in seeds and evaluation of their potential biological properties is therefore of particular importance in view of a possible valorisation of seeds as a source of health beneficial components. In this work, we have analysed the seeds of Sambucus and Rubus species in order to identify their bioactive components and to determine the antioxidant and anti-inflammatory activities of the extracts. We first analysed their oil content, in order to assess the fatty acid profile and tocopherol content. Moreover, the methanolic extracts of the seeds were analysed for their total phenolic contents and antioxidant capacities. Polyphenols were identified by HPLC-ESI-MS/MS analysis. Furthermore, extracts were evaluated for their inhibitory effects on the production of LPS-induced inflammatory mediators (NO, CCL-20) in RAW 264.7 cells. Our findings show that the methanolic extracts from Rubus seeds have strong antioxidant and anti-inflammatory properties and could therefore represent an attractive source of bioactive compounds for food, cosmetic, or pharmaceutical applications.

226. Dopamine D2 receptor levels in striatum, thalamus, substantia nigra, limbic regions, and cortex in schizophrenic subjects.

PubMed

Kessler, Robert M; Woodward, Neil D; Riccardi, Patrizia; Li, Rui; Ansari, M Sib; Anderson, Sharlett; Dawant, Benoit; Zald, David; Meltzer, Herbert Y

2009-06-15

Studies in schizophrenic patients have reported dopaminergic abnormalities in striatum, substantia nigra, thalamus, anterior cingulate, hippocampus, and cortex that have been related to positive symptoms and cognitive impairments. [(18)F]fallypride positron emission tomography studies were performed in off-medication or never-medicated schizophrenic subjects (n = 11, 6 men, 5 women; mean age of 30.5 +/- 8.0 [SD] years; 4 drug-naive) and age-matched healthy subjects (n = 11, 5 men, 6 women, mean age of 31.6 +/- 9.2 [SD]) to examine dopamine D(2) receptor (DA D(2)r) levels in the caudate, putamen, ventral striatum, medial thalamus, posterior thalamus, substantia nigra, amygdala, temporal cortex, anterior cingulate, and hippocampus. In schizophrenic subjects, increased DA D(2)r levels were seen in the substantia nigra bilaterally; decreased levels were seen in the left medial thalamus. Correlations of symptoms with ROI data demonstrated a significant correlation of disorganized thinking/nonparanoid delusions with the right temporal cortex ROI ($r = .94$, $p = .0001$), which remained significant after correction for multiple comparisons ($p < .03$). Correlations of symptoms with parametric images of DA D(2)r levels revealed no significant clusters of correlations with negative symptoms but significant clusters of positive correlations of total positive symptoms, delusions and bizarre behavior with the lateral and anterior temporal cortex, and hallucinations with the left ventral striatum. The results of this study demonstrate abnormal DA D(2)r-mediated neurotransmission in the substantia nigra consistent with nigral dysfunction in schizophrenia and suggest that both temporal cortical and ventral striatal DA D(2)r mediate positive symptoms.

227. Dopamine D2 Receptor Levels in Striatum, Thalamus, Substantia Nigra, Limbic Regions, and Cortex in Schizophrenic Subjects

PubMed Central

Kessler, Robert M; Woodward, Neil D; Riccardi, Patrizia; Li, Rui; Ansari, M Sib; Anderson, Sharlett; Dawant, Benoit; Zald, David; Meltzer, Herbert Y

2009-01-01

Background Studies in schizophrenics have reported dopaminergic abnormalities in striatum, substantia nigra, thalamus, anterior cingulate, hippocampus and cortex which have been related to positive symptoms and cognitive impairments. Methods [18F]fallypride PET studies were performed in off medication or never medicated schizophrenic subjects [N = 11, 6 M, 5 F; mean age of 30.5 Â± 8.0 (S.D.); 4 drug naive] and age matched healthy subjects [N = 11, 5M, 6F, mean age of 31.6 Â± 9.2 (S.D.)] to examine dopamine D2 receptor (DA D2r) levels in the caudate, putamen, ventral striatum, medial thalamus, posterior thalamus, substantia nigra, amygdala, temporal cortex, anterior cingulate, and hippocampus. Results In schizophrenic subjects increased DA D2r levels were seen in the substantia nigra bilaterally; decreased levels were seen in the left medial thalamus. Correlations of symptoms with region of interest data demonstrated a significant correlation of disorganized thinking/nonparanoid delusions with the right temporal cortex region of interest (r = 0.94, P = 0.0001) which remained significant after correction for multiple comparisons (P<0.03). Correlations of symptoms with parametric images of DA D2r levels revealed no significant clusters of correlations with negative symptoms, but significant clusters of positive correlations of total positive symptoms, delusions and bizarre behavior with the lateral and anterior temporal cortex, and hallucinations with the left ventral striatum. Conclusions The results of this study demonstrate abnormal DA D2r mediated neurotransmission in the substantia nigra consistent with nigral dysfunction in schizophrenia and suggest that both temporal cortical and ventral striatal DA D2r mediate positive symptoms. PMID:19251247

228. Comparative study on bioremediation of heavy metals by solitary ascidian, Phallusia nigra, between Thoothukudi and Vizhinjam ports of India.

PubMed

Abdul Jaffar Ali, H; Tamilselvi, M; Akram, A Soban; Kaleem Arshan, M L; Sivakumar, V

2015-11-01

Ascidians belonging to the sub-phylum Uro-chordata are used as potential model organisms in various parts of the world for biosorption of metals. The sedentary nature, filter feeding habits, presence of vanadocytes and the absence of kidneys cause them to accumulate metals. The present study was aimed to compare biosorption of metals such as cadmium, copper, lead, mercury and vanadium in test and mantle body of solitary ascidian Phallusia nigra between two ecologically significant stations such as Thoothukudi (Station 1) and Vizhinjam (Station 2) ports of India. Monthly samplings of water and P. nigra were done for a period of one year from September 2010 to August 2011 and subjected to analysis of metal accumulation. The average metal concentrations except mercury in the Thoothukudi water were found to be higher of comparable magnitudes than the Vizhinjam water. One-way ANOVA showed significant differences between the stations. A comparison of average metal concentrations in the test and mantle body of P. nigra between two stations showed that the enrichment of V, Cd, Pb, Cu and Hg in the Thoothukudi samples may be due to high bioaccumulation factors of these elements as compared to other species of ascidians. The bioaccumulation factors were in the order of V>Pb>Cd>Cu> Hg for the test and mantle body in stations 1 and 2. Application of one-way ANOVA for the concentration of these metals between test and mantle body showed significant differences in both stations. Similarly, ANOVA for biosorption of these trace metals by P. nigra showed significant difference between stations. Metal concentrations recorded in this ascidian could effectively be used as good reference material for monitoring metal contamination in Indian sea waters. Copyright Â© 2015 Elsevier Inc. All rights reserved.

229. Wood identification of Dalbergia nigra (CITES Appendix I) using quantitative wood anatomy, principal components analysis and naÃ¯ve Bayes classification

PubMed Central

Gasson, Peter; Miller, Regis; Stekel, Dov J.; Whinder, Frances; ZiemiÅ„ska, Kasia

2010-01-01

Background and Aims Dalbergia nigra is one of the most valuable timber species of its genus, having been traded for over 300 years. Due to over-exploitation it is facing extinction and trade has been banned under CITES Appendix I since 1992. Current methods, primarily comparative wood anatomy, are inadequate for conclusive species identification. This study aims to find a set of anatomical characters that distinguish the wood of D. nigra from other commercially important species of Dalbergia from Latin America. Methods Qualitative and quantitative wood anatomy, principal components analysis and naÃ¯ve Bayes classification were conducted on 43 specimens of Dalbergia, eight D. nigra and 35 from six other Latin American species. Key Results Dalbergia cearensis and D. miscolobium can be distinguished from D. nigra on the basis of vessel frequency for the former, and ray frequency for the latter. Principal components analysis was unable to provide any further basis for separating the species. NaÃ¯ve Bayes classification using the four characters: minimum vessel diameter; frequency of solitary vessels; mean ray width; and frequency of axially fused rays, classified all eight D. nigra correctly with no false negatives, but there was a false positive rate of 36Â·36 %. Conclusions Wood anatomy alone cannot distinguish D. nigra from all other commercially important Dalbergia species likely to be encountered by customs officials, but can be used to reduce the number of specimens that would need further study. PMID:19884155

230. Acute Neuroinflammatory Response in the Substantia Nigra Pars Compacta of Rats after a Local Injection of Lipopolysaccharide.

PubMed

Flores-Martinez, Yazmin M; Fernandez-Parrilla, Manuel A; Ayala-Davila, Jose; Reyes-Corona, David; Blanco-Alvarez, Victor M; Soto-Rojas, Luis O; Luna-Herrera, Claudia; Gonzalez-Barrios, Juan A; Leon-Chavez, Bertha A; Gutierrez-Castillo, Maria E; MartÃnez-DÃ¡vila, Irma A; Martinez-Fong, Daniel

2018-01-01

Models of Parkinson's disease with neurotoxins have shown that microglial activation does not evoke a typical inflammatory response in the substantia nigra, questioning whether neuroinflammation leads to neurodegeneration. To address this issue, the archetypal inflammatory stimulus, lipopolysaccharide (LPS), was injected into the rat substantia nigra. LPS induced fever, sickness behavior, and microglial activation (OX42 immunoreactivity), followed by astrocyte activation and leukocyte infiltration (GFAP and CD45 immunoreactivities). During the acute phase of neuroinflammation, pro- and anti-inflammatory cytokines (TNF- Î± , IL-1 Î² , IL-6, IL-4, and IL-10) responded differentially at mRNA and protein level. Increased NO production and lipid peroxidation occurred at 168â€‰h after LPS injection. At this time, evidence of neurodegeneration could be seen, entailing decreased tyrosine hydroxylase (TH) immunoreactivity, irregular body contour, and prolongation discontinuity of TH + cells, as well as apparent phagocytosis of TH + cells by OX42 + cells. Altogether, these results show that LPS evokes a typical inflammatory response in the substantia nigra that is followed by dopaminergic neurodegeneration.

231. Acute Neuroinflammatory Response in the Substantia Nigra Pars Compacta of Rats after a Local Injection of Lipopolysaccharide

PubMed Central

Gonzalez-Barrios, Juan A.; Gutierrez-Castillo, Maria E.

2018-01-01

Models of Parkinson's disease with neurotoxins have shown that microglial activation does not evoke a typical inflammatory response in the substantia nigra, questioning whether neuroinflammation leads to neurodegeneration. To address this issue, the archetypal inflammatory stimulus, lipopolysaccharide (LPS),

was injected into the rat substantia nigra. LPS induced fever, sickness behavior, and microglial activation (OX42 immunoreactivity), followed by astrocyte activation and leukocyte infiltration (GFAP and CD45 immunoreactivities). During the acute phase of neuroinflammation, pro- and anti-inflammatory cytokines (TNF-Î±, IL-1Î², IL-6, IL-4, and IL-10) responded differentially at mRNA and protein level. Increased NO production and lipid peroxidation occurred at 168â€‰h after LPS injection. At this time, evidence of neurodegeneration could be seen, entailing decreased tyrosine hydroxylase (TH) immunoreactivity, irregular body contour, and prolongation discontinuity of TH+ cells, as well as apparent phagocytosis of TH+ cells by OX42+ cells. Altogether, these results show that LPS evokes a typical inflammatory response in the substantia nigra that is followed by dopaminergic neurodegeneration. PMID:29854828

232. Convection-enhanced delivery of MANF--volume of distribution analysis in porcine putamen and substantia nigra.

PubMed

Barua, N U; Bienemann, A S; Woolley, M; Wyatt, M J; Johnson, D; Lewis, O; Irving, C; Pritchard, G; Gill, S

2015-10-15

Mesencephalic astrocyte-derived neurotrophic factor (MANF) is a 20kDa human protein which has both neuroprotective and neurorestorative activity on dopaminergic neurons and therefore may have application for the treatment of Parkinson's Disease. The aims of this study were to determine the translational potential of convection-enhanced delivery (CED) of MANF for the treatment of PD by studying its distribution in porcine putamen and substantia nigra and to correlate histological distribution with co-infused gadolinium-DTPA using real-time magnetic resonance imaging. We describe the distribution of MANF in porcine putamen and substantia nigra using an implantable CED catheter system using co-infused gadolinium-DTPA to allow real-time MRI tracking of infusate distribution. The distribution of gadolinium-DTPA on MRI correlated well with immunohistochemical analysis of MANF distribution. Volumetric analysis of MANF IHC staining indicated a volume of infusion (Vi) to volume of distribution (Vd) ratio of 3 in putamen and 2 in substantia nigra. This study confirms the translational potential of CED of MANF as a novel treatment strategy in PD and also supports the co-infusion of gadolinium as a proxy measure of MANF distribution in future clinical studies. Further study is required to determine the optimum infusion regime, flow rate and frequency of infusions in human trials. Copyright Â© 2015 Elsevier B.V. All rights reserved.

233. Edaravone protects neurons in the rat substantia nigra against 6-hydroxydopamine-induced oxidative stress damage.

PubMed

Liu, Xiqi; Shao, Rushing; Li, Meng; Yang, Guofeng

2014-11-01

To investigate the mechanism of the neuroprotective effect of edaravone in substantia nigra (SN) of the 6-OHDA-induced rat model of Parkinson's disease. Animal model of Parkinson's disease was induced in male Sprague-Dawley rats by injecting 6-OHDA into the left medial forebrain bundle. Subsequently, rats were intraperitoneally injected with 0.3, 1, or 3 mg/kg of edaravone for 14 days or with 3 mg/kg edaravone for 14 days followed by 14 days of no treatment. We evaluated the effect of edaravone on the rotational and normal behavior of the rats, and on the number of tyrosine hydroxylase (TH)-positive cells, the amount of Nissl bodies, and the levels of glutathione (GSH), and malondialdehyde (MDA) in the SN. Edaravone treatment at 3 mg/kg significantly reduced apomorphine-induced rotational behavior ($P < 0.01$), improved the spontaneous behavior, prevented the decrease in the levels of TH-positive cells, Nissl bodies and GSH, and inhibited the increase in the levels of MDA ($P < 0.05$) in SN of rats with 6-OHDA-

induced PD. Edaravone exerted a long-term neuroprotective effects in 6-OHDA-induced PD animal model by attenuating changes in the levels of GSH and MDA in SN, caused by oxidative stress. Edaravone prevented 6-OHDA-induced behavioral changes and de-pigmentation of SN that results from the loss of dopaminergic neurons.

234. Social bonds affect anti-predator behaviour in a tolerant species of macaque, Macaca nigra.

PubMed

Micheletta, JÃ©rÃ´me; Waller, Bridget M; Panggur, Maria R; Neumann, Christof; Duboscq, Julie; Agil, Muhammad; Engelhardt, Antje

2012-10-07

Enduring positive social bonds between individuals are crucial for humans' health and well being. Similar bonds can be found in a wide range of taxa, revealing the evolutionary origins of humans' social bonds. Evidence suggests that these strong social bonds can function to buffer the negative effects of living in groups, but it is not known whether they also function to minimize predation risk. Here, we show that crested macaques (Macaca nigra) react more strongly to playbacks of recruitment alarm calls (i.e. calls signalling the presence of a predator and eliciting cooperative mobbing behaviour) if they were produced by an individual with whom they share a strong social bond. Dominance relationships between caller and listener had no effect on the reaction of the listener. Thus, strong social bonds may improve the coordination and efficiency of cooperative defence against predators, and therefore increase chances of survival. This result broadens our understanding of the evolution and function of social bonds by highlighting their importance in the anti-predator context.

235. Mitochondrial uncoupling agents antagonize rotenone actions in rat substantia nigra dopamine neurons.

PubMed

Wu, Yan-Na; Munhall, Adam C; Johnson, Steven W

2011-06-13

Mild uncoupling of oxidative phosphorylation has been reported to reduce generation of reactive oxygen species (ROS) and therefore may be neuroprotective. We reported previously that the mitochondrial poison rotenone enhanced currents evoked by N-methyl-D-aspartate (NMDA) by a ROS-dependent mechanism in rat midbrain dopamine neurons. Thus, rotenone, which produces a model of Parkinson's disease in rodents, may increase the risk of dopamine neuron excitotoxicity. The purpose of this study was to test the hypothesis that oxidative phosphorylation uncoupling agents would antagonize the effect of rotenone on NMDA current. We used patch pipettes to record whole-cell currents under voltage-clamp (-60 mV) in substantia nigra dopamine neurons in slices of rat brain. Rotenone, NMDA and uncoupling agents were added to the brain slice superfusate. Inward currents evoked by NMDA (30 Î¼M) more than doubled in amplitude after slices were superfused for 30 min with 100 nM rotenone. Continuous superfusion with the uncoupling agent carbonyl cyanide-p-trifluoromethoxy-phenylhydrazone (1-3 nM) or 2,4-dinitrophenol (100 nM) significantly antagonized and delayed the ability of rotenone to potentiate NMDA currents. Coenzyme Qâ‚â‚€ (1-10 nM), which has been reported to facilitate uncoupling protein activity, also antagonized this action of rotenone. These results suggest that mild uncoupling of oxidative phosphorylation may protect dopamine neurons against injury from mitochondrial poisons such as rotenone. Published by Elsevier B.V.

236. The inhibitory microcircuit of the substantia nigra provides feedback gain control of the basal ganglia output

PubMed Central

Brown, Jennifer; Pan, Wei-Xing; Dudman, Joshua Tate

2014-01-01

Dysfunction of the basal ganglia produces severe deficits in the timing, initiation, and vigor of movement. These diverse impairments suggest a control system gone awry. In engineered systems, feedback is critical for control. By contrast, models of the basal ganglia highlight feedforward circuitry and ignore intrinsic feedback circuits. In this study, we show that feedback via axon collaterals of substantia nigra projection neurons control the gain of the basal ganglia output. Through a combination of physiology, optogenetics, anatomy, and circuit mapping, we elaborate a general circuit mechanism for gain control in a microcircuit lacking interneurons. Our data suggest that diverse tonic firing rates, weak unitary connections and a spatially diffuse collateral circuit with distinct topography and kinetics from feedforward input is sufficient to implement divisive feedback inhibition. The importance of feedback for engineered systems implies that the intranigral microcircuit, despite its absence from canonical models, could be essential to basal ganglia function. DOI: http://dx.doi.org/10.7554/eLife.02397.001 PMID:24849626

237. Coexistence of glutamatergic spine synapses and shaft synapses in substantia nigra dopamine neurons

PubMed Central

Jang, Miae; Bum Um, Ki; Jang, Jinyoung; Jin Kim, Hyun; Cho, Hana; Chung, Sungkwon; Kyu Park, Myoung

2015-01-01

Dopamine neurons of the substantia nigra have long been believed to have multiple aspiny dendrites which receive many glutamatergic synaptic inputs from several regions of the brain. But, here, using high-resolution two-photon confocal microscopy in the mouse brain slices, we found a substantial number of common dendritic spines in the nigral dopamine neurons including thin, mushroom, and stubby types of spines. However, the number of dendritic spines of the dopamine neurons was approximately five times lower than that of CA1 pyramidal neurons. Immunostaining and morphological analysis revealed that glutamatergic shaft synapses were present two times more than spine synapses. Using local two-photon glutamate uncaging techniques, we confirmed that shaft synapses and spine synapses had both AMPA and NMDA receptors, but the AMPA/NMDA current ratios differed. The evoked postsynaptic potentials of spine synapses showed lower amplitudes but longer half-widths than those of shaft synapses. Therefore, we provide the first evidence that the midbrain dopamine neurons have two morphologically and functionally distinct types of glutamatergic synapses, spine synapses and shaft synapses, on the same dendrite. This peculiar organization could be a new basis for unraveling many physiological and pathological functions of the midbrain dopamine neurons. PMID:26435058

238. Clinical features and treatment of dermatosis papulosa nigra in migrants to Italy.

PubMed

Calcaterra, Roberta; Franco, Gennaro; Valenzano, Mariacarla; Fazio, Raffaella; Morrone, Aldo

2010-01-01

Dermatosis papulosa nigra (DPN) is a benign epithelial tumor that is common in dark-skinned people. Although the diagnosis is easily made on medical examination, DPN is characterized by a chronic and worsening course. Therefore, even if DPN is a benign disease, the lesions are unaesthetic and the therapeutic options are quite inefficient. A prospective study was carried out during a period of 24 months (January 2006 to December 2007) at the Department for Preventive Medicine for Migration, Tourism and Tropical Dermatology of San Gallicano Dermatological Institute in Rome. Among 58 patients, 41 (71%) were women and 17 (29%) were men. The mean age was 33.5 years (range, 8-45 years). One pediatric

patient was observed. This study is the first in Italy that, in recent years, has observed an important growth of the migration. The classic female predominance, family predisposition, and photodistribution of the lesion were found. DPN is frequently associated with patient discomfort, therefore the education of patients to reduce self-treatment is important.

239. Modality distribution of sensory neurons in the feline caudate nucleus and the substantia nigra.

PubMed

MÃ¡rkus, Zita; EÃ¶rdegh, Gabriella; ParÃ³czy, Zsuzsanna; Benedek, G; Nagy, A

2008-09-01

Despite extensive analysis of the motor functions of the basal ganglia and the fact that multisensory information processing appears critical for the execution of their behavioral action, little is known concerning the sensory functions of the caudate nucleus (CN) and the substantia nigra (SN). In the present study, we set out to describe the sensory modality distribution and to determine the proportions of multisensory units within the CN and the SN. The separate single sensory modality tests demonstrated that a majority of the neurons responded to only one modality, so that they seemed to be unimodal. In contrast with these findings, a large proportion of these neurons exhibited significant multisensory cross-modal interactions. Thus, these neurons should also be classified as multisensory. Our results suggest that a surprisingly high proportion of sensory neurons in the basal ganglia are multisensory, and demonstrate that an analysis without a consideration of multisensory cross-modal interactions may strongly underrepresent the number of multisensory units. We conclude that a majority of the sensory neurons in the CN and SN process multisensory information and only a minority of these units are clearly unimodal.

240. Antioxidant and analgesic activities of turpentine of Pinus nigra Arn. subsp. pallsiana (Lamb.) Holmboe.

PubMed

GÃ¼lÃ§in, Ilhami; BÃ¼yÃ¼kokuroglu, M Emin; Oktay, MÃ¼nir; KÃ¼frevioglu, O Irfan

2003-05-01

The aim of this study is to examine possible antioxidant and analgesic activities of turpentine exudes from Pinus nigra Arn. subsp. pallsiana (Lamb.) Holmboe (TPN). Total antioxidant activity, reducing power, superoxide anion radical scavenging, free radical scavenging, metal chelating, and hydrogen peroxide scavenging activities were studied. The total antioxidant activity increased with the increasing amount of extracts (100, 300, and 500 microg) added to linoleic acid emulsion. All of the doses of TPN showed higher antioxidant activity than alpha-tocopherol. The samples showed 49, 70, and 91% inhibition on peroxidation of linoleic acid emulsion, respectively. On the other hand, the 300 microg of alpha-tocopherol showed 40% inhibition on peroxidation of linoleic acid emulsion. There is correlation between antioxidant activity and the reducing power, superoxide anion radical scavenging, free radical scavenging, metal chelating, and hydrogen peroxide scavenging activities. Like antioxidant activity, the reducing power, superoxide anion radical scavenging, free radical scavenging, metal chelating, and hydrogen peroxide scavenging activities of TPN depending on concentration and increasing with increased concentration of TPN. These properties may be the major reasons for the inhibition of lipid peroxidation. The results obtained in the present study indicate that the TPN has a potential source of natural antioxidant. In addition, analgesic effect of TPN was investigated in present study and TPN had strong analgesic effect. The analgesic effect of TPN compared with metamizol as a standard analgesic compound.

- 12
- 13
- 14
- »

- «
- 11
- 12
- 13
- 14
- 15
- »

241. Interactive effects of substrate, hydroperiod, and nutrients on seedling growth of Salix nigra and Taxodium distichum

    USGS Publications Warehouse

    Day, Richard H.; Doyle, T.W.; Draugelis-Dale, R. O.

    2006-01-01

    The large river swamps of Louisiana have complex topography and hydrology, characterized by black willow (Salix nigra) dominance on accreting alluvial sediments and vast areas of baldcypress (Taxodium distichum) deepwater swamps with highly organic substrates. Seedling survival of these two wetland tree species is influenced by their growth rate in relation to the height and duration of annual flooding in riverine environments. This study examines the interactive effects of substrate, hydroperiod, and nutrients on growth rates of black willow and baldcypress seedlings. In a greenhouse experiment with a split-split-plot design, 1-year seedlings of black willow and baldcypress were subjected to two nutrient treatments (unfertilized versus fertilized), two hydroperiods (continuously flooded versus twice daily flooding/draining), and two substrates (sand versus commercial peat mix). Response variables included height, diameter, lateral branch count, biomass, and root:stem ratio. Black willow growth in height and diameter, as well as all biomass components, were significantly greater in peat substrate than in sand. Black willow showed a significant hydroperiod-nutrient interaction wherein fertilizer increased stem and root biomass under drained conditions, but flooded plants did not respond to fertilization. Baldcypress diameter and root biomass were higher in peat than in sand, and the same two variables increased with fertilization in flooded as well as drained treatments. These results can be used in Louisiana wetland forest models as inputs of seedling growth and survival, regeneration potential, and biomass accumulation rates of black willow and baldcypress.

242. Parcellation of the human substantia nigra based on anatomical connectivity to the striatumâ˜†

    PubMed Central

    Chowdhury, Rumana; Lambert, Christian; Dolan, Raymond J.; DÃ¼zel, Emrah

    2013-01-01

    Substantia nigra/ventral tegmental area (SN/VTA) subregions, defined by dopaminergic projections to the striatum, are differentially affected by health (e.g. normal aging) and disease (e.g. Parkinson's disease). This may have an impact on reward processing which relies on dopaminergic regions and circuits. We acquired diffusion tensor imaging (DTI) with probabilistic tractography in 30 healthy older adults to determine whether subregions of the SN/VTA could be delineated based on anatomical connectivity to the striatum. We found that a dorsomedial region of the SN/VTA preferentially connected to the ventral striatum whereas a more ventrolateral region connected to the dorsal striatum. These SN/VTA subregions

could be characterised by differences in quantitative structural imaging parameters, suggesting different underlying tissue properties. We also observed that these connectivity patterns differentially mapped onto reward dependence personality trait. We show that tractography can be used to parcellate the SN/VTA into anatomically plausible and behaviourally meaningful compartments, an approach that may help future studies to provide a more fine-grained synopsis of pathological changes in the dopaminergic midbrain and their functional impact. PMID:23684858

243. Social bonds affect anti-predator behaviour in a tolerant species of macaque, Macaca nigra

PubMed Central

Micheletta, JÃ©rÃ´me; Waller, Bridget M.; Panggur, Maria R.; Neumann, Christof; Duboscq, Julie; Agil, Muhammad; Engelhardt, Antje

2012-01-01

Enduring positive social bonds between individuals are crucial for humans' health and well being. Similar bonds can be found in a wide range of taxa, revealing the evolutionary origins of humans' social bonds. Evidence suggests that these strong social bonds can function to buffer the negative effects of living in groups, but it is not known whether they also function to minimize predation risk. Here, we show that crested macaques (Macaca nigra) react more strongly to playbacks of recruitment alarm calls (i.e. calls signalling the presence of a predator and eliciting cooperative mobbing behaviour) if they were produced by an individual with whom they share a strong social bond. Dominance relationships between caller and listener had no effect on the reaction of the listener. Thus, strong social bonds may improve the coordination and efficiency of cooperative defence against predators, and therefore increase chances of survival. This result broadens our understanding of the evolution and function of social bonds by highlighting their importance in the anti-predator context. PMID:22859593

244. Transient glutathione depletion in the substantia nigra compacta is associated with neuroinflammation in rats.

PubMed

DÃaz-Hung, Mei-Li; Yglesias-Rivera, Arianna; HernÃ¡ndez-ZimbrÃ³n, Luis Fernando; Orozco-SuÃ¡rez, Sandra; Ruiz-Fuentes, Jenny Laura; DÃaz-GarcÃa, Alexis; LeÃ³n-MartÃnez, Rilda; Blanco-Lezcano, Lisette; PavÃ³n-Fuentes, Nancy; Lorigados-Pedre, Lourdes

2016-10-29

Glutathione (GSH) deficiency has been identified as an early event in the progression of Parkinson's disease. However, the role of GSH in the etiology and pathogenesis of this neurodegenerative disorder is not well established. The aim of this study is to assess the effect of transient GSH depletion in the substantia nigra pars compacta (SNpc) on neuroinflammation after the injection of a single dose of l-buthionine sulfoximine (BSO) into the SNpc of male Sprague-Dawley rats. The results showed that BSO treatment stimulates microglia ($p<0.01$) and astroglial response ($p<0.01$), c-Jun N-terminal kinase and inducible nitric oxide synthase (iNOS) ($p<0.001$) in the SNpc, accompanied by dopaminergic dysfunction. In addition, high levels of tumor necrosis factor Î± ($p<0.01$), interleukins IL-1Î² $p<0.01$), IL-6 $p<0.001$) and nitric oxide $p<0.01$) were found in the treated animals compared to control groups, while no significant differences were found in IL-10 levels. These results suggest that transient GSH depletion can increase the susceptibility of SNpc to degeneration by promoting an inflammatory response and nitrosative stress, reinforcing the possible role of GSH unbalance, oxygen/nitrogen reactive species and neuroinflammation as causal factors on the degeneration of the SNpc.

245. Substantia nigra hyperechogenicity is related to decline in verbal memory in healthy elderly adults.

PubMed

Yilmaz, R; Behnke, S; Liepelt-Scarfone, I; Roeben, B; Pausch, C; Runkel, A; Heinzel, S; Niebler, R; Suenkel, U; Eschweiler, G W; Maetzler, W; Berg, D

2016-05-01

Deficits in cognition have been reported in Parkinson's disease (PD) already in the early and even in the pre-motor stages. Whilst substantia nigra hyperechogenicity measured by transcranial B-mode sonography (TCS) represents a strong PD marker and is associated with an increased risk for PD in still healthy individuals, its association with cognitive performance in prodromal PD stages is not well established. Two different cohorts of healthy elderly individuals were assessed by TCS and two different neuropsychological test batteries covering executive functions, verbal memory, language, visuo-constructional function and attention. Cognitive performance was compared between individuals with hyperechogenicity (SN+) and without hyperechogenicity (SN-). In both cohorts, SN+ individuals performed significantly worse than the SN- group in tests assessing verbal memory (word list delayed recall $P = 0.05$, logical memory II $P < 0.017$). Significant differences in Mini-Mental State Examination score (cohort 1, $P = 0.02$) and executive function tests (cohort 2, Stroop Color-Word Reading, $P = 0.004$) could only be shown in one of the two cohorts. No between-group effects were found in other cognitive tests and domains. These results indicate that individuals with the PD risk marker SN+ perform worse in verbal memory compared to SN- independent of the assessment battery. Memory performance should be assessed in detail in individuals at risk for PD. Â© 2016 EAN.

246. First Report of Korean Cyst Nematode, Heterodera koreana, Parasitic on Bamboo, Phyllostachys nigra, from Iran.

PubMed

Maafi, Zahra Tanha; Taheri, Zahra Majd

2015-09-01

Bamboo is grown sporadically in the north of Iran and is confined to very limited areas. The history of growing bamboo was to some extent simultaneous with the entrance, commencement, and growth of the tea industry in the north about a century ago. The bamboo was used for making baskets to transfer the harvested tea foliage from farm to the factory and other linked functions. A main area allocated for bamboo growing is located in Lahidjan Agricultural Research Station (LARS) in the north of Iran, where several species of bamboo were cultivated in an area of 5 ha. The species include five species of Phyllostachys (viz., P. aurea, P. bambusoides, P. decora, P. nigra, P. vivax) and one species of Arundinaria gigantean, Pleioblastus fortune, and Semiarundinaria fastuosa; however, only P. aurea and P. nigra have been precisely identified. A survey on plant parasitic nematodes associated with bamboo mainly on P. nigra in LARS revealed second-stage juveniles of cyst forming nematode in soil samples. Further analysis of root and soil samples led to recovery of a cyst nematode belonging to the genus Heterodera and the Afenestrata group. Cysts, vulval cone, and second-stage juveniles were studied for morphological and morphometric features. The classical identification was followed by amplification of the ribosomal RNA-ITS region and the D2-D3 expansion segments of 28S large-subunit rRNA gene; the amplified fragments were sequenced, edited, and compared with those of the corresponding published gene sequences. New D2-D3 and rRNA-ITS gene sequences were deposited in the GenBank database under the accession numbers KR818910 and KR818911, respectively. Based on the morphological and molecular data, the species of the cyst-forming nematode was identified as H. koreana (Vovlas et al., 1992; Mundo-Ocampo et al., 2008). The body contour of cysts was mainly subspherical, vey often with irregular shape (Fig. 1A), yellowish to light brown, thin cuticle with fine zigzag pattern

247. Adulthood Exposure to Lipopolysaccharide Exacerbates the Neurotoxic and Inflammatory Effects of Rotenone in the Substantia Nigra

PubMed Central

Huang, Chun; Zhu, Li; Li, Huan; Shi, Fu-Guo; Wang, Guo-Qing; Wei, Yi-Zheng; Liu, Jie; Zhang, Feng

2017-01-01

Parkinsonâ€™s disease (PD) is the second most neurodegenerative disorder with a regional decrease of dopamine (DA) neurons in the substantia nigra (SN). Despite intense exploration, the etiology of PD progressive process remains unclear. This study was to investigate the synergistic effects of systemic inflammation of lipopolysaccharide (LPS) and neurotoxicity of rotenone (ROT) on exacerbating DA neuron lesion. Male SD adulthood rats received a single intraperitoneal injection of LPS. Seven months later, rats were subcutaneously given ROT five times a week for consecutive 4 weeks. Rat behavior changes were assessed via rotarod and open-field tests. Brain SN was immunostained to evaluate DA neuronal loss and microglia activation. Striatum DA and its metabolites levels were determined by high performance liquid chromatography (HPLC) coupled with electrochemistry. The protein levels of Î±-synuclein (Î±-Syn), inflammatory factors and mitogen-activated protein kinase (MAPK) pathway activation were detected by western blotting analysis. Results indicated that no significant difference between the control and LPS alone groups was shown. Compared with ROT alone group, LPS combined with ROT significantly reduced motor activity and induced SN DA neurons loss accompanied by the decreased contents of striatum DA and its metabolites. Furthermore, LPS together with ROT enhanced microglia activation and the increased expressions of Î±-Syn and inflammatory factors and also MAPK signaling pathway activation. However, LPS alone had no significant effects on the above parameters. These findings suggest that adulthood exposure to LPS exacerbates the neurotoxic and inflammatory effects of ROT in the SN. PMID:28533741

248. Genome-wide analysis of day/night DNA methylation differences in Populus nigra.

PubMed

Ding, Chang-Jun; Liang, Li-Xiong; Diao, Shu; Su, Xiao-Hua; Zhang, Bing-Yu

2018-01-01

DNA methylation is an important mechanism of epigenetic modification. Methylation changes during stress responses and developmental processes have been well studied; however, their role in plant adaptation to the day/night cycle is poorly understood. In this study, we detected global methylation patterns in leaves of the black poplar Populus nigra 'N46' at 8:00 and 24:00 by methylated DNA immunoprecipitation sequencing (MeDIP-seq). We found 10,027 and 10,242 genes to be methylated in the 8:00 and 24:00 samples, respectively. The methylated genes appeared to be involved in multiple biological processes, molecular functions, and cellular components, suggesting important roles for DNA methylation in poplar cells. Comparing the 8:00 and 24:00 samples, only 440 differentially methylated regions (DMRs) overlapped with genic regions, including 193 hyper- and 247 hypo-methylated DMRs, and may influence the expression of 137 downstream genes. Most hyper-methylated genes were associated with transferase activity, kinase activity, and phosphotransferase activity, whereas most hypo-methylated genes were associated with protein binding, ATP binding, and adenyl ribonucleotide binding, suggesting that different biological processes were activated during the day and night. Our results indicated that methylated genes were prevalent in the poplar genome, but that only a few of these participated in diurnal gene expression regulation.

249. p62 Pathology Model in the Rat Substantia Nigra with Filamentous Inclusions and Progressive Neurodegeneration

PubMed Central

Jackson, Kasey L.; Lin, Wen-Lang; Miriyala, Sumitra; Dayton, Robert D.; Panchatcharam, Manikandan; McCarthy, Kevin J.; Castanedes-Casey, Monica; Dickson, Dennis W.; Klein, Ronald L.

2017-01-01

One of the proteins most frequently found in neuropathological lesions is the ubiquitin binding protein p62 (sequestosome 1). Post-mortem analysis of p62 is a defining diagnostic marker in several neurodegenerative diseases including amyotrophic lateral sclerosis and inclusion body myositis. Since p62 functions in protein degradation pathways including autophagy, the build-up of p62-positive inclusions suggests defects in protein clearance. p62 was expressed unilaterally in the rat substantia nigra with an adeno-associated virus vector (AAV9) in order to study p62 neuropathology. Inclusions formed within neurons from several days to several weeks after gene transfer. By electron microscopy, the inclusions were found to contain packed 10 nm thick filaments, and mitochondria cristae structure was disrupted, resulting in the formation of empty spaces. In corollary cell culture transfections, p62 clearly impaired mitochondrial function. To probe for potential effects on macroautophagy, we co-expressed p62 with a double fluorescent tagged reporter for the autophagosome protein LC3 in the rat. p62 induced a dramatic and specific dissociation of the two tags. By 12 weeks, a rotational behavior phenotype manifested, consistent with a significant loss of dopaminergic neurons analyzed post-mortem. p62 overexpression resulted in a progressive and robust pathology model with neuronal inclusions and neurodegeneration. p62 gene transfer could be a novel methodological probe to disrupt mitochondrial function or autophagy in the brain and other tissues in vivo. PMID:28076378

250. p62 Pathology Model in the Rat Substantia Nigra with Filamentous Inclusions and Progressive Neurodegeneration.

PubMed

Jackson, Kasey L; Lin, Wen-Lang; Miriyala, Sumitra; Dayton, Robert D; Panchatcharam, Manikandan; McCarthy, Kevin J; Castanedes-Casey, Monica; Dickson, Dennis W; Klein, Ronald L

2017-01-01

One of the proteins most frequently found in neuropathological lesions is the ubiquitin binding protein p62 (sequestosome 1). Post-mortem analysis of p62 is a defining diagnostic marker in several neurodegenerative diseases including amyotrophic lateral sclerosis and inclusion body myositis. Since p62 functions in protein degradation pathways including autophagy, the build-up of p62-positive inclusions suggests defects in protein clearance. p62 was expressed unilaterally in the rat substantia nigra with an adeno-associated virus vector (AAV9) in order to study p62 neuropathology. Inclusions formed within neurons from several days to several weeks after gene transfer. By electron microscopy, the inclusions were found to contain packed 10 nm thick filaments, and mitochondria cristae structure was disrupted, resulting in the formation of empty spaces. In corollary cell culture transfections, p62 clearly impaired mitochondrial function. To probe for potential effects on macroautophagy, we co-expressed p62 with a double fluorescent tagged reporter for the autophagosome protein LC3 in the rat. p62 induced a dramatic and specific dissociation of the two tags. By 12 weeks, a rotational behavior phenotype manifested, consistent with a significant loss of dopaminergic neurons analyzed post-mortem. p62 overexpression resulted in a progressive and robust pathology model with neuronal inclusions and neurodegeneration. p62 gene transfer could be a novel methodological probe to disrupt mitochondrial function or autophagy in the brain and other tissues in vivo.

251. Dissociation between iron accumulation and ferritin upregulation in the aged substantia nigra: attenuation by dietary restriction

PubMed Central

Walker, Thomas; Michaelides, Christos; Ekonomou, Antigoni; Geraki, Kalotina; Parkes, Harold G; Suessmilch, Maria; Herlihy, Amy H; Crum, William R; So, Po-Wah

2016-01-01

Despite regulation, brain iron increases with aging and may enhance aging processes including neuroinflammation. Increases in magnetic resonance imaging transverse relaxation rates, R2 and R2*, in the brain have been observed during aging. We show R2 and R2* correlate well with iron content via direct correlation to semi-quantitative synchrotron-based X-ray fluorescence iron mapping, with age-associated R2 and R2* increases reflecting iron accumulation. Iron accumulation was concomitant with increased ferritin immunoreactivity in basal ganglia regions except in the substantia nigra (SN). The unexpected dissociation of iron accumulation from ferritin-upregulation in the SN suggests iron dyshomeostasis in the SN. Occurring alongside microgliosis and astrogliosis, iron dyshomeotasis may contribute to the particular vulnerability of the SN. Dietary restriction (DR) has long been touted to ameliorate brain aging and we show DR attenuated agerelated in vivo R2 increases in the SN over ages 7 â€“ 19 months, concomitant with normal iron-induction of ferritin expression and decreased microgliosis. Iron is known to induce microgliosis and conversely, microgliosis can induce iron accumulation, which of these may be the initial pathological aging event warrants further investigation. We suggest iron chelation therapies and anti-inflammatory treatments may be putative â€˜antibrain agingâ€™ therapies and combining these strategies may be synergistic. PMID:27743512

252. The inhibitory microcircuit of the substantia nigra provides feedback gain control of the basal ganglia output.

PubMed

Brown, Jennifer; Pan, Wei-Xing; Dudman, Joshua Tate

2014-05-21

Dysfunction of the basal ganglia produces severe deficits in the timing, initiation, and vigor of movement. These diverse impairments suggest a control system gone awry. In engineered systems, feedback is critical for control. By contrast, models of the basal ganglia highlight feedforward circuitry and ignore intrinsic feedback circuits. In this study, we show that feedback via axon collaterals of substantia nigra projection neurons control the gain of the basal ganglia output. Through a combination of physiology, optogenetics, anatomy, and circuit mapping, we elaborate a general circuit mechanism for gain control in a microcircuit lacking interneurons. Our data suggest that diverse tonic firing rates, weak unitary connections and a spatially diffuse collateral circuit with distinct topography and kinetics from feedforward input is sufficient to implement divisive feedback inhibition. The importance of feedback for engineered systems implies that the intranigral microcircuit, despite its absence from canonical models, could be essential to basal ganglia function. DOI: http://dx.doi.org/10.7554/eLife.02397.001. Copyright Â© 2014, Brown et al.

253. Responses of black willow (Salix nigra) cuttings to simulated herbivory and flooding

NASA Astrophysics Data System (ADS)

Li, Shuwen; Martin, Lili T.; Pezeshki, S. Reza; Shields, F. Douglas

2005-09-01

Herbivory and flooding influence plant species composition and diversity in many wetland ecosystems. Black willow (Salix nigra) naturally occurs in floodplains and riparian zones of the southeastern United States. Cuttings from this species are used as a bioengineering tool for streambank stabilization and habitat rehabilitation. The present study was conducted to evaluate the photosynthetic and growth responses of black willow to simulated herbivory and flooding. Potted cuttings were subjected to three

levels of single-event herbivory: no herbivory (control), light herbivory, and heavy herbivory; and three levels of flooding conditions: no flooding (control), continuous flooding, and periodic flooding. Results indicated that elevated stomatal conductance partially contributed to the increased net photosynthesis noted under both levels of herbivory on day 30. However, chlorophyll content was not responsible for the observed compensatory photosynthesis. Cuttings subjected to heavy herbivory accumulated the lowest biomass even though they had the highest height growth by the conclusion of the experiment. In addition, a reduction in root/shoot ratio was noted for plants subjected to continuous flooding with no herbivory. However, continuously flooded, lightly clipped plants allocated more resources to roots than shoots. This study provides evidence that it is feasible to use black willow for habitat rehabilitation along highly eroded streambanks where both flooding and herbivory are present.

254. Presynaptic transmitters and depolarizing influences regulate development of the substantia nigra in culture.

PubMed

Friedman, W J; Dreyfus, C F; McEwen, B; Black, I B

1988-10-01

Recent evidence suggests that extracellular signals regulate neurotransmitter traits in brain catecholaminergic (CA) neurons as in the periphery. Development of the dopaminergic phenotype in the mouse substantia nigra (SN) was studied by monitoring tyrosine hydroxylase (TH), the rate-limiting enzyme in CA biosynthesis in vivo and in culture. Explants of SN were dissected from embryonic day 15 embryos and grown in culture for a week. To define the influence of depolarizing signals on central dopaminergic neurons, cultures were grown with the pharmacologic depolarizing agent veratridine. This treatment elicited a significant increase in TH enzyme activity, accompanied by elevated levels of enzyme protein. The increase in activity was prevented by TTX, suggesting that transmembrane Na+ influx was necessary for the rise in TH. A physiologic presynaptic agonist, substance P, also evoked a significant increase in TH activity; however, the coproduced tachykinin peptide, substance K (SK, neurokinin A) elicited a more dramatic rise. The SK effect was blocked by TTX, suggesting that the physiologic agonist was acting through the same mechanism as the pharmacologic agent veratridine. Immunoblot analysis revealed that SK elicited a parallel increase in TH enzyme protein. Our observations suggest that the novel peptide, SK, serves a physiological role in the regulation of TH in the striatonigral pathway.

255. Novelty-Sensitive Dopaminergic Neurons in the Human Substantia Nigra Predict Success of Declarative Memory Formation.

PubMed

KamiÅ„ski, Jan; Mamelak, Adam N; Birch, Kurtis; Mosher, Clayton P; Tagliati, Michele; Rutishauser, Ueli

2018-05-07

The encoding of information into long-term declarative memory is facilitated by dopamine. This process depends on hippocampal novelty signals, but it remains unknown how midbrain dopaminergic neurons are modulated by declarative-memory-based information. We recorded individual substantia nigra (SN) neurons and cortical field potentials in human patients performing a recognition memory task. We found that 25% of SN neurons were modulated by stimulus novelty. Extracellular waveform shape and anatomical location indicated that these memory-selective neurons were putatively dopaminergic. The responses of memory-selective neurons appeared 527Â ms after stimulus onset, changed after a single trial, and were indicative of recognition accuracy. SN neurons phase locked to frontal cortical theta-frequency oscillations, and the extent of this coordination predicted successful memory formation. These data reveal that dopaminergic neurons in the human SN are modulated by memory signals and

demonstrate a progression of information flow in the hippocampal-basal ganglia-frontal cortex loop for memory encoding. Copyright Â© 2018 The Author(s). Published by Elsevier Ltd.. All rights reserved.

256. Substantia nigra activity level predicts trial-to-trial adjustments in cognitive control

PubMed Central

Boehler, C.N.; Bunzeck, N.; Krebs, R.M.; Noesselt, T.; Schoenfeld, M.A.; Heinze, H.-J.; MÃ¼nte, T.F.; Woldorff, M.G.; Hopf, J.-M.

2011-01-01

Effective adaptation to the demands of a changing environment requires flexible cognitive control. The medial and lateral frontal cortices are involved in such control processes, putatively in close interplay with the basal ganglia. In particular, dopaminergic projections from the midbrain (i.e., from the substantia nigra (SN) and the ventral tegmental area (VTA)) have been proposed to play a pivotal role in modulating the activity in these areas for cognitive control purposes. In that dopaminergic involvement has been strongly implicated in reinforcement learning, these ideas suggest functional links between reinforcement learning, where the outcome of actions shapes behavior over time, and cognitive control in a more general context, where no direct reward is involved. Here, we provide evidence from functional MRI in humans that activity in the SN predicts systematic subsequent trial-to-trial response time (RT) prolongations that are thought to reflect cognitive control in a Stop-signal paradigm. In particular, variations in the activity level of the SN in one trial predicted the degree of RT prolongation on the subsequent trial, consistent with a modulating output signal from the SN being involved in enhancing cognitive control. This link between SN activity and subsequent behavioral adjustments lends support to theoretical accounts that propose dopaminergic control signals that shape behavior both in the presence and absence of direct reward. This SN-based modulatory mechanism is presumably mediated via a wider network that determines response speed in this task, including frontal and parietal control regions, along with the basal ganglia and the associated subthalamic nucleus. PMID:20465358

257. Substantia Nigra Volume Loss Before Basal Forebrain Degeneration in Early Parkinson Disease

PubMed Central

Ziegler, David A.; Wonderlick, Julien S.; Ashourian, Paymon; Hansen, Leslie A.; Young, Jeremy C.; Murphy, Alex J.; Koppuzha, Cecily K.; Growdon, John H.; Corkin, Suzanne

2017-01-01

Objective To test the hypothesis that degeneration of the substantia nigra pars compacta (SNc) precedes that of the cholinergic basal forebrain (BF) in Parkinson disease (PD) using new multispectral structural magnetic resonance (MR) imaging tools to measure the volumes of the SNc and BF. Design Matched case-control study. Setting The Athinoula A. Martinos Imaging Center at the McGovern Institute for Brain Research, Massachusetts Institute of Technology (MIT), and the Massachusetts General Hospital/MIT Morris Udall Center of Excellence in Parkinson Disease Research. Patients Participants included 29 patients with PD (Hoehn and Yahr [H&Y] stages 1â€“3) and 27 matched healthy control subjects. Main Outcome Measures We acquired multiecho T1-weighted, multiecho proton density, T2-weighted, and T2-weighted fluid-attenuated inversion recovery (FLAIR) sequences from each participant. For the SNc, we created a weighted mean of the multiple echoes, yielding a single volume with a high ratio of contrast to noise. We visualized the BF using T2-weighted FLAIR images. For each participant, we manually labeled the 2 structures and calculated their volumes. Results Relative to the controls, 13 patients with H&Y stage 1 PD had significantly decreased SNc volumes. Sixteen patients with H&Y stage 2 or 3 PD showed little additional volume loss. In contrast, the BF volume loss occurred later in the disease, with a significant decrease apparent in patients having H&Y stage 2 or 3 PD compared with the controls and the patients having H&Y stage 1 PD. The latter group did not differ significantly from the controls. Conclusion Our

results support the proposed neuropathological trajectory in PD and establish novel multispectral methods as MR imaging biomarkers for tracking the degeneration of the SNc and BF. PMID:23183921

258. Calpain inhibition reduces NMDA receptor rundown in rat substantia nigra dopamine neurons.

PubMed

Zhao, Jerry; Baudry, Michel; Jones, Susan

2018-05-04

Repeated activation of N-Methyl-d-aspartate receptors (NMDARs) causes a Ca 2+ -dependent reduction in NMDAR-mediated current in dopamine (DA) neurons of the substantia nigra pars compacta (SNc) in one week old rats; however, a Ca 2+ -dependent regulatory protein has not been identified. The role of the Ca 2+ -dependent cysteine protease, calpain, in mediating NMDAR current rundown was investigated. In brain slices from rats aged postnatal day 7-9 ('P7'), bath application of either of the membrane permeable calpain inhibitors, N-Acetyl-L-leucyl-L-leucyl-L-norleucinal (ALLN, 20â€¯Î¼M) or MDL-28170 (30â€¯Î¼M) significantly reduced whole-cell NMDAR current rundown. To investigate the role of the calpain-2 isoform, the membrane permeable calpain-2 inhibitor, Z-Leu-Abu-CONH-CH2-C6H3 (3, 5-(OMe)2 (C2I, 200â€¯nM), was applied; C2I application significantly reduced whole cell NMDAR current rundown. Interestingly, ALLN but not C2I significantly reduced rundown of NMDA-EPSCs. These results suggest the calpain-2 isoform mediates Ca 2+ -dependent regulation of extrasynaptic NMDAR current in the first postnatal week, while calpain-1 might mediate rundown of synaptic NMDAR currents. One week later in postnatal development, at P12-P16 ('P14'), there was significantly less rundown in SNc-DA neurons, and no significant effect on rundown of either Ca 2+ chelation or treatment with the calpain inhibitor, ALLN, suggesting that the rundown observed in SNc-DA neurons from two week-old rats might be Ca 2+ -independent. In conclusion, Ca 2+ -dependent rundown of extrasynaptic NMDAR currents in SNc DA neurons involves calpain-2 activation, but Ca 2+ - and calpain-2-dependent NMDAR current rundown is developmentally regulated. Copyright Â© 2018 Elsevier Ltd. All rights reserved.

259. GABAB-receptor activation alters the firing pattern of dopamine neurons in the rat substantia nigra.

PubMed

Engberg, G; Kling-Petersen, T; Nissbrandt, H

1993-11-01

Previous electrophysiological experiments have emphasized the importance of the firing pattern for the functioning of midbrain dopamine (DA) neurons. In this regard, excitatory amino acid receptors appear to constitute an important modulatory control mechanism. In the present study, extracellular recording techniques were used to investigate the significance of GABAB-receptor activation for the firing properties of DA neurons in the substantia nigra (SN) in the rat. Intravenous administration of the GABAB-receptor agonist baclofen (1-16 mg/kg) was associated with a dose-dependent regularization of the firing pattern, concomitant with a reduction in burst firing. At higher doses (16-32 mg/kg), the firing rate of the DA neurons was dose-dependently decreased. Also, microiontophoretic application of baclofen regularized the firing pattern of nigral DA neurons, including a reduction of burst firing. Both the regularization of the firing pattern and inhibition of firing rate produced by systemic baclofen administration was antagonized by the GABAB-receptor antagonist CGP 35348 (200 mg/kg, i.v.). The GABAA-receptor agonist muscimol produced effects on the firing properties of DA neurons that were opposite to those observed following baclofen, i.e., an increase in firing rate accompanied by a decreased regularity. The NMDA receptor antagonist MK 801 (0.4-3.2 mg/kg, i.v.) produced a moderate, dose-dependent increase in the firing rate of the nigral DA neurons as well as a slightly regularized firing pattern. Pretreatment with MK 801 (3.2 mg/kg, i.v., 3-10 min) did neither promote nor prevent the regularization of the firing pattern or inhibition of firing rate on the nigral DA neurons produced by

baclofen. The present results clearly show that GABAB-receptors can alter the firing pattern of nigral DA neurons, hereby counterbalancing the previously described ability of glutamate to induce burst firing activity on these neurons.

260. Neuroprotective Effect of Exogenous Melatonin on Dopaminergic Neurons of the Substantia Nigra in Ovariectomized Rats

PubMed Central

Mehraein, Fereshteh; Talebi, Reza; Jameie, Behnamedin; Joghataie, Mohammad Taghi; Madjd, Zahra

2011-01-01

Background: Melatonin has receptors in substantia nigra pars compacta (SNc) and regulates development of dopaminergic (DA) neurons. This study was undertaken to determine ability of melatonin to protect SNc dopaminergic neuron loss induced by estrogen deficiency in ovariectomized rats. Methods: Female rats were randomized into four groups of seven each: control, ethanol sham, ovariectomy (ovx) and ovx with melatonin (ovx + m). In ovx, ovaries were removed. Ovx + m group was intraperitoneally injected with melatonin for 10 days, while the ethanol sham group received only ethanol. All rats were perfused with 4% paraformaldehyde, midbrains removed, fixed and paraffin embedded, then processed for Nissl and tyrosine hydroxylase staining (IHC). Ten sections of SNc in Nissl and IHC staining were analyzed in each animal, Nissl stained and tyrosine hydroxylase (TH) immunoreactive cells were counted in five experimental groups randomly. Data was analyzed using SPSS by ANOVA and t-test. Differences were considered significant for $P<0.05$. Results: There was less cell number in ovx compared to control and ethanol sham groups significantly ($P<0.001$). The ovx + m group had more cells than the ovx group in the SNc significantly ($P<0.001$). Furthermore, there was significant decrease of TH positive cell number in the ovx group compared to control and ethanol sham groups ($P<0.05$). The number of TH immunoreactive cells was higher in ovx + m compared to the ovx group ($P<0.05$). Conclusion: These findings can be compared with human and used in clinical application for prevention of DA neuron death of SNc after ovariectomy. PMID:21725499

- «
- 11
- 12
- 13
- 14
- 15
- »

- «
- 12
- 13
- 14
- 15
- 16
- »

261. Functional territories in primate substantia nigra pars reticulata separately signaling stable and flexible values

PubMed Central

Hikosaka, Okihide

2014-01-01

Gaze is strongly attracted to visual objects that have been associated with rewards. Key to this function is a basal ganglia circuit originating from the caudate nucleus (CD), mediated by the substantia nigra pars reticulata (SNr), and aiming at the superior colliculus (SC). Notably, subregions of CD encode values of visual objects differently: stably by CD tail [CD(T)] vs. flexibly by CD head [CD(H)]. Are the stable and flexible value signals processed separately throughout the CD-SNr-SC circuit? To answer this question, we identified SNr neurons by their inputs from CD and outputs to SC and examined their sensitivity to object values. The direct input from CD was identified by SNr neuron's inhibitory response to electrical stimulation of CD. We found that SNr neurons were separated into two groups: 1) neurons inhibited by CD(T) stimulation, located in the caudal-dorsal-lateral SNr (cdlSNr), and 2) neurons inhibited by CD(H) stimulation, located in the rostral-ventral-medial SNr (rvmSNr). Most of CD(T)-recipient SNr neurons encoded stable values, whereas CD(H)-recipient SNr neurons tended to encode flexible values. The output to SC was identified by SNr neuron's antidromic response to SC stimulation. Among the antidromically activated neurons, many encoded only stable values, while some encoded only flexible values. These results suggest that CD(T)-cdlSNr-SC circuit and CD(H)-rvmSNr-SC circuit transmit stable and flexible value signals, largely separately, to SC. The speed of signal transmission was faster through CD(T)-cdlSNr-SC circuit than through CD(H)-rvmSNr-SC circuit, which may reflect automatic and controlled gaze orienting guided by these circuits. PMID:25540224

262. Calcium mobilization elicited by two types of nicotinic acetylcholine receptors in mouse substantia nigra pars compacta.

PubMed

Tsuneki, H; Klink, R; LÃ©na, C; Korn, H; Changeux, J P

2000-07-01

Nicotinic acetylcholine receptors (nAChRs) are expressed in the midbrain ascending dopaminergic system, a target of many addictive drugs. Here we assessed the intracellular Ca2+ level by imaging fura-2-loaded cells in substantia nigra pars compacta in mouse brain slices, and we examined the influence on this level of prolonged exposures to nicotine using mice lacking the nAChR beta2-subunit. In control cells, superfusion with nicotine (10-100 microM) caused a long-lasting rise of intracellular Ca2+ level which depended on extracellular Ca2+. This nicotinic response was almost completely absent in beta2-/- mutant mice, leaving a small residual response to a high concentration (100 microM) of nicotine which was inhibited by the alpha7-subunit-selective antagonist, methyllycaconitine. Conversely, the alpha7-subunit-selective agonist choline (10 mM) caused a methyllycaconitine-sensitive increase in intracellular Ca2+ level both in wild-type and beta2-/- mutant mice. Nicotine-elicited Ca2+ mobilization was reduced by the Na+ channel blocker tetrodotoxin (TTX) and by T-type Ca2+ channel blocking agents, whereas the choline-elicited Ca2+ increase was insensitive to TTX. Neither nicotine nor choline produced Ca2+ increase following inhibition of the release of Ca2+ from intracellular stores by dantrolene. These results demonstrate that in nigral dopaminergic neurons, nicotine can elicit Ca2+ mobilization via activation of two distinct nAChR subtypes: that of beta2-subunit-containing nAChR followed by activation of Na+ channel and T-type Ca2+ channels, and/or activation of alpha7-subunit-containing nAChR. The Ca2+ influx due to nAChR activation is subsequently amplified by the recruitment of intracellular Ca2+ stores. This Ca2+ mobilization may possibly contribute to the long-term effects of nicotine on the dopaminergic system.

263. Autophagy Protects Against Aminochrome-Induced Cell Death in Substantia Nigra-Derived Cell Line

PubMed Central

Paris, Irmgard; MuÃ±oz, Patricia; Huenchuguala, Sandro; Couve, Eduardo; Sanders, Laurie H.; Greenamyre, John Timothy; Caviedes, Pablo; Segura-Aguilar, Juan

2011-01-01

Aminochrome, the precursor of neuromelanin, has been proposed to be involved in the neurodegeneration neuromelanin-containing dopaminergic neurons in Parkinsonâ€™s disease. We aimed to study the mechanism of aminochrome-dependent cell death in a cell line derived from rat substantia nigra. We found that aminochrome (50Î¼M), in the presence of NAD(P)H-quinone oxidoreductase, EC 1.6.99.2 (DT)-diaphorase inhibitor dicoumarol (DIC) (100Î¼M), induces significant cell death (62 Â± 3%; $p < 0.01$), increase in caspase-3 activation ($p < 0.001$), release of cytochrome C, disruption of mitochondrial membrane potential ($p < 0.01$), damage of mitochondrial DNA, damage of mitochondria determined with transmission electron microscopy, a dramatic morphological change characterized as cell shrinkage, and significant increase in number of autophagic vacuoles. To determine the role of autophagy on aminochrome-induced cell death, we incubated the cells in the presence of vinblastine and rapamycin. Interestingly, 10Î¼M vinblastine induces a 5.9-fold ($p < 0.001$) and twofold ($p < 0.01$) significant increase in cell death when the cells were incubated with 30Î¼M aminochrome in the absence and presence of DIC, respectively, whereas 10Î¼M rapamycin preincubated 24 h before addition of 50Î¼M aminochrome in the absence and the presence of 100Î¼M DIC induces a significant decrease ($p < 0.001$) in cell death. In conclusion, autophagy seems to be an important protective mechanism against two different aminochrome-induced cell deaths that initially showed apoptotic features. The cell death induced by aminochrome when DT-diaphorase is inhibited requires activation of mitochondrial pathway, whereas the cell death induced by aminochrome alone requires inhibition of autophagy-dependent degrading of damaged organelles and recycling through lysosomes. PMID:21427056

264. Escalating Methamphetamine Regimen Induces Compensatory Mechanisms, Mitochondrial Biogenesis, and GDNF Expression, in Substantia Nigra.

PubMed

Valian, Neda; Ahmadiani, Abolhassan; Dargahi, Leila

2017-06-01

Methamphetamine (MA) produces long-lasting deficits in dopaminergic neurons in the long-term use via several neurotoxic mechanisms. The effects of MA on mitochondrial biogenesis is less studied currently. So, we evaluated the effects of repeated escalating MA regimen on transcriptional factors involved in mitochondrial biogenesis and glial-derived neurotrophic factor (GDNF) expression in substantia nigra (SN) and striatum of rat. In male Wistar rats, increasing doses of MA (1-14â€‰mg/kg) were administrated twice a day for 14 days. At the 1st, 14th, 28th, and 60th days after MA discontinuation, we measured the PGC1Î±, TFAM and NRF1 mRNA levels, indicator of mitochondrial biogenesis, and GDNF expression in SN and striatum. Furthermore, we evaluated the glial fibrillary acidic protein (GFAP) and Iba1 mRNA levels, and the levels of tyrosine hydroxylase (TH) and Î±-synuclein (Î±-syn) using immunohistochemistry and real-time polymerase chain reaction (PCR). We detected increments in PGC1Î± and TFAM mRNA levels in SN, but not striatum, and elevations in GDNF levels in SN immediately after MA discontinuation. We also observed increases in GFAP and Iba1 mRNA levels in SN on day 1 and increases in Iba1 mRNA on days 1 and 14 in striatum. Data analysis revealed that the number of TH + cells in the SN did not reduce in any time points, though TH mRNA levels was increased on day 1 after MA discontinuation in SN. These data show that repeated escalating MA induces several compensatory mechanisms, such as mitochondrial biogenesis and elevation in GDNF in SN. These mechanisms can reverse MA-induced neuroinflammation and prevent TH-immunoreactivity reduction in nigrostriatal pathway. J. Cell. Biochem. 118: 1369-1378, 2017. Â© 2016 Wiley Periodicals, Inc. Â© 2016 Wiley Periodicals, Inc.

265. Silibinin attenuates MPPâ□°-induced neurotoxicity in the substantia nigra in vivo.

PubMed

Jung, Un Ju; Jeon, Min-Tae; Choi, Myung-Sook; Kim, Sang Ryong

2014-05-01

Parkinson's disease (PD) is characterized by degeneration of the nigrostriatal dopaminergic (DA) pathway. The cause of neuronal death in PD is largely unknown, but it is becoming clear that inflammation plays a significant role in the pathophysiology of PD. Silibinin is a major flavonoid in milk thistle which has an anti-inflammatory activity. We investigated whether silibinin could have neuroprotective effects on DA neurons in the 1-methyl-4-phenylpyridinium ion (MPP(+))-treated animal model of PD in vivo. To address this question, animals received intraperitoneal (i.p.) injections 10, 50, or 100â€‰mg/kg of silibinin, starting 1 day before MPP(+) injection and continued daily until 6 days post-lesion for tyrosine hydroxylase (TH) staining, or until 1 hour prior to the MPP(+) injection to examine the expression levels of inflammatory proteins. Finally, their brains were harvested at the indicated time points for the analyses. Silibinin treatment with 10â€‰mg/kg had no significantly neuroprotective effects in the substantia nigra (SN). However, 50 and 100â€‰mg/kg of silibinin ameliorated the MPP(+)-induced neurotoxicity in the SN in a dose-dependent manner, and the increased levels of inflammatory molecules such as tumor necrosis factor-alpha (TNF-Î±), interleukin-1 beta (IL-1Î²) and inducible nitric oxide synthase (iNOS) by MPP(+) treatment were attenuated by treatment with 100â€‰mg/kg of silibinin. These results indicate that silibinin could be a useful and beneficial natural product offering promise for the prevention of DA neuronal degeneration involved in PD.

266. Characterization of dopamine release in the substantia nigra by in vivo microdialysis in freely moving rats.

PubMed

Robertson, G S; Damsma, G; Fibiger, H C

1991-07-01

Dopamine (DA) is released not only from the terminals of the nigrostriatal projection, but also from the dendrites of these neurons, which arborize in the substantia nigra pars reticulata (SNR). Although striatal DA release has been extensively studied by in vivo microdialysis, dendritic DA release in the SNR has not been characterized by this technique. Extracellular DA was monitored simultaneously in the ipsilateral striatum and SNR. The nigral probe was implanted at a 50 degree angle, permitting 2.5 mm of SNR to be dialyzed. Delivery of the tracer Fluoro-Gold into the striatal probe retrogradely labeled tyrosine hydroxylase-positive cell bodies and dendrites in the vicinity of the nigral probe. Hence, it could be demonstrated that dopaminergic neurons near the nigral probe projected to the vicinity of the striatal probe. Addition of 50 mM KCl to the SNR perfusion solution produced a 3.5-fold increase in DA and a 50% reduction in dihydroxyphenylacetic acid (DOPAC) in the SNR; in contrast, this manipulation in the SNR caused DA release in the striatum to be decreased by 20%, while striatal DOPAC was increased by 50%. Local administration of nomifensine (10 microM) in the SNR produced a sevenfold increase in SNR DA but had no effect on striatal DA. Systemic injection of d-amphetamine (2 mg/kg, s.c.) elevated DA in the SNR and striatum five- to sevenfold, while DOPAC was decreased in both structures by at least 40%. To determine the effect of tetrodotoxin (TTX), basal concentrations of DA in the SNR were first elevated threefold by including nomifensine (1 microM) in the nigral perfusion solution.(ABSTRACT TRUNCATED AT 250 WORDS)

267. Protein Markers of Neurotransmitter Synthesis and Release in Postmortem Schizophrenia Substantia Nigra.

PubMed

Schoonover, Kirsten E; McCollum, Lesley A; Roberts, Rosalinda C

2017-01-01

The substantia nigra (SN) provides the largest dopaminergic input to the brain, projects to the striatum (the primary locus of action for antipsychotic medication), and receives GABAergic and glutamatergic inputs. This study used western blot analysis to compare protein levels of tyrosine hydroxylase (TH), glutamate decarboxylase (GAD67), and vesicular glutamate transporters (vGLUT1 and vGLUT2) in postmortem human SN in schizophrenia subjects (n=13) and matched controls (n=12). As a preliminary analysis, the schizophrenia group was subdivided by (1) treatment status: off medication (n=4) or on medication (n=9); or (2) treatment response: treatment resistant (n=5) or treatment responsive (n=4). The combined schizophrenia group had higher TH and GAD67 protein levels than controls (an increase of 69.6%, P=0.01 and 19.5%, P=0.004, respectively). When subdivided by medication status, these increases were found in the on-medication subjects (TH 88.3%, P=0.008; GAD67 40.6%, P=0.003). In contrast, unmedicated schizophrenia subjects had higher vGLUT2 levels than controls (an increase of 28.7%, P=0.041), but vGLUT2 levels were similar between medicated schizophrenia subjects and controls. Treatment-resistant subjects had significantly higher TH and GAD67 levels than controls (an increase of 121.0%, P=0.0003 and 58.7%, P=0.004, respectively). These data suggest increases in dopamine and GABA transmission in the SN in schizophrenia, with a potential relation to treatment and response.

268. Impact of protective agents and drying methods on desiccation tolerance of Salix nigra L. seeds.

PubMed

Santagapita, Patricio R; Ott Schneider, Helena; Agudelo-Laverde, Lina M; Buera, M Pilar

2014-09-01

Willow seeds are classified as orthodox, but they show some recalcitrant characteristics, as they lose viability in a few weeks at room temperature. The aim of this work was to improve the desiccation tolerance of willow seeds (Salix nigra L.), as a model of sensitive materials to dehydration, through imbibition in solutions and later vacuum (VD) or freeze-drying (FD). Imbibition was conducted with 45% w/v trehalose or polyethylene glycol 400 -PEG- or water prior to dehydration treatments. Water- and especially trehalose-imbibed seeds subjected to VD showed better germination capability with respect to the freeze-dried ones. Water crystallization was mainly responsible for the great loss of capability germination observed in water- or trehalose-imbibed seeds subjected to FD. PEG behavior was better when seeds were FD instead of VD. DSC thermograms of seeds allowed to identify two thermal transitions corresponding to lipids melting and to proteins denaturation. This last transition reveals information about proteins state/functionality. Dehydration of control and PEG- or water-imbibed seeds affected proteins functionality leading to lower germinability. In the case of trehalose-imbibed seeds subjected to VD, proteins maintained their native state along dehydration, and the seeds showed a great germination capacity for all the water content range. Germinated seeds showed higher luminosity (L*), greenness (a*) and yellowness (b*) values than not-germinated seeds independently of the employed agent. Present work reveals that the presence of adequate protective agents as well the dehydration method were the main critical factors involved in willow seed desiccation tolerance. Copyright Â© 2014 Elsevier Masson SAS. All rights reserved.

269. Sambulin A and B, non-glycosidic iridoids from Sambucus ebulus, exert significant in vitro anti-inflammatory activity in LPS-induced RAW 264.7 macrophages via inhibition of MAPKs's phosphorylation.

PubMed

Balkan, Ä°rem Atay; Ä°lter AkÃ¼lke, Ayca Zeynep; BaÄŸatur, YeÅŸim; Telci, Dilek; GÃ¶ren, Ahmet Ceyhan; KÄ±rmÄ±zÄ±bekmez, Hasan; Yesilada, Erdem

2017-07-12

The leaves of Sambucus ebulus L. (Adoxaceae) are widely used in Turkish folk medicine particularly against inflammatory disorders. The fresh leaves after wilted over fire or the poultices prepared are directly applied externally to heal burns, edema, eczema, urticarial and abscess. Two iridoids were recently isolated (sambulin A, sambulin B) from the leaves of S. ebulus. This study aims to investigate the in vitro anti-inflammatory activities of these iridoids on LPS-induced RAW 264.7 macrophages. Raw 264.7 macrophages were treated with 12.5, 25 and 50Âµg/ml Sambulin A and 6.25, 12.5 and 25Âµg/ml Sambulin B and induced with 1Âµg/ml lipopolysaccaharides (LPS). Effect of the compounds on nitric oxide (NO) production and cytokines (TNFÎ±, IL-6) were determined by Griess and ELISA assays respectively. iNOS and the phosphorylation levels of MAPKs (ERK, JNK) were examined by Western Blot. Sambulin A and sambulin B inhibited 52.82% and 72.88% of NO production at 50 and 25Âµg/ml concentrations respectively. The levels of iNOS were significantly decreased by both molecules, sambulin B at 25Âµg/ml almost completely decreased iNOS levels (97.53%). Both molecules significantly inhibited TNFÎ± productions. However, only sambulin B inhibited IL-6 production. Consequently, it was shown that sambulin B exerted its effect through the inhibition of ERK and JNK phosphorylations. The prominent bioactivities exerted by two iridoids will contribute to explanation of the usage of S. ebulus in traditional medicine against rheumatoid diseases.

270. Increased protein oxidation in human substantia nigra pars compacta in comparison with basal ganglia and prefrontal cortex measured with an improved dinitrophenylhydrazine assay.

PubMed

Floor, E; Wetzel, M G

1998-01-01

The dopaminergic phenotype of neurons in human substantia nigra deteriorates during normal aging, and loss of these neurons is prominent in Parkinson's disease. These degenerative processes are hypothesized to involve oxidative stress. To compare oxidative stress in the nigra and related regions, we measured carbonyl modifications of soluble proteins in postmortem samples of substantia nigra, basal ganglia, and prefrontal cortex from neurologically normal subjects, using an improved 2,4-dinitrophenylhydrazine assay. The protein carbonyl content was found to be about twofold higher in substantia nigra pars compacta than in the other regions. To further analyze this oxidative damage, the distribution of carbonyl groups on soluble proteins was determined by western immunoblot analysis. This method revealed that carbonyl content of the major proteins in each region was linearly dependent on molecular weight. This distribution raises the possibility that protein carbonyl content is controlled by a size-dependent mechanism in vivo. Our results suggest that oxidative stress is elevated in human substantia nigra pars compacta in comparison with other regions and that oxidative damage is higher within the dopaminergic neurons. Elevated oxidative damage may contribute to the degeneration of nigral dopaminergic neurons in aging and in Parkinson's disease.

271. Comparison of 3T and 7T susceptibility-weighted angiography of the substantia nigra in diagnosing Parkinson disease.

PubMed

Cosottini, M; Frosini, D; Pesaresi, I; Donatelli, G; Cecchi, P; Costagli, M; Biagi, L; Ceravolo, R; Bonuccelli, U; Tosetti, M

2015-03-01

Standard neuroimaging fails in defining the anatomy of the substantia nigra and has a marginal role in the diagnosis of Parkinson disease. Recently 7T MR target imaging of the substantia nigra has been useful in diagnosing Parkinson disease. We performed a comparative study to evaluate whether susceptibility-

weighted angiography can diagnose Parkinson disease with a 3T scanner. Fourteen patients with Parkinson disease and 13 healthy subjects underwent MR imaging examination at 3T and 7T by using susceptibility-weighted angiography. Two expert blinded observers and 1 neuroradiology fellow evaluated the 3T and 7T images of the sample to identify substantia nigra abnormalities indicative of Parkinson disease. Diagnostic accuracy and intra- and interobserver agreement were calculated separately for 3T and 7T acquisitions. Susceptibility-weighted angiography 7T MR imaging can diagnose Parkinson disease with a mean sensitivity of 93%, specificity of 100%, and diagnostic accuracy of 96%. 3T MR imaging diagnosed Parkinson disease with a mean sensitivity of 79%, specificity of 94%, and diagnostic accuracy of 86%. Intraobserver and interobserver agreement was excellent at 7T. At 3T, intraobserver agreement was excellent for experts, and interobserver agreement ranged between good and excellent. The less expert reader obtained a diagnostic accuracy of 89% at 3T. Susceptibility-weighted angiography images obtained at 3T and 7T differentiate controls from patients with Parkinson disease with a higher diagnostic accuracy at 7T. The capability of 3T in diagnosing Parkinson disease might encourage its use in clinical practice. The use of the more accurate 7T should be supported by a dedicated cost-effectiveness study. Â© 2015 by American Journal of Neuroradiology.

272. Adaptive traits to fluvial systems of native tree European black Poplar (Populus nigra L.) population in Southern Italy

NASA Astrophysics Data System (ADS)

Saulino, Luigi; Pasquino, Vittorio; Todaro, Luigi; Rita, Angelo; Villani, Paolo; Battista Chirico, Giovanni; Saracino, Antonio

2015-04-01

This work focuses on the morphological and biomechanical traits developed by the European black poplar (Populus nigra) to cope with the hydraulic force and prolonged submersion periods during floods. Two riverine environments of the Cilento sub-region (Southern Italy) have been selected for this experimental study. The two sites have the same climatic and hydrological regimes. The first site is located along the Ripiti stream, characterized by a braided channel with longitudinal and transverse bars and eroding banks. The second site is located along the Badolato stream, an entrenched meandering riffle/pool channel, with low gradients and high width/depth. P. nigra mixed with Salix alba and along the Badolato stream also Platanus orientalis, is the dominant wooden riparian vegetation in both sites. Cuttings from adult P. nigra trees originated by seeds were collected and planted in the 'Azienda Sperimentale Regionale Improsta' (Eboli-Salerno, Campania region). The experimental plantation was managed according to a multi-stem short rotation coppice with low external energy input and high disturbance regime generated by a 3 years rotation coppicing. The two sample stool sets exhibit statistically similar morphological traits, but different values of Young elasticity module of the shoots. A functional evaluation of the biomechanical differences was performed by measuring the bending of the individual stems under the hypothesis of complete submergence within a flow of different mean velocities, using a numerical model that predicts the bending of woody vegetation beams allowing for large deflections. The results suggest that plants with the same gene pool but coming from morphologically different riverine environments, may reflect different dominant biomechanical properties, which might be relevant for designing local sustainable management and restoration plans of rivers and riparian systems.

273. Protective Effects of Vitamin E Consumption against 3MT Electromagnetic Field Effects on Oxidative Parameters in Substantia Nigra in Rats

PubMed Central

Ghanbari, Ahmad Ali; Shabani, Kobra; Mohammad Nejad, Daryoush

2016-01-01

Introduction: Electromagnetic fields (EMFs) can influence the biological system by the formation of free radicals in cells. The EMFs are able to deteriorate defense system against free radicals that leads to oxidative stress (OS). Lipid peroxidation process (LPO) is an index of oxidative stress, and the Malandialdehyde (MDA) is the final product of LPO. Vitamin E is the most important antioxidant which inhibits the LPO process. The aim of this study was to evaluate the effects of 3MT EMF exposure on oxidative stress parameters in substantia nigra and the role of vitamin E in reducing oxidative stress and preventing of LPO process. Methods: 40 male Wistar rats were randomly divided into 4 groups: 1) Control group: received standard food without exposure to EMF and without consumption of vitamin E, 2) Experimental group 1: was exposed to EMF (3MT) 4 h/day for 50 days, 3) The experimental group 2: received 200 mg/kg vitamin E with gavage every day and also was exposed to EMF (3MT) 4 h/day for 50 days, 4) Sham group: received water with gavage for 50 days. Results: A significant increase in MDA levels and Glutation peroxidase (GSH-Px) activity of the substantia nigra following 50 days exposure to EMF was detected, but the superoxide dismutase (SOD) activity was decreased. Exposure did not change total antioxidant capacity (TAC) levels in plasma. Vitamin E treatment significantly prevented the increase of the MDA levels and GSHPx activity and also prevented the decrease of SOD activity in tissue but did not alter TAC levels. The GSH-Px activity increased because the duration and intensity of exposure were not enough to decrease it. Conclusion: We demonstrated two important findings; that 50 days exposure to 3 MT electromagnetic field caused oxidative stress by increasing the levels of MDA, and decreasing SOD activity in the substantia nigra; and that treatment with the vitamin E significantly prevented the oxidative stress and lipid peroxidation. PMID:27872692

274. Protective Effects of Vitamin E Consumption against 3MT Electromagnetic Field Effects on Oxidative Parameters in Substantia Nigra in Rats.

    PubMed

    Ghanbari, Ahmad Ali; Shabani, Kobra; Mohammad Nejad, Daryoush

    2016-10-01

    Electromagnetic fields (EMFs) can influence the biological system by the formation of free radicals in cells. The EMFs are able to deteriorate defense system against free radicals that leads to oxidative stress (OS). Lipid peroxidation process (LPO) is an index of oxidative stress, and the Malandialdehyde (MDA) is the final product of LPO. Vitamin E is the most important antioxidant which inhibits the LPO process. The aim of this study was to evaluate the effects of 3MT EMF exposure on oxidative stress parameters in substantia nigra and the role of vitamin E in reducing oxidative stress and preventing of LPO process. 40 male Wistar rats were randomly divided into 4 groups: 1) Control group: received standard food without exposure to EMF and without consumption of vitamin E, 2) Experimental group 1: was exposed to EMF (3MT) 4 h/day for 50 days, 3) The experimental group 2: received 200 mg/kg vitamin E with gavage every day and also was exposed to EMF (3MT) 4 h/day for 50 days, 4) Sham group: received water with gavage for 50 days. A significant increase in MDA levels and Glutation peroxidase (GSH-Px) activity of the substantia nigra following 50 days exposure to EMF was detected, but the superoxide dismutase (SOD) activity was decreased. Exposure did not change total antioxidant capacity (TAC) levels in plasma. Vitamin E treatment significantly prevented the increase of the MDA levels and GSHPx activity and also prevented the decrease of SOD activity in tissue but did not alter TAC levels. The GSH-Px activity increased because the duration and intensity of exposure were not enough to decrease it. We demonstrated two important findings; that 50 days exposure to 3 MT electromagnetic field caused oxidative stress by increasing the levels of MDA, and decreasing SOD activity in the substantia nigra; and that treatment with the vitamin E significantly prevented the oxidative stress and lipid peroxidation.

275. Extracts of Morus nigra L. Leaves Standardized in Chlorogenic Acid, Rutin and Isoquercitrin: Tyrosinase Inhibition and Cytotoxicity

    PubMed Central

Fontes, Pedro Ribeiro; Souza, Paula Monteiro; William Fagg, Christopher; Neves Silva Guerra, Eliete; de Medeiros NÃ³brega, Yanna Karla; Silveira, Damaris; Fonseca-Bazzo, Yris; Simeoni, Luiz Alberto; Homem-de-Mello, MaurÃcio; Oliveira MagalhÃ£es, PÃ©rola

2016-01-01

Melanogenesis is a process responsible for melanin production, which is stored in melanocytes containing tyrosinase. Inhibition of this enzyme is a target in the cosmetics industry, since it controls undesirable skin conditions such as hyperpigmentation due to the overproduction of melanin. Species of the Morus genus are known for the beneficial uses offered in different parts of its plants, including tyrosinase inhibition. Thus, this project aimed to study the inhibitory activity of tyrosinase by extracts from Morus nigra leaves as well as the characterization of its chromatographic profile and cytotoxicity in order to become a new therapeutic option from a natural source. M. nigra leaves were collected, pulverized, equally divided into five batches and the standardized extract was obtained by passive maceration. There was no significant difference between batches for total solids content, yield and moisture content, which shows good reproducibility of the extraction process. Tyrosinase enzymatic activity was determined for each batch, providing the percentage of enzyme inhibition and IC50 values obtained by constructing dose-response curves and compared to kojic acid, a well-known tyrosinase inhibitor. High inhibition of tyrosinase activity was observed (above 90% at 15.625 Î¼g/mL). The obtained IC50 values ranged from 5.00 Î¼g/mL Â± 0.23 to 8.49 Î¼g/mL Â± 0.59 and were compared to kojic acid (3.37 Î¼g/mL Â± 0.65). High Performance Liquid Chromatography analysis revealed the presence of chlorogenic acid, rutin and, its major compound, isoquercitrin. The chromatographic method employed was validated according to ICH guidelines and the extract was standardized using these polyphenols as markers. Cytotoxicity, assessed by MTT assay, was not observed on murine melanomas, human keratinocytes and mouse fibroblasts in tyrosinase IC50 values. This study demonstrated the potential of M. nigra leaf extract as a promising whitening agent of natural source against skin

276. Geochemical peculiarities of black poplar leaves (Populus nigra L.) in the sites with heavy metals intensive fallouts

NASA Astrophysics Data System (ADS)

Yalaltdinova, Albina; Baranovskaya, Natalya; Rikhvanov, Leonid; Matveenko, Irina

2013-04-01

The article deals with the content of 28 chemical elements in the leaves ash of black poplar (Populus nigra L.) growing in Ust-Kamenogorsk city area. It is the major industrial center of Kazakhstan Republic on the territory where the industrial giants of non-ferrous metallurgy and nuclear energy are situated. Comparative analysis with the similar data obtained from leaves ash of Populus nigra L. in Tomsk, Ekibastuz, and Pavlodar cities has revealed that in comparison with other urban areas, leaves ash of black poplar (Populus nigra L.) from Ust-Kamenogorsk city is characterized by elevated concentration rates of Ta, U, Zn, Ag, As, Sb, Br, Sr and Na. Within the city, the sites and areas with abnormal contents of typomorphic pollutants have been revealed. In the central part of the city, in the vicinity of lead-zinc plant and Ulba metallurgical plant, the highest concentrations of Ta, U, Zn, Ag, Au, As, Sb, Cr and Fe were marked. In the northeast, where the titanium-magnesium plant is located, elevated concentrations of Br and Sr were stated. Thus, the impact of major city enterprises which are the main sources of heavy metals is reflected in the element composition. Zn, As, Sb, Ag and Au comes from lead-zinc plant and its refinery plants, while Ulba metallurgical plant can be considered source of Ta and U in the environment, producing tantalum and fuel pellets for nuclear power plants. These companies, due to the current objective circumstances, are located in the central part of the city, have a significant negative effect on the environment and form the risk factors for human health.

277. Antimalarial activity of 80 % methanolic extract of Brassica nigra (L.) Koch. (Brassicaceae) seeds against Plasmodium berghei infection in mice.

PubMed

Muluye, Abrham Belachew; Melese, Eshetie; Adinew, Getnet Mequanint

2015-10-15

Resistances to currently available drugs and insecticides, significant drug toxicities and costs and lack of vaccines currently complicated the treatment of malaria. A continued search for safe, effective and affordable plant-based antimalarial agents thus becomes crucial and vital in the face of these difficulties. The aim of the study was to evaluate the antimalarial activity of 80 % methanolic extract of the seeds of Brassica nigra against Plasmodium berghei infection in mice. Chloroquine sensitive Plasmodium berghei (ANKA strain) was used to test the antimalarial activity of the extract. In suppressive and prophylactic models, Swiss albino male mice were randomly grouped into five groups of five mice each. Group I mice were treated with the vehicle, group II, III and IV were treated with 100, 200, and 400 mg/kg of the extract, respectively and the last group (V) mice were treated with chloroquine (10 mg/kg). The level of parasitemia, survival time and variation in weight of mice were used to determine the antimalarial activity of the extract. Chemosuppressive activities produced by the extract of the seeds of Brassica nigra were 21.88, 50.00 (Pâ€‰<â€‰0.01) and 53.13 % (Pâ€‰<â€‰0.01), while the chemoprophylactic activities were 17.42, 21.21 and 53.79 % (Pâ€‰<â€‰0.05) at 100, 200 and 400 mg/kg of the extract, respectively as compared to the negative control. Mice treated with 200 and 400 mg/kg extract were significantly (Pâ€‰<â€‰0.05) lived longer and gained weight as compared to negative control in 4-day suppressive test. From this study, it can be concluded that the seed extract of Brassica nigra showed good chemosuppressive and moderate chemoprophylactic activities and the plant may contain biologically active principles which are relevant in the treatment and prophylaxis of malaria, thus supporting further studies of the plant for its active components.

278. The role of the substantia nigra pars compacta in regulating sleep patterns in rats.

PubMed

Lima, Marcelo M S; Andersen, Monica L; Reksidler, Angela B; Vital, Maria A B F; Tufik, Sergio

2007-06-06

As of late, dopaminergic neurotransmission has been recognized to be involved in the generation of sleep disturbances. Increasing evidence shows that sleep disturbances in Parkinson's disease (PD) patients are mostly related to the disease itself, rather than being a secondary phenomenon. Evidence contained in the literature lends support to the hypothesis that the dopaminergic nigrostriatal pathway is closely involved in the regulation of sleep patterns. To test this hypothesis we examined the electrophysiological activity along the sleep-wake cycle of rats submitted to a surgically induced lesion of the SNpc by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). We demonstrated that a 50% lesion of the substantia nigra pars compacta (SNpc) suffices to produce disruptions of several parameters in the sleep-wake pattern of rats. A robust and constant decrease in the latency to the onset of slow wave sleep (SWS) was detected throughout the five days of recording in both light [F((22.16)) = 72.46, p<0.0001] and dark [F((22.16)) = 75.0, p<0.0001] periods. Also found was a pronounced increase in the percentage of sleep efficiency during the first four days of recording [F((21.15)) = 21.48, p<0.0001], in comparison to the sham group. Additionally, the reduction in the SNpc dopaminergic neurons provoked an ablation in the percentage of rapid eye movement sleep (REM) during three days of the sleep-wake recording period with a strong correlation (r = 0.91; p<0.0001) between the number of dopaminergic neurons lost and the percentage decrease of REM sleep on the first day of recording. On day 4, the percentage of REM sleep during the light and dark periods was increased, [F((22.16)) = 2.46, p<0.0007], a phenomenon consistent with REM rebound. We propose that dopaminergic neurons present in the SNpc possess a fundamental function in the regulation of sleep processes, particularly in promoting REM sleep.

279. Environment- and activity-dependent dopamine neurotransmitter plasticity in the adult substantia nigra.

PubMed

Aumann, Tim D

2016-04-01

The ability of neurons to change the amount or type of neurotransmitter they use, or 'neurotransmitter plasticity', is an emerging new form of adult brain plasticity. For example, it has recently been shown that neurons in the adult rat hypothalamus up- or down-regulate dopamine (DA) neurotransmission in response to the amount of light the animal receives (photoperiod), and that this in turn affects anxiety- and depressive-like behaviors (Dulcis et al., 2013). In this Chapter I consolidate recent evidence from my laboratory suggesting neurons in the adult mouse substantia nigra pars compacta (SNc) also undergo DA neurotransmitter plasticity in response to persistent changes in their electrical activity, including that driven by the mouse's environment or behavior. Specifically, we have shown that the amounts of tyrosine hydroxylase (TH, the rate-limiting enzyme in DA synthesis) gene promoter activity, TH mRNA and TH protein in SNc neurons increases or decreases after âˆ¼20h of altered electrical activity. Also, infusion of ion-channel agonists or antagonists into the midbrain for 2 weeks results in âˆ¼10% (âˆ¼500 neurons) more or fewer TH immunoreactive (TH+) SNc neurons, with no change in the total number of SNc neurons (TH+ and TH-). Targeting ion-channels mediating cell-autonomous pacemaker activity in, or synaptic input and afferent pathways to, SNc neurons are equally effective in this regard. In addition, exposing mice to different environments (sex pairing or environment enrichment) for 1-2 weeks induces âˆ¼10% more or fewer TH+ SNc (and ventral tegmental area or VTA) neurons and this is abolished by concurrent blockade of synaptic transmission in midbrain. Although further research is required to establish SNc (and VTA) DA neurotransmitter plasticity, and to determine whether it alters brain function and behavior, it is an exciting prospect because: (1) It may play important roles in movement, motor learning, reward, motivation, memory and cognition; and (2

280. Iron concentrations and distributions in the parkinsonian substantia nigra of aged and young primate models

NASA Astrophysics Data System (ADS)

Ren, M. Q.; Xie, J. P.; Wang, X. S.; Ong, W. Y.; Leong, S. K.; Watt, F.

2001-07-01

Parkinson's disease (PD) is a progressive neuronal degenerative brain disease of the elderly, and is caused by the selective degeneration of neurons in the substantia nigra (SN) region of the brain, resulting in a reduced production of the neurotransmitter dopamine. Iron has been linked to dopaminergic cell death in Parkinson's disease because of its potential to promote free radicals, leading to oxidative stress. The present study is aimed at using the techniques of nuclear microscopy to elucidate the iron concentrations and distributions in the SN of both young and old monkeys following unilateral 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-lesioning. A group of three old monkeys (older than 7 years) and a group of three young monkeys (younger than 7 years) were unilaterally MPTP-lesioned (right side) to induce parkinsonism and sacrificed after 35 days. The left side SN was used as a control. This time interval was chosen to correspond to an average 50% loss of dopamine producing cells in the lesioned right side SN. We have observed a significant difference in iron concentrations between the SNs of the young and old monkeys (increasing from an average of 233 to 1092 parts per million dry weight). When comparing the lesioned and non-lesioned SNs of the same animal, we found no significant difference in iron levels for each young monkey. However we have found a slight increase in iron (approximately 10%) between the lesioned SN and control SN for old monkeys. We have also observed that in the SN of younger primates, there is a weak anti-correlation in the SN iron levels with the neuron distribution. In the older monkeys, however, we have observed a proliferation of iron-rich granules, which appear to be more strongly anti-correlated with the distribution of neurons. The iron-cell anti-correlation occurs both in the

control as well as the lesioned SN. Our results suggest that iron, particularly in the form of iron-rich deposits, accumulates in specific sites

- «
- 12
- 13
- 14
- 15
- 16
- »

- «
- 13
- 14
- 15
- 16
- 17
- »

281. Rotenone induces oxidative stress and dopaminergic neuron damage in organotypic substantia nigra cultures.

    PubMed

    Testa, Claudia M; Sherer, Todd B; Greenamyre, J Timothy

    2005-03-24

    Rotenone, a pesticide and complex I inhibitor, causes nigrostriatal degeneration similar to Parkinson disease pathology in a chronic, systemic, in vivo rodent model [M. Alam, W.J. Schmidt, Rotenone destroys dopaminergic neurons and induces parkinsonian symptoms in rats, Behav. Brain Res. 136 (2002) 317-324; R. Betarbet, T.B. Sherer, G. MacKenzie, M. Garcia-Osuna, A.V. Panov, J.T. Greenamyre, Chronic systemic pesticide exposure reproduces features of Parkinson's disease, Nat. Neurosci. 3 (2000) 1301-1306; S.M. Fleming, C. Zhu, P.O. Fernagut, A. Mehta, C.D. DiCarlo, R.L. Seaman, M.F. Chesselet, Behavioral and immunohistochemical effects of chronic intravenous and subcutaneous infusions of varying doses of rotenone, Exp. Neurol. 187 (2004) 418-429; T.B. Sherer, J.H. Kim, R. Betarbet, J.T. Greenamyre, Subcutaneous rotenone exposure causes highly selective dopaminergic degeneration and alpha-synuclein aggregation, Exp. Neurol. 179 (2003) 9-16.]. To better investigate the role of mitochondria and complex I inhibition in chronic, progressive neurodegenerative disease, we developed methods for long-term culture of rodent postnatal midbrain organotypic slices. Chronic complex I inhibition over weeks by low dose (10-50 nM) rotenone in this system lead to dose- and time-dependent destruction of substantia nigra pars compacta neuron processes, morphologic changes, some neuronal loss, and decreased tyrosine hydroxylase (TH) protein levels. Chronic complex I inhibition also caused oxidative damage to proteins, measured by protein carbonyl levels. This oxidative damage was blocked by the antioxidant alpha-tocopherol (vitamin E). At the same time, alpha-tocopherol also blocked rotenone-induced reductions in TH protein and TH immunohistochemical changes. Thus, oxidative damage is a primary mechanism of mitochondrial toxicity in intact dopaminergic neurons. The organotypic culture system allows close study of this and other interacting mechanisms over a prolonged time period in

282. How specialized volatiles respond to chronic and short-term physiological and shock heat stress in Brassica nigra.

    PubMed

    Kask, Kaia; KÃ¤nnaste, Astrid; Talts, Eero; Copolovici, Lucian; Niinemets, Ãœlo

2016-09-01

Brassicales release volatile glucosinolate breakdown products upon tissue mechanical damage, but it is unclear how the release of glucosinolate volatiles responds to abiotic stresses such as heat stress. We used three different heat treatments, simulating different dynamic temperature conditions in the field to gain insight into stress-dependent changes in volatile blends and photosynthetic characteristics in the annual herb Brassica nigra (L.) Koch. Heat stress was applied by either heating leaves through temperature response curve measurements from 20 to 40â€‰Â°C (mild stress), exposing plants for 4â€‰h to temperatures 25-44â€‰Â°C (long-term stress) or shock-heating leaves to 45-50â€‰Â°C. Photosynthetic reduction through temperature response curves was associated with decreased stomatal conductance, while the reduction due to long-term stress and collapse of photosynthetic activity after heat shock stress were associated with non-stomatal processes. Mild stress decreased constitutive monoterpene emissions, while long-term stress and shock stress resulted in emissions of the lipoxygenase pathway and glucosinolate volatiles. Glucosinolate volatile release was more strongly elicited by long-term stress and lipoxygenase product released by heat shock. These results demonstrate that glucosinolate volatiles constitute a major part of emission blend in heat-stressed B.â€‰nigra plants, especially upon chronic stress that leads to induction responses. Â© 2016 John Wiley & Sons Ltd.

283. Laboratory-scale measurements of N2O and CH4 emissions from hybrid poplars (Populus deltoides x Populus nigra).

PubMed

McBain, M C; Warland, J S; McBride, R A; Wagner-Riddle, C

2004-12-01

The purpose of this study was to determine whether or not young hybrid poplar (Populus deltoides x Populus nigra) could transport landfill biogas internally from the root zone to the atmosphere, thereby acting as conduits for landfill gas release. Fluxes of methane (CH4) and nitrous oxide (N2O) from the seedlings to the atmosphere were measured under controlled conditions using dynamic flux chambers and a tunable diode laser trace gas analyser (TDLTGA). Nitrous oxide was emitted from the seedlings, but only when extremely high soil N2O concentrations were applied to the root zone. In contrast, no detectable emissions of CH4 were measured in a similar experimental trial. Visible plant morphological responses, characteristic of flood-tolerant trees attempting to cope with the negative effects of soil hypoxia, were observed during the CH4 experiments. Leaf chlorosis, leaf abscission and adventitious roots were all visible plant responses. In addition, seedling survival was observed to be highest in the biogas 'hot spot' areas of a local municipal solid waste landfill involved in this study. Based on the available literature, these observations suggest that CH4 can be transported internally by Populus deltoides x Populus nigra seedlings in trace amounts, although future research is required to fully test this hypothesis.

284. Superparamagnetic iron oxide nanoparticles modified with dimyristoylphosphatidylcholine and their distribution in the brain after injection in the rat substantia nigra.

PubMed

Su, Lichao; Zhang, Baolin; Huang, Yinping; Zhang, Hao; Xu, Qin; Tan, Jie

2017-12-01

The subcellular distributions of nanoparticles in the brain are important for their biological application. We synthesized and characterized the superparamagnetic iron oxide nanoparticles (SPIONs) modified with poly (ethylene glycol) (PEG) and polyethylenimine (PEI) (PEG/PEI-SPIONs), and with dimyristoylphosphatidylcholine (DMPC) (DMPC-SPIONs). The nanoparticles were unilaterally injected

into the left substantia nigra of rat brains. The distributions of the nanoparticles in the left brains of the rats were examined by ICP-OES (inductively coupled plasma optical emission spectrometer) and TEM (transmission electron microscopy) at 24h after the injection. Iron was found in the olfactory bulb, temporal lobe, frontal cortex, thalamus and brain stem at 24h after the injection of DMPC-SPIONs and PEG/PEI-SPIONs. In the rat substantia nigra, most DMPC-SPIONs were distributed in and on the myelin sheath around axons or on cell membranes, some were in cells. As a comparison, less iron was found in the rat brains at 24h after the injection of PEG/PEI-SPIONs. Our experiments suggest DMPC modification on SPIONs be a safe and effective method for increasing SPIONs distribution on the cell membranes. This work is encouraging for further study on using DMPC-SPIONs for efficient drug delivery or for deep brain stimulation of neurons in a magnetic field.

285. In vivo assessment of antihyperglycemic and antioxidant activity from oil of seeds of brassica nigra in streptozotocin induced diabetic rats.

PubMed

Kumar, Manoj; Sharma, Sunil; Vasudeva, Neeru

2013-01-01

This study was made to investigate the antihyperglycemic and antioxidant potential of oil of seeds of Brassica nigra (BNO) in streptozotocin -nicotinamide (STZ) induced type 2 diabetic rats. BNO was orally administered to diabetic rats to study its effect in both acute and chronic antihyperglycemic study. The body weight, oral glucose tolerance test and biochemical parameters viz. glucose level, insulin level, liver glycogen content, glycosylated hemoglobin and antioxidant parameters were estimated for all treated groups and compared against diabetic control group. Administration of BNO at a dose 500 mg/kg and 1000 mg/kg body weight p.o. to STZ diabetic rats showed reduction in blood glucose level from 335 mg/dl to 280 mg/dl at 4th h and from 330 mg/dl to 265 mg/dl respectively which was found significant ($p<0.01$) as compared with diabetic control. BNO (500 mg/kg and 1000 mg/kg) and glibenclamide (0.6 mg/kg) in respective groups of diabetic animals administered for 28 days reduced the blood glucose level in streptozotocin-nicotinamide induced diabetic rats. There was significant increase in body weight, liver glycogen content, plasma insulin level and decrease in glycosylated hemoglobin in test groups as compared to control group. In vivo antioxidant studies on STZ-nicotinamide induced diabetic rat's revealed decreased malondialdehyde (MDA) and increased reduced glutathione (GSH). Thus the results showed that the oil of seeds of Brassica nigra has significant antihyperglycemic and antioxidant activity.

286. [Effect of activation and blockade of the GABA-ergic system of the substantia nigra in the midbrain on the realization of conditioned food reflexes in dogs].

PubMed

IakimovskiÄ, A F

1988-01-01

Bilateral injection of 45 mcg of GABA into substantia nigra pars compacta produced in dogs a manifested improvement of parameters of the conditioned differentiation inhibition but failed to influence the positive Pavlovian alimentary conditioned reflex. Injection of GABA synaptic antagonist--picrotoxin impaired conditioned alimentary behaviour. Numerous injections of the GABAergic pharmacological agents resulted in motor disturbance--rotatory movements--and skin trophic deviations. The data obtained and literature references give ground for discussion of the role of striato-nigral and internal GABAergic substantia nigra systems in the positive modulation of adaptive alimentary behaviour and conditioned stimuli differentiation.

287. Long-term population survey of the Sulawesi black macaques (Macaca nigra) at Tangkoko Nature Reserve, North Sulawesi, Indonesia.

PubMed

Kyes, Randall C; Iskandar, Entang; Onibala, Jane; Paputungan, Umar; Laatung, Sylvia; Huettmann, Falk

2013-01-01

The Sulawesi black macaque (Macaca nigra) population at Tangkoko Nature Reserve in North Sulawesi, Indonesia has been the focus of periodic study for over 30 years. The population has shown considerable decline during much of that time. Here we present the results of a long-term population survey of the Tangkoko M. nigra, conducted over the past decade, to provide updated information and on-going assessment of the population. Line-transect sampling was conducted annually from 1999 to 2002 and 2005 to 2011 along the same transect during a 2- to 3-week survey period. Although further decline in the population was observed at the outset of the survey, over the subsequent 12-year period we have seen stability in the population parameters with evidence of modest increases in both group and population density. During the 1999-2002 survey periods, there was a mean group density of 3.6 groups/km(2) and a mean population density of 39.8 individuals/km(2) . During 2005-2011, mean group density increased to 3.8 groups/km(2) and mean population density was 51.4 individuals/km(2) . The 2011 survey data indicated an estimated group density of 4.3 groups/km(2) and a population density of 61.5 individuals/km(2) . Given that our transect was located in the core of the Tangkoko reserve, our density estimates should be limited to that area of the reserve. One explanation for the apparent stabilization of the population may be tied to the increasing and sustained number of training and research programs being conducted at the reserve. This collective effort by local and international groups may be helping to reduce illegal activity in the reserve (i.e., hunting and habitat destruction) and generate greater awareness of this critically endangered species. Without the continued vigilance afforded by the existing research and training programs and the support and involvement of the local people, the M. nigra at the Tangkoko Nature Reserve will likely face further decline. Â© 2012 Wiley

288. Short-term effects of prescribed burning on litterfall biomass in mixed stands of Pinus nigra and Pinus pinaster and pure stands of Pinus nigra in the Cuenca Mountains (Central-Eastern Spain).

PubMed

Espinosa, J; Madrigal, J; De La Cruz, A C; Guijarro, M; Jimenez, E; Hernando, C

2018-03-15

Fire severity, defined as the magnitude of fire effects in an ecosystem, is a key factor to consider in planning management strategies for protecting forests against fire. Although prescribed burning has been used as a fuel reduction tool in forest ecosystems, it is quite limited in the Mediterranean region. Furthermore, little is known about how tree crowns are affected by prescribed underburning aimed at reducing fire severity in conifer stands. As part of an ongoing study to assess the effects of prescribed burning on the tree canopy, litterfall is currently being monitored in a network of experimental plots located in mixed (Pinus nigra and Pinus pinaster) and pure (P. nigra) conifer stands in the Cuenca Mountains (Castilla La Mancha, Spain). A total of 12 study plots (30mÃ—30m) were established in a completely randomized experimental design to determine the effect of burning, with 2 treatments: no burning (control) and burning (i.e. with three replicate plots for each treatment and site). Burning was conducted in May 2016. In each plot, 8 litterfall collectors were installed at regular intervals, according to international protocols (ICP Forests), and all biomass falling into the collectors is being monitored monthly. The specific objective of this study is to assess how prescribed burning affects the rate of generation of foliar and non-foliar litterfall biomass due to the fire. In addition, the Leaf Area Index was estimated before burning and one year later to verify possible changes in the structure of the stands. This information could be used to help minimize the negative impacts of prescribed underburning on litterfall.

To our knowledge, this study represents the first attempt to evaluate the effect of prescribed burning on litterfall biomass in Europe. Copyright Â© 2017 Elsevier B.V. All rights reserved.

289. Potential species replacements for black ash (Fraxinus nigra) at the confluence of two threats: Emerald ash borer and a changing climate

Treesearch

Louis Iverson; Kathleen S. Knight; Anantha Prasad; Daniel A. Herms; Stephen Matthews; Matthew Peters; Annemarie Smith; Diane M. Hartzler; Robert Long; John Almendinger

2015-01-01

The emerald ash borer (Agrilus planipennis; EAB) is causing widespread mortality of ash (Fraxinus spp.) and climate change is altering habitats of tree species throughout large portions of North America. Black ash (F. nigra), a moist-soil species common in the Northwoods of Minnesota, Wisconsin, and...

290. Status of black walnut (Juglans nigra L.) in the Eastern United States in light of the discovery of thousand cankers disease

Treesearch

KaDonna Randolph; Anita Rose; Christopher Oswalt; Mark Brown

2013-01-01

Juglans nigra (black walnut) is widely distributed throughout the US eastern forest, with high concentrations occurring in Missouri and the Ohio and Tennessee River basins. It is an extremely desirable tree for wildlife forage and timber production on forest land, and for shade, aesthetics, and wildlife forage in urban areas. Current (2009Ã¢Â€Â“2010)...

291. Effects of desiccation on temperate recalcitrant seeds: differential scanning calorimetry, gas chromatography, electron microscopy, and moisture studies on Quercus nigra and Quercus alba

Treesearch

K.F. Connor; F.T. Bonner; J.A Vozzo

1996-01-01

Investigations into the nature of desiccation-sensitive, or recalcitrant, seed behavior have as yet failed to identify exact causes of this phenomenon. Experiments with Quercus nigra L. and Quercus alba L. were conducted to examine physiological and biochemical changes brought about by seed desiccation and to determine if there...

292. Production and characterization of interspecific somatic hybrids between Brassica oleracea var. botrytis and B. nigra and their progenies for the selection of advanced pre-breeding materials.

PubMed

Wang, Gui-xiang; Tang, Yu; Yan, Hong; Sheng, Xiao-guang; Hao, Wei-Wei; Zhang, Li; Lu, Kun; Liu, Fan

2011-10-01

Somatic hybridization is a potential method for gene transfer from wild relatives to cultivated crops that can overcome sexual incompatibilities of two distantly related species. In this study, interspecific

asymmetric somatic hybrids of Brassica oleracea var. botrytis (cauliflower) and Brassica nigra (black mustard) were obtained by protoplast fusion and their backcrossed (BC(3)) and selfed (S(3)) offspring were analyzed. Cytological analysis showed that the B. nigra chromosomes were successively eliminated in the backcrosses with cauliflower. The fertility of the hybrid progenies was quite different due to the asynchronous and abnormal chromosome behavior of pollen mother cells (PMC) during meiosis. Analysis of sequence-related amplified polymorphism (SRAP) showed that all of these hybrids mainly had the DNA banding pattern from the two parents with some alterations. Genetically, the selfed generations were closer to B. nigra, while the backcrossed generations were closer to the cauliflower parent. Analysis of cleaved amplified polymorphic sequences (CAPS) and restriction fragment length polymorphisms (RFLP) showed that all somatic hybrids in this study contained chloroplast (cp) DNA of the donor parent black mustard, while mitochondrial (mt) DNA showed evidence of recombination and variations in the regions analyzed. Furthermore, three BC(3) plants (originated from somatic hybrids 3, 4, 10) with 2-8 B. nigra-derived chromosomes shown by genomic in situ hybridization (GISH) displayed a more cauliflower-like morphology and high resistance to black-rot. These plants were obtained as bridge materials for further analysis and breeding.

293. JnCML-like, an EF-hand motif-containing gene seasonally upregulated in the transition zone of black walnut (Juglans nigra L.)

    Treesearch

    Zhonglian Huang; Priyanka Surana; Daisuke Kihara; Richard Meilan; Keith Woeste

    2011-01-01

    The economic value of a black walnut (Juglans nigra L.) tree is strongly determined by the quality and quantity of darkly colored heartwood in its stem. To understand the regulation of heartwood formation, we analyzed the region of heartwood formation in walnut stems (i.e., the transition zone, TZ) for the expression of 80 ESTs. Semi-quantitative...

294. Overstory treatment and planting season affect survival of replacement tree species in emerald ash borer threatened Fraxinus nigra forests in Minnesota, USA

    Treesearch

    Christopher E. Looney; Anthony W. D' Amato; Brian J. Palik; Robert A. Slesak

    2015-01-01

    Fraxinus nigra Marsh. (black ash) wetland forests in northern Minnesota, USA, are threatened by the invasive insect, emerald ash borer (Agrilus planipennis Fairmaire (EAB)). A potential management option is promoting regeneration of tree species that are not EAB hosts to maintain ecosystem functions. Using an operational-scale...

295. Structural analysis of the rDNA intergenic spacer of Brassica nigra: evolutionary divergence of the spacers of the three diploid Brassica species.

    PubMed

    Bhatia, S; Singh Negi, M; Lakshmikumaran, M

    1996-11-01

    EcoRI restriction of the B. nigra rDNA recombinants, isolated from a lambda genomic library, showed that the 3.9-kb fragment corresponded to the Intergenic Spacer (IGS), which was sequenced and found to be 3,928 bp in size. Sequence and dot-matrix analyses showed that the organization of the B. nigra rDNA

IGS was typical of most rDNA spacers, consisting of a central repetitive region and flanking unique sequences on either side. The repetitive region was composed of two repeat families-RF 'A' and RF 'B.' The B. nigra RF 'A' consisted of a tandem array of three full-length copies of a 106-bp sequence element. RF 'B' was composed of 66 tandemly repeated elements. Each 'B' element was only 21-bp in size and this is the smallest repeat unit identified in plant rDNA to date. The putative transcription initiation site (TIS) was identified as nucleotide position 3,110. Based on the sequence analysis it was suggested that the present organization of the repeat families was generated by successive cycles of deletions and amplifications and was being maintained by homogenization processes such as gene conversion and crossing-over.A detailed comparison of the rDNA IGS sequences of the three diploid Brassica species-namely, B. nigra, B. campestris, and B. oleracea-was carried out. First, comparisons revealed that B. campestris and B. oleracea were close to each other as the repeat families in both showed high sequence homology between each other. Second, the repeat elements in both the species were organized in an interspersed manner. Third, a 52-bp sequence, present just downstream of the repeats in B. campestris, was found to be identical to the B. oleracea repeats, thereby suggesting a common progenitor. On the other hand, in B. nigra no interspersion pattern of organization of repeats was observed. Further, the B. nigra RF 'A' was identified as distinct from the repeat families of B. campestris and B. oleracea. Based on this analysis, it was suggested that during

296. Unveiling the mode of action of antibacterial labdane diterpenes from Alpinia nigra (Gaertn.) B. L. Burtt seeds.

PubMed

Ghosh, Sudipta; Indukuri, Kiran; Bondalapati, Somasekhar; Saikia, Anil K; Rangan, Latha

2013-08-01

The labdane diterpene, (E)-labda-8(17), 12-diene-15, 16-dial (compound A) and its epoxide analogue, (E)-8Î², 17-Epoxylabd-12-ene-15, 16-dial (compound B) were isolated from the seeds of Alpinia nigra for the first time. The antibacterial activities of both compounds were evaluated against three Gram-positive and four Gram-negative bacteria, and flow cytometric analysis revealed that these compounds caused significant damage to the bacterial cell membranes. Further, field emission scanning electron microscope imaging and cell leakage analysis confirmed that the labdane diterpenes were responsible for bacterial cell membrane damage and disintegration. Our findings provide new insight into the broad-spectrum effects of two natural labdane diterpenes that may be useful in the future development of herbal antibiotic products. Copyright Â© 2013 Elsevier Masson SAS. All rights reserved.

297. Chemical composition and antimicrobial activity of the essential oil of endemic Dalmatian black pine (Pinus nigra ssp. dalmatica).

PubMed

Politeo, Olivera; Skocibusic, Mirjana; Maravic, Ana; Ruscic, Mirko; Milos, Mladen

2011-03-01

The chemical composition and the antimicrobial activity of the essential oil isolated from the needles of endemic Dalmatian black pine (Pinus nigra ssp. dalmatica) from Croatia were investigated. The chemical composition of the essential oil was determined by GC and GC/MS analyses, and the main compounds identified were Î±-pinene, Î²-pinene, germacrene D, and Î²-caryophyllene. Disc-diffusion and broth-microdilution assays were used for the in vitro antimicrobial screening. The Dalmatian black pine essential oil exhibited a great potential of antibacterial activity against Gram-positive bacteria (MIC=0.03-0.50% (v/v)) and a less pronounced activity against Gram-negative bacteria (MIC=0.12-3.2% (v/v)). The volatile compounds also inhibited the growth of all fungi tested, including yeast. Copyright Â© 2011 Verlag Helvetica Chimica Acta AG, ZÃ¼rich.

298. Ketogenic diet prevents neuronal firing increase within the substantia nigra during pentylenetetrazole-induced seizure in rats.

PubMed

Viggiano, Andrea; Stoddard, Madison; Pisano, Simone; Operto, Francesca Felicia; Iovane, Valentina; Monda, Marcellino; Coppola, Giangennaro

2016-07-01

The mechanism responsible for the anti-seizure effect of ketogenic diets is poorly understood. Because the substantia nigra pars reticulata (SNr) is a "gate" center for seizures, the aim of the present experiment was to evaluate if a ketogenic diet modifies the neuronal response of this nucleus when a seizure-inducing drug is administered in rats. Two groups of rats were given a standard diet (group 1) or a ketogenic diet (group 2) for four weeks, then the threshold for seizure induction and the firing rate of putative GABAergic neurons within the SNr were evaluated with progressive infusion of pentylenetetrazole under general anesthesia. The results demonstrated that the ketogenic diet abolished the correlation between the firing rate response of SNr-neurons and the seizure-threshold. This result suggests that the anti-seizure effect of ketogenic diets can be due to a decrease in reactivity of GABAergic SNr-neurons. Copyright Â© 2016 Elsevier Inc. All rights reserved.

299. Changes in photosynthesis, mesophyll conductance to CO2, and isoprenoid emissions in Populus nigra plants exposed to excess nickel.

PubMed

Velikova, Violeta; Tsonev, Tsonko; Loreto, Francesco; Centritto, Mauro

2011-05-01

Poplar (Populus nigra) plants were grown hydroponically with 30 and 200 Î¼M Ni (Ni30 and Ni200). Photosynthesis limitations and isoprenoid emissions were investigated in two leaf types (mature and developing). Ni stress significantly decreased photosynthesis, and this effect depended on the leaf Ni content, which was lower in mature than in developing leaves. The main limitations to photosynthesis were attributed to mesophyll conductance and metabolism impairment. In Ni-stressed developing leaves, isoprene emission was significantly stimulated. We attribute such stimulation to the lower chloroplastic [CO2] than in control leaves. However chloroplastic [CO2] did not control isoprene emission in mature leaves. Ni stress induced the emission of cis-Î²-ocimene in mature leaves, and of linalool in both leaf types. Induced biosynthesis and emission of isoprenoids reveal the onset of antioxidant processes that may also contribute to reduce Ni stress, especially in mature poplar leaves. Copyright Â© 2010 Elsevier Ltd. All rights reserved.

300. Abundance and Relative Distribution of Frankia Host Infection Groups Under Actinorhizal Alnus glutinosa and Non-actinorhizal Betula nigra Trees.

PubMed

Samant, Suvidha; Huo, Tian; Dawson, Jeffrey O; Hahn, Dittmar

2016-02-01

Quantitative polymerase chain reaction (qPCR) was used to assess the abundance and relative distribution of host infection groups of the root-nodule forming, nitrogen-fixing actinomycete Frankia in four soils with similar physicochemical characteristics, two of which were vegetated with a host plant, Alnus glutinosa, and two with a non-host plant, Betula nigra. Analyses of DAPI-stained cells at three locations, i.e., at a distance of less than 1 m (near stem), 2.5 m (middle crown), and 3-5 m (crown edge) from the

stems of both tree species revealed no statistically significant differences in abundance. Frankiae generally accounted for 0.01 to 0.04 % of these cells, with values between 4 and 36â€‰Ã—â€‰10(5) cells (g soil) (-1). In three out of four soils, abundance of frankiae was significantly higher at locations "near stem" and/or "middle crown" compared to "crown edge," while numbers at these locations were not different in the fourth soil. Frankiae of the Alnus host infection group were dominant in all samples accounting for about 75 % and more of the cells, with no obvious differences with distance to stem. In three of the soils, all of these cells were represented by strain Ag45/Mut15. In the fourth soil that was vegetated with older A. glutinosa trees, about half of these cells belonged to a different subgroup represented by strain ArI3. In all soils, the remaining cells belonged to the Elaeagnus host infection group represented by strain EAN1pec. Casuarina-infective frankiae were not found. Abundance and relative distribution of Frankia host infection groups were similar in soils under the host plant A. glutinosa and the non-host plant B. nigra. Results did thus not reveal any specific effects of plant species on soil Frankia populations.

- «
- 13
- 14
- 15
- 16
- 17
- »

- «
- 14
- 15
- 16
- 17
- 18
- »

301. Effectiveness of mechanical thinning and prescribed burning on fire behavior in Pinus nigra forests in NE Spain.

PubMed

PiquÃ©, MÃriam; DomÃ¨nech, Rut

2018-03-15

Fuel treatments can mitigate present and future impacts of climate change by reducing fire intensity and severity. In recent years, Pinus nigra forests in the Mediterranean basin have been dramatically affected by the new risk of highly intense and extreme fires and its distribution area has been reduced. New tools are necessary for assessing the management of these forests so they can adapt to the challenges to come. Our main goal was to evaluate the effects of different fuel treatments on Mediterranean Pinus nigra forests. We assessed the forest response, in terms of forest structure and fire behavior, to different intensities of low thinning treatments followed by different slash prescriptions (resulting in: light thinning and lop and scatter; light thinning and burn; heavy thinning and lop and scatter; heavy thinning and burn; and, untreated control). Treatments that used fire to decrease the resulting slash were the most effective for reducing active crown fires decreasing the rate of spread and flame length more than 89%. Low thinning had an effect on torching potential, but there was no difference between intensities of thinning. Only an outcoming crown fire could spread actively if it was sustained by a high-enough constant wind speed and enough surface fuel load. Overall, treatments reduce fire intensity and treated areas have a more homogenous fire behavior response than untreated areas. This provides opportunities to extinguish the fire and reduce the probability of trees dying from the fire. It would be helpful to include ecological principles and fire behavior criteria in silvicultural treatment guidelines in order to perform more efficient management techniques in the future.

302. The Columbia River and Tributaries Study, Interim Report, Yakima-Union Gap Flood Damage Reduction, Yakima River Basin, Washington.

DTIC Science & Technology

1980-03-01

Populus trichoearp& Shrubs Red osier dogwood Cornus stolonifera Willows Salix spp. C Elderberry Sambucus glauca C Serviceberry Amelanchier alnifolia C...Taraxucum off icinale C Madowlrue Thalictrum occidentale C Ceow prni Heracleum lanatun C Monkey flower Iiis langsdorf sii C Rocky Mountain irishi mssuins...aboaeem oil the significant aree.Ioloical resources is the project aea TO the centrary nearby are suggest that important material OWwall be loated to the

303. Terrestrial and Aquatic Biological Inventory Meredosia, Illinois; Meredosia; Willow Creek; and Coon Run Drainage and Levee District, Scott and Morgan Counties, Illinois.

DTIC Science & Technology

1982-12-01

DISTRIBUTION STATEMENT (of the abstract entered In Block 20, It different from Report) Unlimited OIL SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse...undoubtably missed due to the timing of the survey. In addition, the lack of key taxonomic characteristics such as flowers and fruit made the...Family) Viburnum prunifolium (Black haw) 1-0 Sambucus canadensis (Elderberry) 5-0 COMPOSITAE (Composite Family) Eupatorium rugosum (White snakeroot) 1-C

304. Los Coches Creek, San Diego County, California Detailed Project Report for Flood Control and Environmental Assessment. Main Report and Environmental Appendix.

DTIC Science & Technology

1984-08-01

as California buckwheat (Eriogonum fasciculatum), elderberry (Sambucus p.), bror.r bacoharis (Baccharis sarathroides), and coast live oak (Quercus...emergent wetland and riparian habitat, essentially all of the wetland and riparian habitat in the project area (Table EA-1). Access requirements for...reach a level of significance. The construction specifications would require the construction contractor to avoid polluting the creek with fuels, oils

305. Supplemental Environmental Assessment (EA) for the Vernal Pool Restoration Project in Wing Infrastructure Development Outlook (WINDO) Implementation Plan EA, Volume 2 Beale Air Force Base, California

DTIC Science & Technology

2010-09-01

Mineral resources include metals, industrial minerals (e.g., aggregate, sand and gravel), oil and gas, and geothermal resources that would be of value...the elderberry shrub (Sambucus sp.), is not present within the project action area. The proposed project is not likely to adversely affect the bald...impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an action that creates the

306. Cav1.3 channels control D2-autoreceptor responses via NCS-1 in substantia nigra dopamine neurons.

PubMed

Dragicevic, Elena; Poetschke, Christina; Duda, Johanna; Schlaudraff, Falk; Lammel, Stephan; Schiemann, Julia; Fauler, Michael; Hetzel, Andrea; Watanabe, Masahiko; Lujan, Rafael; Malenka, Robert C; Striessnig, Joerg; Liss, Birgit

2014-08-01

Dopamine midbrain neurons within the substantia nigra are particularly prone to degeneration in Parkinson's disease. Their selective loss causes the major motor symptoms of Parkinson's disease, but the causes for the high vulnerability of SN DA neurons, compared to neighbouring, more resistant ventral tegmental area dopamine neurons, are still unclear. Consequently, there is still no cure available for Parkinson's disease. Current therapies compensate the progressive loss of dopamine by administering its precursor l-DOPA and/or dopamine D2-receptor agonists. D2-autoreceptors and Cav1.3-containing L-type Ca(2+) channels both contribute to Parkinson's disease pathology. L-type Ca(2+) channel blockers protect SN DA neurons from degeneration in Parkinson's disease and its mouse models, and they are in clinical trials for neuroprotective Parkinson's disease therapy. However, their physiological functions in SN DA neurons remain unclear. D2-autoreceptors tune firing rates and dopamine release of SN DA neurons in a negative feedback loop through activation of G-protein coupled potassium channels (GIRK2, or KCNJ6). Mature SN DA neurons display prominent, non-desensitizing somatodendritic D2-autoreceptor responses that show pronounced desensitization in PARK-gene Parkinson's disease mouse models. We analysed surviving human SN DA neurons from patients with Parkinson's disease and from controls, and detected elevated messenger RNA levels of D2-autoreceptors and GIRK2 in Parkinson's disease. By electrophysiological analysis of postnatal juvenile and adult mouse SN DA neurons in in vitro brain-slices, we observed that D2-autoreceptor desensitization is reduced with postnatal maturation. Furthermore, a transient high-dopamine state in vivo, caused by one injection of either l-DOPA or cocaine, induced adult-like, non-desensitizing D2-autoreceptor responses, selectively in juvenile SN DA neurons, but not ventral tegmental area dopamine neurons. With pharmacological and genetic

307. Cav1.3 channels control D2-autoreceptor responses via NCS-1 in substantia nigra dopamine neurons

PubMed Central

Dragicevic, Elena; Poetschke, Christina; Duda, Johanna; Schlaudraff, Falk; Lammel, Stephan; Schiemann, Julia; Fauler, Michael; Hetzel, Andrea; Watanabe, Masahiko; Lujan, Rafael; Malenka, Robert C.; Striessnig, Joerg

2014-01-01

Dopamine midbrain neurons within the substantia nigra are particularly prone to degeneration in Parkinsonâ€™s disease. Their selective loss causes the major motor symptoms of Parkinsonâ€™s disease, but the causes for the high vulnerability of SN DA neurons, compared to neighbouring, more resistant ventral tegmental area dopamine neurons, are still unclear. Consequently, there is still no cure available for Parkinsonâ€™s disease. Current therapies compensate the progressive loss of dopamine by administering its precursor l-DOPA and/or dopamine D2-receptor agonists. D2-autoreceptors and Cav1.3-containing L-type Ca2+ channels both contribute to Parkinsonâ€™s disease pathology. L-type Ca2+ channel blockers protect SN DA neurons from degeneration in Parkinsonâ€™s disease and its mouse models, and they are in clinical trials for neuroprotective Parkinsonâ€™s disease therapy. However, their physiological functions in SN DA neurons remain unclear. D2-autoreceptors tune firing rates and dopamine release of SN DA neurons in a negative feedback loop through activation of G-protein coupled potassium channels (GIRK2, or KCNJ6). Mature SN DA neurons display prominent, non-desensitizing somatodendritic D2-autoreceptor responses that show pronounced desensitization in PARK-gene Parkinsonâ€™s disease mouse models. We analysed surviving human SN DA neurons from patients with Parkinsonâ€™s disease and from controls, and detected elevated messenger RNA levels of D2-autoreceptors and GIRK2 in Parkinsonâ€™s disease. By electrophysiological analysis of postnatal juvenile and adult mouse SN DA neurons in in vitro brain-slices, we observed that D2-autoreceptor desensitization is reduced with postnatal maturation. Furthermore, a transient high-dopamine state in vivo, caused by one injection of either l-

DOPA or cocaine, induced adult-like, non-desensitizing D2-autoreceptor responses, selectively in juvenile SN DA neurons, but not ventral tegmental area dopamine neurons. With pharmacological

308. Distinct Contributions of Ventromedial and Dorsolateral Subregions of the Human Substantia Nigra to Appetitive and Aversive Learning

PubMed Central

Larsen, Tobias; Collette, Sven; Tyszka, Julian M.; Seymour, Ben; O'Doherty, John P.

2015-01-01

The role of neurons in the substantia nigra (SN) and ventral tegmental area (VTA) of the midbrain in contributing to the elicitation of reward prediction errors during appetitive learning has been well established. Less is known about the differential contribution of these midbrain regions to appetitive versus aversive learning, especially in humans. Here we scanned human participants with high-resolution fMRI focused on the SN and VTA while they participated in a sequential Pavlovian conditioning paradigm involving an appetitive outcome (a pleasant juice), as well as an aversive outcome (an unpleasant bitter and salty flavor). We found a degree of regional specialization within the SN: Whereas a region of ventromedial SN correlated with a temporal difference reward prediction error during appetitive Pavlovian learning, a dorsolateral area correlated instead with an aversive expected value signal in response to the most distal cue, and to a reward prediction error in response to the most proximal cue to the aversive outcome. Furthermore, participants' affective reactions to both the appetitive and aversive conditioned stimuli more than 1 year after the fMRI experiment was conducted correlated with activation in the ventromedial and dorsolateral SN obtained during the experiment, respectively. These findings suggest that, whereas the human ventromedial SN contributes to long-term learning about rewards, the dorsolateral SN may be particularly important for long-term learning in aversive contexts. SIGNIFICANCE STATEMENT The role of the substantia nigra (SN) and ventral tegmental area (VTA) in appetitive learning is well established, but less is known about their contribution to aversive compared with appetitive learning, especially in humans. We used high-resolution fMRI to measure activity in the SN and VTA while participants underwent higher-order Pavlovian learning. We found a regional specialization within the SN: a ventromedial area was selectively engaged

309. Examination of correlation between histidine and nickel absorption by Morus L., Robinia pseudoacacia L. and Populus nigra L. using HPLC-MS and ICP-MS.

PubMed

Ozen, Sukran Akkus; Yaman, Mehmet

2016-08-02

In this study, HPLC-MS and ICP-MS methods were used for the determination of histidine and nickel in Morus L., Robinia pseudoacacia L., and Populus nigra L. leaves taken from industrial areas including Gaziantep and Bursa cities. In the determination of histidine by HPLC-MS, all of the system parameters such as flow rate of mobile phase, fragmentor potential, injection volume and column temperature were optimized and found to be 0.2Â mL min(-1), 70Â V, 15Â ÂµL, and 20Â°C, respectively. Under the optimum conditions, histidine was extracted from plant sample by distilled water at 90Â°C for 30Â min. Concentrations of histidine as mg kg(-1) were found to be between 2-9 for Morus L., 6-13 for Robinia pseudoacacia L., and 2-10 for Populus nigra L. Concentrations of nickel were in the ranges of 5-10Â mg kg(-1) for Morus L., 3-10Â mg kg(-1) for Robinia pseudoacacia L., and 0.6-4Â mg kg(-1) for Populus nigra L. A significant linear correlation (r = 0.78) between histidine and Ni was observed for Populus nigra L., whereas insignificant linear correlation for Robinia pseudoacacia L. (r = 0.22) were seen. Limits of detection (LOD) and quantitation (LOQ) were found to be 0.025Â mg Ni L(-1) and 0.075Â mg Ni L(-1), respectively.

310. Black Ash (Fraxinus nigra Marsh.): Local ecological knowledge of site characteristics and morphology associated with basket-grade specimens in New England (USA)

Treesearch

Allaire K. Diamond; Marla R. Emery

2011-01-01

Fraxinus nigra Marsh. is a small, relatively uncommon tree with large social significance. Known as black ash or brown ash, it rarely exceeds 18 meters (60 feet) in height or 30-50 centimeters (12-20 inches) in diameter. In the U.S. states where the species occurs, its percentage of forest composition ranges from 0.01% in Kentucky to 6.00% in...

311. Dense genetic linkage maps of three Populus species (Populus deltoides, P. nigra and P. trichocarpa) based on AFLP and microsatellite markers.

PubMed

Cervera, M T; Storme, V; Ivens, B; GusmÃ£o, J; Liu, B H; Hostyn, V; Van Slycken, J; Van Montagu, M; Boerjan, W

2001-06-01

Populus deltoides, P. nigra, and P. trichocarpa are the most important species for poplar breeding programs worldwide. In addition, Populus has become a model for fundamental research on trees. Linkage maps were constructed for these three species by analyzing progeny of two controlled crosses sharing the same female parent, Populus deltoides cv. S9-2 x P. nigra cv. Ghoy and P. deltoides cv. S9-2 x P. trichocarpa cv. V24. The two-way pseudotestcross mapping strategy was used to construct the maps. Amplified fragment length polymorphism (AFLP) markers that segregated 1:1 were used to form the four parental maps. Microsatellites and sequence-tagged sites were used to align homoeologous groups between the maps and to merge linkage groups within the individual maps. Linkage analysis and alignment of the homoeologous groups resulted in 566 markers distributed over 19 groups for P. deltoides covering 86% of the genome, 339 markers distributed over 19 groups for P. trichocarpa covering 73%, and 369 markers distributed over 28 groups for P. nigra covering 61%. Several tests for randomness showed that the AFLP markers were randomly distributed over the genome.

312. Dense genetic linkage maps of three Populus species (Populus deltoides, P. nigra and P. trichocarpa) based on AFLP and microsatellite markers.

PubMed Central

Cervera, M T; Storme, V; Ivens, B; GusmÃ£o, J; Liu, B H; Hostyn, V; Van Slycken, J; Van Montagu, M; Boerjan, W

2001-01-01

Populus deltoides, P. nigra, and P. trichocarpa are the most important species for poplar breeding programs worldwide. In addition, Populus has become a model for fundamental research on trees. Linkage maps were constructed for these three species by analyzing progeny of two controlled crosses sharing the same female parent, Populus deltoides cv. S9-2 x P. nigra cv. Ghoy and P. deltoides cv. S9-2 x P. trichocarpa cv. V24. The two-way pseudotestcross mapping strategy was used to construct the maps. Amplified fragment length polymorphism (AFLP) markers that segregated 1:1 were used to form the four parental maps. Microsatellites and sequence-tagged sites were used to align homoeologous groups between the maps and to merge linkage groups within the individual maps. Linkage analysis and alignment of the homoeologous groups resulted in 566 markers distributed over 19 groups for P. deltoides covering 86% of the genome,

339 markers distributed over 19 groups for P. trichocarpa covering 73%, and 369 markers distributed over 28 groups for P. nigra covering 61%. Several tests for randomness showed that the AFLP markers were randomly distributed over the genome. PMID:11404342

313. Chemical Composition of BallotaÂ macedonica Vandas and BallotaÂ nigra L. ssp. foetida (Vis.) Hayek Essential Oils - The Chemotaxonomic Approach.

PubMed

Ä□orÄ‘eviÄ‡, Aleksandra S; JovanoviÄ‡, Olga P; ZlatkoviÄ‡, Bojan K; StojanoviÄ‡, Gordana S

2016-06-01

The essential oils isolated from fresh aerial parts of BallotaÂ macedonica (two populations) and BallotaÂ nigra ssp. foetida were analyzed by GC and GC/MS. Eighty five components were identified in total; 60 components in B.Â macedonica oil (population from the Former Yugoslav Republic of Macedonia), 34 components in B.Â macedonica oil (population from the Republic of Serbia), and 33 components in the oil of B.Â nigra ssp. foetida accounting for 93.9%, 98.4%, and 95.8% of the total oils, respectively. The most abundant components in B.Â macedonica oils were carotol (13.7Â -Â 52.1%), germacrene D (8.6Â -Â 24.6%), and (E)-caryophyllene (6.5Â -Â 16.5%), while B.Â nigra ssp. foetida oil was dominated by (E)-phytol (56.9%), germacrene D (10.0%), and (E)-caryophyllene (4.7%). Multivariate statistical analyses (agglomerative hierarchical cluster analysis and principal component analysis) were used to compare and discuss relationships among Ballota species examined so far based on their volatile profiles. The chemical compositions of B.Â macedonica essential oils are reported for the first time. Â© 2016 Verlag Helvetica Chimica Acta AG, ZÃ¼rich.

314. Conserved microstructure of the Brassica B Genome of Brassica nigra in relation to homologous regions of Arabidopsis thaliana, B. rapa and B. oleracea

PubMed Central

2013-01-01

Background The Brassica B genome is known to carry several important traits, yet there has been limited analyses of its underlying genome structure, especially in comparison to the closely related A and C genomes. A bacterial artificial chromosome (BAC) library of Brassica nigra was developed and screened with 17 genes from a 222Â kb region of A. thaliana that had been well characterised in both the Brassica A and C genomes. Results Fingerprinting of 483 apparently non-redundant clones defined physical contigs for the corresponding regions in B. nigra. The target region is duplicated in A. thaliana and six homologous contigs were found in B. nigra resulting from the whole genome triplication event shared by the Brassiceae tribe. BACs representative of each region were sequenced to elucidate the level of microscale rearrangements across the Brassica species divide. Conclusions Although the B genome species separated from the A/C lineage some 6 Mya, comparisons between the three paleopolyploid Brassica genomes revealed extensive conservation of gene content and sequence identity. The level of fractionation or gene loss varied across genomes and genomic regions; however, the greatest loss of genes was observed to be common to all three genomes. One large-scale chromosomal rearrangement differentiated the B genome suggesting such events could contribute to the lack of recombination observed between B genome species and those of the closely related A/C lineage. PMID:23586706

315. Antioxidant potential of Juglans nigra, black walnut, husks extracted using supercritical carbon dioxide with an ethanol modifier.

PubMed

Wenzel, Jonathan; Storer Samaniego, Cheryl; Wang, Lihua; Burrows, Laron; Tucker, Evan; Dwarshuis, Nathan; Ammerman, Michelle; Zand, Ali

2017-03-01

The black walnut, Junglas nigra, is indigenous to eastern North America, and abscission of its fruit occurs around October. The fruit consists of a husk, a hard shell, and kernel. The husk is commonly discarded in processing, though it contains phenolic compounds that exhibit antioxidant and antimicrobial properties. For this study, black walnut husks were extracted using supercritical carbon dioxide with an ethanol modifier. The effects of temperature, ethanol concentration, and drying of walnut husks prior to extraction upon antioxidant potential were evaluated using a factorial design of experiments. The solvent density was held constant at 0.75Â g/mL. The optimal extraction conditions were found to be 68Â°C and 20 wt-% ethanol in supercritical carbon dioxide. At these conditions, the antioxidant potential as measured by the ferric reducing ability of plasma (FRAP) assay was 0.027Â mmol trolox equivalent/g (mmol TE/g) for dried walnut husk and 0.054Â mmol TE/g for walnut husks that were not dried. Antioxidant potential was also evaluated using the total phenolic content (TPC) and 1,1-diphenyl-2-picryl-hydrazyl (DPPH) assays and the FRAP assay was found to linearly correlate to the TPC assay.

316. Little Ice Age Summer Temperatures on Pindos Mountains, Greece, From a 750 Year Long Pinus Nigra Tree-Ring Chronology

NASA Astrophysics Data System (ADS)

Koutavas, A.; Dimitrakopoulos, A. P.

2015-12-01

We present a 750-year long tree-ring chronology from black pines (Pinus nigra) in Valia Kalda National Park, Pindos Mountains, Greece. The chronology shows a strong climate signal which consists of significant negative correlation (R=-0.5) with summer temperature (Jun-Jul-Aug-Sep), and positive correlation with summer precipitation. We exploit these relationships to reconstruct summer climate from ~1250 CE to present. In particular we investigate the character of the Little Ice Age (LIA) on mountainous Greece. We find evidence for cooler/wetter summers during the 18th and 19th centuries, but warmer/drier summers during the 14th through 17th centuries, during some of the coldest periods of the LIA in Northern Europe including the Maunder Minimum. This counter-intuitive pattern suggests the LIA had distinct signatures in the Easter Mediterranean, diverging from those of Northern Europe. The temperature pattern reconstructed here is remarkably similar to a recent reconstruction of summer temperatures from maximum latewood density (MXD) of Pinus heldreichii on Mount Olympus, just 150 km east of our site. However, because of the ambivalence of the climate signal with respect to temperature vs. precipitation in both of these reconstructions, there remains uncertainty as to whether the LIA was primarily warm, or dry, or some combination. We advocate for further reconstructions of LIA climate in the Balkan Peninsula and Eastern Mediterranean to explore relationships with Northern Europe and elucidate the broader climatic pattern and dynamical connections.

317. Carbon dioxide laser ablation of dermatosis papulosa nigra: high satisfaction and few complications in patients with pigmented skin.

PubMed

Ali, Faisal R; Bakkour, Waseem; Ferguson, Janice E; Madan, Vishal

2016-04-01

Dermatosis papulosa nigra (DPN) is a common condition of pigmented skin. Whilst lesions are benign, they may be symptomatic or cosmetically disfiguring. Ablative lasers have previously been reported as a

useful therapeutic modality in DPN. We report the largest case series to date of patients with DPN ablated with the carbon dioxide (CO2) laser. A retrospective case note review was conducted of all patients with DPN treated in our laser clinic in the last five years, and a post-treatment telephone survey was undertaken to assess patient satisfaction. Forty-five patients were identified, with a median age of 41 years (range 25-74 years), of whom 37 (82%) were female. The median number of treatments undertaken was three (range 1-10). Of the 18 respondents to the telephone survey, when asked to grade their satisfaction with the procedure out of 10, median response was 9.5 (range 6-10) with nine patients citing the maximum score of 10. All patients replied that their confidence had improved following the procedure and that they would recommend the treatment to other patients. Five respondents (28%) reported recurrence of a few lesions following CO2 laser ablation; the remaining 13 respondents (72%) reported no recurrence of DPN. No respondents reported any other post-procedural complications (including scarring, hypopigmentation and hyperpigmentation). We advocate use of the CO2 laser as a safe, convenient means of treating DPN, with a high degree of patient satisfaction, low recurrence rate and few complications.

318. CuO Nanoparticles Inhibited Root Growth from Brassica nigra Seedlings but Induced Root from Stem and Leaf Explants.

    PubMed

    Zafar, Hira; Ali, Attarad; Zia, Muhammad

    2017-01-01

    Interests associated with nanoparticles (NPs) are budding due to their toxicity to living species. The lethal effect of NPs depends on their nature, size, shape, and concentration. Present investigation reports that CuO NPs badly affected Brassica nigra seed germination and seedling growth parameters. However, variation in antioxidative activities and nonenzymatic oxidants is observed in plantlets. Culturing the leaf and stem explants on MS medium in presence of low concentration of CuO NPs (1-20Â mgÂ l -1) produces white thin roots with thick root hairs. These roots also show an increase in DPPH radical scavenging activity (up to 80Â % at 10Â mgÂ l -1), total antioxidant, and reducing power potential (maximum in presence of 10Â mgÂ l -1 CuO NPs in the media). Nonenzymatic antioxidative molecules, phenolics and flavonoids, are observed elevated but NPs concentration dependent. We can conclude that CuO NPs can induce rooting from plant explants cultured on appropriate medium. These roots can be explored for the production of active chemical constituents.

319. Reproductive Ecology and Habitat Use of Pacific Black Scoters (Melanitta nigra americana) Nesting on the Yukon-Kuskokwim Delta, Alaska

    USGS Publications Warehouse

    Schamber, Jason L.

    2010-01-01

    Abundance indices of Black Scoters (Melanitta nigra. americana) breeding in Alaska indicate a long-term population decline without obvious cause (s). However, few life history data are available for the species in North America. In 2001â€“2004, information was collected on nesting habitat and reproductive parameters (i.e. components of productivity) from a population of Black Scoters nesting on the Yukon-Kuskokwim Delta, Alaska. A total of 157 nests were found over four years. Primarily, nests were among dense vegetation in shrub edge habitat, predominantly dwarf birch (Betula glandulosa) and Alaska spiraea (Spiraea beauverdiana), an average of 58 m from water. Females initiated nests from 11 June and 17 July across years. Clutch size averaged 7.5 eggs and did not vary annually. Nest success was highly variable among years and ranged from 0.01 to 0.37. Duckling survival to 30 days old varied among years, and ranged from 0.09 â€“ 0.35. Nest success was poor in three of four years, likely due to predation by Red Fox (Vulpes vulpes). Black Scoters appear to have low but variable productivity, consistent with life-

history patterns of other sea duck species. Information gained will direct future demographic research on Black Scoters, and highlights knowledge gaps impeding management strategies needed for population recovery.

320. Metabolism Regulates the Spontaneous Firing of Substantia Nigra Pars Reticulata Neurons via KATP and Nonselective Cation Channels

PubMed Central

Lutas, Andrew; Birnbaumer, Lutz

2014-01-01

Neurons use glucose to fuel glycolysis and provide substrates for mitochondrial respiration, but neurons can also use alternative fuels that bypass glycolysis and feed directly into mitochondria. To determine whether neuronal pacemaking depends on active glucose metabolism, we switched the metabolic fuel from glucose to alternative fuels, lactate or Î²-hydroxybutyrate, while monitoring the spontaneous firing of GABAergic neurons in mouse substantia nigra pars reticulata (SNr) brain slices. We found that alternative fuels, in the absence of glucose, sustained SNr spontaneous firing at basal rates, but glycolysis may still be supported by glycogen in the absence of glucose. To prevent any glycogen-fueled glycolysis, we directly inhibited glycolysis using either 2-deoxyglucose or iodoacetic acid. Inhibiting glycolysis in the presence of alternative fuels lowered SNr firing to a slower sustained firing rate. Surprisingly, we found that the decrease in SNr firing was not mediated by ATP-sensitive potassium (KATP) channel activity, but if we lowered the perfusion flow rate or omitted the alternative fuel, KATP channels were activated and could silence SNr firing. The KATP-independent slowing of SNr firing that occurred with glycolytic inhibition in the presence of alternative fuels was consistent with a decrease in a nonselective cationic conductance. Although mitochondrial metabolism alone can prevent severe energy deprivation and KATP channel activation in SNr neurons, active glucose metabolism appears important for keeping open a class of ion channels that is crucial for the high spontaneous firing rate of SNr neurons. PMID:25471572

- «
- 14
- 15
- 16
- 17
- 18
- »

- «
- 15
- 16
- 17
- 18
- 19
- »

321. Age- and sex-related characteristics of tonic GABA currents in the rat substantia nigra pars reticulata.

PubMed

Chudomel, O; Hasson, H; Bojar, M; MoshÃ©, S L; Galanopoulou, A S

2015-04-01

Previous studies have shown that the pharmacologic effects of GABAergic drugs and the postsynaptic phasic GABAAergic inhibitory responses in the anterior part of the rat substantia nigra pars reticulata (SNRA) are age- and sex-specific. Here, we investigate whether there are age- and sex-related differences in the expression of the Î´ GABAA receptor (GABAAR) subunit and GABAAR mediated tonic currents. We have used Î´-specific immunochemistry and whole cell patch clamp to study GABAAR mediated tonic currents in the SNRA of male and female postnatal day (PN) PN5-9, PN11-16, and PN25-32 rats. We observed age-related decline, but no sex-specific changes, in bicuculline (BIM) sensitive GABAAR tonic current density, which correlated with the decline in Î´ subunit in the SNRA between PN15 and 30. Furthermore, we show that the GABAAR tonic currents can be modified by muscimol (GABAAR agonist; partial GABACR agonist), THIP (4,5,6,7-tetrahydroisoxazolo (5,4-c)pyridin-3-ol: Î±4Î²3Î´ GABAARs agonist and GABACR antagonist), and zolpidem (Î±1-subunit selective GABAAR agonist) in age- and sex-dependent manner specific for each drug. We propose that the emergence of the GABAAR-sensitive anticonvulsant effects of the rat SNRA during development may depend upon the developmental decline in tonic GABAergic inhibition of the activity of rat SNRA neurons, although other sex-specific factors are also involved.

322. Human substantia nigra and ventral tegmental area involvement in computing social error signals during the ultimatum game

PubMed Central

HÃ©tu, SÃ©bastien; Luo, Yi; Dâ€™Ardenne, Kimberlee; Lohrenz, Terry

2017-01-01

Abstract As models of shared expectations, social norms play an essential role in our societies. Since our social environment is changing constantly, our internal models of it also need to change. In humans, there is mounting evidence that neural structures such as the insula and the ventral striatum are involved in detecting norm violation and updating internal models. However, because of methodological challenges, little is known about the possible involvement of midbrain structures in detecting norm violation and updating internal models of our norms. Here, we used high-resolution cardiac-gated functional magnetic resonance imaging and a norm adaptation paradigm in healthy adults to investigate the role of the substantia nigra/ventral tegmental area (SN/VTA) complex in tracking signals related to norm violation that can be used to update internal norms. We show that the SN/VTA codes for the normâ€™s variance prediction error (PE) and norm PE with spatially distinct regions coding for negative and positive norm PE. These results point to a common role played by the SN/VTA complex in supporting both simple reward-based and social decision making. PMID:28981876

323. Changes in leaf organisation, photosynthetic performance and wood formation during ex vitro acclimatisation of black mulberry (Morus nigra L.).

PubMed

MisalovÃ¡, A; Durkovic, J; MamonovÃ¡, M; Priwitzer, T; LengyelovÃ¡, A; HladkÃ¡, D; Lux, A

2009-09-01

Changes in anatomical organisation of the leaf, photosynthetic performance and wood formation were examined to evaluate the temporal and spatial patterns of acclimatisation of micropropagated slow-growing black mulberry (Morus nigra L.) plantlets to the ex vitro environment. Leaf structure differentiation, the rates of net photosynthesis (P(n)), transpiration (E) and stomatal conductance (g(s)), and secondary xylem growth were determined in the course of a 56-day acclimatisation. Differentiation of palisade parenchyma was observed 7 days after transfer. At this stage, the rates of P(n), E and g(s) reached maximum values, after which the rates of all three gas exchange parameters gradually decreased. The highest proportion of woody area occupied by vessels was also observed 7 days after transfer. An

important feature of developing woody tissue is the difference in patterns of vessel distribution from the characteristic differentiation patterns of earlywood and latewood vessels in mature wood of ring-porous trees. Vessels with lumen areas over 3000 microm(2) were only differentiated in acclimatised plantlets, whereas vessels in stems sampled on days 0 and 7 had very small lumen areas of up to 560 microm(2). Full acclimatisation, observed 56 days after transfer to the ex vitro environment, was associated with the rapid growth of new in vivo formed leaves, very low rates of E and g(s), and much increased secondary xylem tissue within the stem area.

324. Use of cyclodextrins in biotransformation reactions with cell cultures of Morus nigra: biosynthesis of prenylated chalcone isocordoin.

PubMed

Bolasco, Adriana; Fioravanti, Rossella; Rossi, Francesca; Rossi, Paola; Vitali, Alberto

2010-06-16

In vivo biotransformation experiments were performed by using a cell suspension culture of Morus nigra expressing a high PT (prenyltransferase) activity, fed with the target substrate 2',4'-dihydroxychalcone. In order to improve the reaction yields by enhancing the chalcone solubility, three different cyclodextrins have been used to host the substrate. The respective complexes have been studied by means of both spectroscopic and calorimetric techniques (Fourier-transform infrared, 1H-NMR and differential scanning calorimetry) and the solution behaviours have been characterized by solubility phase studies. The hydroxypropyl-beta-cyclodextrin complex was found to be the most suitable for biotransformation, and the reaction of prenylation resulted in a 6-fold higher yield of the final product when compared with the use of the free substrate. The reaction provided as the sole product the 3'-dimethylallyl derivative isocordoin, a biologically active plant compound. The results obtained allow the development of systems based on the use of biofermentors or the use of immobilized cells in order to enhance the biotransformation yields.

325. Selective loss of dopaminergic neurons in the substantia nigra pars compacta after systemic administration of MPTP facilitates extinction learning.

PubMed

Kinoshita, Ken-ichi; Tada, Yayoi; Muroi, Yoshikage; Unno, Toshihiro; Ishii, Toshiaki

2015-09-15

Parkinson's disease (PD) is a neurodegenerative disorder characterized by progressive loss of dopaminergic (DAergic) neurons in the substantia nigra pars compacta (SNpc). In PD, thinking and retrieval deficits often arise from cognitive impairments. However, the mechanism of cognitive disorders in PD remains unknown. Therefore, we investigated cognitive function in PD model mice produced by intraperitoneal administration of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), which specifically destroys the DAergic neurons in the SNpc. We evaluated the cognitive function of MPTP-treated mice (PD mice) using the contextual fear conditioning test. In the test, each experiment consists of three phases: training, re-exposure, and testing. Mice were trained with a foot shock (a weak unconditioned stimulus: 1mA/2s duration, once, or an intense unconditioned stimulus: 2mA/2s duration, twice), and 24h later, mice were re-exposed to the training context for 3min to determine reconsolidation or 30min to determine extinction. The percentage of time spent freezing was measured during the test session as indexes of memory consolidation, reconsolidation, and extinction. Reconsolidation of PD mice occurred normally but memory extinction was facilitated in PD mice compared to control mice. Moreover, memory retention in PD mice was attenuated earlier than in controls following repeated conditioned stimuli every day. PD mice with selective loss of DAergic neurons in the SNpc showed attenuated

memory retention, probably via facilitated extinction learning. Copyright Â© 2015 Elsevier Inc. All rights reserved.

326. Gabaculine does not inhibit cytokinin-stimulated biosynthesis of chlorophyll in Pinus nigra seedlings in the dark.

PubMed

Drazic; Bogdanovic

2000-05-15

Chlorophyll (Chl) accumulation was monitored during black pine (Pinus nigra L.) seed germination for 14 days in the light and in the dark in the presence of gabaculine (GAB) and cytokinin in order to elucidate the regulation of gymnosperm seedling greening in the dark, primarily at the level of aminolevulinic acid formation. In the light, GAB inhibited chlorophyll accumulation in a manner dependent on concentration and developmental stage, and in the dark it showed no effect. Cytokinin, 10(-5) M benzyl adenine (BA) partly overcame GAB-induced inhibition in the light, mainly during earlier developmental stages. In the seedlings grown in the dark, an equal quantity of Chl accumulated in the presence of cytokinin with and without GAB and it was approximately 20-40% higher than in the control seedlings or in the seedlings grown only in the presence of GAB. 5-Amino-levulinic acid (ALA) synthesis was equal in the light and in the dark in seedlings of the same age and seedlings treated with GAB grown in the dark. In the light, GAB inhibited ALA synthetic activity. The results indicate that ALA synthesis is not a rate-limiting step within Chl biosynthesis in pine seedlings grown in the dark.

327. Ecological attributes and distribution of Anatolian black pine [Pinus nigra Arnold. subsp. pallasiana Lamb. Holmboe] in Turkey.

PubMed

Atalay, Ibrahim; Efe, Recep

2012-04-01

The aim of this study is to determine ecoregions and the effect of ecological properties on natural distribution of Anatolian black pine [Pinus nigra Arnold. subsp. pallasiana Lamb. (Holmboe)] in Turkey. The results suggest that 6 ecoregions exist and climate, parent material, topography, anthropogenic factors, floristic composition, competition are ecological factors that determine the distribution of Black pine in Turkey. But, climatic elements such as precipitation and temperature are the dominant factors. The six ecoregions with different characteristics have been identified and distribution ofAnatolian black pine revealed depending on ecological features of each region. Each region has its own characteristics that affect the growth and distribution of black pine. Productive black pine forest are found on the subhumid-semiarid areas receiving humid air mass coming from the seas either on northern or southern coastal mountains of Turkey. The poor and/or lowest productive stands occur in the semiarid parts of Inner Anatolia. Black pine can grow on all material in the semi-arid and sub-humid cold climates, but deep weatheared parent materials are the best for growing of black pine.

328. Chronic impacts of TiO2 nanoparticles on Populus nigra L. leaf decomposition in freshwater ecosystem.

PubMed

Du, Jingjing; Zhang, Yuyan; Guo, Wei; Li, Ningyun; Gao, Chaoshuai; Cui, Minghui; Lin, Zhongdian; Wei, Mingbao; Zhang, Hongzhong

2018-05-15

Titanium dioxide (TiO 2) nanoparticles have been applied in diverse commercial products, which could lead to toxic effects on aquatic microbes and would inhibit some important ecosystem processes. The study aimed to investigate the chronic impacts of TiO 2 nanoparticles with different concentrations (5, 50, and 500â€¯mgâ€¯L -1) on Populus nigra L. leaf decomposition in the freshwater ecosystem. After 50â€¯d of decomposing, a significant decrease in decomposition rates was observed with higher concentrations of TiO 2 nanoparticles. During the period of litter decomposition, exposure of TiO 2 nanoparticles led to decreases in extracellular enzyme activities, which was caused by the reduction of microbial especially fungal biomass. In addition, the diversity and composition of the fungal community associated with litter decomposition were strongly affected by the concentrations of TiO 2 nanoparticles. The diversity and composition of the fungal community associated with litter decomposition was strongly affected. The abundance of Tricladium chaetocladium decreased with the increasing concentrations of TiO 2 nanoparticles, indicating the little contribution of the species to the litter decomposition. In conclusion, this study provided the evidence for the chronic exposure effects of TiO 2 nanoparticles on the litter decomposition and further the functions of freshwater ecosystems. Copyright Â© 2018 Elsevier B.V. All rights reserved.

329. Memantine block depends on agonist presentation at the NMDA receptor in substantia nigra pars compacta dopamine neurones

PubMed Central

Wild, A.R.; Akyol, E.; Brothwell, S.L.C.; Kimkool, P.; Skepper, J.N.; Gibb, A.J.; Jones, S.

2015-01-01

NMDA glutamate receptors (NMDARs) have critical functional roles in the nervous system but NMDAR over-activity can contribute to neuronal damage. The open channel NMDAR blocker, memantine is used to treat certain neurodegenerative diseases, including Parkinsonâ€™s disease (PD) and is well tolerated clinically. We have investigated memantine block of NMDARs in substantia nigra pars compacta (SNc) dopamine neurones, which show severe pathology in PD. Memantine (10 Î¼M) caused robust inhibition of whole-cell (synaptic and extrasynaptic) NMDARs activated by NMDA at a high concentration or a long duration, low concentration. Less memantine block of NMDAR-EPSCs was seen in response to low frequency synaptic stimulation, while responses to high frequency synaptic stimulation were robustly inhibited by memantine; thus memantine inhibition of NMDAR-EPSCs showed frequency-dependence. By contrast, MK-801 (10 Î¼M) inhibition of NMDAR-EPSCs was not significantly different at low versus high frequencies of synaptic stimulation. Using immunohistochemistry, confocal imaging and stereological analysis, NMDA was found to reduce the density of cells expressing tyrosine hydroxylase, a marker of viable dopamine neurones; memantine prevented the NMDA-evoked decrease. In conclusion, memantine blocked NMDAR populations in different subcellular locations in SNc dopamine neurones but the degree of block depended on the intensity of agonist presentation at the NMDAR. This profile may contribute to the beneficial effects of memantine in PD, as glutamatergic activity is reported to increase, and memantine could preferentially reduce over-activity while leaving some physiological signalling intact. PMID:23727219

330. Callus induction of leaf explant Piper betle L. Var Nigra with combination of plant growth regulators indole-3-acetic acid (IAA), benzyl amino purin (BAP) and kinetin

NASA Astrophysics Data System (ADS)

Junairiah, Zuraidassanaaz, Nabilah Istighfari; Izdihar, Fairuz Nabil; Manuhara, Yosephine Sri Wulan

2017-09-01

The purpose of this research was to determine the combination of plant growth regulators IAA, BAP and kinetin towards callus induction and growth of leaf explants Piper betle L. VarNigra. Explants from leaf of

Piper betle L. VarNigra was cultured on MS medium with 24 treatment combinations of plant growth regulators IAA and BAP and 24 treatment combinations of plant growth regulators IAA and kinetin with 0.0;0.5;1.0;1.5;2.0 mg/L concentration respectively, the observed variable were the length of time the formation of callus, callus morphology, fresh and dry weight of callus. The results of this research showed that the combination of growth regulators IAA with BAP and kinetin had effects on leaf growth of Piper betle L. VarNigra. During 8 weeks observation, it indicated that the combination of concentration IAA 0.5 mg/L and BAP 2.0 mg/L showed fastest callus formation at 8.5 days. Combination of concentration IAA 1.0 mg/L and BAP 1.5 mg/L showed the highest of fresh weight at 0.6596 grams, and the highest dry weight was obtained from the combination of concentration IAA 0.5 mg/L and BAP 0.5 mg/L at 0.0727 grams. Combination of concentration IAA 1.0 mg/L and kinetin 1.5 mg/L had the highest of fresh weight at 0.2972 grams and the highest dry weight at 0.1660 grams. Callus of Piper betle L. VarNigra had two textures, that were compact and friable, and also showed various kind of colors, like white, greenish white, yellowish white, tanned white, brown and black. Based on this research, that concentration IAA 1.0 mg/L and 1.5 mg/L kinetin was the best combination for induction of callus from leaf of Piper betle L. Var Nigra.

331. Comparative recruitment success of pine provenances (Pinus sylvestris, Pinus nigra) under simulated climate change in the Swiss Rhone valley

    NASA Astrophysics Data System (ADS)

    Richter, Sarah; Moser, Barbara; Ghazoul, Jaboury; Wohlgemuth, Thomas

    2010-05-01

    Low elevation Scots pine forests of European inner-alpine dry valleys may potentially disappear under continued climate warming, largely in response to increased warming and drought effects. In the upper Rhone valley, the driest region in Switzerland, increased Scots pine mortality in mature forest stands and sparse tree establishment after a large-scale forest fire already give evidence for ongoing climate change. Furthermore, vegetation models predict a decline of Scots pine (Pinus sylvestris) and Pubescent oak (Quercus pubescens) even under a moderate temperature increase of 2-3Â°C. A decline of tree species in the region may lead to a transition from forest to a steppe-like vegetation. Such a change is of considerable concern for both biodiversity and natural hazard protection. Although changing climate conditions affect all life stages of a tree, its most vulnerable stage is recruitment. We tested P. sylvestris and P. nigra seedlings to simulated temperature increase and water stress, using seeds from the upper Rhone valley, Switzerland (CH), and from PeÃ±yagolosa, Spain (ES). The experiment was located outdoors at the bottom of the Rhone Valley. Treatments consisted of factorial combinations of 3 precipitation regimes (â€˜wet spring-wet summer', â€˜dry spring-dry summer' and â€˜wet spring-dry summer') and 3 soil heating levels (+0 Â°C, +2.5 Â°C, +5 Â°C). Automatically operated shelters intercepted natural rainfall and different precipitation regimes were simulated by manual irrigation. We found significantly lower germination rates under dry conditions compared to wet conditions, whereas soil temperature affected germination rates only for P. nigra and when elevated by 5Â°C. Contrastingly, an increase of soil temperatures by 2.5 Â°C already caused a substantial decrease of survival rates under both â€˜dry spring-dry summer' and â€˜wet spring-dry summer' conditions. Precipitation regime was more important for survival than temperature increase. Seasonality of

332. In vivo gene transfer to dopamine neurons of rat substantia nigra via the high-affinity neurotensin receptor.

    PubMed Central

    Alvarez-Maya, I.; Navarro-Quiroga, I.; Meraz-RÃos, M. A.; Aceves, J.; Martinez-Fong, D.

    2001-01-01

BACKGROUND: Recently, we synthesized a nonviral gene vector capable of transfecting cell lines taking advantage of neurotensin (NT) internalization. The vector is NT cross-linked with poly-L-lysine, to which a plasmid DNA was bound to form a complex (NT-polyplex). Nigral dopamine neurons are able to internalize NT, thus representing a target for gene transfer via NT-polyplex. This hypothesis was tested here using reporter genes encoding green fluorescent protein or chloramphenicol acetyl transferase. MATERIALS AND METHODS: NT-polyplex was injected into the substantia nigra. Double immunofluorescence labeling was used to reveal the cell type involved in the propidium iodide-labeled polyplex internalization and reporter gene expression. RESULTS: Polyplex internalization was observed within dopamine neurons but not within glial cells, and was prevented by both hypertonic sucrose solution and SR-48692, a selective nonpeptide antagonist of NT receptors. Reporter gene expression was observed in dopamine neurons from 48 hr up to 15 days after NT-polyplex injection, and was prevented by SR-48692. However, no expression was seen when the NT-polyplex was injected into the ansiform lobule of the cerebellum, which contains low- but not high-affinity NT receptors. Neither internalization nor expression was observed in cultured glial cells, despite the NT-polyplex binding to those cells that was prevented by levocabastine, a low-affinity NT receptor antagonist. CONCLUSIONS: These results suggest that high-affinity NT receptors mediate the uptake of NT-polyplex with the subsequent reporter gene expression in vivo. NT polyfection may be used to transfer genes of physiologic interest to nigrostriatal dopamine neurons, and to produce transgenic animal models of dopamine-related diseases. PMID:11471555

333. State-Dependent Spike and Local Field Synchronization between Motor Cortex and Substantia Nigra in Hemiparkinsonian Rats

PubMed Central

Brazhnik, Elena; Cruz, Ana V.; Avila, Irene; Wahba, Marian I.; Novikov, Nikolay; Ilieva, Neda M.; McCoy, Alex J.; Gerber, Colin; Walters, Judith. R.

2012-01-01

Excessive beta frequency oscillatory and synchronized activity has been reported in the basal ganglia of Parkinsonian patients and animal models of the disease. To gain insight into processes underlying this activity, this study explores relationships between oscillatory activity in motor cortex and basal ganglia output in behaving rats after dopamine cell lesion. During inattentive rest, seven days after lesion, increases in motor cortex-substantia nigra pars reticulata (SNpr) coherence emerged in the 8â€“25 Hz range, with significant increases in local field potential (LFP) power in SNpr but not motor cortex. In contrast, during treadmill walking, marked increases in both motor cortex and SNpr LFP power, as well as coherence, emerged in the 25â€“40 Hz band with a peak frequency at 30â€“35 Hz. Spike-triggered waveform averages showed that 77% of SNpr neurons, 77% of putative cortical interneurons and 44% of putative pyramidal neurons were significantly phase-locked to the increased cortical LFP activity in the 25â€“40 Hz range. Although the mean lag between cortical and SNpr LFPs fluctuated around zero, SNpr neurons phase-locked to cortical LFP oscillations fired, on average, 17 ms after synchronized spiking in motor cortex. High coherence between LFP oscillations in cortex and SNpr supports the view that cortical activity facilitates entrainment and synchronization of activity in basal ganglia after loss of dopamine. However, the dramatic increases in cortical power and relative timing of phase-locked spiking in these areas suggest that additional processes help shape the frequency-specific tuning of the basal ganglia-thalamocortical network during ongoing motor activity. PMID:22674263

334. State-dependent spike and local field synchronization between motor cortex and substantia nigra in hemiparkinsonian rats.

PubMed

Brazhnik, Elena; Cruz, Ana V; Avila, Irene; Wahba, Marian I; Novikov, Nikolay; Ilieva, Neda M; McCoy, Alex J; Gerber, Colin; Walters, Judith R

2012-06-06

Excessive beta frequency oscillatory and synchronized activity has been reported in the basal ganglia of parkinsonian patients and animal models of the disease. To gain insight into processes underlying this activity, this study explores relationships between oscillatory activity in motor cortex and basal ganglia output in behaving rats after dopamine cell lesion. During inattentive rest, 7 d after lesion, increases in motor cortex-substantia nigra pars reticulata (SNpr) coherence emerged in the 8-25 Hz range, with significant increases in local field potential (LFP) power in SNpr but not motor cortex. In contrast, during treadmill walking, marked increases in both motor cortex and SNpr LFP power, as well as coherence, emerged in the 25-40 Hz band with a peak frequency at 30-35 Hz. Spike-triggered waveform averages showed that 77% of SNpr neurons, 77% of putative cortical interneurons, and 44% of putative pyramidal neurons were significantly phase-locked to the increased cortical LFP activity in the 25-40 Hz range. Although the mean lag between cortical and SNpr LFPs fluctuated around zero, SNpr neurons phase-locked to cortical LFP oscillations fired, on average, 17 ms after synchronized spiking in motor cortex. High coherence between LFP oscillations in cortex and SNpr supports the view that cortical activity facilitates entrainment and synchronization of activity in basal ganglia after loss of dopamine. However, the dramatic increases in cortical power and relative timing of phase-locked spiking in these areas suggest that additional processes help shape the frequency-specific tuning of the basal ganglia-thalamocortical network during ongoing motor activity.

335. Social Tolerance in Wild Female Crested Macaques (Macaca nigra) in Tangkoko-Batuangus Nature Reserve, Sulawesi, Indonesia

PubMed Central

Duboscq, Julie; Micheletta, JÃ©rÃ´me; Agil, Muhammad; Hodges, Keith; Thierry, Bernard; Engelhardt, Antje

2013-01-01

In primates, females typically drive the evolution of the social system and present a wide diversity of social structures. To understand this diversity, it is necessary to document the consistency and/or flexibility of female social structures across and within species, contexts, and environments. Macaques (Macaca sp.) are an ideal taxon for such comparative study, showing both consistency and variation in their social relations. Their social styles, constituting robust sets of social traits, can be classified in four grades, from despotic to tolerant. However, tolerant species are still understudied, especially in the wild. To foster our understanding of tolerant societies and to assess the validity of the concept of social style, we studied female crested macaques, Macaca nigra, under entirely natural conditions. We assessed their degree of social tolerance by analyzing the frequency, intensity, and distribution of agonistic and affiliative behaviors, their dominance gradient, their bared-teeth display, and their level of conciliatory tendency. We also analyzed previously undocumented behavioral patterns in grade 4 macaques: reaction upon approach and distribution of affiliative behavior across partners. We compared the observed patterns to data from other populations of grade 4 macaques and from species of other grades. Overall, female crested macaques expressed a tolerant social style, with low intensity, frequently bidirectional, and reconciled conflicts. Dominance asymmetry was moderate, associated with an affiliative bared-teeth display. Females greatly tolerated one another in close proximity. The observed patterns matched the profile of other tolerant macaques and were outside the range of patterns of more despotic species. This study is the first comprehensive analysis of femalesâ€™ social behavior in a tolerant macaque species under natural conditions and as such, contributes to a better understanding of macaque societies. It also highlights the

336. The role of iron and copper molecules in the neuronal vulnerability of locus coeruleus and substantia nigra during aging

PubMed Central

Zecca, Luigi; Stroppolo, Antonella; Gatti, Alberto; Tampellini, Davide; Toscani, Marco; Gallorini, Mario; Giaveri, Giuseppe; Arosio, Paolo; Santambrogio, Paolo; Fariello, Ruggero G.; Karatekin, Erdem; Kleinman, Mark H.; Turro, Nicholas; Hornykiewicz, Oleh; Zucca, Fabio A.

2004-01-01

In this study, a comparative analysis of metal-related neuronal vulnerability was performed in two brainstem nuclei, the locus coeruleus (LC) and substantia nigra (SN), known targets of the etiological noxae in Parkinson's disease and related disorders. LC and SN pars compacta neurons both degenerate in Parkinson's disease and other Parkinsonisms; however, LC neurons are comparatively less affected and with a variable degree of involvement. In this study, iron, copper, and their major molecular forms like ferritins, ceruloplasmin, neuromelanin (NM), manganese-superoxide dismutase (SOD), and copper/zinc-SOD were measured in LC and SN of normal subjects at different ages. Iron content in LC was much lower than that in SN, and the ratio heavy-chain ferritin/iron in LC was higher than in the SN. The NM concentration was similar in LC and SN, but the iron content in NM of LC was much lower than SN. In both regions, heavy- and light-chain ferritins were present only in glia and were not detectable in neurons. These data suggest that in LC neurons, the iron mobilization and toxicity is lower than that in SN and is efficiently buffered by NM. The bigger damage occurring in SN could be related to the higher content of iron. Ferritins accomplish the same function of buffering iron in glial cells. Ceruloplasmin levels were similar in LC and SN, but copper was higher in LC. However, the copper content in NM of LC was higher than that of SN, indicating a higher copper mobilization in LC neurons. Manganese-SOD and copper/zinc-SOD had similar age trend in LC and SN. These results may explain at least one of the reasons underlying lower vulnerability of LC compared to SN in Parkinsonian syndromes. PMID:15210960

337. Dopaminergic Presynaptic Modulation of Nigral Afferents: Its Role in the Generation of Recurrent Bursting in Substantia Nigra Pars Reticulata Neurons

PubMed Central

de JesÃºs Aceves, JosÃ©; Rueda-Orozco, Pavel E.; HernÃ¡ndez, Ricardo; Plata, VÃctor; IbaÃ±ez-Sandoval, Osvaldo; Galarraga, Elvira; Bargas, JosÃ©

2011-01-01

Previous work has shown the functions associated with activation of dopamine presynaptic receptors in some substantia nigra pars reticulata (SNr) afferents: (i) striatonigral terminals (direct pathway) posses presynaptic dopamine D1-class receptors whose action is to enhance inhibitory postsynaptic currents (IPSCs) and GABA transmission. (ii) Subthalamonigral terminals posses D1- and D2-class receptors where D1-class receptor activation enhances and D2-class receptor activation decreases excitatory postsynaptic currents. Here we report that pallidonigral afferents posses D2-class receptors (D3 and D4 types) that decrease inhibitory synaptic transmission via presynaptic modulation. No action of D1-class agonists was found on pallidonigral synapses. In contrast, administration of D1-receptor antagonists greatly decreased striatonigral IPSCs in the same preparation, suggesting that tonic dopamine levels help in maintaining the function of the striatonigral (direct) pathway. When both D3 and D4 type receptors were blocked, pallidonigral IPSCs increased in amplitude while striatonigral connections had no significant change, suggesting that tonic dopamine levels are repressing a powerful inhibition conveyed by pallidonigral synapses (a branch of the indirect pathway). We then blocked both D1- and D2-class receptors to acutely decrease direct pathway (striatonigral) and enhance indirect pathways (subthalamonigral and pallidonigral) synaptic force. The result was that most SNr projection neurons entered a recurrent bursting firing mode similar to that observed during Parkinsonism in both patients and animal models. These results raise the question as to whether the lack of dopamine in basal ganglia output nuclei is enough to generate some pathological signs of Parkinsonism. PMID:21347219

338. Genetic and Epigenetic Alterations of Brassica nigra Introgression Lines from Somatic Hybridization: A Resource for Cauliflower Improvement

PubMed Central

Wang, Gui-xiang; Lv, Jing; Zhang, Jie; Han, Shuo; Zong, Mei; Guo, Ning; Zeng, Xing-ying; Zhang, Yue-yun; Wang, You-ping; Liu, Fan

2016-01-01

Broad phenotypic variations were obtained previously in derivatives from the asymmetric somatic hybridization of cauliflower â€œKorsoâ€ (Brassica oleracea var. botrytis, 2n = 18, CC genome) and black mustard â€œG1/1â€ (Brassica nigra, 2n = 16, BB genome). However, the mechanisms underlying these variations were unknown. In this study, 28 putative introgression lines (ILs) were pre-selected according to a series of morphological (leaf shape and color, plant height and branching, curd features, and flower traits) and physiological (black rot/club root resistance) characters. Multi-color fluorescence in situ hybridization revealed that these plants contained 18 chromosomes derived from â€œKorso.â€ Molecular marker (65 simple sequence repeats and 77 amplified fragment length polymorphisms) analysis identified the presence of â€œG1/1â€ DNA segments (average 7.5%). Additionally, DNA profiling revealed many genetic and epigenetic differences among the ILs, including sequence alterations, deletions, and variation in patterns of cytosine methylation. The frequency of fragments lost (5.1%) was higher than presence of novel bands (1.4%), and the presence of fragments specific to Brassica carinata (BBCC 2n = 34) were common (average 15.5%). Methylation-sensitive amplified polymorphism analysis indicated that methylation changes were common and that hypermethylation (12.4%) was more frequent than hypomethylation (4.8%). Our results suggested that asymmetric somatic hybridization and alien DNA introgression induced genetic and epigenetic alterations. Thus, these ILs represent an important, novel germplasm resource for cauliflower improvement that can be mined for diverse traits of interest to breeders and researchers. PMID:27625659

339. Genetic and Epigenetic Alterations of Brassica nigra Introgression Lines from Somatic Hybridization: A Resource for Cauliflower Improvement.

PubMed

Wang, Gui-Xiang; Lv, Jing; Zhang, Jie; Han, Shuo; Zong, Mei; Guo, Ning; Zeng, Xing-Ying; Zhang, Yue-Yun; Wang, You-Ping; Liu, Fan

2016-01-01

Broad phenotypic variations were obtained previously in derivatives from the asymmetric somatic hybridization of cauliflower "Korso" (Brassica oleracea var. botrytis, 2n = 18, CC genome) and black mustard "G1/1" (Brassica nigra, 2n = 16, BB genome). However, the mechanisms underlying these variations were unknown. In this study, 28 putative introgression lines (ILs) were pre-selected according to a series of morphological (leaf shape and color, plant height and branching, curd features, and flower traits) and physiological (black rot/club root resistance) characters. Multi-color fluorescence in situ hybridization revealed that these plants contained 18 chromosomes derived from "Korso." Molecular marker (65 simple sequence repeats and 77 amplified fragment length polymorphisms) analysis identified the presence of "G1/1" DNA segments (average 7.5%). Additionally, DNA profiling revealed many genetic and epigenetic differences among the ILs, including sequence alterations, deletions, and variation in patterns of cytosine methylation. The frequency of fragments lost (5.1%) was higher than presence of novel bands (1.4%), and the presence of fragments specific to Brassica carinata (BBCC 2n = 34) were common (average 15.5%). Methylation-sensitive amplified polymorphism analysis indicated that methylation changes were common and that hypermethylation (12.4%) was more frequent than hypomethylation (4.8%). Our results suggested that asymmetric somatic hybridization and alien DNA introgression induced genetic and epigenetic alterations. Thus, these ILs represent an important, novel germplasm resource for cauliflower improvement that can be mined for diverse traits of interest to breeders and researchers.

340. Overexpression of VMAT-2 and DT-diaphorase protects substantia nigra-derived cells against aminochrome neurotoxicity

PubMed Central

MuÃ±oz, Patricia; Paris, Irmgard; Sanders, Laurie H.; Greenamyre, J. Timothy; Segura-Aguilar, Juan

2013-01-01

We tested the hypothesis that both VMAT-2 and DT-diaphorase are an important cellular defense against aminochrome-dependent neurotoxicity during dopamine oxidation. A cell line with VMAT-2 and DT-diaphorase over-expressed was created. The transfection of RCSN-3 cells with a bicistronic plasmid coding for VMAT-2 fused with GFP-IRES-DT-diaphorase cDNA induced a significant increase in protein expression of VMAT-2 (7-fold; P<0.001) and DT-diaphorase (9-fold; P<0.001), accompanied by a 4- and 5.5-fold significant increase in transport and enzyme activity, respectively. Studies with synaptic vesicles from rat substantia nigra revealed that VMAT-2 uptake of 3H-aminochrome 6.3 Â± 0.4nmol/min/mg was similar to dopamine uptake 6.2 Â± 0.3 nmol/min/mg that which were dependent on ATP. Interestingly, aminochrome uptake was inhibited by 2 Î¼M lobeline but not reserpine (1 and 10 Î¼M). Incubation of cells overexpressing VMAT-2 and DT-diaphorase with 20 Î¼M aminochrome resulted in (i) a significant decrease in cell death (6-fold, P<0.001); (ii) normal ultra structure determined by transmission electron microscopy contrasting with a significant increase of autophagosome and a dramatic remodeling of the mitochondrial inner membrane in wild type cells; (iii) normal level of ATP (256 Â± 11 Î¼M) contrasting with a significant decrease in wild type cells (121 Â± 11 Î¼M, P<0.001); and (iv) a significant decrease in DNA laddering (21 Â± 8 pixels, P<0.001) cells in comparison with wild type cells treated with 20 Î¼M aminochrome (269 Â± 9). These results support our hypothesis that VMAT-2 and DT-diaphorase are an important defense system against aminochrome formed during dopamine oxidation. PMID:22483869

- «
- 15
- 16
- 17
- 18
- 19
- »

- «
- 16
- 17
- 18
- 19
- 20
- »

341. Metabolism regulates the spontaneous firing of substantia nigra pars reticulata neurons via KATP and nonselective cation channels.

PubMed

Lutas, Andrew; Birnbaumer, Lutz; Yellen, Gary

2014-12-03

Neurons use glucose to fuel glycolysis and provide substrates for mitochondrial respiration, but neurons can also use alternative fuels that bypass glycolysis and feed directly into mitochondria. To determine whether neuronal pacemaking depends on active glucose metabolism, we switched the metabolic fuel

from glucose to alternative fuels, lactate or Î²-hydroxybutyrate, while monitoring the spontaneous firing of GABAergic neurons in mouse substantia nigra pars reticulata (SNr) brain slices. We found that alternative fuels, in the absence of glucose, sustained SNr spontaneous firing at basal rates, but glycolysis may still be supported by glycogen in the absence of glucose. To prevent any glycogen-fueled glycolysis, we directly inhibited glycolysis using either 2-deoxyglucose or iodoacetic acid. Inhibiting glycolysis in the presence of alternative fuels lowered SNr firing to a slower sustained firing rate. Surprisingly, we found that the decrease in SNr firing was not mediated by ATP-sensitive potassium (KATP) channel activity, but if we lowered the perfusion flow rate or omitted the alternative fuel, KATP channels were activated and could silence SNr firing. The KATP-independent slowing of SNr firing that occurred with glycolytic inhibition in the presence of alternative fuels was consistent with a decrease in a nonselective cationic conductance. Although mitochondrial metabolism alone can prevent severe energy deprivation and KATP channel activation in SNr neurons, active glucose metabolism appears important for keeping open a class of ion channels that is crucial for the high spontaneous firing rate of SNr neurons. Copyright Â© 2014 the authors 0270-6474/14/3416336-12$15.00/0.

342. Control of the subthalamic innervation of substantia nigra pars reticulata by D1 and D2 dopamine receptors.

PubMed

IbaÃ±ez-Sandoval, Osvaldo; HernÃ¡ndez, AdÃ¡n; FlorÃ¡n, Benjamin; Galarraga, Elvira; Tapia, Dagoberto; Valdiosera, Rene; Erlij, David; Aceves, Jorge; Bargas, JosÃ©

2006-03-01

The effects of activating dopaminergic D1 and D2 class receptors of the subthalamic projections that innervate the pars reticulata of the subtantia nigra (SNr) were explored in slices of the rat brain using the whole cell patch-clamp technique. Excitatory postsynaptic currents (EPSCs) that could be blocked by 6-cyano-7-nitroquinoxalene-2,3-dione and D-(-)-2-amino-5-phosphonopentanoic acid were evoked onto reticulata GABAergic projection neurons by local field stimulation inside the subthalamic nucleus in the presence of bicuculline. Bath application of (RS)-2,3,4,5-tetrahydro-7,8-dihydroxy-1-phenyl-1H-3-benzazepine hydrochloride (SKF-38393), a dopaminergic D1-class receptor agonist, increased evoked EPSCs by approximately 30% whereas the D2-class receptor agonist, trans-(-)-4aR-4,4a,5,6,7,8,8a,9-octahydro-5-propyl-1H-pyrazolo(3,4-g)quinoline (quinpirole), reduced EPSCs by approximately 25%. These apparently opposing actions were blocked by the specific D1- and D2-class receptor antagonists: R-(+)-7-chloro-8-hydroxy-3-methyl-1-phenyl-2,3,4,5-tetra-hydro-1H-3-benzazepinehydrochloride (SCH 23390) and S-(-)-5-amino-sulfonyl-N-[(1-ethyl-2-pyrrolidinyl)-methyl]-2-methoxybenzamide (sulpiride), respectively. Both effects were accompanied by changes in the paired-pulse ratio, indicative of a presynaptic site of action. The presynaptic location of dopamine receptors at the subthalamonigral projections was confirmed by mean-variance analysis. The effects of both SKF-38393 and quinpirole could be observed on terminals contacting the same postsynaptic neuron. Sulpiride and SCH 23390 enhanced and reduced the evoked EPSC, respectively, suggesting a constitutive receptor activation probably arising from endogenous dopamine. These data suggest that dopamine presynaptically modulates the subthalamic projection that targets GABAergic neurons of the SNr. Implications of this modulation for basal ganglia function are discussed.

343. Abnormal Chloride Homeostasis in the Substancia Nigra Pars Reticulata Contributes to Locomotor Deficiency in a Model of Acute Liver Injury

PubMed Central

Wei, Yan-Yan; Chen, Jing; Dou, Ke-Feng; Wang, Ya-Yun

2013-01-01

Background Altered chloride homeostasis has been thought to be a risk factor for several brain disorders, while less attention has been paid to its role in liver disease. We aimed to analyze the involvement and possible mechanisms of altered chloride homeostasis of GABAergic neurons within the substantia nigra pars reticulata (SNr) in the motor deficit observed in a model of encephalopathy caused by acute liver failure, by using glutamic acid decarboxylase 67 - green fluorescent protein knock-in transgenic mice. Methods Alterations in intracellular chloride concentration in GABAergic neurons within the SNr and changes in the expression of two dominant chloride homeostasis-regulating genes, KCC2 and NKCC1, were evaluated in mice with hypolocomotion due to hepatic encephalopathy (HE). The effects of pharmacological blockade and/or activation of KCC2 and NKCC1 functions with their specific inhibitors and/or activators on the motor activity were assessed. Results In our mouse model of acute liver injury, chloride imaging indicated an increase in local intracellular chloride concentration in SNr GABAergic neurons. In addition, the mRNA and protein levels of KCC2 were reduced, particularly on neuronal cell membranes; in contrast, NKCC1 expression remained unaffected. Furthermore, blockage of KCC2 reduced motor activity in the normal mice and led to a further deteriorated hypolocomotion in HE mice. Blockade of NKCC1 was not able to normalize motor activity in mice with liver failure. Conclusion Our data suggest that altered chloride homeostasis is likely involved in the pathophysiology of hypolocomotion following HE. Drugs aimed at restoring normal chloride homeostasis would be a potential treatment for hepatic failure. PMID:23741482

344. Functional Morphology of the Arm Spine Joint and Adjacent Structures of the Brittlestar Ophiocomina nigra (Echinodermata: Ophiuroidea)

PubMed Central

Wilkie, Iain C.

2016-01-01

The skeletal morphology of the arm spine joint of the brittlestar Ophiocomina nigra was examined by scanning electron microscopy and the associated epidermis, connective tissue structures, juxtaligamental system and muscle by optical and transmission electron microscopy. The behaviour of spines in living animals was observed and two experiments were conducted to establish if the spine ligament is mutable collagenous tissue: these determined (1) if animals could detach spines to which plastic tags had been attached and (2) if the extension under constant load of isolated joint preparations was affected by high potassium stimulation. The articulation normally operates as a flexible joint in which the articular surfaces are separated by compliant connective tissue. The articular surfaces comprise a reniform apposition and peg-in-socket mechanical stop, and function primarily to stabilise spines in the erect position. Erect spines can be completely immobilised, which depends on the ligament having mutable tensile properties, as was inferred from the ability of animals to detach tagged spines and the responsiveness of isolated joint preparations to high potassium. The epidermis surrounding the joint has circumferential constrictions that facilitate compression folding and unfolding when the spine is inclined. The interarticular connective tissue is an acellular meshwork of collagen fibril bundles and may serve to reduce frictional forces between the articular surfaces. The ligament consists of parallel bundles of collagen fibrils and 7â€“14 nm microfibrils. Its passive elastic recoil contributes to the re-erection of inclined spines. The ligament is permeated by cell processes containing large dense-core vesicles, which belong to two types of juxtaligamental cells, one of which is probably peptidergic. The spine muscle consists of obliquely striated myocytes that are linked to the skeleton by extensions of their basement membranes. Muscle contraction may serve mainly to

345. A 323-year long reconstruction of drought for SW Romania based on black pine (Pinus Nigra) tree-ring widths.

PubMed

LevaniÄ□, Tom; Popa, Ionel; PoljanÅ¡ek, Simon; Nechita, Constantin

2013-09-01

Increase in temperature and decrease in precipitation pose a major future challenge for sustainable ecosystem management in Romania. To understand ecosystem response and the wider social consequences of environmental change, we constructed a 396-year long (1615-2010) drought sensitive tree-ring width chronology (TRW) of Pinus nigra var. banatica (Georg. et Ion.) growing on steep slopes and shallow organic soil. We established a statistical relationship between TRW and two meteorological parameters-monthly sum of precipitation (PP) and standardised precipitation index (SPI). PP and SPI correlate significantly with TRW (râ€‰=â€‰0.54 and 0.58) and are stable in time. Rigorous statistical tests, which measure the accuracy and prediction ability of the model, were all significant. SPI was eventually reconstructed back to 1688, with extreme dry and wet years identified using the percentile method. By means of reconstruction, we identified two so far unknown extremely dry years in Romania--1725 and 1782. Those 2 years are almost as dry as 1946, which was known as the "year of great famine." Since no historical documents for these 2 years were available in local archives, we compared the results with those from neighbouring countries and discovered that both years were extremely dry in the wider region (Slovakia, Hungary, Anatolia, Syria, and Turkey). While the 1800-1900 period was relatively mild, with only two moderately extreme years as far as weather is concerned, the 1900-2009 period was highly salient owing to the very high number of wet and dry extremes--five extremely wet and three extremely dry events (one of them in 1946) were identified.

346. Soil properties and root biomass responses to prescribed burning in young Corsican pine (Pinus nigra Arn.) stands.

PubMed

Tufekcioglu, Aydin; Kucuk, Mehmet; Saglam, Bulent; Bilgili, Ertugrul; Altun, Lokman

2010-05-01

Fire is an important tool in the management of forest ecosystems. Although both prescribed and wildland fires are common in Turkey, few studies have addressed the influence of such disturbances on soil properties and root biomass dynamics. In this study, soil properties and root biomass responses to prescribed fire were investigated in 25-year-old corsican pine (Pinus nigra Arn.) stands in Kastamonu, Turkey. The stands were established by planting and were subjected to prescribed burning in July 2003. Soil respiration rates were determined every two months using soda-lime method over a two-year period. Fine (0-2 mm diameter) and small root (2-5 mm diameter) biomass were sampled approximately bimonthly using sequential coring method. Mean daily soil respiration ranged from 0.65 to 2.19 g Cm(-2) d(-1) among all sites. Soil respiration rates were significantly higher in burned sites than in controls. Soil respiration rates were correlated significantly with soil moisture and soil temperature. Fine root biomass was significantly lower in burned sites than in control sites. Mean fine root biomass values were 4940 kg ha(-1) for burned and 5450 kg ha(-1) for control sites. Soil pH was significantly higher in burned sites than in control sites in 15-35 cm soil depth. Soil organic matter content did not differ significantly between control and burned sites. Our results indicate that, depending on site conditions, fire could be used successfully as a tool in the management of forest stands in the study area.

347. Attenuation of microglial RANTES by NEMO-binding domain peptide inhibits the infiltration of CD8(+) T cells in the nigra of hemiparkinsonian monkey.

PubMed

Roy, A; Mondal, S; Kordower, J H; Pahan, K

2015-08-27

Parkinson's disease (PD) is a progressive neurodegenerative disease characterized by the loss of dopaminergic (DA) neurons in the substantia nigra pars compacta (SNpc). Despite intense investigations, little is known about its pathological mediators. Here, we report the marked upregulation of RANTES (regulated on activation, normal T cell expressed and secreted) and eotaxin, chemokines that are involved in T cell trafficking, in the serum of hemiparkinsonian monkeys. Interestingly, 1-methyl-4-phenylpyridinium (MPP(+)), a Parkinsonian toxin, increased the expression of RANTES and eotaxin in mouse microglial cells. The presence of NF-ÎºB binding sites in promoters of RANTES and eotaxin and down-regulation of these genes by NEMO-binding domain (NBD) peptide, selective inhibitor of induced NF-ÎºB activation, in MPP(+)-stimulated microglial cells suggest that the activation of NF-ÎºB plays an important role in the upregulation of these two chemokines. Consistently, serum enzyme-linked immuno assay (ELISA) and nigral immunohistochemistry further confirmed that these chemokines were strongly upregulated in MPTP-induced hemiparkinsonian monkeys and that treatment with NBD peptides effectively inhibited the level of these chemokines. Furthermore, the microglial upregulation of RANTES in the nigra of hemiparkinsonian monkeys could be involved in the altered adaptive immune response in the brain as we observed greater infiltration of CD8(+) T cells around the perivascular niche and deep brain parenchyma of hemiparkinsonian monkeys as compared to control. The treatment of hemiparkinsonian monkeys with NBD peptides decreased the microglial expression of RANTES and attenuated the infiltration of CD8(+) T cells in nigra. These results indicate the possible involvement of chemokine-dependent adaptive immune response in Parkinsonism. Copyright Â© 2015 IBRO. Published by Elsevier Ltd. All rights reserved.

348. Intranasal insulin protects against substantia nigra dopaminergic neuronal loss and alleviates motor deficits induced by 6-OHDA in rats.

    PubMed

    Pang, Y; Lin, S; Wright, C; Shen, J; Carter, K; Bhatt, A; Fan, L-W

    2016-03-24

    Protection of substantia nigra (SN) dopaminergic (DA) neurons by neurotrophic factors (NTFs) is one of the promising strategies in Parkinson's disease (PD) therapy. A major clinical challenge for NTF-based therapy is that NTFs need to be delivered into the brain via invasive means, which often shows limited delivery efficiency. The nose to brain pathway is a non-invasive brain drug delivery approach developed in recent years. Of particular interest is the finding that intranasal insulin improves cognitive functions in Alzheimer's patients. In vitro, insulin has been shown to protect neurons against various insults. Therefore, the current study was designed to test whether intranasal insulin could afford neuroprotection in the 6-hydroxydopamine (6-OHDA)-based rat PD model. 6-OHDA was injected into the right side of striatum to induce a progressive DA neuronal lesion in the ipsilateral SN pars compact (SNc). Recombinant human insulin was applied intranasally to rats starting from 24h post lesion, once per day, for 2 weeks. A battery of motor behavioral tests was conducted on day 8 and 15. The number of DA neurons in the SNc was estimated by stereological counting. Our results showed that 6-OHDA injection led to significant motor deficits and 53% of DA neuron loss in the ipsilateral side of injection. Treatment with insulin significantly ameliorated 6-OHDA-induced motor impairments, as shown by improved locomotor activity, tapered/ledged beam-walking performance, vibrissa-elicited forelimb-placing, initial steps, as well as methamphetamine-induced rotational behavior. Consistent with behavioral improvements, insulin treatment provided a potent protection of DA neurons in the SNc against 6-OHDA neurotoxicity, as shown by a 74.8% increase in tyrosine hydroxylase (TH)-positive neurons compared to the vehicle group. Intranasal insulin treatment did not affect body weight and blood glucose levels. In conclusion, our study showed that intranasal insulin provided strong

349. Underground riparian wood: Reconstructing the processes influencing buried stem and coarse root structures of Black Poplar (Populus nigra L.)

    NASA Astrophysics Data System (ADS)

Holloway, James V.; Rillig, Matthias C.; Gurnell, Angela M.

2017-02-01

Following analysis of morphological (including dendrochronological and sedimentological) aspects of buried stem and coarse root structures of eight mature P. nigra individuals located within two sites along the middle to lower Tagliamento River, Italy (Holloway et al., 2017), this paper introduces information on the historical processes of vegetation development and river flow and links this to the form of these eight trees. Aerial images and flow time series are assembled to reconstruct the flood history, potential recruitment periods, and vegetation cover development in the vicinity of the studied trees. This information is combined with previous morphological evidence to reconstruct the development history of each tree via three-element summary diagrams showing (i) a time series of floods, aerial imagery dates, and potential recruitment periods, with colour-coded bars indicating likely key stages in the development of the tree; (ii) colour-coded overlays on an SfM photogrammetric model of each tree; and (iii) colour-coded text boxes providing explanatory annotations. The combined morphology-process analysis reveals complex three-dimensional underground structures, incorporating buried stems, shoots, and adventitious roots that are sometimes joined by grafting, linking the standing tree with the buried gravel surface on which it was recruited. Analysis of process data provides a firm basis for identifying and dating influential flow disturbance events and recruitment windows and shows that a relatively small number of flood events have significantly impacted the studied trees, which are mainly but not exclusively the largest floods in the record. Nevertheless, we stress that all suggested dates are best estimates in the light of the combined evidence. There is undoubted potential for building different interpretations of belowground woody structure development in light of such evidence, but we feel that the form and timing of the developmental trajectories we

350. Nuclear microscopic investigations into the elemental changes in the substantia nigra of unilaterally MPTP-lesioned Parkinsonian monkeys

NASA Astrophysics Data System (ADS)

Thong, P. S. P.; He, Y.; Lee, T.; Watt, F.

1997-07-01

Various transition metals, particularly iron, have been implicated in the aetiology of the neurodegenerative disease, Parkinson's disease, in which there is a characteristic loss of cells in the substantia nigra (SN) region of the brain. In this study, monkeys were unilaterally lesioned with the neurotoxin 1-methyl-4-phenyl-1,2,3,6-tetrahydro-pyridine (MPTP) to obtain primate models of parkinsonism, with the non-lesioned side of the brain serving as controls. The monkeys were sacrificed at one day, one week, two weeks, one month and one year after lesioning to investigate the time dependent elemental changes in the parkinsonian SN. Sections of the brain encompassing both the lesioned and non-lesioned SNs were analysed using the National University of Singapore nuclear microscope. Adjacent sections were tyrosine hydroxylase (TH) immunohistochemically stained to provide complementary information on dopaminergic cell loss and to facilitate definition of the SN boundaries during data analysis. In one-day and one-week monkeys (representing early stages of the disease), there were no changes in elemental concentrations within experimental errors and the adjacent TH-stained sections did not show apparent cell loss in the SN. At two weeks, cell loss was seen in the lesioned SN compared to the control SN. Although there was no bulk increase in SN iron, localised accumulation of iron in granules containing up to 15% by weight iron was observed in the lesioned SN of one of the two-week monkeys. An average 15% increase in nigral iron, significant at the 90% confidence level ($p < 0.1$), was seen in the one-month monkeys. TH-stained sections for the one-month monkeys showed cell loss in the lesioned SN. In one-year samples (representing the advanced stage of the disease) there was a significant ($p < 0.05$) 56% increase in iron, 14% increase in phosphorous and a 20% decrease in copper. Here an almost complete loss of cells in the lesioned SN was apparent from the adjacent TH

351. Differential vulnerability of substantia nigra and corpus striatum to oxidative insult induced by reduced dietary levels of essential fatty acids

PubMed Central

Cardoso, Henriqueta D.; Passos, Priscila P.; Lagranha, Claudia J.; Ferraz, Anete C.; Santos JÃºnior, Eraldo F.; Oliveira, Rafael S.; Oliveira, Pablo E. L.; Santos, Rita de C. F.; Santana, David F.; Borba, Juliana M. C.; Rocha-de-Melo, Ana P.; Guedes, Rubem C. A.; Navarro, Daniela M. A. F.; Santos, Geanne K. N.; Borner, Roseane; PicanÃ§o-Diniz, Cristovam W.; BeltrÃ£o, Eduardo I.; Silva, Janilson F.; Rodrigues, Marcelo C. A.; Andrade da Costa, Belmira L. S.

2012-01-01

Oxidative stress (OS) has been implicated in the etiology of certain neurodegenerative disorders. Some of these disorders have been associated with unbalanced levels of essential fatty acids (EFA). The response of certain brain regions to OS, however, is not uniform and a selective vulnerability or resilience can occur. In our previous study on rat brains, we observed that a two-generation EFA dietary restriction reduced the number and size of dopaminergic neurons in the substantia nigra (SN) rostro-dorso-medial. To understand whether OS contributes to this effect, we assessed the status of lipid peroxidation (LP) and anti-oxidant markers in both SN and corpus striatum (CS) of rats submitted to this dietary treatment for one (F1) or two (F2) generations. Wistar rats were raised from conception on control or experimental diets containing adequate or reduced levels of linoleic and Î±-linolenic fatty acids, respectively. LP was measured using the thiobarbituric acid reaction method (TBARS) and the total superoxide dismutase (t-SOD) and catalase (CAT) enzymatic activities were assessed. The experimental diet significantly reduced the docosahexaenoic acid (DHA) levels of SN phospholipids in the F1 (~28%) and F2 (~50%) groups. In F1 adult animals of the experimental group there was no LP in both SN and CS. Consistently, there was a significant increase in the t-SOD activity ($p < 0.01$) in both regions. In EF2 young animals, degeneration in dopaminergic and non-dopaminergic neurons and a significant increase in LP ($p < 0.01$) and decrease in the CAT activity ($p < 0.001$) were detected in the SN, while no inter-group difference was found for these parameters in the CS. Conversely, a significant increase in t-SOD activity ($p < 0.05$) was detected in the CS of the experimental group compared to the control. The results show that unbalanced EFA dietary levels reduce the redox balance in the SN and reveal mechanisms of resilience in the CS under this stressful condition. PMID

352. Molecular docking and inhibition kinetics of Î±-glucosidase activity by labdane diterpenes isolated from tora seeds (Alpinia nigra B.L. Burtt.).

PubMed

Ghosh, Sudipta; Rangan, Latha

2015-02-01

Current approach against type 2 diabetes involves Î±-glucosidase inhibitors like acarbose associated with many side effects. Therefore, as an alternative to the existing drug, many natural products mainly from plant sources have been investigated which inhibit Î±-glucosidase. Here, we have selected medicinally important Alpinia nigra to explore its Î±-glucosidase inhibitory activity. Organic extracts of seeds and two purified natural diterpenes I: (E)-labda-8(17), 12-diene-15, 16-dial and II: (E)-8Î², 17-epoxylabd-12-ene-15, 16-dial from A. nigra were investigated towards inhibition of Î±-glucosidase activity. Dose-dependent inhibition pattern were observed for seed extracts and both the compounds. Further, inhibition kinetics studies of the diterpenes indicated a non-competitive type of inhibition against Î±-glucosidase. Docking studies were carried out which revealed that both the diterpenes interacted within the active site of N-terminal and C-terminal domain of human maltase-glucoamylase enzyme, respectively. This is the first report of Î±-glucosidase inhibitory activity of these isolated diterpenes and their higher inhibitory potential than any terpenoids studied till date against Î±-glucosidase.

353. Genetic diversity of Pinus nigra Arn. populations in Southern Spain and Northern Morocco revealed by inter-simple sequence repeat profiles.

PubMed

Rubio-Moraga, Angela; Candel-Perez, David; Lucas-Borja, Manuel E; Tiscar, Pedro A; ViÃ±egla, Benjamin; Linares, Juan C; GÃ³mez-GÃ³mez, Lourdes; Ahrazem, Oussama

2012-01-01

Eight Pinus nigra Arn. populations from Southern Spain and Northern Morocco were examined using inter-simple sequence repeat markers to characterize the genetic variability amongst populations. Pair-wise population genetic distance ranged from 0.031 to 0.283, with a mean of 0.150 between populations. The highest inter-population average distance was between PaCU from Cuenca and YeCA from Cazorla, while the lowest distance was between TaMO from Morocco and MA Sierra MÃ¡gina populations. Analysis of molecular variance (AMOVA) and Nei's genetic diversity analyses revealed higher genetic variation within the same population than among different populations. Genetic differentiation (Gst) was 0.233. Cuenca showed the highest Nei's genetic diversity followed by the Moroccan region, Sierra MÃ¡gina, and Cazorla region. However, clustering of populations was not in accordance with their geographical locations. Principal component analysis showed the presence of two major groups-Group 1 contained all populations from Cuenca while Group 2 contained populations from Cazorla, Sierra MÃ¡gina and Morocco-while Bayesian analysis revealed the presence of three clusters. The low genetic diversity observed in PaCU and YeCA is probably a consequence of inappropriate management since no estimation of genetic variability was performed before the silvicultural treatments. Data indicates that the inter-simple sequence repeat (ISSR) method is sufficiently informative and powerful to assess genetic variability among populations of P. nigra.

354. Genetic variation of the riparian pioneer tree species populus nigra. II. Variation In susceptibility to the foliar rust melampsora larici-populina

PubMed

Legionnet; Muranty; Lefevre

1999-04-01

Partial resistance of Populus nigra L. to three races of the foliar rust Melampsora larici-populina Kleb. was studied in a field trial and in laboratory tests, using a collection of P. nigra originating from different places throughout France. No total resistance was found. The partial resistance was split into epidemiological components, which proved to be under genetic control. Various patterns of association of epidemiological components values were found. Principal components analysis revealed their relationships. Only 24% of the variance of the field susceptibility could be explained by the variation of the epidemiological components of susceptibility. This variable was significantly correlated with susceptibility to the most ancient and widespread race of the pathogen, and with the variables related to the size of the lesions of the different races. Analysis of variance showed significant differences in susceptibility between regions and between stands within one region. Up to 20% of variation was between regions, and up to 22% between stands, so that these genetic factors appeared to be more differentiated than the neutral diversity (up to 3.5% Legionnet & Lefevre, 1996). However, no clear pattern of geographical distribution of diversity was detected.

355. Cell type analysis of functional fetal dopamine cell suspension transplants in the striatum and substantia nigra of patients with Parkinsonâ€™s disease

PubMed Central

Mendez, Ivar; Sanchez-Pernaute, Rosario; Cooper, Oliver; ViÃ±uela, Angel; Ferrari, Daniela; BjÃ¶rklund, Lars; Dagher, Alain; Isacson, Ole

2008-01-01

We report the first post-mortem analysis of two patients with Parkinsonâ€™s disease who received fetal midbrain transplants as a cell suspension in the striatum, and in one case also in the substantia nigra. These patients had a favourable clinical evolution and positive 18F-fluorodopa PET scans and did not develop motor complications. The surviving transplanted dopamine neurons were positively identified with phenotypic markers of normal control human substantia nigra (n = 3), such as tyrosine hydroxylase, G-protein-coupled inward rectifying current potassium channel type 2 (Girk2) and calbindin. The grafts restored the cell type that provides specific dopaminergic innervation to the most affected striatal regions in the parkinsonian brain. Such transplants were able to densely reinnervate the host putamen with new dopamine fibres. The patients received only 6 months of standard immune suppression, yet by post-mortem analysis 3â€“4 years after surgery the transplants appeared only mildly immunogenic to the host brain, by analysis of microglial CD45 and CD68 markers. This study demonstrates that, using these methods, dopamine neuronal replacement cell therapy can be beneficial for patients with advanced disease, and that changing technical approaches could have a favourable impact on efficacy and adverse events following neural transplantation. PMID:15872020

356. Major Alterations of Phosphatidylcholine and Lysophosphotidylcholine Lipids in the Substantia Nigra Using an Early Stage Model of Parkinsonâ€™s Disease

PubMed Central

Farmer, Kyle; Smith, Catherine A.; Hayley, Shawn; Smith, Jeffrey

2015-01-01

Parkinsonâ€™s disease (PD) is a progressive neurodegenerative disease affecting the nigrostriatal pathway, where patients do not manifest motor symptoms until >50% of neurons are lost. Thus, it is of great importance to determine early neuronal changes that may contribute to disease progression. Recent attention has focused on lipids and their role in pro- and anti-apoptotic processes. However, information regarding the lipid alterations in animal models of PD is lacking. In this study, we utilized high performance liquid chromatography electrospray ionization tandem mass spectrometry (HPLC-ESI-MS/MS) and novel HPLC solvent methodology to profile phosphatidylcholines and sphingolipids within the substantia nigra. The ipsilateral substantia nigra pars compacta was collected from rats 21 days after an infusion of 6-hydroxydopamine (6-OHDA), or vehicle into the anterior dorsal striatum. We identified 115 lipid species from their mass/charge ratio using the LMAPS Lipid MS Predict Database. Of these, 19 lipid species (from phosphatidylcholine and lysophosphotidylcholine lipid classes) were significantly altered by 6-OHDA, with most being down-regulated. The two lipid species that were up-regulated were LPC (16:0) and LPC (18:1), which are important for neuroinflammatory signalling. These findings provide a first step in the characterization of lipid changes in early stages of PD-like pathology and could provide novel targets for early interventions in PD. PMID:26274953

357. [The role of the opiate mechanisms of the hippocampus and substantia nigra in the behavioral and convulsive disorders in picrotoxin-induced kindling].

PubMed

KryzhanovskiÄ, G N; Shandra, A A; GodlevskiÄ, L S; Mazarati, A M; Nguyen, T T

1991-03-01

It was shown in the experiments on rats that the repeated picrotoxin administration resulted in the kindling of generalized seizures. Generalized convulsions were followed by the development of either postictal depression or explosiveness. The injection of mu-opiate agonist met-enkephalin into hippocampus of kindled rats resulted in the increase in the severity of seizure reactions which were induced by picrotoxin and also in the increase in the number of animals with postictal explosiveness. The injection of dynorphin-A-1-13 (kappa-opiate agonist) into substantia nigra reticulata induced the locomotor depression which was like one in postictal period and resulted in the decrease of picrotoxin-induced seizures severity. It was concluded that mu-opiate system of hippocampus took part in the formation of generator of pathologically enhanced excitation in the structure during kindling and the development of seizure syndrome, providing also the postictal explosiveness. Kappa-opiate system of substantia nigra plays an important role in the activation of the antiepileptic system, limitation of seizures and the development of postictal depression.

358. Genetic Diversity of Pinus nigra Arn. Populations in Southern Spain and Northern Morocco Revealed By Inter-Simple Sequence Repeat Profiles â€

PubMed Central

Rubio-Moraga, Angela; Candel-Perez, David; Lucas-Borja, Manuel E.; Tiscar, Pedro A.; ViÃ±egla, Benjamin; Linares, Juan C.; GÃ³mez-GÃ³mez, Lourdes; Ahrazem, Oussama

2012-01-01

Eight Pinus nigra Arn. populations from Southern Spain and Northern Morocco were examined using inter-simple sequence repeat markers to characterize the genetic variability amongst populations. Pair-wise population genetic distance ranged from 0.031 to 0.283, with a mean of 0.150 between populations. The highest inter-population average distance was between PaCU from Cuenca and YeCA from Cazorla, while the lowest distance was between TaMO from Morocco and MA Sierra MÃ¡gina populations. Analysis of molecular variance (AMOVA) and Neiâ€™s genetic diversity analyses revealed higher genetic variation within the same population than among different populations. Genetic differentiation (Gst) was 0.233. Cuenca showed the highest Neiâ€™s genetic diversity followed by the Moroccan region, Sierra MÃ¡gina, and Cazorla region. However, clustering of populations was not in accordance with their geographical locations. Principal component analysis showed the presence of two major groupsâ€”Group 1 contained all populations from Cuenca while Group 2 contained populations from Cazorla, Sierra MÃ¡gina and Moroccoâ€”while Bayesian analysis revealed the presence of three clusters. The low genetic diversity observed in PaCU and YeCA is probably a consequence of inappropriate management since no estimation of genetic variability was performed before the silvicultural treatments. Data indicates that the inter-simple sequence repeat (ISSR) method is sufficiently informative and powerful to assess genetic variability among populations of P. nigra. PMID:22754321

359. Tree and stand water fluxes of hybrid poplar clone (Populus nigra x P. maximowiczii) in short rotation coppice culture

NASA Astrophysics Data System (ADS)

Fischer, M.; Trnka, M.; Kucera, J.; Zalud, Z.

2010-09-01

This study reports on evapotranspiration and tree water use in short rotation coppice culture of hybrid poplar (Populus nigra x P. maximowiczii) for biomass energy in the Czech Republic. The high density poplar plantation (10 000 trees per ha) was established in 2003 on arable land in Czech-Moravian Highland (49Â°32Â´ N, 16Â°15Â´ E, 530 m a.s.l.) and has been coppiced in rotation period of 7 years. Firstly, evapotranspiration of the stand has been estimated by applying the Bowen ratio-energy budget method, which is considered as reliable, robust, quite simple and inexpensive technique with comparable results to eddy covariance and lysimeters. The gaps in evapotranspiration diurnal patterns caused by

limitation of the bowen ratio method were filled with simple linear regression model based on relation between potential and actual evapotranspiration with regard to soil water availability and leaf area index and thus the daily, monthly and seasonal totals could be calculated. The amount of evapotranspiration during the growing season 2009 (1 March - 31 October) was 593 mm with highest monthly total 116 mm in June. Mean daily water loss over the season reached 2.43 mm per day. During the hot summer day, the maximal value 5.73 mm per day, which presented 89 % of potential evapotranspiration calculated by Penman equation, was recorded with a peak rate 0.94 mm per hour. Secondly, the transpiration was measured by sap flow tissue heat balance techniques on four individual trees with greatest stem diameters (11 - 12 cm d.b.h.) and height of 12 - 12.5 m. Relatively high transpiration values by the poplars were found during the measured part of growing season (18 June - 31 October), with maximum and mean daily transpiration of 44.41 dm3 and 16.69 dm3 per day, respectively. The seasonal transpiration of the most vigorous from the investigated individuals amounted 2542 dm3. Because in this study we didÅ„t evaluate the transpiration of thinner trees (technical features of sap

360. Acute larvicidal toxicity of five essential oils (Pinus nigra, Hyssopus officinalis, Satureja montana, Aloysia citrodora and Pelargonium graveolens) against the filariasis vector Culex quinquefasciatus: Synergistic and antagonistic effects.

PubMed

Benelli, Giovanni; Pavela, Roman; Canale, Angelo; Cianfaglione, Kevin; Ciaschetti, Giampiero; Conti, Fabio; Nicoletti, Marcello; Senthil-Nathan, Sengottayan; Mehlhorn, Heinz; Maggi, Filippo

2017-04-01

Mosquito vector control is facing a number of important and timely challenges, mainly due to the rapid development of pesticide resistance and environmental concerns. In this scenario, screening of botanical resources for their mosquitocidal activity may offer effective and eco-friendly tools against Culicidae vectors. Culex quinquefasciatus Say (Diptera: Culicidae) is a vector of lymphatic filariasis and of dangerous arboviral diseases, such as West Nile and St. Louis encephalitis. In this study, the chemical composition of five essential oils obtained from different plants, namely Pinus nigra J.F. Arnold var. italica (Pinaceae), Hyssopus officinalis L. subsp. aristatus (Lamiaceae), Satureja montana L. subsp. montana (Lamiaceae), Aloysia citriodora Palau (Verbenaceae) and Pelargonium graveolens L'HÃ©r (Geraniaceae), was investigated by GC-MS analysis. Furthermore, it was evaluated their acute toxicity on larvae of C. quinquefasciatus. Then, the most effective oils were selected, in order to focus on the potential synergistic and antagonistic effects, testing them in binary mixtures on C. quinquefasciatus larvae. Results showed that the higher effectiveness was obtained by S. montana subsp. montana essential oil (LC 50 =25.6Î¼LÂ·L -1), followed by P. nigra var. italica (LC 50 =49.8Î¼LÂ·L -1) and A. citriodora (LC 50 =65.6Î¼LÂ·L -1), while the other essential oils showed LC 50 values higher than 90Î¼LÂ·L -1 . The larvicidal effectiveness can be enhanced by preparing simple binary mixtures of essential oils, such as S. montana+A. citriodora (ratio 1:1), which showed higher larvicidal toxicity (LC 50 =18.3Î¼LÂ·L -1). On the other hand, testing S. montana+P. nigra (1:1) an antagonistic effect was detected, leading to a LC 50 (72.5Î¼LÂ·L -1) higher than the LC 50 values calculated for the two oils tested separately. Overall, our results add useful knowledge to allow the employ of synergistic essential oil blends as effective, cheap and eco-friendly mosquito

- 17
- 18
- 19
- 20
- 21
- »

361. Systemic administration of the propargylamine CGP 3466B prevents behavioural and morphological deficits in rats with 6-hydroxydopamine-induced lesions in the substantia nigra.

    PubMed

    Andringa, G; van Oosten, R V; Unger, W; Hafmans, T G; Veening, J; Stoof, J C; Cools, A R

    2000-08-01

    The ability of CGP 3466B to attenuate the behavioural and morphological consequences of experimentally induced cell death was investigated in a recently updated animal model of Parkinson's disease. 6-Hydroxydopamine was infused bilaterally into the substantia nigra pars compacta of rats that were pretreated with desimipramine. Treatment with CGP 3466B (0.0014-1.4 mg/kg, injected subcutaneously) or its solvent was begun 2 h after the 6-OHDA injection, and maintained twice daily for 14 days. After a washout period of 14 days, changes in motor behaviour were evaluated, using the open field test (analysis of normal and abnormal stepping, e.g.) and the paw test (analysis of retraction time of limbs). Changes in learning and memory were evaluated with the help of the Morris water maze task. Following immunocytochemical staining of tyrosine hydroxylase, the extent of the lesion was quantified using a computerized system. CGP 3466B prevented all deficits produced by 6-hydroxydopamine (6-OHDA), though at different doses. It prevented: abnormal stepping (0.0014-0.014 mg/kg); increased forelimb and hindlimb retraction time (0.014-0.14 mg/kg and 0.0014-0.14 mg/kg, respectively); delayed learning (1.4 mg/kg); and reduced tyrosine hydroxylase immunoreactivity in the substantia nigra (0.0014-0.014 mg/kg). CGP 3466B (0.0014-0.14 mg/kg) induced no deficits in sham-treated rats. CGP 3466B (1.4 mg/kg), however, did not show any benefit on motor deficits in 6-OHDA-lesioned rats, and induced abnormal movements and decreased the tyrosine hydroxylase immunoreactivity in the substantia nigra pars compacta and the ventral tegmental area of sham-lesioned animals. It is concluded that CGP 3466B prevents all 6-OHDA-induced behavioural and immunocytochemical deficits, though at different doses. CGP 3466B is suggested to be a valuable agent for inhibiting the dopaminergic degeneration in patients with Parkinson's disease.

362. Genetic variation for leaf morphology, leaf structure and leaf carbon isotope discrimination in European populations of black poplar (Populus nigra L.).

    PubMed

    Guet, Justine; Fabbrini, Francesco; Fichot, RÃ©gis; Sabatti, Maurizio; Bastien, Catherine; Brignolas, Franck

    2015-08-01

    To buffer against the high spatial and temporal heterogeneity of the riparian habitat, riparian tree species, such as black poplar (Populus nigra L.), may display a high level of genetic variation and phenotypic plasticity for functional traits. Using a multisite common garden experiment, we estimated the relative contribution of genetic and environmental effects on the phenotypic variation expressed for individual leaf area, leaf shape, leaf structure and leaf carbon isotope discrimination (Î”(13)C) in natural populations of black poplar. Twenty-four to 62 genotypes were sampled in nine metapopulations covering a latitudinal range from 48 Â°N to 42 Â°N in France and in Italy and grown in two common gardens at OrlÃ©ans (ORL) and at Savigliano (SAV). In the two common gardens, substantial genetic variation was expressed

for leaf traits within all metapopulations, but its expression was modulated by the environment, as attested by the genotype Ã— environment (G Ã— E) interaction variance being comparable to or even greater than genetic effects. For LA, G Ã— E interactions were explained by both changes in genotype ranking between common gardens and increased variation in SAV, while these interactions were mainly attributed to changes in genotype ranking for Î”(13)C. The nine P. nigra metapopulations were highly differentiated for LA, as attested by the high coefficient of genetic differentiation (QST = 0.50 at ORL and 0.51 at SAV), and the pattern of metapopulation differentiation was highly conserved between the two common gardens. In contrast, they were moderately differentiated for Î”(13)C (QST = 0.24 at ORL and 0.25 at SAV) and the metapopulation clustering changed significantly between common gardens. Our results evidenced that the nine P. nigra metapopulations present substantial genetic variation and phenotypic plasticity for leaf traits, which both represent potentially significant determinants of populations' capacities to respond, on a short-term basis and

363. Fortification of dark chocolate with spray dried black mulberry (Morus nigra) waste extract encapsulated in chitosan-coated liposomes and bioaccessability studies.

PubMed

GÃ¼ltekin-Ã–zgÃ¼ven, Mine; KaradaÄŸ, AyÅŸe; Duman, Åžeyma; Ã–zkal, Burak; Ã–zÃ§elik, Beraat

2016-06-15

Fine-disperse anionic liposomes containing black mulberry (Morus nigra) extract (BME) were prepared by high pressure homogenization at 25,000 psi. Primary liposomes were coated with cationic chitosan (0.4, w/v%) using the layer-by-layer depositing method and mixed with maltodextrin (MD) (20, w/v%) prior to spray drying. After that, spray dried liposomal powders containing BME were added to chocolates with alkalization degrees (pH 4.5, 6, 7.5) at conching temperatures of 40 Â°C, 60 Â°C, and 80 Â°C. The results showed that, compared to spray dried extract, chitosan coated liposomal powders provided better protection of anthocyanin content in both increased temperature and pH. In addition, encapsulation in liposomes enhanced in vitro bioaccessability of anthocyanins. Chocolate was fortified with encapsulated anthocyanins maximum 76.8% depending on conching temperature and pH. Copyright Â© 2016. Published by Elsevier Ltd.

364. [Effect of stimulation of GABA-ergic structures of the substantia nigra and caudate nucleus on food-getting behavior in the cat].

PubMed

Shugalev, N P

1983-01-01

A study was made of the functional significance of GABA-ergic structures of the substantia nigra (SN) and the caudate nucleus (CN) and their role in food-procuring behaviour of cats. Analysis was made of behavioral and EEG-effects of local GABA and the GABA antagonist, picrotoxin, microinjections into the studied brain structures. Stimulation of the GABA-ergic structures of the SN produced a sedative effect and depression of the cat food-procuring behaviour. Effects of stimulation of the CN GABA-ergic structures were to a great degree reverse. The conclusion has been made that GABA-ergic structures of the SN and the CN play different roles in controlling the CN inhibitory influence upon food-procuring behaviour.

365. The Sea Empress oil spill (Wales, UK): effects on Common Scoter Melanitta nigra in Carmarthen Bay and status ten years later.

PubMed

Banks, A N; Sanderson, W G; Hughes, B; Cranswick, P A; Smith, L E; Whitehead, S; Musgrove, A J; Haycock, B; Fairney, N P

2008-05-01

Carmarthen Bay, UK, regularly supports internationally important numbers (>16,000) of non-breeding Common Scoters Melanitta nigra. The spill of 72,000 tonnes of crude oil from the Sea Empress in 1996 affected birds both through direct mortality and likely pollution of key food resources. Numbers were greatly reduced following the spill, whilst changes in the distribution of birds within Carmarthen Bay suggested that potentially sub-optimal foraging zones were used. However, ten years after the incident, numbers of Common Scoter were no different to those recorded immediately before the spill. Compared to some other spills, rapid revival is evident. Numbers increased to pre-spill levels within three winters and distributional changes suggested a concurrent return to previously contaminated feeding areas, implying that the ecosystem had regenerated sufficiently to support its top predator. The importance of prolonged, standardised monitoring of bird numbers and distribution as indicators of ecological recovery from environmental damage is emphasised.

366. Foraging behavior of honey bees (hymenoptera: Apidae) on Brassica nigra and B. rapa grown under simulated ambient and enhanced UV-B radiation

SciTech Connect

Collins, S.A.; Robinson, G.E.; Conner, J.K.

Two species of mustard, Brassica nigra and B. rapa, were grown under simulated ambient and enhanced ultraviolet-B (UV-B) radiation and exposed to pollinators, Apis mellifera L. Observations were made to determine whether UV-B-induced changes in these plants affected pollinator behavior. Total duration of the foraging trip, number of flowers visited, foraging time per flower, search time per flower, total amount of pollen collected, and pollen collected per flower were measured. There were no significant differences between UV-B treatments in any of the behaviors measured or in any of the pollen measurements. These results suggest that increases in the amount ofmoreÂ Â» solar UV-B reaching the earth`s surface may not have a negative effect on the relationship between these members of the genus Brassica and their honey bee pollinators. 28 refs., 2 figs., 1 tab.Â«Â less

367. Antimicrobial activity of the essential oil obtained from roots and chemical composition of the volatile constituents from the roots, stems, and leaves of Ballota nigra from Serbia.

PubMed

Vukovic, Nenad; Sukdolak, Slobodan; Solujic, Slavica; Niciforovic, Neda

2009-04-01

The chemical composition of essential oils obtained from the roots, stems, and leaves of Ballota nigra, growing in Serbia, was investigated by gas chromatography/mass spectrometry analyses. Kovats indices, mass spectra, and standard compounds were used to identify a total of 115 individual compounds. The plant produces two types of essential oils. Oils derived from stems and leaves were sesquiterpene rich (78.17% and 88.40%, respectively), containing principally beta-caryophyllene, germacrene D, and alpha-humulene, present in appreciable amounts. In contrast, oil derived from the root was dominated by p-vinylguiacol (9.24%), borneol (7.51%), myrtenol (7.13%), trans-pinocarveol (5.22%), pinocarvone (4.37%), 2-methyl-3-phenylpropanal (4.32%), and p-cymen-8-ol (4.30%). Essential oil obtained from the roots was evaluated for the antimicrobial activity against seven bacterial species and one fungi.

368. 6-OHDA induced calcium influx through N-type calcium channel alters membrane properties via PKA pathway in substantia nigra pars compacta dopaminergic neurons.

PubMed

Qu, Liang; Wang, Yuan; Zhang, Hai-Tao; Li, Nan; Wang, Qiang; Yang, Qian; Gao, Guo-Dong; Wang, Xue-Lian

2014-07-11

Voltage gated calcium channels (VGCC) are sensitive to oxidative stress, and their activation or inactivation can impact cell death. Although these channels have been extensively studied in expression systems, their role in the brain, particularly in the substantia nigra pars compacta (SNc), remain controversial. In this study, we assessed 6-hydroxydopamine (6-OHDA) induced transformation of firing pattern and functional changes of calcium channels in SNc dopaminergic neurons. Application of 6-OHDA (0.5-2mM) evoked a dose-dependent, desensitizing inward current and intracellular free calcium concentration ([Ca(2+)]i) rise. In voltage clamp, Ï‰-conotoxin-sensitive Ca(2+) current modulation mediated by 6-OHDA reflected an altered sensitivity. Furthermore, we found that 6-OHDA modulated Ca(2+) currents through PKA pathway. These results provided evidence for the potential role of VGCCs and PKA involved in oxidative stress in degeneration of SNc neurons in Parkinson's disease (PD).

369. Antioxidative and Anti-Melanogenic Activities of Bamboo Stems (Phyllostachys nigra variety henosis) via PKA/CREB-Mediated MITF Downregulation in B16F10 Melanoma Cells.

PubMed

Choi, Moon-Hee; Jo, Han-Gyo; Yang, Ji Hye; Ki, Sung Hwan; Shin, Hyun-Jae

2018-01-30

Phyllostachys nigra var. henosis, a domestic bamboo species, has been attracting much attention; its bioactive compounds (especially in the leaf) show antioxidant, anti-inflammatory, and anti-obesity activities. Little information is available on the antioxidative and anti-melanogenetic activities of the bioactive compounds in bamboo stems. The anti-melanogenic and antioxidative activities of the EtOAc fraction (PN3) of a P. nigra stem extract were investigated in a cell-free system and in B16F10 melanoma cells. PN3 consisted of a mixture of flavonoids, such as catechin, chlorogenic acid, caffeic acid, and p -coumaric acid. The antioxidant activity (2,2-diphenyl-1-picrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid (ABTS)), and hydroxyl radical scavenging) was evaluated, as well as the inhibition of reactive oxygen species (ROS) produced by the Fenton reaction. PN3 showed in vitro tyrosinase inhibition activity with the half maximal inbihitory concentration (IC 50) values of 240 Î¼g/mL, and in vivo cytotoxic concentration ranges > 100 Î¼g/mL. The protein expression levels and mRNA transcription levels of TYR , TRP-1 , and MITF were decreased in a dose-dependent manner by the treatment with PN3. PN3 interfered with the phosphorylation of intracellular protein kinase A (PKA)/cAMP response element-binding protein (CREB), demonstrating potent anti-melanogenic effects. PN3 could inhibit PKA/CREB and the subsequent degradation of microphthalmia-associated transcription factor (MITF), resulting in the suppression of melanogenic enzymes and melanin production, probably because of the presence of flavonoid compounds. These properties make it a candidate as an additive to whitening cosmetics.

370. Antioxidative and Anti-Melanogenic Activities of Bamboo Stems (Phyllostachys nigra variety henosis) via PKA/CREB-Mediated MITF Downregulation in B16F10 Melanoma Cells

PubMed Central

Choi, Moon-Hee; Jo, Han-Gyo; Yang, Ji Hye; Ki, Sung Hwan

2018-01-01

Phyllostachys nigra var. henosis, a domestic bamboo species, has been attracting much attention; its bioactive compounds (especially in the leaf) show antioxidant, anti-inflammatory, and anti-obesity activities. Little information is available on the antioxidative and anti-melanogenetic activities of the bioactive compounds in bamboo stems. The anti-melanogenic and antioxidative activities of the EtOAc fraction (PN3) of a P. nigra stem extract were investigated in a cell-free system and in B16F10 melanoma cells. PN3 consisted of a mixture of flavonoids, such as catechin, chlorogenic acid, caffeic acid, and p-coumaric acid. The antioxidant activity (2,2-diphenyl-1-picrylhydrazyl (DPPH), 2,2â€²-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid (ABTS)), and hydroxyl radical scavenging) was evaluated, as well as the inhibition of reactive oxygen species (ROS) produced by the Fenton reaction. PN3 showed in vitro tyrosinase inhibition activity with the half maximal inbihitory concentration (IC50) values of 240 Î¼g/mL, and in vivo cytotoxic concentration ranges > 100 Î¼g/mL. The protein expression levels and mRNA transcription levels of TYR, TRP-1, and MITF were decreased in a dose-dependent manner by the treatment with PN3. PN3 interfered with the phosphorylation of intracellular protein kinase A (PKA)/cAMP response element-binding protein (CREB), demonstrating potent anti-melanogenic effects. PN3 could inhibit PKA/CREB and the subsequent degradation of microphthalmia-associated transcription factor (MITF), resulting in the suppression of melanogenic enzymes and melanin production, probably because of the presence of flavonoid compounds. These properties make it a candidate as an additive to whitening cosmetics. PMID:29385729

371. [Simultaneous micro-transplantation of fetal mesencephalic cells to the striate and substantia nigra pars reticulata in hemi-parkinsonian rats. A study of behavior].

PubMed

Blanco, L; PavÃ³n, N; MacÃas, R; Castillo, L; DÃaz, C; GarcÃa, A; Alvarez, P

Microtransplantation of fetal dopaminergic cells has been used over the past ten years with good results in models of Parkinson's disease. To evaluate the effect of microtransplantation of fetal dopaminergic cells 'seeded' in the substantia nigra pars reticulata (SNpr) and striate (St) simultaneously. The animals received a transplant or microtransplant of cells into the St and SNpr ipsilateral to the lesion in the substantia nigra pars compacta or to both regions. Depending on the site and technique used the following experimental groups were considered: I. Macrotransplantation to the St (n = 20); II. Microtransplant to the St (n = 20); III. Microtransplant to St + SNpr (n = 20); IV. Microtransplant to St + SNpr (n = 20); V. Macrotransplantation to SNpr (n = 20); VI. Microtransplantation to SNpr (n = 20); and VII. Control (lesion only) (n = 20). The rotations induced by D-amphetamine (5 mg/kg i.p.) and by apomorphine were studied 1, 2, 3 and 6 months and 3 and 6 months respectively after transplantation. Three months after transplantation we studied the motor asymmetry shown by the animals by means of the ladder test. The rotations were reduced in the groups with intrastriate transplantation. Comparison between the surgical techniques showed nonsignificant differences between them. The ladder test showed significant differences in use of the limbs in all experimental groups. Use of the left limb was significantly reduced in all groups. Modification of the rotations seems more sensitive to the site of transplant than to the technique used. It seems that the skills studied using the ladder test are not altered by the microtransplant technique.

372. Steroid levels and reproductive cycle of the GalÃ¡pagos tortoise, Geochelone nigra, living under seminatural conditions on Santa Cruz Island (GalÃ¡pagos).

PubMed

Schramm, B G; Casares, M; Lance, V A

1999-04-01

The GalÃ¡pagos Islands are home to 11 subspecies of large terrestrial tortoises (Geochelone nigra). All GalÃ¡pagos tortoises are considered endangered and approximately 12,000 animals still exist. Until now,

the reproductive cycle of the GalÃ¡pagos tortoise has been studied only in captive animals, and no data from free-ranging tortoises have been available. During a one-year period, blood samples were collected from male and female G. nigra living under seminatural conditions on Santa Cruz Island, GalÃ¡pagos. Plasma steroid hormones were measured by radioimmunoassays (RIAs). In males, plasma testosterone and corticosterone increased a few months before the onset of the mating season. Peak levels were observed while most copulations occurred and environmental temperatures were highest. Both testosterone and corticosterone showed low levels during the cold and dry nesting season and high levels during the hot and rainy mating season. In females, testosterone and corticosterone also rose during the hot and rainy mating season. Both hormones peaked during the second half of the mating season and decreased during the cooler dry season. Female estradiol levels increased at the onset of the mating season, reaching the highest level at the peak of the mating season, which coincided with the highest annual temperatures measured. Estradiol slowly decreased within the next months and rapidly dropped at the onset of the nesting season when temperatures decreased. Progesterone levels were high close to the time of ovulation and showed clearly elevated levels at the beginning of the nesting season after some females had laid their first clutch. Progesterone decreased during the nesting season, when ambient temperatures began to decrease, and reached minimal levels in the postbreeding period shortly before the onset of the next mating season. There were significant annual variations in plasma testosterone in both males and females. Plasma corticosterone was generally higher in

373. Molecular and functional differences in voltage-activated sodium currents between GABA projection neurons and dopamine neurons in the substantia nigra

PubMed Central

Ding, Shengyuan; Wei, Wei

2011-01-01

GABA projection neurons (GABA neurons) in the substantia nigra pars reticulata (SNr) and dopamine projection neurons (DA neurons) in substantia nigra pars compacta (SNc) have strikingly different firing properties. SNc DA neurons fire low-frequency, long-duration spikes, whereas SNr GABA neurons fire high-frequency, short-duration spikes. Since voltage-activated sodium (NaV) channels are critical to spike generation, the different firing properties raise the possibility that, compared with DA neurons, NaV channels in SNr GABA neurons have higher density, faster kinetics, and less cumulative inactivation. Our quantitative RT-PCR analysis on immunohistochemically identified nigral neurons indicated that mRNAs for pore-forming NaV1.1 and NaV1.6 subunits and regulatory NaVÎ²1 and NavÎ²4 subunits are more abundant in SNr GABA neurons than SNc DA neurons. These Î±-subunits and Î²-subunits are key subunits for forming NaV channels conducting the transient NaV current (INaT), persistent Na current (INaP), and resurgent Na current (INaR). Nucleated patch-clamp recordings showed that INaT had a higher density, a steeper voltage-dependent activation, and a faster deactivation in SNr GABA neurons than in SNc DA neurons. INaT also recovered more quickly from inactivation and had less cumulative inactivation in SNr GABA neurons than in SNc DA neurons. Furthermore, compared with nigral DA neurons, SNr GABA neurons had a larger INaR and INaP. Blockade of INaP induced a larger hyperpolarization in SNr GABA neurons than in SNc DA neurons. Taken together, these results indicate that NaV channels expressed in fast-spiking SNr GABA neurons and slow-spiking SNc DA neurons are tailored to support their different spiking capabilities. PMID:21880943

374. Hydraulic efficiency and coordination with xylem resistance to cavitation, leaf function, and growth performance among eight unrelated Populus deltoidesxPopulus nigra hybrids.

PubMed

Fichot, RÃ©gis; Chamaillard, Sylvain; Depardieu, Claire; Le Thiec, Didier; Cochard, HervÃ©; Barigah, TÃªtÃ¨ S; Brignolas, Franck

2011-03-01

Tests were carried out to determine whether variations in the hydraulic architecture of eight Populus deltoidesÃ—Populus nigra genotypes could be related to variations in leaf function and growth performance. Measurements were performed in a coppice plantation on 1-year-old shoots under optimal irrigation. Hydraulic architecture was characterized through estimates of hydraulic efficiency (the ratio of conducting sapwood area to leaf area, A(X):A(L); leaf- and xylem-specific hydraulic conductance of defoliated shoots, k(SL) and k(SS), respectively; apparent whole-plant leaf-specific hydraulic conductance, k(plant)) and xylem safety (water potential inducing 50% loss in hydraulic conductance). The eight genotypes spanned a significant range of k(SL) from 2.63 â€‰kg s(-1) m(-2) MPa(-1) to 4.18â€‰ kg s(-1) m(-2) MPa(-1), variations being mostly driven by k(SS) rather than A(X):A(L). There was a strong trade-off between hydraulic efficiency and xylem safety. Values of k(SL) correlated positively with k(plant), indicating that high-pressure flowmeter (HPFM) measurements of stem hydraulic efficiency accurately reflected whole-plant water transport efficiency of field-grown plants at maximum transpiration rate. No clear relationship could be found between hydraulic efficiency and either net CO(2) assimilation rates, water-use efficiency estimates (intrinsic water-use efficiency and carbon isotope discrimination against (13)C), or stomatal characteristics (stomatal density and stomatal pore area index). Estimates of hydraulic efficiency were negatively associated with relative growth rate. This unusual pattern, combined with the trade-off observed between hydraulic efficiency and xylem safety, provides the rationale for the positive link already reported between relative growth rate and xylem safety among the same eight P. deltoidesÃ—P. nigra genotypes.

375. Composition and antimicrobial activity of fatty acids detected in the hygroscopic secretion collected from the secretory setae of larvae of the biting midge Forcipomyia nigra (Diptera: Ceratopogonidae).

PubMed

Urbanek, Aleksandra; Szadziewski, Ryszard; Stepnowski, Piotr; Boros-Majewska, Joanna; Gabriel, Iwona; Dawgul, MaÅ‚gorzata; Kamysz, Wojciech; Sosnowska, Danuta; GoÅ‚Ä™biowski, Marek

2012-09-01

The hygroscopic secretion produced by the secretory setae of terrestrial larvae of the biting midge Forcipomyia nigra (Winnertz) was analysed using gas chromatography coupled with mass spectrometry (GC-MS). The viscous secretion is stored at the top of each seta and absorbs water from moist air. GC-MS analyses (four independent tests) showed that the secretion contained 12 free fatty acids, the most abundant of which were oleic (18:1), palmitic (16:0), palmitoleic (16:1) and linoleic (18:2). Other acids identified were valeric (5:0), enanthic (7:0), caprylic (8:0), pelargonic (9:0), capric (10:0), lauric (12:0), myristic (14:0) and stearic (18:0). Two other compounds, glycerol and pyroglutamic acid, were also found. The antibacterial activity of the fatty acids and pyroglutamic acid was tested using the agar disc diffusion method and targeted Gram positive (Bacillus cereus, Bacillus subtilis, Enterococcus faecalis) and Gram negative bacterial strains (Citrobacter freundii, Pseudomonas aeruginosa, Pseudomonas fluorescens). The antifungal activity was tested by determining minimal inhibitory concentration (MIC) of examined compounds. Fatty acids were tested against enthomopathogenic fungi (Paecilomyces lilacinus, Paecilomyces fumosoroseus, Lecanicillium lecanii, Metarhizium anisopliae, Beauveria bassiana (Tve-N39), Beauveria bassiana (Dv-1/07)). The most effective acids against bacterial and fungal growth were C(9:0), C(10:0) and C(16:1), whereas C(14:0), C(16:0,) C(18:0) and C(18:1) demonstrated rather poor antifungal activity and did not inhibit the growth of bacteria. The antimicrobial assay investigated mixtures of fatty and pyroglutamic acids (corresponding to the results of each GC-MS test): they were found to be active against almost all the bacteria except P. fluorescens and also demonstrated certain fungistatic activity against enthomopathogenic fungi. The hygroscopic secretion facilitates cuticular respiration and plays an important role in the

376. Specificity and sensitivity of transcranial sonography of the substantia nigra in the diagnosis of Parkinson's disease: prospective cohort study in 196 patients

PubMed Central

Bouwmans, Angela E P; Vlaar, Annemarie M M; Mess, Werner H; Kessels, Alfons; Weber, Wim E J

2013-01-01

Objective Numerous ultrasound studies have suggested that a typical enlarged area of echogenicity in the substantia nigra (SN+) can help diagnose idiopathic Parkinson's disease (IPD). Almost all these studies were retrospective and involved patients with well-established diagnoses and long-disease duration. In this study the diagnostic accuracy of transcranial sonography (TCS) of the substantia nigra in the patient with an undiagnosed parkinsonian syndrome of recent onset has been evaluated. Design Prospective cohort study for diagnostic accuracy. Setting Neurology outpatient clinics of two teaching hospitals in the Netherlands. Patients 196 consecutive patients, who were referred to two neurology outpatient clinics for analysis of clinically unclear parkinsonism. Within 2â€…weeks of inclusion all patients also underwent a TCS and a 123I-ioflupane Single Photon Emission CT (FP-CIT SPECT) scan of the brain (n=176). Outcome measures After 2â€…years, patients were re-examined by two movement disorder specialist neurologists for a final clinical diagnosis, that served as a surrogate gold standard for our study. Results Temporal acoustic windows were insufficient in 45 of 241 patients (18.67%). The final clinical diagnosis was IPD in 102 (52.0%) patients. Twenty-four (12.3%) patients were diagnosed with atypical parkinsonisms (APS) of which 8 (4.0%) multisystem atrophy (MSA), 6 (3.1%) progressive supranuclear palsy (PSP), 6 (3.1%) Lewy body dementia and 4 (2%) corticobasal degeneration. Twenty-one (10.7%) patients had a diagnosis of vascular parkinsonism, 20 (10.2%) essential tremor, 7 (3.6%) drug-induced parkinsonism and 22 (11.2%) patients had no parkinsonism but an alternative diagnosis. The sensitivity of a SN+ for the diagnosis IPD was 0.40 (CI 0.30 to 0.50) and the specificity 0.61 (CI 0.52 to 0.70). Hereby the positive predictive value (PPV) was 0.53 and the negative predictive value (NPV) 0.48. The sensitivity and specificity of FP-CIT SPECT scans for diagnosing

377. Differential Regulation of Action Potential Shape and Burst-Frequency Firing by BK and Kv2 Channels in Substantia Nigra Dopaminergic Neurons

PubMed Central

Kimm, Tilia; Khaliq, Zayd M.

2015-01-01

Little is known about the voltage-dependent potassium currents underlying spike repolarization in midbrain dopaminergic neurons. Studying mouse substantia nigra pars compacta dopaminergic neurons both in brain slice and after acute dissociation, we found that BK calcium-activated potassium channels and Kv2 channels both make major contributions to the depolarization-activated potassium current. Inhibiting Kv2 or BK channels had very different effects on spike shape and evoked firing. Inhibiting Kv2 channels increased spike width and decreased the afterhyperpolarization, as expected for loss of an action potential-activated potassium conductance. BK inhibition also increased spike width but paradoxically increased the afterhyperpolarization. Kv2 channel inhibition steeply increased the slope of the frequencyâ€“current (fâ€“I) relationship, whereas BK channel inhibition had little effect on the fâ€“I slope or decreased it, sometimes resulting in slowed firing. Action potential clamp experiments showed that both BK and Kv2 current flow during spike repolarization but with very different kinetics, with Kv2 current activating later and deactivating more slowly. Further experiments revealed that inhibiting either BK or Kv2 alone leads to recruitment of additional current through the other channel type during the action potential as a consequence of changes in spike shape. Enhancement of slowly deactivating Kv2 current can account for the increased afterhyperpolarization produced by BK inhibition and likely underlies the very different effects on the fâ€“I relationship. The cross-regulation of BK and Kv2 activation illustrates that the functional role of a channel cannot be defined in isolation but depends critically on the context of the other conductances in the cell. SIGNIFICANCE STATEMENT This work

shows that BK calcium-activated potassium channels and Kv2 voltage-activated potassium channels both regulate action potentials in dopamine neurons of the substantia nigra

378. Prosopis nigra Mesocarp Fine Flour, A Source of Phytochemicals with Potential Effect on Enzymes Linked to Metabolic Syndrome, Oxidative Stress, and Inflammatory Process.

PubMed

PÃ©rez, MarÃa J; Zampini, Iris C; Alberto, Maria R; Isla, MarÃa I

2018-05-01

This work is part of the search in native food matrices from arid regions of Argentina of interest to improve human health. Prosopis species are ethnic food resources in South America capable of growing in arid and semi-arid environments. This work was focused to determine the nutritional and phytochemical composition of Prosopis nigra fine flour and to evaluate its biological properties. Flour showed a high level of sucrose (30.35 g/100 g flour), fiber (6.34 g/100 g flour), polyphenols (0.45 g GAE/100 g flour), and minerals (potassium, calcium, and magnesium). Apigenin C glycosides and phenylpropanoid acids were identified in free and bound phenolic enriched extracts, respectively. Polyphenols (especially free polyphenols) were able to inhibit enzymes associated with the metabolic syndrome, including Î±-amylase (IC 50 30.1 Î¼g GAE/mL), Î±-glucosidase (IC 50 22.5 Î¼g GAE/mL), while bound phenolics may control lipase activity (IC 50 33.5 Î¼g GAE/mL) and exhibit antioxidant activity by different action mechanisms (SC 50 between 16 and 93 Î¼g GAE/mL). Both extracts were more effective to inhibit cyclooxygenase-2 than phospholipase A 2 and lipoxygenase, proinflammatory enzymes. Polyphenolic extracts did not show any mutagenic effect. Our studies add value to this non-conventional flour as a promising food resource that could be used as a functional food or functional ingredient in formulations to reduce the risk of the development of obesity. These studies revalue our native resources by promoting their conservation, their use and their propagation. Pods of P. nigra are traditional food resources in South America. The non-conventional flour obtained from them is a food that inhibits enzymes linked to carbohydrates metabolism and lipids metabolism, show antioxidant activity and anti-inflamatory activity, principally on COX-2. This natural product is a promising resource that could be used as a functional food or as functional ingredient in food formulations for reduce

379. Differential Regulation of Action Potential Shape and Burst-Frequency Firing by BK and Kv2 Channels in Substantia Nigra Dopaminergic Neurons.

PubMed

Kimm, Tilia; Khaliq, Zayd M; Bean, Bruce P

2015-12-16

Little is known about the voltage-dependent potassium currents underlying spike repolarization in midbrain dopaminergic neurons. Studying mouse substantia nigra pars compacta dopaminergic neurons both in brain slice and after acute dissociation, we found that BK calcium-activated potassium channels and Kv2 channels both make major contributions to the depolarization-activated potassium current. Inhibiting Kv2 or BK channels had very different effects on spike shape and evoked firing. Inhibiting Kv2 channels increased spike width and decreased the afterhyperpolarization, as expected for loss of an action potential-activated potassium conductance. BK inhibition also increased spike width but paradoxically increased the afterhyperpolarization. Kv2 channel inhibition steeply increased the slope of the frequency-current (f-I) relationship, whereas BK channel inhibition had little effect on the f-I slope or decreased it, sometimes resulting in slowed firing. Action potential clamp experiments showed that both BK and Kv2 current flow during spike repolarization but with very different kinetics, with Kv2 current activating later and deactivating more slowly. Further experiments revealed that inhibiting either BK or Kv2 alone leads to recruitment of additional current through the other channel type during the action potential as a

consequence of changes in spike shape. Enhancement of slowly deactivating Kv2 current can account for the increased afterhyperpolarization produced by BK inhibition and likely underlies the very different effects on the f-I relationship. The cross-regulation of BK and Kv2 activation illustrates that the functional role of a channel cannot be defined in isolation but depends critically on the context of the other conductances in the cell. This work shows that BK calcium-activated potassium channels and Kv2 voltage-activated potassium channels both regulate action potentials in dopamine neurons of the substantia nigra pars compacta. Although both

380. Development of supercritical CO2 extraction of bioactive phytochemicals from black poplar (Populus nigra L.) buds followed by GC-MS and UHPLC-DAD-QqTOF-MS.

PubMed

KuÅ›, Piotr M; OkiÅ„czyc, Piotr; JakovljeviÄ‡, Martina; JokiÄ‡, Stela; JerkoviÄ‡, Igor

2018-05-25

The supercritical CO 2 (SC-CO 2) extraction process of black poplar (Populus nigra L.) buds was optimized (pressure, temperature) based on the yields of major phytochemicals (volatiles and non-volatiles). The optimal settings were 30â€¯MPa/60â€¯Â°C. Major volatiles determined by GC-MS in the optimized SC-CO 2 extract (mg of benzyl salicylate equivalent (BSE) per 100â€¯g of buds) were: pinostrobin chalcone (1574.2), Î²-eudesmol (640.8), Î±-eudesmol (581.9), 2-methyl-2-butenyl-p-coumarate (289.9), pentyl-p-coumarate (457.0), Î³-eudesmol (294.4), and benzyl salicylate (289.2). Partial qualitative similarity was observed between SC-CO 2 extracts and corresponding hydrodistilled essential oil dominated by sesquiterpenes, but with lower yields. Major compounds (mg per 100â€¯g of buds) identified by UHPLC-DAD-QqTOF-MS in the optimized SC-CO 2 extract were: pinostrobin (751.7), pinocembrin (485.6), 3-O-pinobanksin acetate and methyl-butenyl-p-coumarate (290.2; 144.9 of pinobanksin and p-coumaric acid equivalents, respectively). SC-CO 2 extraction was found useful for green, efficient and simultaneous extraction of both volatile/non-volatile, bioactive phytochemicals of poplar buds - precursors of poplar-type propolis. Copyright Â© 2018 Elsevier B.V. All rights reserved.

- «
- 17
- 18
- 19
- 20
- 21
- »

- «
- 18
- 19
- 20
- 21
- 22
- »

381. Acute Depletion of D2 Receptors from the Rat Substantia Nigra Alters Dopamine Kinetics in the Dorsal Striatum and Drug Responsivity

PubMed Central

Budygin, Evgeny A.; Oleson, Erik B.; Lee, Yun Beom; Blume, Lawrence C.; Bruno, Michael J.; Howlett, Allyn C.; Thompson, Alexis C.; Bass, Caroline E.

2017-01-01

Recent studies have used conditional knockout mice to selectively delete the D2 autoreceptor; however, these approaches result in global deletion of D2 autoreceptors early in development. The present study takes a different approach using RNA interference (RNAi) to knockdown the expression of the D2 receptors (D2R) in the substantia nigra (SN), including dopaminergic neurons, which project primarily to the dorsal striatum (dStr) in adult rats. This approach restricts the knockdown primarily to nigrostriatal pathways, leaving mesolimbic D2 autoreceptors intact. Analyses of dopamine (DA) kinetics in the dStr reveal a decrease in DA transporter (DAT) function in the knockdown rats, an effect not observed in D2 autoreceptor knockout mouse models. SN D2 knockdown rats exhibit a behavioral phenotype characterized by persistent enhancement of locomotor activity in a familiar open field, reduced locomotor responsiveness to high doses of cocaine and the ability to overcome haloperidol-induced immobility on the bar test. Together these results demonstrate that presynaptic D2R can be depleted from specific neuronal populations and implicates nigrostriatal D2R in different behavioral responses to psychotropic drugs. PMID:28154530

382. Dissecting the role of isoprene and stress-related hormones (ABA and ethylene) in Populus nigra exposed to unequal root zone water stress.

PubMed

Marino, Giovanni; Brunetti, Cecilia; Tattini, Massimiliano; Romano, Andrea; Biasioli, Franco; Tognetti, Roberto; Loreto, Francesco; Ferrini, Francesco; Centritto, Mauro

2017-12-01

Isoprene is synthesized through the 2-C-methylerythritol-5-phosphate (MEP) pathway that also produces abscisic acid (ABA). Increases in foliar free ABA concentration during drought induce stomatal closure and may also alter ethylene biosynthesis. We hypothesized a role of isoprene biosynthesis in protecting plants challenged by increasing water deficit, by influencing ABA production and ethylene evolution. We performed a split-root experiment on Populus nigra L. subjected to three water treatments: well-watered (WW) plants with both root sectors kept at pot capacity, plants with both root compartments allowed to dry for 5 days (DD) and plants with one-half of the roots irrigated to pot capacity, while the other half did not receive water (WD). WD and WW plants were similar in photosynthesis, water relations, foliar ABA concentration and isoprene emission, whereas these parameters were significantly affected in DD plants: leaf isoprene emission increased despite the fact that photosynthesis declined by 85% and the ABA-glucoside/free ABA ratio decreased significantly. Enhanced isoprene biosynthesis in water-stressed poplars may have contributed to sustaining leaf ABA biosynthesis by keeping the MEP pathway active. However, this enhancement in ABA was accompanied by no change in ethylene biosynthesis, likely confirming the antagonistic role between ABA and ethylene. These results may indicate a potential cross-talk among isoprene, ABA and ethylene under drought.

383. Intracranial dialysis measurement of oxytocin, monoamine and uric acid release from the olfactory bulb and substantia nigra of sheep during parturition, suckling, separation from lambs and eating.

PubMed

Kendrick, K M; Keverne, E B; Chapman, C; Baldwin, B A

1988-01-26

Intracranial dialysis was used to measure the release of oxytocin (OXY), monoamines and their metabolites and uric acid (UA) from the substantia nigra (SN) and olfactory bulb (OB) of sheep during parturition, suckling, separation from lambs and eating. Results showed that OXY concentrations

increased significantly during parturition, suckling and eating in the SN and during parturition and suckling in the OB. Concentrations of dopamine (DA) increased significantly in the SN during suckling and eating and in the OB during parturition and suckling. The dopamine metabolite, homovanillic acid, also increased significantly in the SN during parturition. Concentrations of the noradrenaline metabolite, 4-hydroxy-3-methoxyphenylethan-1,2-diol (MHPG) and the purine metabolite, UA, were significantly raised during parturition, suckling and separation from the lambs in the SN and increased UA levels were also found during eating. In a separate experiment it was confirmed that OXY was detectable in homogenates of both the SN and the OB. These results show that, in the sheep, OXY and DA release in the SN is associated with maternal and ingestive behaviour whereas similar release in the OB may only be related to maternal behaviour. Release of MHPG in the SN may be associated with maternal behaviour and/or stress.

384. Abnormal Echogenicity of the Substantia Nigra, Raphe Nuclei, and Third-Ventricle Width as Markers of Cognitive Impairment in Parkinsonian Disorders: A Cross-Sectional Study

PubMed Central

Bouwmans, Angela E. P.; Leentjens, Albert F. G.; Mess, Werner H.; Weber, Wim E. J.

2016-01-01

Background. Patients with Parkinson's disease (PD) have a high risk of cognitive problems. Objective. This study assesses whether abnormal echogenicity of the substantia nigra (SN) and raphe nuclei (RN) and the diameter of third ventricle are markers of cognitive impairment in patients with PD and other forms of parkinsonism. Methods. 126 outpatients with early signs of parkinsonism underwent transcranial sonography (TCS). The scales for the outcome of Parkinson's disease cognition (SCOPA-COG) were used as cognitive measure. Definite neurological diagnosis was established after two-year follow-up. Results. One-third of the patients with PD and half of those with APS had signs of cognitive impairment. The echogenicity of the SN was not related to cognitive impairment. The diameter of the third ventricle was significantly larger in PD patients with cognitive impairment compared to those without. In patients with APS we found a significantly higher frequency of hypoechogenic RN in patients with cognitive problems. Conclusions. Cognitive impairment is already present in a substantial proportion of patients with PD and APS at first referral. In patients with APS the frequency of hypoechogenic RN points to the direction of other pathophysiology with more emphasis on deficits in the serotonergic neurotransmitter system. The larger diameter of the third ventricle in PD patients with cognitive impairment may reflect Alzheimer like brain atrophy, as has been reported in earlier studies. PMID:26881179

385. Cadmium accumulation and growth responses of a poplar (Populus deltoidsxPopulus nigra) in cadmium contaminated purple soil and alluvial soil.

PubMed

Wu, Fuzhong; Yang, Wanqin; Zhang, Jian; Zhou, Liqiang

2010-05-15

To characterize the phytoextraction efficiency of a hybrid poplar (Populus deltoidsxPopulus nigra) in cadmium contaminated purple soil and alluvial soil, a pot experiment in field was carried out in Sichuan basin, western China. After one growing period, the poplar accumulated the highest of 541.98+/-19.22 and 576.75+/-40.55 microg cadmium per plant with 110.77+/-12.68 and 202.54+/-19.12 g dry mass in these contaminated purple soil and alluvial soil, respectively. Higher phytoextraction efficiency with higher cadmium concentration in tissues was observed in poplar growing in purple soil than that in alluvial soil at relative lower soil cadmium concentration. The poplar growing in alluvial soil had relative higher tolerance ability with lower reduction rates of morphological and growth characters than that in purple soil, suggesting that the poplar growing in alluvial soil might display the higher phytoextraction ability

when cadmium contamination level increased. Even so, the poplars exhibited obvious cadmium transport from root to shoot in both soils regardless of cadmium contamination levels. It implies that this examined poplar can extract more cadmium than some hyperaccumulators. The results indicated that metal phytoextraction using the poplar can be applied to clean up soils moderately contaminated by cadmium in these purple soil and alluvial soil.

386. Humus characteristics and seasonal changes of soil arthropod communities in a natural sessile oak (Quercus petraea L.) stand and adjacent Austrian pine (Pinus nigra Arnold) plantation.

PubMed

Cakir, Meric; Makineci, Ender

2013-11-01

In order to assess the effects of conversion of natural stands into plantations, soil invertebrate micro- and macroarthropod communities were evaluated for their abundance and richness in a sessile oak (SO; Quercus petraea L.) stand and adjacent Austrian pine (AP; Pinus nigra Arnold) plantation. Sites were sampled four times a year in 3-month intervals from May 2009 to February 2010. Humus characteristics such as total mass; carbon, lignin, and cellulose contents; and C/N ratio were significantly different between SO and AP. Statistically significant differences were detected on soil pH, carbon and nitrogen contents, and electrical conductivity between the two sites. The number of microarthropods was higher in AP than in the SO site. The annual mean abundance values of microarthropods in a square meter were 67,763 in AP and 50,542 in SO, and the annual mean abundance values of macroarthropods were 921 m(-2) in AP and 427 m(-2) in SO. Among the soil microarthropods, Acari and Collembola were the dominant groups. Shannon's diversity index was more affected by evenness than species number despite the species diversity (H') of soil arthropods being generally higher in the SO stand. The abundance of microarthropods showed clear seasonal trends depending upon the humidity of the soil.

387. Development and validation of a duplex real-time PCR assay for the simultaneous detection of three mustard species (Sinapis alba, Brassica nigra and Brassica juncea) in food.

PubMed

Palle-Reisch, Monika; Cichna-Markl, Margit; Hochegger, Rupert

2014-06-15

The paper presents a duplex real-time PCR assay for the simultaneous detection of three potentially allergenic mustard species commonly used in food: white mustard (Sinapis alba), black mustard (Brassica nigra) and brown mustard (Brassica juncea). White mustard is detected in the "green" and black/brown mustard in the "yellow" channel. The duplex real-time PCR assay does not show cross-reactivity with other Brassicaceae species including broccoli, cauliflower, radish and rapeseed. Low cross-reactivities (difference in the Ct value â©¾ 11.91 compared with the positive control) were obtained with cumin, fenugreek, ginger, rye and turmeric. When applying 500 ng DNA per PCR tube, the duplex real-time PCR assay allowed the detection of white, black and brown mustard in brewed model sausages down to a concentration of 5mg/kg in 10 out of 10 replicates. The duplex real-time PCR assay was applied to verify correct labelling of commercial foodstuffs.

388. Statistical interpretation of chromatic indicators in correlation to phytochemical profile of a sulfur dioxide-free mulberry (Morus nigra) wine submitted to non-thermal maturation processes.

PubMed

Tchabo, William; Ma, Yongkun; Kwaw, Emmanuel; Zhang, Haining; Xiao, Lulu; Apaliya, Maurice T

2018-01-15

The four different methods of color measurement of wine proposed by Boulton, Giusti, Glories and Commission International de l'Eclairage (CIE) were applied to assess the statistical relationship between the phytochemical profile and chromatic characteristics of sulfur dioxide-free mulberry (Morus nigra) wine submitted to non-thermal maturation processes. The alteration in chromatic properties and phenolic composition of non-thermal aged mulberry wine were examined, aided by the used of Pearson correlation, cluster and principal component analysis. The results revealed a positive effect of non-thermal processes on phytochemical families of wines. From Pearson correlation analysis relationships between chromatic indexes and flavonols as well as anthocyanins were established. Cluster analysis highlighted similarities between Boulton and Giusti parameters, as well as Glories and CIE parameters in the assessment of chromatic properties of wines. Finally, principal component analysis was able to discriminate wines subjected to different maturation techniques on the basis of their chromatic and phenolics characteristics. Copyright Â© 2017. Published by Elsevier Ltd.

389. The behavioural effects of a novel substance P analogue following infusion into the ventral tegmental area or substantia nigra of rat brain.

PubMed

Eison, A S; Eison, M S; Iversen, S D

1982-04-22

The behavioural response following infusion of a novel, stable substance P (SP) analogue, DiMe-C7, into the ventral tegmental area (VTA) of rats was characterized and contrasted with the response to an equal dose of the parent compound SP. DiMe-C7 produced a longer-lasting behavioural stimulation than SP as evidenced in several behaviours, including locomotor activity, wet dog shakes, rearing and grooming. DiMe-C7-induced locomotor activity and rearing were potentiated by concurrent peripheral administration of D-amphetamine and blocked by pretreatment with haloperidol. Such responses to DiMe-C7 may thus be dependent upon dopaminergic activity. When given immediately following VTA infusion of DiMe-C7, morphine decreased, while naloxone had no effect upon most behavioural measures. The effect of methysergide on DiMe-C7 or SP into the substantia nigra reticulata produced a pattern of responses similar to nature to those produced by VTA infusion but different with respect to time course. These findings suggest that DiMe-C7 is a metabolically stable analogue of substance P which manifests prolonged actions on behaviour when centrally administered. Further, a role for central dopaminergic mechanisms is implicated in DiMe-C7-induced behavioural action.

390. In Vivo Electrochemical Evidence for Simultaneous 5-HT and Histamine Release in the Rat Substantia Nigra pars Reticulata Following Medial Forebrain Bundle Stimulation

PubMed Central

Hashemi, Parastoo; Dankoski, Elyse C.; Wood, Kevin M.; Ambrose, R. Ellen; Wightman, R. Mark

2011-01-01

Exploring the mechanisms of serotonin (5-hydoxytryptophan (5-HT)) in the brain requires an in vivo method that combines fast temporal resolution with chemical selectivity. Fast-scan cyclic voltammetry (FSCV) is a technique with sufficient temporal and chemical resolution for probing dynamic 5-HT neurotransmission events; however, traditionally it has not been possible to probe in vivo 5-HT mechanisms. Recently, we optimized FSCV for measuring 5-HT release and uptake in vivo in the substantia nigra pars reticulata (SNR) with electrical stimulation of the dorsal raphe nucleus (DRN) in the rat brain. Here, we address technical challenges associated with rat DRN surgery by electrically stimulating 5-HT projections in the medial forebrain bundle (MFB), a more accessible anatomical

location. MFB stimulation elicits 5-HT in the SNR; furthermore, we find simultaneous release of an additional species. We use electrochemical and pharmacological methods and describe physiological, anatomical and independent chemical analyses to identify this species as histamine. We also show pharmacologically that increasing the lifetime of extracellular histamine significantly decreases 5-HT release, most likely due to increased activation of histamine H-3 receptors that inhibit 5-HT release. Despite this, under physiological conditions, we find by kinetic comparisons of DRN and MFB stimulations that the simultaneous release of histamine does not interfere with the quantitative 5-HT concentration profile. We therefore present a novel and robust electrical stimulation of the MFB that is technically less challenging than DRN stimulation to study 5-HT and histamine release in the SNR. PMID:21682723

391. Life history data on the fly parasitoids Aleochara nigra Kraatz and A. asiatica Kraatz (Coleoptera: Staphylinidae), and their potential application in forensic entomology.

PubMed

Lin, Shou-Wang; Shiao, Shiuh-Feng

2013-10-10

Knowledge of the developmental time of the immature stages of necrophagous flies has been the main tool for estimating minimum post-mortem intervals (min PMIs) in forensic entomology. Many parasitic insects can alter the development of immature stages of flies and thus affect min PMI estimates. The larvae of most species of Aleochara rove beetles are ectoparasitoids of the pupae of cyclorrhapha flies. Among them, some species that parasitise necrophagous flies may have forensic importance. Two Taiwanese Aleochara species, A. nigra and A. asiatica, which visit carrion sites were studied herein. All five necrophagous (Hemipyrellia ligurriens, Lucilia cuprina, Chrysomya megacephala, C. rufifacies and sarcophagid sp.) and one non-necrophagous fly species (Bactrocera dorsalis) we examined have the potential to be parasitised by these two Aleochara species, but differences among the acceptability and suitability of these hosts to rove beetle species suggested that rove beetles may prefer specific hosts. Each stage of the beetle life history was recorded to estimate developmental durations at six different temperatures. The larval stage together with the pupal stage of both beetle species was longer than the pupal stages of their hosts, implying the possibility of elongating the min PMI estimation. In addition, the host weight and larval duration of these two Aleochara beetles were positively correlated; thus, potential applications can be expected when using parasitised fly pupae in min PMI estimations. Copyright Â© 2013 Elsevier Ireland Ltd. All rights reserved.

392. Xylem anatomy correlates with gas exchange, water-use efficiency and growth performance under contrasting water regimes: evidence from Populus deltoides x Populus nigra hybrids.

PubMed

Fichot, RÃ©gis; Laurans, FranÃ§oise; Monclus, Romain; Moreau, Alain; Pilate, Gilles; Brignolas, Franck

2009-12-01

Six Populus deltoides Bartr. ex Marsh. x P. nigra L. genotypes were selected to investigate whether stem xylem anatomy correlated with gas exchange rates, water-use efficiency (WUE) and growth performance. Clonal copies of the genotypes were grown in a two-plot common garden test under contrasting water regimes, with one plot maintained irrigated and the other one subjected to moderate summer water deficit. The six genotypes displayed a large range of xylem anatomy, mean vessel and fibre diameter varying from about 40 to 60 microm and from 7.5 to 10.5 microm, respectively. Decreased water availability resulted in a reduced cell size and an important rise in vessel density, but the extent of xylem plasticity was both genotype and trait dependent. Vessel diameter and theoretical xylem-specific hydraulic conductivity correlated positively with stomatal conductance, carbon isotope discrimination and growth performance-

related traits and negatively with intrinsic WUE, especially under water deficit conditions. Vessel diameter and vessel density measured under water deficit conditions correlated with the relative losses in biomass production in response to water deprivation; this resulted from the fact that a more plastic xylem structure was generally accompanied by a larger loss in biomass production.

393. Fomiroid A, a Novel Compound from the Mushroom Fomitopsis nigra, Inhibits NPC1L1-Mediated Cholesterol Uptake via a Mode of Action Distinct from That of Ezetimibe

PubMed Central

Chiba, Tomohiro; Sakurada, Tsuyoshi; Watanabe, Rie; Yamaguchi, Kohji; Kimura, Yasuhisa; Kioka, Noriyuki; Kawagishi, Hirokazu; Matsuo, Michinori; Ueda, Kazumitsu

2014-01-01

Hypercholesterolemia is one of the key risk factors for coronary heart disease, a major cause of death in developed countries. Suppression of NPC1L1-mediated dietary and biliary cholesterol absorption is predicted to be one of the most effective ways to reduce the risk of hypercholesterolemia. In a screen for natural products that inhibit ezetimibe glucuronide binding to NPC1L1, we found a novel compound, fomiroid A, in extracts of the mushroom Fomitopsis nigra. Fomiroid A is a lanosterone derivative with molecular formula C30H48O3. Fomiroid A inhibited ezetimibe glucuronide binding to NPC1L1, and dose-dependently prevented NPC1L1-mediated cholesterol uptake and formation of esterified cholesterol in NPC1L1-expressing Caco2 cells. Fomiroid A exhibited a pharmacological chaperone activity that corrected trafficking defects of the L1072T/L1168I mutant of NPC1L1. Because ezetimibe does not have such an activity, the binding site and mode of action of fomiroid A are likely to be distinct from those of ezetimibe. PMID:25551765

394. Blood lead levels of wild Steller's eiders (Polysticta stelleri) and black scoters (Melanitta nigra) in Alaska using a portable blood lead analyzer

USGS Publications Warehouse

Brown, Corrine S.; Luebbert, Joanne; Mulcahy, Daniel M.; Schamber, Jason L.; Rosenberg, Daniel H.

2006-01-01

Sea duck populations are declining in Alaska. The reasons for the decline are not known; environmental lead exposure is one suspected cause. Thirty wild Steller's eider ducks (Polysticta stelleri) and 40 wild black scoter ducks (Melanitta nigra) were tested for blood lead levels using a portable blood lead analyzer (LeadCare; ESA, Inc., Chelmsford, Massachusetts 01824, USA). Sixty-seven and one-tenth percent of the sea ducks had undetectable blood lead levels, 30.0% had values indicating normal or background lead exposure, and 2.9% had values indicating lead exposure. None of the birds had values indicating lead toxicity, and no birds demonstrated clinical signs of toxicity. Birds in areas with higher human population density had higher blood lead levels than those in less densely populated areas. This is the first time a portable blood lead analyzer has been utilized with sea ducks in a field setting. Because it provides immediate results, it is valuable as a screening tool for investigators carrying out surgical procedures on birds in the field as well as establishing baseline blood lead data on sea ducks. Lead exposure does occur in wild sea ducks, and the study indicates that additional research is needed in order to determine the role environmental lead plays in declining sea duck populations.

395. Cultural Resource Investigation of the Dworshak Reservoir Project, North Fork Clearwater River, Northern Idaho.

DTIC Science & Technology

1983-01-01

Rhanius purshiana), ninebark (Physocarpus malvaceus), ocean spray (Holodiscus discolor) , elderberry (Sambucus canadensis) , huckleberry (Vaccinium...sherd 2.1.6.1 Ceramic White rim sherd 2.1.7.1 Ceramic White rim sherd 2.1.8.1 Ceramic Rim sherd w/ flower design 2.1.9.1 Ceramic Rim sherd w/ flower design...2.1.10.1 Ceramic Rim sherd w/ flower design 2.1.11.1 Ceramic Rim sherd w/ flower design 2.1.12.1 Ceramic Rim sherd wd 2.1.13.1 Ceramic Body sherd

396. The GABA uptake inhibitor beta-alanine reduces pilocarpine-induced tremor and increases extracellular GABA in substantia nigra pars reticulata as measured by microdialysis.

PubMed

Ishiwari, Keita; Mingote, Susana; Correa, Merce; Trevitt, Jennifer T; Carlson, Brian B; Salamone, John D

2004-12-30

Substantia nigra pars reticulata (SNr) is a major output nucleus of the basal ganglia that receives GABAergic projections from neostriatum and globus pallidus. Previous research has shown that local pharmacological manipulations of GABA in SNr can influence tremulous jaw movements in rats. Tremulous jaw movements are defined as rapid vertical deflections of the lower jaw that resemble chewing but are not directed at a particular stimulus, and evidence indicates that these movements share many characteristics with parkinsonian tremor in humans. In order to investigate the role of GABA in motor functions related to tremor, the present study tested the GABA uptake blocker beta-alanine for its ability to reduce pilocarpine-induced tremulous jaw movements. In a parallel experiment, the effect of an active dose of beta-alanine on dialysate levels of GABA in SNr was assessed using microdialysis methods. GABA levels in dialysis samples were measured using high performance liquid chromatography with electrochemical detection. beta-Alanine (250-500 mg/kg) significantly reduced tremulous jaw movements induced by pilocarpine (4.0 mg/kg). Moreover, systemic administration of beta-alanine at a dose that reduced tremulous jaw movements (500 mg/kg) resulted in a substantial increase in extracellular levels of GABA in SNr compared to the pre-injection baseline. Thus, the present results are consistent with the hypothesis that GABAergic tone in SNr plays a role in the regulation of tremulous jaw movements. This research may lead to a better understanding of how parkinsonian symptoms are modulated by SNr GABA mechanisms.

397. Clinical features and dysfunctions of iron metabolism in Parkinson disease patients with hyper echogenicity in substantia nigra: a cross-sectional study.

PubMed

Yu, Shu-Yang; Cao, Chen-Jie; Zuo, Li-Jun; Chen, Ze-Jie; Lian, Teng-Hong; Wang, Fang; Hu, Yang; Piao, Ying-Shan; Li, Li-Xia; Guo, Peng; Liu, Li; Yu, Qiu-Jin; Wang, Rui-Dan; Chan, Piu; Chen, Sheng-di; Wang, Xiao-Min; Zhang, Wei

2018-01-17

Transcranial ultrasound is a useful tool for providing the evidences for the early diagnosis and differential diagnosis of Parkinson disease (PD). However, the relationship between hyper echogenicity in substantia nigra (SN) and clinical symptoms of PD patients remains unknown, and the role of dysfunction of iron metabolism on the pathogenesis of SN hyper echogenicity is unclear. PD patients was detected by transcranial sonography and divided into with no hyper echogenicity (PDSN-) group and with hyper echogenicity (PDSN+) group. Motor symptoms (MS) and non-motor symptoms (NMS) were evaluated, and the levels of iron and related proteins in serum and cerebrospinal fluid (CSF) were detected for PD patients. Data comparison between the two groups and correlation analyses were performed. PDSN+ group was significantly older, and had significantly older age of onset, more advanced Hohen-Yahr stage,

higher SCOPA-AUT score and lower MoCA score than PDSN- group (Pâ€‰<â€‰0.05). Compared with PDSN- group, the levels of transferrin and light-ferritin in serum and iron level in CSF were significantly elevated (Pâ€‰<â€‰0.05), but ferroportin level in CSF was significantly decreased in PDSN+ group (Pâ€‰<â€‰0.05). PD patients with hyper echogenicity in SN are older, at more advanced disease stage, have severer motor symptoms, and non-motor symptoms of cognitive impairment and autonomic dysfunction. Hyper echogenicity of SN in PD patients is related to dysfunction of iron metabolism, involving increased iron transport from peripheral system to central nervous system, reduction of intracellular iron release and excessive iron deposition in brain.

398. [The effects of lesions in the compact part of the substantia nigra on glutamate and GABA release in the pedunculopontine nucleus].

PubMed

Blanco-Lezcano, L; Rocha-Arrieta, L L; Alvarez-GonzÃ¡lez, L; MartÃnez-MartÃ, L; PavÃ³n-Fuentes, N; GonzÃ¡lez-Fraguela, M E; BauzÃ¡-CalderÃn, Y; Coro-Grave de Peralta, Y

The pedunculopontine nucleus (PPN), co-localized with the mesencephalic locomotor region, has been proposed as a key structure in the physiopathology of Parkinson's disease. The goal of the present study was to assess if the aminoacid neurotransmitter release in the PPN is modified by the degeneration of dopaminergic cells, from substantia nigra pars compacta in 6-hydroxidopamine (6-OHDA)-lesioned rats. In addition, it was studied the aminoacid neurotransmitter release in the PPN of rats with lesion of the subthalamic nucleus by quinolinic acid (QUIN) (100 nmol) intracerebral injection. Rats were assigned to five groups: untreated rats (I) (n = 13), 6-OHDA lesion (II) (n = 11), 6-OHDA + QUIN lesion (III) (n = 9), sham-operated (IV) (n = 10), QUIN, STN (V) lesioned (n = 9). The extracellular concentrations of glutamic acid (GLU) and gamma-aminobutyric acid (GABA) were determined by brain microdialysis and high performance liquid chromatography (HPLC). RESULTS. GLU released in PPN from 6-OHDA lesioned rats (group II), was significantly increased in comparison with the others groups ($F(4, 47) = 18.21$, $p < 0.001$). GABA released shows significant differences between experimental groups ($F(4, 45) = 12.75$, $p < 0.001$). It was detected a higher valour ($p < 0.05$) in-group II. The groups III and IV exhibited intermeddle valour ($p < 0.001$) and groups I and IV ($p < 0.001$) showed the lower GABA extracellular concentrations. The infusion of artificial cerebrospinal fluid with higher potassium (100 mmol) induced an increase in the GLU and GABA released in all groups, which confirm the neuronal origin of the extracellular content. These results are in agreement with the current model of basal ganglia functioning and suggest the role of STN-PPN projection in the physiopathology of Parkinson's disease.

399. [Comparison study on total flavonoid content and anti-free redical activity of the leaves of bamboo, phyllostachys nigra, and Ginkgo bilabo].

PubMed

Zhang, Ying; Wu, Xiao-qing; Yu, Zuo-yu

2002-04-01

To investigate the differences of total flavonoid (TF) content and antifree radical activity between the-leaves of bamboo and Gingo biloba, as well as their seasonal changes. Spectrophotometery and Chemiluminescence methods were adopted to determine TF and half inhibiting concentration (IC50) on active oxygen free radicals of the leaves of bamboo, phyllostachys nigra (Lodd. ex. Lindl.) Munro, and Ginkgo biloba. Two kinds of leaves were picked in the same plot at the same time monthly. The TF of bamboo leaf varied in the range of 0.67%-1.71% (in dry basis of leaf, below as same) throughout a year, the minimum apparing in June and the maximum in July, then going down obviously, and remaining at a much high lever during November to next April. However, the TF of Ginkgo bilabo leaf varied in 1.48%-2.49% during whole growing period, early April to late November. It ascended with the growth of leaf, reaching the top during June and July, the going down slowly, and finally another peak appeared

before defoliation. The average IC50 values on O2-. and .OH of bamboo leaf were at 11.0 micrograms.mL-1 and 5.3 mg.mL-1, and Ginkgo biloba at 19.0 micrograms.mL-1 and 3.6 mg.mL-1, respectively. The TF content and anti-free radical activity the bamboo leaf are comparable with the leaf of ginkgo biloba, which is a kind of potential resources for natural antioxidant and free radical scavenger.

400. Radiosurgery performed with the aid of a 3-mm collimator in the subthalamic nucleus and substantia nigra of the vervet monkey.

PubMed

De Salles, A A; Melega, W P; LaÄ‡an, G; Steele, L J; Solberg, T D

2001-12-01

Radiosurgery for functional neurosurgery performed using a linear accelerator (LINAC) has not been extensively characterized in preclinical studies. In the present study, the properties of a newly designed 3-mm-diameter collimator were evaluated in a dedicated LINAC, which produced lesions in the basal ganglia of vervet monkeys. Lesion formation was determined in vivo in three animals by examining magnetic resonance (MR) images to show the dose-delivery precision of targeting and the geometry and extent of the lesions. Postmortem immunohistochemical studies were conducted to determine the extent of lesion-induced radiobiological effects. In three male vervet monkeys, the subthalamic nucleus (STN; one animal) and the pars compacta of the lateral substantia nigra (SN; two animals) were targeted by a Novalis Shaped Beam Surgery System that included a 3-mm collimator and delivered a maximum dose of 150 Gy. Magnetic resonance images obtained 4, 5, and 9 months posttreatment were reviewed, and the animals were killed so that immunohistological characterizations could be made. The generation of precise radiosurgical lesions by a 3-mm collimator was validated in studies that targeted the basal ganglia of the vervet monkey. The extent of the lesions created in all animals remained restricted in diameter (< 3 mm) throughout the duration of the studies, as assessed by reviewing MR images. Histological studies showed that the lesions were contained within the STN and SN target areas and that there were persistent increases in glial fibrillary acidic protein immunoreactivity. Increases in immunoreactivity for tyrosine hydroxylase, the serotonin transporter, and the GluR1 subunit of the alpha-amino-3-hydroxy-5-methyl-4-isoxazole propionate glutamate receptor in penumbral regions of the lesion were suggestive of compensatory neuronal adaptations. This radiosurgical approach may be of particular interest for the induction of lesions of the STN and SN in studies of experimental

- «
- 18
- 19
- 20
- 21
- 22
- »

- «
- 19
- 20
- 21
- 22
- 23
- »

401. Dietary administration of paraquat for 13 weeks does not result in a loss of dopaminergic neurons in the substantia nigra of C57BL/6J mice.

PubMed

Minnema, Daniel J; Travis, Kim Z; Breckenridge, Charles B; Sturgess, Nicholas C; Butt, Mark; Wolf, Jeffrey C; Zadory, Dan; Beck, Melissa J; Mathews, James M; Tisdel, Merrill O; Cook, Andrew R; Botham, Philip A; Smith, Lewis L

2014-03-01

Several investigations have reported that mice administered paraquat dichloride (PQÂ·Cl2) by intraperitoneal injection exhibit a loss of dopaminergic neurons in the substantia nigra pars compacta (SNpc). In this study, male and female C57BL/6J mice were administered PQÂ·Cl2 in the diet at concentrations of 0 (control), 10, and 50ppm for a duration of 13weeks. A separate group of mice were administered 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) during week 12 as positive controls to produce a loss of dopaminergic neurons in the SNpc. The comparative effects of PQ and MPTP on the SNpc and/or striatum were assessed using neurochemical, neuropathological, and stereological endpoints. Morphological and stereological assessments were performed by investigators 'blinded' to the origin of the tissue. Neither dose of PQÂ·Cl2 (10 or 50 ppm in the diet) caused a loss of striatal dopamine or dopamine metabolite concentrations in the brains of mice. Pathological assessments of the SNpc and striatum showed no evidence of neuronal degeneration or astrocytic/microglial activation. Furthermore, the number of tyrosine hydroxylase-positive (TH(+)) neurons in the SNpc was not reduced in PQ-treated mice. In contrast, MPTP caused a decrease in striatal dopamine concentration, a reduction in TH(+) neurons in the SNpc, and significant pathological changes including astrocytic and microglial activation in the striatum and SNpc. The MPTP-induced effects were greater in males than in females. It is concluded that 13weeks of continuous dietary exposure of C57BL/6J mice to 50ppm PQÂ·Cl2 (equivalent to 10.2 and 15.6mg PQ ion/kg body weight/day for males and females, respectively) does not result in the loss of, or damage to, dopaminergic neurons in the SNpc.

402. Different sensitivity of isoprene emission, respiration and photosynthesis to high growth temperature coupled with drought stress in black poplar (Populus nigra) saplings.

PubMed

Centritto, Mauro; Brilli, Federico; Fodale, Roberta; Loreto, Francesco

2011-03-01

The effects of the interaction between high growth temperatures and water stress on gas-exchange properties of Populus nigra saplings were investigated. Water stress was expressed as a function of soil water content (SWC) or fraction of transpirable soil water (FTSW). Isoprene emission and photosynthesis (A) did not acclimate in response to elevated temperature, whereas dark (R(n)) and light (R(d)) respiration underwent thermal acclimation. R(d) was ~30% lower than R(n) irrespective of growth temperature and water stress level. Water stress induced a sharp decline, but not a complete inhibition, of both R(n) and R(d). There was no significant effect of high growth temperature on the responses of A, stomatal conductance (g(s)), isoprene emission, R(n) or R(d) to FTSW. High growth temperature resulted in a significant increase in the SWC endpoint. Photosynthesis was limited mainly by CO(2) acquisition in water-stressed plants. Impaired carbon metabolism became apparent only at the FTSW endpoint. Photosynthesis was restored in about a week following rewatering, indicating transient biochemical limitations. The kinetics of isoprene emission in response to FTSW confirmed that water stress uncouples the emission of isoprene from A, isoprene emission being unaffected by decreasing g(s). The different kinetics of A, respiration and isoprene emission in response to the interaction between high temperature and water stress led to rising R(d)/A ratio and amount of carbon lost as isoprene. Since respiration and isoprene sensitivity are much lower than A sensitivity to water stress, temperature interactions with water stress may dominate poplar acclimatory capability and maintenance of carbon homeostasis under climate change scenarios. Furthermore, predicted temperature increases in arid environments may reduce the amount of soil water that can be extracted before plant gas exchange decreases, exacerbating the effects of water stress even if soil water availability is not

403. Overexpression of two PsnAP1 genes from Populus simonii Ã— P. nigra causes early flowering in transgenic tobacco and Arabidopsis.

PubMed

Zheng, Tangchun; Li, Shuang; Zang, Lina; Dai, Lijuan; Yang, Chuanping; Qu, Guan-Zheng

2014-01-01

In Arabidopsis, AP1 is a floral meristem identity gene and plays an important role in floral organ development. In this study, PsnAP1-1 and PsnAP1-2 were isolated from the male reproductive buds of poplar (Populus simonii Ã— P. nigra), which are the orthologs of AP1 in Arabidopsis, by sequence analysis. Northern blot and qRT-PCR analysis showed that PsnAP1-1 and PsnAP1-2 exhibited high expression level in early inflorescence development of poplar. Subcellular localization showed the PsnAP1-1 and PsnAP1-2 proteins are localized in the nucleus. Overexpression of PsnAP1-1 and PsnAP1-2 in tobacco under the control of a CaMV 35S promoter significantly enhanced early flowering. These transgenic plants also showed much earlier stem initiation and higher rates of photosynthesis than did wild-type tobacco. qRT-PCR analysis further indicated that overexpression of PsnAP1-1 and PsnAP1-2 resulted in up-regulation of genes related to flowering, such as NtMADS4, NtMADS5 and NtMADS11. Overexpression of PsnAP1-1 and PsnAP1-2 in Arabidopsis also induced early flowering, but did not complement the ap1-10 floral morphology to any noticeable extent. This study indicates that PsnAP1-1 and PsnAP1-2 play a role in floral transition of poplar.

404. Overexpression of Two PsnAP1 Genes from Populus simonii Ã— P. nigra Causes Early Flowering in Transgenic Tobacco and Arabidopsis

PubMed Central

Zheng, Tangchun; Li, Shuang; Zang, Lina; Dai, Lijuan; Yang, Chuanping; Qu, Guan-Zheng

2014-01-01

In Arabidopsis, AP1 is a floral meristem identity gene and plays an important role in floral organ development. In this study, PsnAP1-1 and PsnAP1-2 were isolated from the male reproductive buds of poplar (Populus simonii Ã— P. nigra), which are the orthologs of AP1 in Arabidopsis, by sequence analysis. Northern blot and qRT-PCR analysis showed that PsnAP1-1 and PsnAP1-2 exhibited high expression level in early inflorescence development of poplar. Subcellular localization showed the PsnAP1-1 and PsnAP1-2 proteins are localized in the nucleus. Overexpression of PsnAP1-1 and PsnAP1-2 in tobacco under the control of a CaMV 35S promoter significantly enhanced early flowering. These transgenic plants also showed much earlier stem initiation and higher rates of photosynthesis than did wild-type tobacco. qRT-PCR analysis further indicated that overexpression of PsnAP1-1 and PsnAP1-2 resulted in up-regulation of genes related to flowering, such as NtMADS4, NtMADS5 and NtMADS11. Overexpression of PsnAP1-1 and PsnAP1-2 in Arabidopsis also induced early flowering, but did not complement the ap1-10 floral morphology to any noticeable extent. This study indicates that PsnAP1-1 and PsnAP1-2 play a role in floral transition of poplar. PMID:25360739

405. Isotope signals and anatomical features in tree rings suggest a role for hydraulic strategies in diffuse drought-induced die-back of Pinus nigra.

PubMed

Petrucco, Laura; Nardini, Andrea; von Arx, Georg; Saurer, Matthias; Cherubini, Paolo

2017-04-01

The 2003 and 2012 summer seasons were among the warmest and driest of the last 200 years over southeastern Europe, and in particular in the Karst region (northeastern Italy). Starting from winter-spring 2013, several black pines (Pinus nigra J.F. Arnold) suffered crown die-back. Declining trees occurred nearby individuals with no signs of die-back, raising hypotheses about the occurrence of individual-specific hydraulic strategies underlying different responses to extreme drought. We investigated possible processes driving black pine decline by dendrochronological and wood anatomical measurements, coupled with analysis of tree-ring carbon (Î´13C) and oxygen (Î´18O) isotopic composition in healthy trees (H) and trees suffering die-back (D). Die-back trees showed higher growth rates than H trees at the beginning of the last century, but suffered important growth reduction following the dry summers in 2003 and 2012. After the 2012 drought, D trees produced tracheids with larger diameter and greater vulnerability to implosion than H ones. Healthy trees had significantly higher wood Î´13C than D trees, reflecting higher water-use efficiency for the surviving trees, i.e., less water transpired per unit carbon gain, which could be related to lower stomatal conductance and a more conservative use of water. Relatively high Î´18O for D trees indicates that they were strongly dependent on shallow water sources, or that they sustained higher transpiration rates than H trees. Our results suggest that H trees adopted a more conservative water-use strategy under drought stress compared with D trees. We speculate that this diversity might have a genotypic basis, but other possible explanations, like different rooting depth, cannot be ruled out. Â© The Author 2017. Published by Oxford University Press. All rights reserved. For Permissions, please email: journals.permissions@oup.com.

406. Substance P enhances microglial density in the substantia nigra through neurokinin-1 receptor/NADPH oxidase-mediated chemotaxis in mice.

PubMed

Wang, Qingshan; Oyarzabal, Esteban; Wilson, Belinda; Qian, Li; Hong, Jau-Shyong

2015-10-01

The distribution of microglia varies greatly throughout the brain. The substantia nigra (SN) contains the highest density of microglia among different brain regions. However, the mechanism underlying this uneven distribution remains unclear. Substance P (SP) is a potent proinflammatory neuropeptide with high concentrations in the SN. We recently demonstrated that SP can regulate nigral microglial activity. In the present study, we further investigated the involvement of SP in modulating nigral microglial density in postnatal developing mice. Nigral microglial density was quantified in wild-type (WT) and SP-deficient mice from postnatal day 1 (P1) to P30. SP was detected at high levels in the SN as early as P1 and microglial density did not peak until around P30Â in WT mice. SP-deficient mice (TAC1(-/-)) had a significant reduction in nigral microglial density. No differences in the ability of microglia to proliferate were observed between TAC1(-/-) and WT mice, suggesting that SP may alter microglial density through chemotaxic recruitment. SP was confirmed to dose-dependently attract microglia using a trans-well culture system. Mechanistic studies revealed that both the SP receptor neurokinin-1 receptor (NK1R) and the superoxide-producing enzyme NADPH oxidase (NOX2) were necessary for SP-mediated chemotaxis in microglia. Furthermore, genetic ablation and pharmacological inhibition of NK1R or NOX2 attenuated SP-induced microglial migration. Finally, protein kinase CÎ´ (PKCÎ´) was recognized to couple SP/NK1R-mediated NOX2 activation. Altogether, we found that SP partly accounts for the increased density of microglia in the SN through chemotaxic recruitment via a novel NK1R-NOX2 axis-mediated pathway. Â© 2015 Authors; published by Portland Press Limited.

407. Clinical signs associated with ingestion of black walnut tree (Juglans nigra) wood, nuts, and hulls in dogs: 93 cases (2001-2012).

PubMed

Coleman, Adrienne E; Merola, Valentina

2016-01-15

To identify clinical signs associated with oral exposure to black walnut tree (Juglans nigra) wood, nuts, or nut hulls in dogs and to compare clinical syndromes between dogs that ingested wood and dogs that ingested the walnuts or nut hulls. Retrospective case series. 93 dogs. Records of dogs with oral exposure to black walnut wood, nuts, or nut hulls between November 2001 and December 2012 were retrieved from the Animal Poison Control Center database. Records were reviewed, and data regarding signalment; exposure; time of onset, type, and duration of clinical signs; serum biochemical abnormalities; treatment; and response to treatment were collected. Results were compared statistically between dogs that ingested wood and those that ingested nut components. 28 cases involved exposure to wood, and 65 involved exposure to nuts or hulls. Spontaneous vomiting was commonly observed (13/28 [46%] and 31/65 [48%] dogs that ingested wood and nut components, respectively). Neurologic or musculoskeletal signs were significantly more common in dogs that ingested wood (26/28 [93%]) than in those that ingested nuts or hulls (15/65 [23%]). Relative risk of developing neurologic signs after ingestion of wood was approximately 4 times that after ingestion of nuts or hulls. Ingestion of black walnut wood by dogs resulted in a clinical syndrome in which neurologic or musculoskeletal signs were most frequently reported, whereas ingestion of black walnuts or their hulls was most commonly associated with vomiting. To our knowledge, this is the first report describing 2 different clinical syndromes associated with exposure to black walnut tree components in dogs.

408. Traditional food and herbal uses of wild plants in the ancient South-Slavic diaspora of Mundimitar/Montemitro (Southern Italy).

PubMed

di Tizio, Alessandro; Å□uczaj, Å□ukasz Jacub; Quave, Cassandra L; RedÅ¾iÄ‡, Sulejman; Pieroni, Andrea

2012-06-06

In Europe, only a limited number of cross-cultural comparative field studies or meta-analyses have been focused on the dynamics through which folk plant knowledge changes over space and time, while a few studies have contributed to the understanding of how plant uses change among newcomers. Nevertheless, ethnic minority groups and/or linguistic "isles" in Southern and Eastern Europe may provide wonderful arenas for understanding the various factors that influence changes in plant uses. A field ethnobotanical study was carried out in Mundimitar (Montemitro in Italian), a village of approx. 450 inhabitants, located in the Molise region of South-Eastern Italy. Mundimitar is a South-Slavic community, composed of the descendants of people who migrated to the area during the first half of the 14th century, probably from the lower Neretva valley (Dalmatia and Herzegovina regions). Eighteen key informants (average age: 63.7) were selected using the snowball sampling technique and participated in in-depth interviews regarding their Traditional Knowledge (TK) of the local flora. Although TK on wild plants is eroded in Montemitro among the youngest generations, fifty-seven taxa (including two cultivated species, which were included due to their unusual uses) were quoted by the study participants. Half of the taxa have correspondence in the Croatian and Herzegovinian folk botanical nomenclature, and the other half with South-Italian folk plant names. A remarkable link to the wild vegetable uses recorded in Dalmatia is evident. A comparison of the collected data with the previous ethnobotanical data of the Molise region and of the entire Italian Peninsula pointed out a few uses that have not been recorded in Italy thus far: the culinary use of boiled black bryony (Tamus communis) shoots in sauces and also on pasta; the use of squirting cucumber (Ecballium elaterium) juice for treating malaria in humans; the aerial parts of the elderberry tree (Sambucus nigra) for treating

409. Traditional food and herbal uses of wild plants in the ancient South-Slavic diaspora of Mundimitar/Montemitro (Southern Italy)

PubMed Central

2012-01-01

(Sambucus nigra) for treating erysipelas in pigs; the aerial parts of pellitory (Parietaria judaica) in decoctions for treating haemorrhoids. Conclusions The fact that half of the most salient species documented in our case study â€“ widely available both in Molise and in Dalmatia and Herzegovina â€“ retain a Slavic name could indicate that they may have also been used in Dalmatia and Herzegovina before the migration took place. However, given the occurrence of several South-Italian plant names and uses, also a remarkable acculturation process affected the Slavic community of Montemitro during these last centuries. Future directions of research should try to simultaneously compare current ethnobotanical knowledge of both migrated communities and their counterparts in the areas of origin. PMID:22672636

410. Dopamine D2 receptor-mediated G-protein activation in rat striatum: functional autoradiography and influence of unilateral 6-hydroxydopamine lesions of the substantia nigra.

PubMed

Newman-Tancredi, A; Cussac, D; Brocco, M; Rivet, J M; Chaput, C; Touzard, M; Pasteau, V; Millan, M J

2001-11-30

Unilateral 6-hydroxydopamine (6-OHDA) lesions of substantia nigra pars compacta (SNPC) neurons in rats induce behavioural hypersensitivity to dopaminergic agonists. However, the role of specific dopamine receptors is unclear, and potential alterations in their transduction mechanisms remain to be evaluated. The present study addressed these issues employing the dopaminergic agonist, quinelorane, which efficaciously stimulated G-protein activation (as assessed by [35S]GTPgammaS binding) at cloned hD2 (and hD3) receptors. At rat striatal membranes, dopamine stimulated [35S]GTPgammaS binding by 1.9-fold over basal, but its actions were only partially reversed by the selective D2/D3 receptor antagonist, raclopride, indicating the involvement of other receptor subtypes. In contrast, quinelorane-induced stimulation (48% of the effect of dopamine) was abolished by raclopride, and by the D2 receptor antagonist, L741,626. Further, novel antagonists selective for D3 and D4 receptors, S33084 and S18126, respectively, blocked the actions of quinelorane at concentrations corresponding to their affinities for D2 receptors. Quinelorane potently induced contralateral rotation in unilaterally 6-OHDA-lesioned rats, an effect abolished by raclopride and L741,626, but not by D3 and D4 receptor-selective doses of S33084 and S18126, respectively. In functional ([35S]GTPgammaS) autoradiography experiments, quinelorane stimulated G-protein activation in caudate putamen and, to a lesser extent, in nucleus accumbens and cingulate cortex of naive rats. In unilaterally SNPC-lesioned rats, quinelorane-induced G-protein activation in the caudate putamen on the non-lesioned side was similar to that seen in naive animals (approximately 50% stimulation), but significantly greater on the lesioned side (approximately 80%). This increase was both pharmacologically and regionally specific since it was reversed by raclopride, and was not observed in nucleus accumbens or cingulate cortex. In conclusion

411. Assessment of the Effects of MPTP and Paraquat on Dopaminergic Neurons and Microglia in the Substantia Nigra Pars Compacta of C57BL/6 Mice

PubMed Central

Smeyne, Richard Jay; Breckenridge, Charles B.; Beck, Melissa; Jiao, Yun; Butt, Mark T.; Wolf, Jeffrey C.; Zadory, Dan; Minnema, Daniel J.; Sturgess, Nicholas C.; Travis, Kim Z.; Cook, Andrew R.; Smith, Lewis L.; Botham, Philip A.

2016-01-01

The neurotoxicity of paraquat dichloride (PQ) was assessed in two inbred strains of 9- or 16-week old male C57BL/6 mice housed in two different laboratories and compared to the effects of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). PQ was administered by intraperitoneal injections; either once

(20 mg/kg) or twice (10 mg/kg) weekly for 3 weeks, while MPTP-HCl was injected 4 times on a single day (20 mg/kg/dose). Brains were collected 8, 16, 24, 48, 96 or 168 hours after the last PQ treatment, and 48 or 168 hours after MPTP treatment. Dopamine neurons in the substantia nigra pars compacta (SNpc) were identified by antibodies to tyrosine hydroxylase (TH+) and microglia were identified using Iba-1 immunoreactivity. The total number of TH+ neurons and the number of resting and activated microglia in the SNpc at 168 hours after the last dose were estimated using model- or design-based stereology, with investigators blinded to treatment. In a further analysis, a pathologist, also blinded to treatment, evaluated the SNpc and/or striatum for loss of TH+ neurons (SNpc) or terminals (striatum), cell death (as indicated by amino cupric silver uptake, TUNEL and/or caspase 3 staining) and neuroinflammation (as indicated by Iba-1 and/or GFAP staining). PQ, administered either once or twice weekly to 9- or 16-week old mice from two suppliers, had no effect on the number of TH+ neurons or microglia in the SNpc, as assessed by two groups, each blinded to treatment, using different stereological methods. PQ did not induce neuronal cell loss or degeneration in the SNpc or striatum. Additionally, there was no evidence of apoptosis, microgliosis or astrogliosis. In MPTP-treated mice, the number of TH+ neurons in the SNpc was significantly decreased and the number of activated microglia increased. Histopathological assessment found degenerating neurons/terminals in the SNpc and striatum but no evidence of apoptotic cell death. MPTP activated microglia in the SNpc and increased

412. Increased belowground C release during initial plant development of Populus deltoides x nigra grown under light and C reserve limited conditions

NASA Astrophysics Data System (ADS)

Studer, Mirjam S.; Siegwolf, Rolf T. W.; Schmidt, Michael W. I.; Abiven, Samuel

2014-05-01

Plants might be a key factor for the long-term stabilisation of carbon (C) in the soil, e.g. through enhanced physical protection of root-derived C against microbial decomposition in soil aggregates. On the other hand C released by the plants into the soil might promote the decomposition of native soil organic matter (SOM) through the stimulation of microbial activity. We measured the C budget of developing plant-soil systems (Populus deltoides x nigra, Cambisol soil) in the laboratory under controlled environmental conditions. In order to distinguish plant-derived from native C in the SOM and the soil CO2 efflux, we labelled the poplar shoots continuously with 13C-CO2 from first emergence of leaves (sprouting from stem cuttings). Throughout the experiment the CO2 fluxes (photosynthetic assimilation, dark respiratory loss, soil CO2 efflux) were measured frequently (every 30 min) and the 13C was traced in the soil CO2 efflux (1-2 times a week). After 10 weeks the plant-soil systems were destructively harvested and the distribution of the 13C distribution was analysed. The plants developed slowly (compared to previous experiments), most likely due to limitation in C reserves (long term cutting storage) and C supply (low light intensities). The amount of 13C recovered in the roots, microbial biomass and soil CO2 efflux was directly correlated with the leaf area of the different plant individuals. After 3-4 weeks of plant development we observed a high peak in the total soil CO2 efflux. During this time the relative belowground C release was increased massively over the basal rate of 17 % of net C assimilated, whereby the variability between the plant individuals was large. The smallest plants, i.e. the plants that were most resource limited, obtained the highest belowground C release accounting at the peak time for up to 57 % of net assimilated C. We hypothesize that the plants released specific compounds, which either directly (enzymatically) or indirectly (priming

413. Assessment of the Effects of MPTP and Paraquat on Dopaminergic Neurons and Microglia in the Substantia Nigra Pars Compacta of C57BL/6 Mice.

PubMed

Smeyne, Richard Jay; Breckenridge, Charles B; Beck, Melissa; Jiao, Yun; Butt, Mark T; Wolf, Jeffrey C; Zadory, Dan; Minnema, Daniel J; Sturgess, Nicholas C; Travis, Kim Z; Cook, Andrew R; Smith, Lewis L;

Botham, Philip A

2016-01-01

The neurotoxicity of paraquat dichloride (PQ) was assessed in two inbred strains of 9- or 16-week old male C57BL/6 mice housed in two different laboratories and compared to the effects of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). PQ was administered by intraperitoneal injections; either once (20 mg/kg) or twice (10 mg/kg) weekly for 3 weeks, while MPTP-HCl was injected 4 times on a single day (20 mg/kg/dose). Brains were collected 8, 16, 24, 48, 96 or 168 hours after the last PQ treatment, and 48 or 168 hours after MPTP treatment. Dopamine neurons in the substantia nigra pars compacta (SNpc) were identified by antibodies to tyrosine hydroxylase (TH+) and microglia were identified using Iba-1 immunoreactivity. The total number of TH+ neurons and the number of resting and activated microglia in the SNpc at 168 hours after the last dose were estimated using model- or design-based stereology, with investigators blinded to treatment. In a further analysis, a pathologist, also blinded to treatment, evaluated the SNpc and/or striatum for loss of TH+ neurons (SNpc) or terminals (striatum), cell death (as indicated by amino cupric silver uptake, TUNEL and/or caspase 3 staining) and neuroinflammation (as indicated by Iba-1 and/or GFAP staining). PQ, administered either once or twice weekly to 9- or 16-week old mice from two suppliers, had no effect on the number of TH+ neurons or microglia in the SNpc, as assessed by two groups, each blinded to treatment, using different stereological methods. PQ did not induce neuronal cell loss or degeneration in the SNpc or striatum. Additionally, there was no evidence of apoptosis, microgliosis or astrogliosis. In MPTP-treated mice, the number of TH+ neurons in the SNpc was significantly decreased and the number of activated microglia increased. Histopathological assessment found degenerating neurons/terminals in the SNpc and striatum but no evidence of apoptotic cell death. MPTP activated microglia in the SNpc and increased

414. Anthocyanins of the anthers as chemotaxonomic markers in the genus Populus L.. Differentiation between Populus nigra, Populus alba and Populus tremula.

PubMed

Alcalde-Eon, Cristina; GarcÃa-EstÃ©vez, Ignacio; Rivas-Gonzalo, JuliÃ¡n C; RodrÃguez de la Cruz, David; Escribano-BailÃ³n, MarÃa Teresa

2016-08-01

Three main species of Popululs L. (Salicaceae) have been reported to occur in the Iberian Peninsula: Populus nigra L., Populus alba L. and Populus tremula L. The degree of pilosity of the bracts of the male catkins is a key character for their differentiation. The anthers of these poplar species possess anthocyanins that provide them a red colouration. Since these poplars are wind-pollinated and, consequently, do not need to attract pollinators, anthocyanins in the anthers might be acting as photoprotectors, shielding pollen grains from excessive sunlight. In order to verify this hypothesis, the first objective of this study was to establish if there is any relationship between the degree of pilosity of the bracts (related to the physical shading of the pollen grains) and the levels and types of anthocyanins in the anthers of these three species. This study also aimed to check the usefulness of the anthocyanins of the anthers as chemotaxonomic markers, through the study of the differences in the anthocyanin composition between these poplar species. Anthocyanins were identified from the data supplied by HPLC-DAD-MS(n) analyses. Seventeen different compounds, including mono-, di- and triglycosides and anthocyanin-derived pigments (F-A(+) dimers) have been identified. Cyanidin 3-O-glucoside was the major compound in all the samples (>60% of the total content), which may be in accordance with the photoprotective role proposed for them. However, qualitative and quantitative differences were detected among samples. Cyanidin and delphinidin 3-O-sambubiosides have been detected only in the anthers of P.Â tremula as well as cyanidin 3-O-(2â€³-O-xyloxyl)rutinoside, making them valuable chemotaxonomic markers for this species. Hierarchical Cluster and Principal Components Analyses (HCA and PCA) carried out with the anthocyanin percent composition data have allowed a separation of the samples that is in accordance with the initial classification of the samples made from the

415. Iron and cell death in Parkinson's disease: a nuclear microscopic study into iron-rich granules in the parkinsonian substantia nigra of primate models

NASA Astrophysics Data System (ADS)

Thong, P. S. P.; Watt, F.; Ponraj, D.; Leong, S. K.; He, Y.; Lee, T. K. Y.

1999-10-01

Parkinson's disease is a degenerative brain disease characterised by a loss of cells in the substantia nigra (SN) region of the brain and accompanying biochemical changes such as inhibition of mitochondrial function, increased iron concentrations and decreased glutathione levels in the parkinsonian SN. Though the aetiology of the disease is still unknown, the observed biochemical changes point to the involvement of oxidative stress. In particular, iron is suspected to play a role by promoting free radical production, leading to oxidative stress and cell death. The increase in iron in the parkinsonian SN has been confirmed by several research groups, both in human post-mortem brains and in brain tissue from parkinsonian animal models. However, the question remains as to whether the observed increase in iron is a cause or a consequence of the SN cell death process. Our previous study using unilaterally 1-methyl-4-phenyl-1,2,3,6-tetrahydro-pyridine (MPTP)-lesioned monkeys in a time sequence experiment has shown that the increase in bulk iron concentrations follow rather than precede dopaminergic cell death. However, changes in the localised iron concentrations, which may play a more direct role in SN cell death, may not be reflected at the bulk level. Indeed, we have observed iron-rich granules in parkinsonian SNs. From this time sequence study into the iron content of iron-rich granules in the SNs of an untreated control and unilaterally MPTP-lesioned parkinsonian models, we present the following observations: (1) Iron-rich granules are found in both control and parkinsonian SNs and are variable in size and iron content in any one model. (2) These iron-rich granules may be associated with neuromelanin granules found in the SN and are known to accumulate transition metal ions such as iron. (3) The early onset of bulk SN cell loss (35%) was accompanied by a significant elevation of iron in granules found in the MPTP-injected SN compared to the contra-lateral SN. This

416. Salix alba and Populus nigra seedlings resistance to physical hydro-sedimentary stresses: nursery experimental approach compared to in situ measurements

NASA Astrophysics Data System (ADS)

Wintenberger, Coraline; Rodrigues, Stephane; Breheret, Jean-Gabriel; JugÃ©, Philippe; Villar, Marc

2014-05-01

In Europe, riparian Salicaceae is declining following the loss of potential germination areas associated with river management. Nevertheless, as an exception for lowland rivers, the Loire River (France) shows in its middle reaches an efficient sexual regeneration of Populus nigra and Salix alba species on bare sediments deposited during flood events. The study focuses on the influence of flow, sediment dynamics and fluvial maintenance operations on the establishment and survival of black poplar and white willow seedlings during the first year of development in a lowland sandy-gravel river, the Middle Loire. Main questions are: what is the influence of morphological and sedimentary features on seedlings recruitment and how do they withstand the hydro-sedimentary stresses occurring during high flow periods? How fluvial management works, and induced morphology and sedimentary features, modify the sediment dynamics and subsequent establishment and maintenance of seedlings? To answer these questions, we developed an ex-situ approach which allowed, under controlled conditions, to determine the influence of the sedimentological characteristics of the substrate on the development and maintenance of seedlings with a specific focus on the root system. Three experiments were carried out for three sedimentary mixtures from the river (sand, sand-gravel and 0.2 m of sand superimposed on sand-gravel mixture) that correspond to grain size and stratigraphy conditions often observed on bars and secondary channels in the Loire. The experimental design includes 108 plots of 1 m3, with 400 seeds per plot (corresponding to the

Loire density measurements) and combining seeds from two species, three sedimentary mixtures, four replicates and three experiments. Experiment 1 (control) is based on the architecture of root systems using the WinRHIZO image analysis software. Experiment 2 is relative to the evaluation of constraints leading to "uprooting" of seedlings. Experiment 3 provides data

417. Topographic and functional neuroanatomical study of GABAergic disinhibitory striatum-nigral inputs and inhibitory nigrocollicular pathways: neural hodology recruiting the substantia nigra, pars reticulata, for the modulation of the neural activity in the inferior colliculus involved with panic-like emotions.

PubMed

Castellan-Baldan, Lissandra; da Costa Kawasaki, Mateus; Ribeiro, Sandro JosÃ©; Calvo, FabrÃcio; CorrÃªa, Vani Maria Alves; Coimbra, Norberto Cysne

2006-08-01

Considering the influence of the substantia nigra on mesencephalic neurons involved with fear-induced reactions organized in rostral aspects of the dorsal midbrain, the present work investigated the topographical and functional neuroanatomy of similar influence on caudal division of the corpora quadrigemina, addressing: (a) the neural hodology connecting the neostriatum, the substantia nigra, periaqueductal gray matter and inferior colliculus (IC) neural networks; (b) the influence of the inhibitory neostriatonigral-nigrocollicular GABAergic links on the control of the defensive behavior organized in the IC. The effects of the increase or decrease of activity of nigrocollicular inputs on defensive responses elicited by either electrical or chemical stimulation of the IC were also determined. Electrolytic or chemical lesions of the substantia nigra, pars reticulata (SNpr), decreased the freezing and escape behaviors thresholds elicited by electrical stimulation of the IC, and increased the behavioral responses evoked by the GABAA blockade in the same sites of the mesencephalic tectum (MT) electrically stimulated. These findings were corroborated by similar effects caused by microinjections of the GABAA-receptor agonist muscimol in the SNpr, followed by electrical and chemical stimulations of the IC. The GABAA blockade in the SNpr caused a significant increase in the defensive behavior thresholds elicited by electrical stimulation of the IC and a decrease in the mean incidence of panic-like responses induced by microinjections of bicuculline in the mesencephalic tectum (inferior colliculus). These findings suggest that the substantia nigra receives GABAergic inputs that modulate local and also inhibitory GABAergic outputs toward the IC. In fact, neurotracing experiments with fast blue and iontophoretic microinjections of biotinylated dextran amine either into the inferior colliculus or in the reticular division of the substantia nigra demonstrated a neural link

418. Fibroblast growth factor (FGF)-2 and FGF receptor 3 are required for the development of the substantia nigra, and FGF-2 plays a crucial role for the rescue of dopaminergic neurons after 6-hydroxydopamine lesion.

PubMed

Timmer, Marco; Cesnulevicius, Konstantin; Winkler, Christian; Kolb, Julia; Lipokatic-Takacs, Esther; Jungnickel, Julia; Grothe, Claudia

2007-01-17

Basic fibroblast growth factor (FGF-2) is involved in the development and maintenance of the nervous system. Exogenous administration of FGF-2 increased dopaminergic (DA) graft survival in different animal models of Parkinson's disease. To study the physiological function of the endogenous FGF-2 system, we analyzed the nigrostriatal system of mice lacking FGF-2, mice overexpressing FGF-2, and FGF-receptor-3 (FGFR3)-deficient mice both after development and after 6-hydroxydopamine lesion. FGFR3-deficient mice (+/-) displayed a reduced number of DA neurons compared with the respective wild type. Whereas absence of FGF-2 led to significantly increased numbers of DA neurons, enhanced

amount of the growth factor in mice overexpressing FGF-2 resulted in less tyrosine hydroxylase expression and a reduced DA cell density. The volumes of the substantia nigra were enlarged in both FGF-2(-/-) and in FGF-2 transgenic mice, suggesting an important role of FGF-2 for the establishment of the proper number of DA neurons and a normal sized substantia nigra during development. In a second set of experiments, the putative relevance of endogenous FGF-2 after neurotoxin application was investigated regarding the number of rescued DA neurons after partial 6-OHDA lesion. Interestingly, the results after lesion were directly opposed to the results after development: significantly less DA neurons survived in FGF-2(-/-) mice compared with wild-type mice. Together, the results indicate that FGFR3 is crucially involved in regulating the number of DA neurons. The lack of FGF-2 seems to be (over)compensated during development, but, after lesion, compensation mechanisms fail. The transgenic mice showed that endogenous FGF-2 protects DA neurons from 6-OHDA neurotoxicity.

419. Scalariform-to-simple transition in vessel perforation plates triggered by differences in climate during the evolution of Adoxaceae

PubMed Central

Lens, Frederic; Vos, Rutger A.; Charrier, Guillaume; van der Niet, Timo; Merckx, Vincent; Baas, Pieter; Aguirre Gutierrez, Jesus; Jacobs, Bart; Chacon DÃ³ria, Larissa; Smets, Erik; Delzon, Sylvain; Janssens, Steven B.

2016-01-01

Background and Aims Angiosperms with simple vessel perforations have evolved many times independently of species having scalariform perforations, but detailed studies to understand why these transitions in wood evolution have happened are lacking. We focus on the striking difference in wood anatomy between two closely related genera of Adoxaceae, Viburnum and Sambucus, and link the anatomical divergence with climatic and physiological insights. Methods After performing wood anatomical observations, we used a molecular phylogenetic framework to estimate divergence times for 127 Adoxaceae species. The conditions under which the genera diversified were estimated using ancestral area reconstruction and optimization of ancestral climates, and xylem-specific conductivity measurements were performed. Key Results Viburnum, characterized by scalariform vessel perforations (ancestral), diversified earlier than Sambucus, having simple perforations (derived). Ancestral climate reconstruction analyses point to cold temperate preference for Viburnum and warm temperate for Sambucus. This is reflected in the xylem-specific conductivity rates of the co-occurring species investigated, showing that Viburnum lantana has rates much lower than Sambucus nigra. Conclusions The lack of selective pressure for high conductive efficiency during early diversification of Viburnum and the potentially adaptive value of scalariform perforations in frost-prone cold temperate climates have led to retention of the ancestral vessel perforation type, while higher temperatures during early diversification of Sambucus have triggered the evolution of simple vessel perforations, allowing more efficient long-distance water transport. PMID:27498812

420. (Poly)phenolic fingerprint and chemometric analysis of white (Morus alba L.) and black (Morus nigra L.) mulberry leaves by using a non-targeted UHPLC-MS approach.

PubMed

SÃ¡nchez-Salcedo, Eva M; Tassotti, Michele; Del Rio, Daniele; HernÃ¡ndez, Francisca; MartÃnez, Juan JosÃ©; Mena, Pedro

2016-12-01

This study reports the (poly)phenolic fingerprinting and chemometric discrimination of leaves of eight mulberry clones from Morus alba and Morus nigra cultivated in Spain. UHPLC-MS(n) (Ultra High Performance Liquid Chromatography-Mass Spectrometry) high-throughput analysis allowed the tentative

identification of a total of 31 compounds. The phenolic profile of mulberry leaf was characterized by the presence of a high number of flavonol derivatives, mainly glycosylated forms of quercetin and kaempferol. Caffeoylquinic acids, simple phenolic acids, and some organic acids were also detected. Seven compounds were identified for the first time in mulberry leaves. The chemometric analysis (cluster analysis and principal component analysis) of the chromatographic data allowed the characterization of the different mulberry clones and served to explain the great intraspecific variability in mulberry secondary metabolism. This screening of the complete phenolic profile of mulberry leaves can assist the increasing interest for purposes related to quality control, germplasm screening, and bioactivity evaluation. Copyright Â© 2016 Elsevier Ltd. All rights reserved.

- «
- 19
- 20
- 21
- 22
- 23
- »

- «
- 20
- 21
- 22
- 23
- 24
- »

421. Ventral tegmental area/substantia nigra and prefrontal cortex rodent organotypic brain slices as an integrated model to study the cellular changes induced by oxygen/glucose deprivation and reperfusion: effect of neuroprotective agents.

PubMed

Colombo, Laura; Parravicini, Chiara; Lecca, Davide; Dossi, Elena; Heine, Claudia; Cimino, Mauro; Wanke, Enzo; Illes, Peter; Franke, Heike; Abbracchio, Maria P

2014-01-01

Unveiling the roles of distinct cell types in brain response to insults is a partially unsolved challenge and a key issue for new neuroreparative approaches. In vivo models are not able to dissect the contribution of residential microglia and infiltrating blood-borne monocytes/macrophages, which are fundamentally undistinguishable; conversely, cultured cells lack original tissue anatomical and functional complexity, which profoundly alters reactivity. Here, we tested whether rodent organotypic co-cultures from mesencephalic ventral tegmental area/substantia nigra and prefrontal cortex (VTA/SN-PFC) represent a suitable model to study changes induced by oxygen/glucose deprivation and reperfusion (OGD/R). OGD/R induced cytotoxicity to both VTA/SN and PFC slices, with higher VTA/SN susceptibility. Neurons were highly affected, with astrocytes and oligodendrocytes undergoing very mild damage. Marked reactive astrogliosis was also evident. Notably, OGD/R triggered the activation of CD68-expressing microglia and increased expression of Ym1 and Arg1, two markers of "alternatively" activated beneficial microglia. Treatment with two well-known neuroprotective drugs, the anticonvulsant agent valproic acid and the purinergic P2-antagonist PPADS, prevented neuronal damage. Thus, VTA/SN-PFC cultures are an integrated model to investigate OGD/R-induced effects on distinct cells and easily screen neuroprotective agents. The model is particularly adequate to dissect the microglia phenotypic shift in the lack of a functional vascular compartment. Copyright Â© 2014 Elsevier Ltd. All rights reserved.

422. First detection of Echinococcus multilocularis infection in two species of nonhuman primates raised in a zoo: a fatal case in Cercopithecus diana and a strongly suspected case of spontaneous recovery in Macaca nigra.

PubMed

Yamano, Kimiaki; Kouguchi, Hirokazu; Uraguchi, Kohji; Mukai, Takeshi; Shibata, Chikako; Yamamoto, Hideaki; Takaesu, Noboru; Ito, Masaki; Makino, Yoshinori; Takiguchi, Mitsuyoshi; Yagi, Kinpei

2014-08-01

The causative parasite of alveolar echinococcosis, Echinococcus multilocularis, maintains its life cycle between red foxes (Vulpes vulples, the definitive hosts) and voles (the intermediate hosts) in Hokkaido, Japan. Primates, including humans, and some other mammal species can be infected by the accidental ingestion of eggs in the feces of red foxes. In August 2011, a 6-year-old zoo-raised female Diana monkey (Cercopithecus diana) died from alveolar echinococcosis. E. multilocularis infection was confirmed by histopathological examination and detection of the E. multilocularis DNA by polymerase chain reaction (PCR). A field survey in the zoo showed that fox intrusion was common, and serodiagnosis of various nonhuman primates using western blotting detected a case of a 14-year-old female Celebes crested macaque (Macaca nigra) that was weakly positive for E. multilocularis. Computed tomography revealed only one small calcified lesion (approximately 8mm) in the macaque's liver, and both western blotting and enzyme-linked immunosorbent assay (ELISA) showed a gradual decline of antibody titer. These findings strongly suggest that the animal had recovered spontaneously. Until this study, spontaneous recovery from E. multilocularis infection in a nonhuman primate had never been reported. Copyright Â© 2014 Elsevier Ireland Ltd. All rights reserved.

423. Paraquat induces oxidative stress, neuronal loss in substantia nigra region and parkinsonism in adult rats: neuroprotection and amelioration of symptoms by water-soluble formulation of coenzyme Q10.

PubMed

Somayajulu-NiÅ£u, Mallika; Sandhu, Jagdeep K; Cohen, Jerome; Sikorska, Marianna; Sridhar, T S; Matei, Anca; Borowy-Borowski, Henryk; Pandey, Siyaram

2009-07-27

Parkinson's disease, for which currently there is no cure, develops as a result of progressive loss of dopamine neurons in the brain; thus, identification of any potential therapeutic intervention for disease management is of a great importance. Here we report that prophylactic application of water-soluble formulation of coenzyme Q10 could effectively offset the effects of environmental neurotoxin paraquat, believed to be a contributing factor in the development of familial PD. In this study we utilized a model of paraquat-induced dopaminergic neurodegeneration in adult rats that received three weekly intra-peritoneal injections of the herbicide paraquat. Histological and biochemical analyses of rat brains revealed increased levels of oxidative stress markers and a loss of approximately 65% of dopamine neurons in the substantia nigra region. The paraquat-exposed rats also displayed impaired balancing skills on a slowly rotating drum (rotorod) evidenced by their reduced spontaneity in gait performance. In contrast, paraquat exposed rats receiving a water-soluble formulation of coenzyme Q10 in their drinking water prior to and during the paraquat treatment neither developed neurodegeneration nor reduced rotorod performance and were indistinguishable from the control paraquat-untreated rats. Our data confirmed that paraquat-induced neurotoxicity represents a convenient rat model of parkinsonian neurodegeneration suitable for mechanistic and neuroprotective studies. This is the first preclinical evaluation of a water-soluble coenzyme Q10 formulation showing the evidence of prophylactic neuroprotection at clinically relevant doses.

424. Paraquat induces oxidative stress, neuronal loss in substantia nigra region and Parkinsonism in adult rats: Neuroprotection and amelioration of symptoms by water-soluble formulation of Coenzyme Q10

PubMed Central

Somayajulu-NiÅ£u, Mallika; Sandhu, Jagdeep K; Cohen, Jerome; Sikorska, Marianna; Sridhar, TS; Matei, Anca; Borowy-Borowski, Henryk; Pandey, Siyaram

2009-01-01

Background Parkinson's disease, for which currently there is no cure, develops as a result of progressive loss of dopamine neurons in the brain; thus, identification of any potential therapeutic intervention for disease management is of a great importance. Results Here we report that prophylactic application of water-soluble formulation of coenzyme Q10 could effectively offset the effects of environmental neurotoxin paraquat, believed to be a contributing factor in the development of familial PD. In this study we utilized a model of paraquat-induced dopaminergic neurodegeneration in adult rats that received three weekly intra-peritoneal injections of the herbicide paraquat. Histological and biochemical analyses of rat brains revealed increased levels of oxidative stress markers and a loss of approximately 65% of dopamine neurons in the substantia nigra region. The paraquat-exposed rats also displayed impaired balancing skills on a slowly rotating drum (rotorod) evidenced by their reduced spontaneity in gait performance. In contrast, paraquat exposed rats receiving a water-soluble formulation of coenzyme Q10 in their drinking water prior to and during the paraquat treatment neither developed neurodegeneration nor reduced rotorod performance and were indistinguishable from the control paraquat-untreated rats. Conclusion Our data confirmed that paraquat-induced neurotoxicity represents a convenient rat model of Parkinsonian neurodegeneration suitable for mechanistic and neuroprotective studies. This is the first preclinical evaluation of a water-soluble coenzyme Q10 formulation showing the evidence of prophylactic neuroprotection at clinically relevant doses. PMID:19635141

425. Genotype differences in 13C discrimination between atmosphere and leaf matter match differences in transpiration efficiency at leaf and whole-plant levels in hybrid Populus deltoides x nigra.

PubMed

Rasheed, Fahad; Dreyer, Erwin; Richard, BÃ©atrice; Brignolas, Franck; Montpied, Pierre; Le Thiec, Didier

2013-01-01

(13) C discrimination between atmosphere and bulk leaf matter (Î”(13) C(lb)) is frequently used as a proxy for transpiration efficiency (TE). Nevertheless, its relevance is challenged due to: (1) potential deviations from the theoretical discrimination model, and (2) complex time integration and upscaling from leaf to whole plant. Six hybrid genotypes of Populus deltoidesÃ—nigra genotypes were grown in climate chambers and tested for whole-plant TE (i.e. accumulated biomass/water transpired). Net CO(2) assimilation rates (A) and stomatal conductance (g(s)) were recorded in parallel to: (1) (13) C in leaf bulk material (Î´(13) C(lb)) and in soluble sugars (Î´(13) C(ss)) and (2) (18) O in leaf water and bulk leaf material. Genotypic means of Î´(13) C(lb) and Î´(13) C(ss) were tightly correlated. Discrimination between atmosphere and soluble sugars was correlated with daily intrinsic TE at leaf level (daily mean A/g(s)), and with whole-plant TE. Finally, g(s) was positively correlated to (18) O enrichment of bulk matter or water of leaves at individual level, but not at genotype level. We conclude that Î”(13) C(lb) captures efficiently the genetic variability of whole-plant TE in poplar. Nevertheless, scaling from leaf level to whole-plant TE requires to take into account water losses and respiration independent of photosynthesis, which remain poorly documented. Â© 2012 Blackwell Publishing Ltd.

426. Panicolytic-like effects caused by substantia nigra pars reticulata pretreatment with low doses of endomorphin-1 and high doses of CTOP or the NOP receptors antagonist JTC-801 in male Rattus

norvegicus.

PubMed

da Silva, Juliana Almeida; Biagioni, Audrey Franceschi; Almada, Rafael Carvalho; de Freitas, Renato Leonardo; Coimbra, Norberto Cysne

2017-10-01

Gamma-aminobutyric acid (GABA)ergic neurons of the substantia nigra pars reticulata (SNpr) are connected to the deep layers of the superior colliculus (dlSC). The dlSC, in turn, connect with the SNpr through opioid projections. Nociceptin/orphanin FQ peptide (N/OFQ) is a natural ligand of a Gi protein-coupled nociceptin receptor (ORL1; NOP) that is also found in the SNpr. Our hypothesis is that tectonigral opioid pathways and intranigral orphanin-mediated mechanisms modulate GABAergic nigrotectal connections. Therefore, the aim of this work was to study the role of opioid and NOP receptors in the SNpr during the modulation of defence reactions organised by the dlSC. The SNpr was pretreated with either opioid or NOP receptor agonists and antagonists, followed by dlSC treatment with bicuculline. Blockade of GABA A receptors in the dlSC elicited fear-related defensive behaviour. Pretreatment of the SNpr with naloxone benzoylhydrazone (NalBzoH), a Î¼-, Î´-, and Îº 1 -opioid receptor antagonist as well as a NOP receptor antagonist, decreased the aversive effect of bicuculline treatment on the dlSC. Either Î¼-opioid receptor activation or blockade by SNpr microinjection of endomorphin-1 (EM-1) and CTOP promoted pro-aversive and anti-aversive actions, respectively, that modulated the defensive responses elicited by bicuculline injection into the dlSC. Pretreatment of the SNpr with the selective NOP receptor antagonist JTC801 decreased the aversive effect of bicuculline, and microinjections of the selective NOP receptor agonist NNC 63-0532 promoted the opposite effect. These results demonstrate that opioid pathways and orphanin-mediated mechanisms have a critical role in modulating the activity of nigrotectal GABAergic pathways during the organisation of defensive behaviours.

427. Compensatory T-type Ca2+ channel activity alters D2-autoreceptor responses of Substantia nigra dopamine neurons from Cav1.3 L-type Ca2+ channel KO mice.

PubMed

Poetschke, Christina; Dragicevic, Elena; Duda, Johanna; Benkert, Julia; Dougalis, Antonios; DeZio, Roberta; Snutch, Terrance P; Striessnig, Joerg; Liss, Birgit

2015-09-18

The preferential degeneration of Substantia nigra dopamine midbrain neurons (SN DA) causes the motor-symptoms of Parkinson's disease (PD). Voltage-gated L-type calcium channels (LTCCs), especially the Cav1.3-subtype, generate an activity-related oscillatory Ca(2+) burden in SN DA neurons, contributing to their degeneration and PD. While LTCC-blockers are already in clinical trials as PD-therapy, age-dependent functional roles of Cav1.3 LTCCs in SN DA neurons remain unclear. Thus, we analysed juvenile and adult Cav1.3-deficient mice with electrophysiological and molecular techniques. To unmask compensatory effects, we compared Cav1.3 KO mice with pharmacological LTCC-inhibition. LTCC-function was not necessary for SN DA pacemaker-activity at either age, but rather contributed to their pacemaker-precision. Moreover, juvenile Cav1.3 KO but not WT mice displayed adult wildtype-like, sensitised inhibitory dopamine-D2-autoreceptor (D2-AR) responses that depended upon both, interaction of the neuronal calcium sensor NCS-1 with D2-ARs, and on voltage-gated T-type calcium channel (TTCC) activity. This functional KO-phenotype was accompanied by cell-specific up-regulation of NCS-1 and Cav3.1-TTCC mRNA. Furthermore, in wildtype we identified an age-dependent switch of TTCC-function from contributing to SN DA pacemaker-precision in juveniles to pacemaker-frequency in adults. This novel interplay of Cav1.3 L-type and Cav3.1 T-type channels, and their modulation of SN DA activity-pattern and D2-AR-sensitisation, provide new insights into flexible age- and calcium-dependent activity-control of SN DA neurons and its pharmacological modulation.

428. The response of male and female black poplar (Populus nigra L. subspecies betulifolia (Pursh) W. Wettst.) cuttings to different water table depths and sediment types: implications for flow management and river corridor biodiversity

NASA Astrophysics Data System (ADS)

Hughes, Francine M. R.; Barsoum, Nadia; Richards, Keith S.; Winfield, Mark; Hayes, Adrian

2000-10-01

Management of river flows has altered the pattern of flood arrival times and reduced their frequency and duration on many European floodplains. Floodplain tree species depend on floods both to provide new sites for their regeneration and to recharge water tables at various depths in the rooting zone. A reduction in floods is one factor that has led to loss of river corridor biodiversity, with early successional tree species from the Salicaceae being particularly adversely affected. Members of the Salicaceae are dioecious and it is possible that the males and females of these species have measurably different water table requirements, which might lead to spatial segregation of the sexes on a floodplain. This paper describes an investigation that was carried out into the response of male and female black poplar (Populus nigra L. subspecies betulifolia (Pursh) W. Wettst.) to different soil moisture conditions. An experiment was set up on an alluvial island in the River Great Ouse (UK) in which cuttings of male and female black poplar were grown in different sediment types with different water table levels. The experiment was carried out over two field seasons in 1997 and 1998. Results showed that females tended to prefer wetter and more nutrient-rich sites than males but that there was considerable overlap in their requirements. A complementary genetic study showed very little genetic variation in the experimental population, which may also partially explain the relatively low level of variation between the two sexes found in the study. It is suggested that some limited spatial segregation of the sexes does occur in response to soil moisture availability and that river flow management which aims to maintain or increase river corridor biodiversity may need to take this into account.

429. Expression patterns of WRKY genes in di-haploid Populus simonii Ã— P. nigra in response to salinity stress revealed by quantitative real-time PCR and RNA sequencing.

PubMed

Wang, Shengji; Wang, Jiying; Yao, Wenjing; Zhou, Boru; Li, Renhua; Jiang, Tingbo

2014-10-01

Spatio-temporal expression patterns of 13 out of 119 poplar WRKY genes indicated dynamic and tissue-specific roles of WRKY family proteins in salinity stress tolerance. To understand the expression patterns of poplar WRKY genes under salinity stress, 51 of the 119 WRKY genes were selected from di-haploid Populus simonii Ã— P. nigra by quantitative real-time PCR (qRT-PCR). We used qRT-PCR to profile the expression of the top 13 genes under salinity stress across seven time points, and employed RNA-Seq platforms to cross-validate it. Results demonstrated that all the 13 WRKY genes were expressed in root, stem, and leaf tissues, but their expression levels and overall patterns varied notably in these tissues. Regarding overall gene expression in roots, the 13 genes were significantly highly expressed at all six time points after the treatment, reaching the plateau of expression at hour 9. In leaves, the 13 genes were similarly up-regulated from 3 to 12 h in response to NaCl treatment. In stems, however, expression levels of the 13 genes did not show significant changes after the NaCl treatment. Regarding individual gene expression across the time points and the three tissues, the 13 genes can be classified into three clusters: the lowly expressed Cluster 1 containing PthWRKY28, 45 and 105; intermediately expressed Clusters 2 including PthWRKY56, 88 and 116; and highly expressed Cluster 3 consisting of PthWRKY41, 44, 51, 61, 62, 75 and 106. In general, genes in Cluster 2 and 3 displayed a dynamic pattern of "induced amplification-recovering", suggesting that these WRKY genes and corresponding pathways may play a critical role in mediating salt response and tolerance in a dynamic and tissue-specific manner.

430. Effects of treadmill exercise on behavioral recovery and neural changes in the substantia nigra and striatum of the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-lesioned mouse

PubMed Central

Goldberg, Natalie R.S.; Meshul, Charles K.

2011-01-01

Our goal was to extend our understanding of the neural changes behind motor recovery with treadmill exercise in the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-lesioned mouse. We determined the extent of dopamine (DA) terminal changes using western immunoblotting [striatal dopamine transporter (DAT) and tyrosine hydroxylase (TH)] and alterations in the mean number of DA cells/section by immunohistochemistry and Nissl staining [TH-labeled cells and thionin-stained cells in the substantia nigra pars compacta (SN-PC)]. We measured recovery of gait performance and amount of spontaneous physical activity using the parallel rod activity chamber (PRAC). We hypothesized that the decrease in TH-labeled neurons in the SN-PC due to MPTP will be partially reversed by treadmill exercise, leading to recovery of motor behavior as measured by the PRAC. Following MPTP or vehicle administration, mice ran on the treadmill for 1 hour per day at 18 cm/s, 5 days per week. Results showed that treadmill exercise improves gait performance and increases physical activity while promoting increased protein expression of striatal DAT and TH. Exercise was effective for all mice, however effects of early treadmill-based intervention appear to have an additional and unique benefit in mice who received MPTP. We are the first to show that, even following a nearly 50% decrease in the mean number of TH-labeled neurons/section in the SN-PC following MPTP, treadmill exercise leads to an increase of neurons in the SN-PC and improved motor behavior. PMID:21315689

431. Density and egg parasitism of stink bugs (hemiptera: Pentatomidae) in elderberry and dispersal into crops

USDA-ARS?s Scientific Manuscript database

Chinavia hilaris (Say), Euschistus servus (Say), E. tristigmus (Say), and Thyanta custator custator (F.) (Hemiptera: Pentatomidae) are serious pests of crops in the southeastern USA, but little is known concerning the dispersal of these stink bugs from non-crop host plants in woodland habitats into ...

432. 78 FR 4812 - Endangered and Threatened Wildlife and Plants; Removal of the Valley Elderberry Longhorn Beetle...

Federal Register 2010, 2011, 2012, 2013, 2014

2013-01-23

... a separate document, our preferred file format is Microsoft Word. If you attach multiple comments (such as form letters), our preferred format is a Microsoft Excel spreadsheet. (2) By Hard Copy: Submit...

433. AAV1/2-induced overexpression of A53T-Î±-synuclein in the substantia nigra results in degeneration of the nigrostriatal system with Lewy-like pathology and motor impairment: a new mouse model for Parkinson's disease.

PubMed

Ip, Chi Wang; Klaus, Laura-Christin; Karikari, Akua A; Visanji, Naomi P; Brotchie, Jonathan M; Lang, Anthony E; Volkmann, Jens; Koprich, James B

2017-02-01

Î±-Synuclein is a protein implicated in the etiopathogenesis of Parkinson's disease (PD). AAV1/2-driven overexpression of human mutated A53T-Î±-synuclein in rat and monkey substantia nigra (SN) induces degeneration of nigral dopaminergic neurons and decreases striatal dopamine and tyrosine hydroxylase (TH). Given certain advantages of the mouse, especially it being amendable to genetic manipulation, translating the AAV1/2-A53T Î±-synuclein model to mice would be of significant value. AAV1/2-A53T Î±-synuclein or AAV1/2 empty vector (EV) at a concentration of 5.16 x 10 12 gp/ml were unilaterally injected into the right SN of male adult C57BL/6 mice. Post-mortem examinations included immunohistochemistry to analyze nigral Î±-synuclein, Ser129 phosphorylated Î±-synuclein and TH expression, striatal dopamine transporter (DAT) levels by autoradiography and dopamine levels by high performance liquid chromatography. At 10Â weeks, in AAV1/2-A53T Î±-synuclein mice there was a 33% reduction in TH+ dopaminergic nigral neurons (Pâ€‰<â€‰0.001), 29% deficit in striatal DAT binding (Pâ€‰<â€‰0.05), 38% and 33% reductions in dopamine (Pâ€‰<â€‰0.001) and DOPAC (Pâ€‰<â€‰0.01) levels and a 60% increase in dopamine turnover (homovanilic acid/dopamine ratio; Pâ€‰<â€‰0.001). Immunofluorescence showed that the AAV1/2-A53T Î±-synuclein injected mice had widespread nigral and striatal expression of vector-delivered A53T-Î±-synuclein. Concurrent staining with human PD SN samples using gold standard histological methodology for Lewy pathology detection by proteinase K digestion and application of specific antibody raised against human Lewy body Î±-synuclein (LB509) and Ser129 phosphorylated Î±-synuclein (81A) revealed insoluble Î±-synuclein aggregates in AAV1/2-A53T Î±-synuclein mice resembling Lewy-like neurites and bodies. In the cylinder test, we observed significant paw use asymmetry in the AAV1/2-A53T Î±-synuclein group when compared to EV controls at 5 and 9Â weeks post injection (Pâ

434. Resprout and survival of willows (Salix purpurea and S. incana), Poplars (Populus nigra) and Tamaris (Tamarix gallica) cuttings in marly gullies with Southern aspect in a mountainous and Mediterranean climate (Southern Alps, France)

    NASA Astrophysics Data System (ADS)

    Rey, Freddy; Labonne, Sophie; Dangla, Laure; Lavandier, GÃ©raud

    2014-05-01

    In the Southern French Alps under a mountainous and Mediterranean climate, a current strategy of bioengineering is developed for trapping sediment in marly gullies with surface area less than 1 ha. It is based on the use of structures in the form of brush layers and brush mats of cuttings on deadwood microdams. Purple and white Willows (Salix purpurea and S. incana) are recommended here as they proved their efficiency to resprout and survive in such environment. However, these species installed in Southern gullies did not survive in previous experiments, due to the too harsh conditions of solar radiation and drought. We thus decided to test other species, namely black Poplar (Populus nigra) and Tamaris (Tamarix gallica), which proved their resistance to drought conditions in other experiments. To this view, bioengineering structures have been built in 2010 in eroded marly gullies in the Roubines and Fontaugier catchments (Southern Alps, France). We tested two installation modalities: one in spring and a second in autumn. Seventy-eight bioengineering structures (50 in spring and 28 in autumn), among which 32 made with Poplar cuttings and 28 with Tamaris cuttings, as well as 11 structures with purple Willow and 7 with white Willow as controls, were built in 6 experimental gullies. After 3 observation years for each modality (2010 to 2012, and 2011 to 2013, respectively), results first revealed that Willow species succeeded in surviving in gullies in Southern aspect (76 % for the cuttings installed in spring and 52 % for those installed in autumn), which is in contradiction with previous results. Second, Poplar showed a good ability to survive (62 % for the cuttings installed in spring and 33 % for those installed in autumn). Tamaris obtained the worst score with 26 % and 38 % of survival for the cuttings installed in spring and autumn, respectively. Globally, excepted for Tamaris, survival rates were better for the cuttings installed in spring. The bioengineering

435. Substantia nigra and Parkinson disease (image)

MedlinePlus

... is a slowly progressive disorder that affects movement, muscle control, and balance. Part of the disease process develops as cells are destroyed in certain parts of the brain stem, particularly the crescent-shaped cell mass known as ...

436. Inhibitory effects of Turkish folk remedies on inflammatory cytokines: interleukin-1alpha, interleukin-1beta and tumor necrosis factor alpha.

PubMed

YeÅŸilada, E; UstÃ¼n, O; Sezik, E; Takaishi, Y; Ono, Y; Honda, G

1997-09-01

In this study, in vitro inhibitory effects of 55 extracts or fractions obtained from 10 plant species on interleukin-1 (IL-1alpha, IL-1beta) and tumor necrosis factor (TNF-alpha) biosynthesis were studied. The following plant materials from Turkish folk medicine for the treatment of various diseases which are thought to be inflammatory in nature e.g. rheumatism, fever, infections, edemas or related inflammatory diseases were selected as the subject of this study: Cistus laurifolius leaves, Clematis flammna flowering herbs, Crataegus orientalis roots, Daphne oleoides ssp. oleoides whole plant, Ecbalium elaterium roots, Rosa canina roots, Rubus discolor roots, Rubus hirtus roots, Sambucus ebulus flowers and leaves, Sambucus nigra flowers and leaves. All plants showed inhibitory activity against at least one of these models in various percentages depending upon the concentration, thus supporting the folkloric utilization. Daphne oleoides was found to be the most active plant against the test models.

437. ELECTROCHEMICAL FINGERPRINT STUDIES OF SELECTED MEDICINAL PLANTS RICH IN FLAVONOIDS.

PubMed

KonieczyÅ„ski, PaweÅ‚

2015-01-01

The combination of a size-exclusion column (SEC) with electrochemical (voltammetric) detection at a boron-doped diamond electrode (BDDE) was applied for studying the correlations between electroactive Cu and Fe species with phenolic groups of flavonoids. For comparison with electrochemical results, SEC-HPLC-DAD detection was used. The studied plant material comprised of: Betula verrucosa Ehrh., Equisetun arvense L., Polygonum aviculare L., Viola tricolor L., Crataegus oxyacantha L., Sambucus nigra L. and Helichrysum arenarium (L.) Moench. Based upon the results, high negative correlation was found for the chromatographic peak currents at 45 min with the sum of Cu and Fe for the aqueous extracts of Sambucus, Crataegus and Betula species, and for the peak currents at 65 min of the aqueous extracts of Sambucus, Crataegus, Helichrysum and Betula botanical species. This behavior confirms that it is mainly the flavonoids with easily oxidizable phenolic groups which are strongly influenced by the presence of Cu and Fe. Moreover, the electrochemical profiles obtained thanks to the use of HPLC hyphenated with voltammetric detection can be potentially applied for fingerprint studies of the plant materials used in medicine.

438. Phenological synchronization disrupts trophic interactions between Kodiak brown bears and salmon

PubMed Central

Deacy, William W.; Armstrong, Jonathan B.; Leacock, William B.; Robbins, Charles T.; Gustine, David D.; Ward, Eric J.; Erlenbach, Joy A.; Stanford, Jack A.

2017-01-01

Climate change is altering the seasonal timing of life cycle events in organisms across the planet, but the magnitude of change often varies among taxa [Thackeray SJ, et al. (2016) Nature 535:241â€“245]. This can cause the temporal relationships among species to change, altering the strength of interaction. A large body of work has explored what happens when coevolved species shift out of sync, but virtually no studies have documented the effects of climate-induced synchronization, which could remove temporal barriers between species and create novel interactions. We explored how a predator, the Kodiak brown bear (Ursus arctos middendorffi), responded to asymmetric phenological shifts between its primary trophic resources, sockeye salmon (Oncorhynchus nerka) and red elderberry (Sambucus racemosa). In years with anomalously high spring air temperatures, elderberry fruited several weeks earlier and became available during the period when salmon spawned in tributary streams. Bears departed salmon spawning streams, where they typically kill 25â€“75% of the salmon [Quinn TP, Cunningham CJ, Wirsing AJ (2016) Oecologia 183:415â€“429], to forage on berries on adjacent hillsides. This prey switching behavior attenuated an iconic predatorâ€“prey interaction and likely altered the many ecological functions that result from bears foraging on salmon [Helfield JM, Naiman RJ (2006) Ecosystems 9:167â€“180]. We document how climate-induced shifts in resource phenology can alter food webs through a mechanism other than trophic mismatch. The current emphasis on singular consumer-resource interactions fails to capture how climate-altered phenologies reschedule resource availability and alter how energy flows through ecosystems. PMID:28827339

439. Decreased expression of serum- and glucocorticoid-inducible kinase 1 (SGK1) promotes alpha-synuclein increase related with down-regulation of dopaminergic cell in the Substantia Nigra of chronic MPTP-induced Parkinsonism mice and in SH-SY5Y cells.

PubMed

Yeo, Sujung; Sung, Backil; Hong, Yeon-Mi; van den Noort, Maurits; Bosch, Peggy; Lee, Sook-Hyun; Song, Jongbeom; Park, Sang-Kyun; Lim, Sabina

2018-06-30

Parkinson's disease (PD) is a chronically progressive neurodegenerative disease, with its main pathological hallmarks being a dramatic loss of dopaminergic neurons predominantly in the Substantia Nigra (SN), and the formations of intracytoplasmic Lewy bodies and dystrophic neurites. Alpha-synuclein (Î±-syn), widely recognized as the most prominent element of the Lewy body, is one of the representative hallmarks in PD. However, the mechanisms behind the increased Î±-syn expression and aggregation have not yet been clarified. To examine what causes Î±-syn expression to increase, we analyzed the pattern of gene expression in the SN of mice intoxicated with 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), where down-regulation of dopaminergic cells occurred. We identified serum- and glucocorticoid-dependent kinase 1 (SGK1) as one of the genes that is evidently downregulated in chronic MPTP-intoxication. The results of Western blot analyses showed that, together with the down-regulation of dopaminergic cells, the decrease in SGK1 expression increased Î±-syn expression in the SN in a chronic MPTP-induced Parkinsonism mouse. For an examination of the expression correlation between SGK1 and Î±-syn, SH-5YSY cells were knocked down with SGK1 siRNA then, the downregulation of dopaminergic cells and the increase in the expression of Î±-syn were observed. These results suggest that decreased expression of SGK1 may play a critical role in increasing the expression of Î±-syn, which is related with dopaminergic cell death in the SN of chronic MPTP-induced Parkinsonism mice and in SH-SY5Y cells. Copyright Â© 2018. Published by Elsevier B.V.

440. Biodegradation of nitro-substituted explosives 2,4,6-trinitrotoluene, hexahydro-1,3,5-trinitro-1,3,5-triazine, and octahydro-1,3,5,7-tetranitro-1,3,5-tetrazocine by a phytosymbiotic Methylobacterium sp. associated with poplar tissues (Populus deltoides x nigra DN34).

PubMed

Van Aken, Benoit; Yoon, Jong Moon; Schnoor, Jerald L

2004-01-01

A pink-pigmented symbiotic bacterium was isolated from hybrid poplar tissues (Populus deltoides x nigra DN34). The bacterium was identified by 16S and 16S-23S intergenic spacer ribosomal DNA analysis as a Methylobacterium sp. (strain BJ001). The isolated bacterium was able to use methanol as the sole source of carbon and energy, which is a specific attribute of the genus Methylobacterium. The bacterium in pure culture was shown to degrade the toxic explosives 2,4,6-trinitrotoluene (TNT), hexahydro-1,3,5-trinitro-1,3,5-triazene (RDX), and octahydro-1,3,5,7-tetranitro-1,3,5-tetrazocine (HMX). [U-ring-(14)C]TNT (25 mg liter(-1)) was fully transformed in less than 10 days. Metabolites included the reduction derivatives amino-dinitrotoluenes and diamino-nitrotoluenes. No significant release of (14)CO(2) was recorded from [(14)C]TNT. In addition, the isolated methylotroph was shown to transform [U-(14)C]RDX (20 mg liter(-1)) and [U-(14)C]HMX (2.5 mg liter(-1)) in less than 40 days. After 55 days of incubation, 58.0% of initial [(14)C]RDX and 61.4% of initial [(14)C]HMX were mineralized into (14)CO(2). The radioactivity remaining in solution accounted for 12.8 and 12.7% of initial [(14)C]RDX and [(14)C]HMX, respectively. Metabolites detected from RDX transformation included a mononitroso RDX derivative and a polar compound tentatively identified as methylenedinitramine. Since members of the genus Methylobacterium are distributed in a wide diversity of natural environments and are very often associated with plants, Methylobacterium sp. strain BJ001 may be involved in natural attenuation or in situ biodegradation (including phytoremediation) of explosive-contaminated sites.

- «
- 20
- 21
- 22
- 23
- 24
- »

- «
- 21
- 22
- 23
- 24
- 25
- »

441. Biodegradation of Nitro-Substituted Explosives 2,4,6-Trinitrotoluene, Hexahydro-1,3,5-Trinitro-1,3,5-Triazine, and Octahydro-1,3,5,7-Tetranitro-1,3,5-Tetrazocine by a Phytosymbiotic Methylobacterium sp. Associated with Poplar Tissues (Populus deltoides Ã— nigra DN34)

PubMed Central

Van Aken, Benoit; Yoon, Jong Moon; Schnoor, Jerald L.

2004-01-01

A pink-pigmented symbiotic bacterium was isolated from hybrid poplar tissues (Populus deltoides Ã— nigra DN34). The bacterium was identified by 16S and 16S-23S intergenic spacer ribosomal DNA analysis as a Methylobacterium sp. (strain BJ001). The isolated bacterium was able to use methanol as the sole source of carbon and energy, which is a specific attribute of the genus Methylobacterium. The bacterium in pure culture was shown to degrade the toxic explosives 2,4,6-trinitrotoluene (TNT), hexahydro-1,3,5-trinitro-1,3,5-triazene (RDX), and octahydro-1,3,5,7-tetranitro-1,3,5-tetrazocine (HMX). [U-ring-14C]TNT (25 mg literâˆ’1) was fully transformed in less than 10 days. Metabolites included the

reduction derivatives amino-dinitrotoluenes and diamino-nitrotoluenes. No significant release of 14CO2 was recorded from [14C]TNT. In addition, the isolated methylotroph was shown to transform [U-14C]RDX (20 mg literâˆ’1) and [U-14C]HMX (2.5 mg literâˆ’1) in less than 40 days. After 55 days of incubation, 58.0% of initial [14C]RDX and 61.4% of initial [14C]HMX were mineralized into 14CO2. The radioactivity remaining in solution accounted for 12.8 and 12.7% of initial [14C]RDX and [14C]HMX, respectively. Metabolites detected from RDX transformation included a mononitroso RDX derivative and a polar compound tentatively identified as methylenedinitramine. Since members of the genus Methylobacterium are distributed in a wide diversity of natural environments and are very often associated with plants, Methylobacterium sp. strain BJ001 may be involved in natural attenuation or in situ biodegradation (including phytoremediation) of explosive-contaminated sites. PMID:14711682

442. Tinea nigra showing a parallel ridge pattern on dermoscopy.

PubMed

Noguchi, Hiromitsu; Hiruma, Masataro; Inoue, Yuji; Miyata, Keishi; Tanaka, Masaru; Ihn, Hironobu

2015-05-01

An 18-year-old healthy female student noticed a brown macule measuring 21Â mm in diameter on the left palm and visited our clinic concerned about a cancerous mole. Dermoscopic examination revealed a brown, fine-dotted and granule-like structure overlapping an amorphous light brown macule. However, unlike previous cases, analysis of the high dynamic range-converted image revealed the parallel ridge pattern frequently observed in malignant melanomas. Brown mycelia were detected on direct microscopic examination; black colonies were isolated on fungal culture and the fungus was identified as Hortaea werneckii. The lesion was treated with topical ketoconazole cream, and it diminished 1Â month later. Â© 2015 Japanese Dermatological Association.

443. In Vivo Digital Phyto Imaging (IDPI) in Juglans Nigra Seeds

Treesearch

John A. Vozzo; R. Patel; A. Terrel

1998-01-01

A major disadvantage of conventional seed radiography is that the resulting image will not distinguish full-viable seeds from full-nonviable. Empty seeds will imbibe sufficient water to appear full, but these are easily distinguished by radiography before imbibition. Full seeds, both viable and nonviable, have 25 to 35% moisture content when freshly collected. This is...

444. Determinants of immigration strategies in male crested macaques (Macaca nigra)

PubMed Central

Marty, Pascal R.; Hodges, Keith; Agil, Muhammad; Engelhardt, Antje

2016-01-01

Immigration into a new group can produce substantial costs due to resistance from residents, but also reproductive benefits. Whether or not individuals base their immigration strategy on prospective cost-benefit ratios remains unknown. We investigated individual immigration decisions in crested macaques, a primate species with a high reproductive skew in favour of high-ranking males. We found two different strategies. Males who achieved low rank in the new group usually immigrated after another male had immigrated within the previous 25 days and achieved high rank. They never got injured but also had low prospective reproductive success. We assume that these males benefitted from immigrating into a

destabilized male hierarchy. Males who achieved high rank in the new group usually immigrated independent of previous immigrations. They recieved injuries more frequently and therefore bore immigration costs. They, however, also had higher reproductive success prospects. We conclude that male crested macaques base their immigration strategy on relative fighting ability and thus potential rank in the new group i.e. potential reproductive benefits, as well as potential costs of injury. PMID:27535622

445. Nutrient and energy content, in vitro ruminal fermentation characteristics and methanogenic potential of alpine forage plant species during early summer.

PubMed

Jayanegara, Anuraga; Marquardt, Svenja; Kreuzer, Michael; Leiber, Florian

2011-08-15

Plants growing on alpine meadows are reported to be rich in phenols. Such compounds may affect ruminal fermentation and reduce the plants' methanogenic potential, making alpine grazing advantageous in this respect. The objective of this study was to quantify nutrients and phenols in Alpine forage grasses, herbs and trees collected over 2 years and, in a 24 h in vitro incubation, their effects on ruminal fermentation parameters. The highest in vitro gas production, resulting in metabolisable energy values around 10 MJ kgâ□»Â¹, were found with Alchemilla xanthochlora and Crepis aurea (herbaceous species) and with Sambucus nigra leaves and flowers (tree species). Related to the amount of total gas production, methane formation was highest with Nardus stricta, and lowest with S. nigra and A. xanthochlora. In addition, Castanea sativa leaves led to an exceptional low methane production, but this was accompanied by severely impaired ruminal fermentation. When the data were analysed by principal component analysis, phenol concentrations were negatively related with methane proportion in total gas. Variation in methane production potential across the investigated forages was small. The two goals of limited methane production potential and high nutritive value for ruminants were met best by A. xanthochlora and S. nigra. Copyright Â© 2011 Society of Chemical Industry.

446. Quorum Sensing Inhibitors for Staphylococcus aureus from Italian Medicinal Plants

PubMed Central

Quave, Cassandra L.; Plano, Lisa R.W.; Bennett, Bradley C.

2010-01-01

Morbidity and mortality estimates due to methicillin-resistant Staphylococcus aureus (MRSA) infections continue to rise. Therapeutic options are limited by antibiotic resistance. Anti-pathogenic compounds, which inhibit quorum sensing (QS) pathways, may be a useful alternative to antibiotics. Staphylococcal QS is encoded by the agr locus and is responsible for the production of Î´-hemolysin. Quantification of Î´-hemolysin found in culture supernatants permits the analysis of agr activity at the translational, rather than transcriptional, level. We employed RP-HPLC techniques to investigate the anti-QS activity of 168 extracts from 104 Italian plants through quantification of Î´-hemolysin. Extracts from three medicinal plants (Ballota nigra, Castanea sativa, and Sambucus ebulus) exhibited a dose-dependent response in the production of Î´-hemolysin, indicating strong anti-QS activity in a pathogenic MRSA isolate. PMID:20645243

447. Effect of natural extracts pH on morphological characteristics of hybrid materials based on gold nanoparticles

NASA Astrophysics Data System (ADS)

Olenic, L.; Vulcu, A.; Chiorean, I.; Crisan, M.; Berghian-Grosan, C.; Dreve, S.; David, L.; Tudoran, L. B.; Kacso, I.; Bratu, I.; Neamtu, C.; Voica, C.

2013-11-01

In the present paper we have investigated the pH influence on the morphology of some new hybrid materials based on gold nanoparticles and natural extracts from fruits of Romanian native plants of Adoxaceae family (Viburnum opulus L. and Sambucus nigra L.). It is well known that the natural plants extracts are beneficial for humans thanks to their antioxidant, anti-inflammatory and immunomodulatory effects. The biological activity of these berries is mainly due to their high content of anthocyanins and other polyphenols. The nanoparticles facilitate the penetration of substances in skin, enhancing their antimitotic, anti-inflammatory and antibiotic properties. We have chosen the optimal method to get these materials in which gold nanoparticles of 10-80 nm were obtained. We characterized them by UV-Vis and FT-IR spectroscopy, by TEM and DSC. Creams prepared with the hybrid materials have been tested on psoriatic lesions and the medical results emphasized a remarkable improvement in this diseases.

448. Berry fruits: compositional elements, biochemical activities, and the impact of their intake on human health, performance, and disease.

PubMed

Seeram, Navindra P

2008-02-13

An overwhelming body of research has now firmly established that the dietary intake of berry fruits has a positive and profound impact on human health, performance, and disease. Berry fruits, which are commercially cultivated and commonly consumed in fresh and processed forms in North America, include blackberry (Rubus spp.), black raspberry (Rubus occidentalis), blueberry (Vaccinium corymbosum), cranberry (i.e., the American cranberry, Vaccinium macrocarpon, distinct from the European cranberry, V. oxycoccus), red raspberry (Rubus idaeus) and strawberry (Fragaria x ananassa). Other berry fruits, which are lesser known but consumed in the traditional diets of North American tribal communities, include chokecherry (Prunus virginiana), highbush cranberry (Viburnum trilobum), serviceberry (Amelanchier alnifolia), and silver buffaloberry (Shepherdia argentea). In addition, berry fruits such as arctic bramble (Rubus articus), bilberries (Vaccinuim myrtillus; also known as bog whortleberries), black currant (Ribes nigrum), boysenberries (Rubus spp.), cloudberries (Rubus chamaemorus), crowberries (Empetrum nigrum, E. hermaphroditum), elderberries (Sambucus spp.), gooseberry (Ribes uva-crispa), lingonberries (Vaccinium vitis-idaea), loganberry (Rubus loganobaccus), marionberries (Rubus spp.), Rowan berries (Sorbus spp.), and sea buckthorn (Hippophae rhamnoides), are also popularly consumed in other parts of the world. Recently, there has also been a surge in the consumption of exotic "berry-type" fruits such as the pomegranate (Punica granatum), goji berries (Lycium barbarum; also known as wolfberry), mangosteen (Garcinia mangostana), the Brazilian aÃ§aÃ berry (Euterpe oleraceae), and the Chilean maqui berry (Aristotelia chilensis). Given the wide consumption of berry fruits and their potential impact on human health and disease, conferences and symposia that target the latest scientific research (and, of equal importance, the dissemination of

449. Possibilities of cultivating ornamental trees and shrubs under conditions of air pollution with oxides of sulfur

SciTech Connect

Bialobok, S.; Bartkowiak, S.; Rachwal, L.

1974-01-01

The field work conducted has shown that high concentrations of SO/sub 2/ in the air can be withstood by the following trees and shrubs. Trees: Acer campestris, A. platanoides, Ailanthus altissima, Aesculus hippocastanum, Morus alba, Platanus acerifolia, Pinus strobur, P. nigra, Populus Berolinensis, P. candicans, P. Hybr. 27, P. Marilandica, P. simonii, P. Serotina, Quercus robus, Robinia pseudoacacia. Shrubs: Caragana arborescens, Crataegus oxyacantha, C. monogyna, Cerasus mehaleb, Forsythia/most of the species and varieties/, Ligustrum vulgare, Philadelphus coronaria, Ptelea trifoliata, Sambucus nigra, Salix caprea, Sorbaria sorbifolia, Sorbus aucuparia, Taxus baccata. For the selection of trees and shrubs in the laboratory, highmoreÂ Â» concentrations of SO/sub 2/ were used (60-150 ppm for a period of 10 minutes). Experiments were conducted on cut shrubs kept in the gas chambers. In order to estimate the degree of their injury, they were transferred to a shaded greenhouse. A concentration of 65 ppm of SO/sub 2/ could be withstood by the following Forsythias: Forsythia intermedia Primulina, F. Densiflora, F. Spectabilis, F. giraldina, F. suspensa, F. koreana, F. ovata, F. japonica and Hippophae rhamnoides. A concentration of 130 ppm could be withstood only by F. intermedia Vitelina. A similarly high concentration of SO/sub 2/ could be withstood by shoots and leaves of Ailanthus girladii Duclouxii and by Platanus acerifolia. From among the lilacs Syringa pekinensis and S. amurensis proved resistant to high concentrations of SO/sub 2/.Â«Â less

450. Edible Flowers: A Rich Source of Phytochemicals with Antioxidant and Hypoglycemic Properties.

PubMed

Loizzo, Monica Rosa; Pugliese, Alessandro; Bonesi, Marco; Tenuta, Maria Concetta; Menichini, Francesco; Xiao, Jianbo; Tundis, Rosa

2016-03-30

Edible flowers are receiving renewed interest as rich sources of bioactive compounds. Ethanol extracts of eight edible flowers were phytochemically characterized and investigated for their bioactivity. Rutin, quercetin, luteolin, kaempferol, and myricetin were selected as standards and quantified by HPLC. The fatty acid profile was analyzed by GC and GC-MS. Antioxidant properties were evaluated by using different in vitro tests. The hypoglycemic effects were investigated via the inhibition of Î±-amylase and Î±-glucosidase. Sambucus nigra exhibited the highest radical-scavenging activity (IC50 of 1.4 Î¼g/mL), followed by Hedysarum coronarium (IC50 of 1.6 Î¼g/mL). Both species contained high quercetin and rutin contents. S. nigra extract exerted the highest activity in preventing lipid oxidation. Malva sylvestris extract inhibited both Î±-amylase and Î±-glucosidase with IC50 values of 7.8 and 11.3 Î¼g/mL, respectively. These findings support the consumption of edible flowers as functional foods and their use as sources of natural antioxidants by the food industry.

451. Medicinal plants used for ophthalmological problems in Navarra (Spain).

PubMed

Calvo, M Isabel; Cavero, Rita Yolanda

2016-08-22

Several plants have been found to have effective against number of ophthalmological problems in Navarra. Information was collected using semi-structured ethnobotanical interviews with 686 informants in 267 locations. In order to confirm the pharmacological application of the uses more cited by the informants, a literature review was conducted. A total of 57 pharmaceutical uses were reported, for 19 plants and 13 families, mainly represented by Asteraceae. The most frequently used parts were inflorescences, flowers, aerial parts, leaves and flowered aerial parts. The related affections fell into eleven categories: bloodshot eyes, watery eyes and wounds, improve vision, irrited eyelids, rheums and styes, tired eyes, conjunctivitis, eyewash, ocular problems in general. The most cited plants were: Chamaemelum nobile (L.) All., Santolina chamaecyparissus L. ssp. squarrosa (DC.) Nyman, Sambucus

nigra L. ssp. nigra, Rosa agrestis Savi and Calendula officinalis L. None of them have been pharmacologically validated by Official International Organisms. From the therapeutic point of view, Allium sativum L., Foeniculum vulgare Mill., C. officinalis, and S. chamaecyparissus ssp. squarrosa deserve special attention, because ethnobotanical and pharmacological studies suggest that these medicinal plants are effective for ophthalmological problems. The present study constitutes a good basis for further phytochemical and pharmacological research of these four plants, which could be of interest in the design of new inexpensive, effective and safe drugs. The remaining plants are needed to be screened through standard pharmacological and clinical procedures for their activities.

452. Characterization of phenolic compounds in flowers of wild medicinal plants from Northeastern Portugal.

PubMed

Barros, Lillian; DueÃ±as, Montserrat; Carvalho, Ana Maria; Ferreira, Isabel C F R; Santos-Buelga, Celestino

2012-05-01

Crataegus monogyna, Cytisus multiflorus, Malva sylvestris and Sambucus nigra have been used as important medicinal plants in the Iberian Peninsula since a long time ago, and are claimed to have various health benefits. This study aimed to determine the phenolic profile and composition of wild medicinal flowers of those species. The analysis was performed by HPLC-DAD-ESI/MS. Flavonoids, and particularly flavonols and flavones, were the main groups in almost all the studied samples. C. multiflorus sample gave the highest levels of total flavonoids (54.5 mg/gdw), being a chrysin derivative the most abundant flavone found (22.3 mg/gdw). C. monogyna revealed the highest concentration in phenolic acids (5.5 mg/gdw) that were not found in C. multiflorus sample; 5-O-caffeoylquinic acid was the most abundant phenolic acid found in the first species, being a procyanidin trimer also found (1.4 mg/gdw). Kaempferol-3-O-rutinoside (0.84 mg/gdw) and quercetin-3-O-rutinoside (14.9 mg/gdw) were the main flavonols present in M. sylvestris and S. nigra, respectively. Due to the well established antioxidant activity of phenolic compounds, the studied wild medicinal flowers could be selected for processing extracts with health-promoting properties or to be incorporate into functional beverages or products with bioactive properties related to oxidative stress.

453. Temporary hindlimb paresis following dystocia due to foetal macrosomia in a Celebes crested macaque (Macaca nigra).

PubMed

Debenham, John James; Bettembourg, Vanessa; Ã˜stevik, Liv; Modig, Michaela; JÃ¢derlund, Karin Hultin; Lervik, Andreas

2017-04-01

A multiparous Celebes crested macaque presented with dystocia due to foetal macrosomia, causing foetal mortality and hindlimb paresis. After emergency caesarean section, recovery of motor function took 1Â month before hindlimbs were weight bearing and 2Â months before re-integration with the troop.

454. Age trends in genetic control of Juglans nigra L. height growth

Treesearch

George Rink; F. H. Kung

1995-01-01

Age-related trends in narrow-sense and family heritabilities for black walnut height and dbh from a southern Illinois open-pollinated progeny test are evaluated through age 20 years. Narrow-sense heritability for height tends to be relatively stable between ages 10 and 20 at 0.55 - 0.65 with similar patterns and values for family heritabilities for both height and dbh...

455. Glutamate spillover drives endocannabinoid production and inhibits GABAergic transmission in the Substantia Nigra pars compacta.

PubMed

Freestone, Peter S; Guatteo, Ezia; Piscitelli, Fabiana; di Marzo, Vincenzo; Lipski, Janusz; Mercuri, Nicola B

2014-04-01

Endocannabinoids (eCBs) modulate synaptic transmission in the brain, but little is known of their regulatory role in nigral dopaminergic neurons, and whether transmission to these neurons is tonically inhibited by eCBs as seen in some other brain regions. Using whole-cell recording in midbrain slices, we observed potentiation of evoked IPSCs (eIPSCs) in these neurons after blocking CB1 receptors with rimonabant or LY-320,135, indicating the presence of an eCB tone reducing inhibitory synaptic transmission. Increased postsynaptic calcium buffering and block of mGluR1 or postsynaptic G-protein coupled receptors prevented this potentiation. Increasing spillover of endogenous glutamate by inhibiting uptake attenuated eIPSC amplitude, while enhancing the potentiation by rimonabant. Group I mGluR activation transiently inhibited eIPSCs, which could be prevented by GDP-Î²-S, increased calcium buffering or rimonabant. We explored the possibility that the dopamine-derived eCB N-arachidonoyl dopamine (NADA) is involved. The eCB tone was abolished by preventing dopamine synthesis, and enhanced by l-DOPA. It was not detected in adjacent non-dopaminergic neurons. Preventing 2-AG synthesis did not affect the tone, while inhibition of NADA production abolished it. Quantification of ventral midbrain NADA suggested a basal level that increased following prolonged depolarization or mGluR activation. Since block of the tone was not always accompanied by attenuation of depolarization-induced suppression of inhibition (DSI) and vice versa, our results indicate DSI and the eCB tone are mediated by distinct eCBs. This study provides evidence that dopamine modulates the activity of SNc neurons not only by conventional dopamine receptors, but also by CB1 receptors, potentially via NADA.

456. The Central Amygdala Projection to the Substantia Nigra Reflects Prediction Error Information in Appetitive Conditioning

ERIC Educational Resources Information Center

Lee, Hongjoo J.; Gallagher, Michela; Holland, Peter C.

2010-01-01

The central amygdala nucleus (CeA) plays a critical role in cognitive processes beyond fear conditioning. For example, intact CeA function is essential for enhancing attention to conditioned stimuli (CSs). Furthermore, this enhanced attention depends on the CeA's connections to the nigrostriatal system. In the current study, we examined the roleâ€¦

457. Alpha male replacements and delayed dispersal in crested macaques (Macaca nigra).

PubMed

Marty, Pascal R; Hodges, Keith; Agil, Muhammad; Engelhardt, Antje

2017-07-01

In species with a high male reproductive skew, competition between males for the top dominant position is high and escalated fights are common between competitors. As a consequence, challenges incur potentially high costs. Selection should favor males who time an alpha male challenge to maximize chances of a successful outcome minimizing costs. Despite the importance of alpha male replacements for individual males, we know little about the timing of challenges and the condition of the challenger. We investigated the timing and process of alpha male replacements in a species living in multi-male groups with high male reproductive skew, the crested macaque. We studied four wild groups over 6 years in the Tangkoko Reserve, North Sulawesi, Indonesia, during which 16 alpha male replacements occurred. Although unusual for cercopithecines, male crested macaques delayed their natal dispersal until they attained maximum body mass and therefore fighting ability whereupon they emigrated and challenged the alpha male in another group. Accordingly, all observed alpha male replacements were from outside males. Ours is the first report of such a pattern in a primate species living in multi-male groups. Although the majority of alpha male replacements occurred through direct male-male challenges, many also took place opportunistically (i.e., after the alpha male had already been injured or had left the group). Furthermore, alpha male tenures were very short (averaging ca. 12 months). We hypothesize that this unusual pattern of alpha male replacements in crested macaques is related to the species-specific combination of high male reproductive skew with a large number of males per group. Am. J. Primatol. 79:e22448, 2017. Â© 2015 The Authors. American Journal of Primatology Published by Wiley Periodicals, Inc. Â© 2015 The Authors. American Journal of Primatology Published by Wiley Periodicals, Inc.

458. Use of NMR spectroscopy and magnetic resonance imaging for discriminating Juglans nigra L. seeds

Treesearch

John A. Vozzo; J.M. Halloin; T.G. Cooper; E.J. Potechen

1996-01-01

Black walnut (JuglamnigraL.) seeds are large and require stratification for germination. However, many seeds fail to germinate following stratification. Radiography can be used to select empty seeds, but cannot determine which full seeds will germinate. The objective of this study was to determine if any discrimination could bc achieved through use...

459. Effect of weed control treatments on total leaf area of plantation black walnut (Juglans nigra)

Treesearch

Jason Cook; Michael R. Saunders

2013-01-01

Determining total tree leaf area is necessary for describing tree carbon balance, growth efficiency, and other measures used in tree-level and stand-level physiological growth models. We examined the effects of vegetation control methods on the total leaf area of sapling-size plantation black walnut trees using allometric approaches. We found significant differences in...

460. Comparing cold-stored and freshly lifted water oak (Quercus nigra) seedlings based on physiological parameters

Treesearch

Rosa C. Goodman; Kent G. Apostol; Douglass F. Jacobs; Barrett C. Wilson; Emile S. Gardiner

2007-01-01

Water oak is often used in afforestation projects in the Lower Mississippi Alluvial Valley, but its field performance is often poor due to low survival rates and severe top dieback immediately after planting. The poor physiological quality of planting stock may be a contributing factor to this transplanting problem. In this study, cold storage was investigated to...

- «
- 21
- 22
- 23
- 24
- 25
- »

- «
- 21
- 22
- 23
- 24
- 25
- »

461. Electrical and Ca2+ signaling in dendritic spines of substantia nigra dopaminergic neurons

PubMed Central

Hage, Travis A; Sun, Yujie; Khaliq, Zayd M

2016-01-01

Little is known about the density and function of dendritic spines on midbrain dopamine neurons, or the relative contribution of spine and shaft synapses to excitability. Using Ca2+ imaging, glutamate uncaging, fluorescence recovery after photobleaching and transgenic mice expressing labeled PSD-95, we comparatively analyzed electrical and Ca2+ signaling in spines and shaft synapses of dopamine neurons. Dendritic spines were present on dopaminergic neurons at low densities in live and fixed tissue. Uncaging-evoked potential amplitudes correlated inversely with spine length but positively with the presence of PSD-95. Spine Ca2+ signals were less sensitive to hyperpolarization than shaft synapses, suggesting amplification of spine head voltages. Lastly, activating spines during pacemaking, we observed an unexpected enhancement of spine Ca2+ midway throughout the spike cycle, likely involving recruitment of NMDA receptors and voltage-gated conductances. These results demonstrate functionality of spines in dopamine neurons and reveal a novel modulation of spine Ca2+ signaling during pacemaking. DOI: http://dx.doi.org/10.7554/eLife.13905.001 PMID:27163179

462. Gene regulation network behind drought escape, avoidance and tolerance strategies in black poplar (Populus nigra L.).

PubMed

YÄ±ldÄ±rÄ±m, Kubilay; Kaya, Zeki

2017-06-01

Drought is the major environmental problem limiting the productivity and survival of plant species. Here, previously identified three black poplar genotypes having contrasting response to drought were subjected to gradual soil water depletion in a pot trial to identify their physiological, morphological and antioxidation related adaptations. We also performed a microarray based transcriptome analyses on the

leaves of genotypes by using Affymetrix poplar Genome Array containing 56,000 transcripts. Phenotypic analyses of each genotype confirmed their differential adaptations to drought that could be classified as drought escape, avoidance and tolerance. Comparative transcriptomic analysis indicated highly divergent gene expression patterns among the genotypes in response to drought and post drought re-watering (PDR). We identified 10641, 3824 and 9411 transcripts exclusively regulated in drought escape, avoidance and tolerant genotypes, respectively. The key genes involved in metabolic pathways, such as carbohydrate metabolism, photosynthesis, lipid metabolism, generation of precursor metabolites/energy, protein folding, redox homeostasis, secondary metabolic process and cell wall component biogenesis, were affected by drought stresses in the leaves of these genotypes. Transcript isoforms showed increased expression specificity in the genes coding for bark storage proteins and small heat shock proteins in drought tolerant genotype. On the other hand, drought-avoiding genotype specifically induced the transcripts annotated to the genes functional in secondary metabolite production that linked to enhanced leaf water content and growth performance under drought stress. Transcriptome profiling of drought escape genotype indicated specific regulation of the genes functional in programmed cell death and leaf senescence. Specific upregulation of GTP cyclohydrolase II and transcription factors (WRKY and ERFs) in only this genotype were associated to ROS dependent signalling pathways and gene regulation network responsible in induction of many degrading enzymes acting on cell wall carbohydrates, fatty acids and proteins under drought stress. Our findings provide new insights into the transcriptome dynamics and components of regulatory network associated with drought adaptation strategies.

463. Motor Asymmetry and Substantia Nigra Volume Are Related to Spatial Delayed Response Performance in Parkinson Disease

    ERIC Educational Resources Information Center

    Foster, Erin R.; Black, Kevin J.; Antenor-Dorsey, Jo Ann V.; Perlmutter, Joel S.; Hershey, Tamara

    2008-01-01

    Studies suggest motor deficit asymmetry may help predict the pattern of cognitive impairment in individuals with Parkinson disease (PD). We tested this hypothesis using a highly validated and sensitive spatial memory task, spatial delayed response (SDR), and clinical and neuroimaging measures of PD asymmetry. We predicted SDR performance would beâ€¦

464. Localized gene expression changes during adventitious root formation in black walnut (Juglans nigra L.)

    Treesearch

    Micah E Stevens; Keith E Woeste; Paula M Pijut

    2018-01-01

    Cutting propagation plays a large role in the forestry and horticulture industries where superior genotypes need to be clonally multiplied. Integral to this process is the ability of cuttings to form adventitious roots. Recalcitrance to adventitious root development is a serious hurdle for many woody plant propagation systems including black walnut (Juglans...

465. Phytosanitation Methods Influence Posttreatment Colonization of Juglans nigra Logs by Pityophthorus juglandis (Coleoptera: Curculionidae: Scolytinae)

    Treesearch

    J. Audley; A. E. Mayfield; S. W. Myers; A. Taylor; W. E. Klingeman

    2015-01-01

Several North American walnut species (Juglans spp.) are threatened by thousand cankers disease which is caused by the walnut twig beetle (Pityophthorus juglandis Blackman) and its associated fungal plant pathogen, Geosmithia morbida M. KolarÃƒÂ½Ã‚Â´k, E. Freeland, C. Utley and N. Tisserat sp. nov. Spread of this...

466. Precooling and ozone treatments affects postharvest quality of black mulberry (Morus nigra) fruits.

PubMed

Han, Qiang; Gao, Haiyan; Chen, Hangjun; Fang, Xiangjun; Wu, Weijie

2017-04-15

Mulberry (Morus spp.) fruits are delicious and nutritious, but they are highly perishable and have a very short shelf-life for sale in the market. This study investigated the effect and mechanisms of 2ppm ozone and precooling treatments on the postharvest quality of mulberry fruit during refrigerated storage. The results revealed that mulberry fruit subjected to ozone and precooling treatment had higher levels of titratable acidity and total soluble solids content, better retention in firmness and color, and lower decay rate, respiratory intensity, and polyphenol oxidase activity compared to the control. From the analysis of cell ultrastructure and cell wall components of fruit, ozone and precooling treatments also induced shrinkage of the stomata in the epidermis, inhibited bacteria invasion, reduced water transpiration, and delayed the decomposition of the cell walls and the degradation of epidermal tissues. Copyright Â© 2016. Published by Elsevier Ltd.

467. Alpha male replacements and delayed dispersal in crested macaques (Macaca nigra)

PubMed Central

Hodges, Keith; Agil, Muhammad; Engelhardt, Antje

2015-01-01

In species with a high male reproductive skew, competition between males for the top dominant position is high and escalated fights are common between competitors. As a consequence, challenges incur potentially high costs. Selection should favor males who time an alpha male challenge to maximize chances of a successful outcome minimizing costs. Despite the importance of alpha male replacements for individual males, we know little about the timing of challenges and the condition of the challenger. We investigated the timing and process of alpha male replacements in a species living in multiâ€male groups with high male reproductive skew, the crested macaque. We studied four wild groups over 6 years in the Tangkoko Reserve, North Sulawesi, Indonesia, during which 16 alpha male replacements occurred. Although unusual for cercopithecines, male crested macaques delayed their natal dispersal until they attained maximum body mass and therefore fighting ability whereupon they emigrated and challenged the alpha male in another group. Accordingly, all observed alpha male replacements were from outside males. Ours is the first report of such a pattern in a primate species living in multiâ€male groups. Although the majority of alpha male replacements occurred through direct maleâ€male challenges, many also took place opportunistically (i.e., after the alpha male had already been injured or had left the group). Furthermore, alpha male tenures were very short (averaging ca. 12 months). We hypothesize that this unusual pattern of alpha male replacements in crested macaques is related to the speciesâ€specific combination of high male reproductive skew with a large number of males per group. Am. J. Primatol. 79:e22448, 2017. Â© 2015 The Authors. American Journal of Primatology Published by Wiley Periodicals, Inc. PMID:26194621

468. Purification and characterization of black walnut (Juglans nigra) Allergen, Jug n 4

USDA-ARS?s Scientific Manuscript database

Tree nuts as a group have caused a significant number of cases of fatal anaphylactic reactions. In a large scale study of US peanut and tree nut allergy cases with 5149 patients, walnuts were the leading cause of allergic reactions. The purpose of this study was to purify and characterize potential ...

469. Calcium Homeostatasis and Mitochondrial Dysfunction in Dopaminergic Neurons of the Substantia Nigra

DTIC Science & Technology

2010-03-01

discovery that calcium entry through L-type channels during normal pacemaking elevates the sensitivity of SNc dopaminergic neurons to toxins; â€¢ the...discovery that L-type calcium channels participate in but are not necessary for pacemaking; â€¢ the discovery that serum concentration of the...FDA approved doses; â€¢ the discovery that calcium entry through L-type channels during pacemaking elevates mitochondrial oxidant stress and leads

470. Shifts in plant foliar and floral metabolomes in response to the suppression of the associated microbiota.

PubMed

Gargallo-Garriga, Albert; Sardans, Jordi; PÃ©rez-Trujillo, MÃriam; Guenther, Alex; LlusiÃ , Joan; Rico, Laura; Terradas, Jaume; FarrÃ©-Armengol, Gerard; Filella, Iolanda; Parella, Teodor; PeÃ±uelas, Josep

2016-04-06

The phyllospheric microbiota is assumed to play a key role in the metabolism of host plants. Its role in determining the epiphytic and internal plant metabolome, however, remains to be investigated. We analyzed the Liquid Chromatography-Mass Spectrometry (LC-MS) profiles of the epiphytic and internal metabolomes of the leaves and flowers of Sambucus nigra with and without external antibiotic treatment application. The epiphytic metabolism showed a degree of complexity similar to that of the plant organs. The suppression of microbial communities by topical applications of antibiotics had a greater impact on the epiphytic metabolome than on the internal metabolomes of the plant organs, although even the latter changed significantly both in leaves and flowers. The application of antibiotics decreased the concentration of lactate in both epiphytic and organ metabolomes, and the concentrations of citraconic acid, acetyl-CoA, isoleucine, and several secondary compounds such as terpenes and phenols in the epiphytic extracts. The metabolite pyrogallol appeared in the floral epiphytic community only after the treatment. The concentrations of the amino acid precursors of the ketoglutarate-synthesis pathway tended to decrease in the leaves and to increase in the foliar epiphytic extracts. These results suggest that anaerobic and/or facultative anaerobic bacteria were present in high numbers in the phyllosphere and in the apoplasts of S. nigra. The results also show that microbial communities play a significant role in the metabolomes of plant organs and could have more complex and frequent mutualistic, saprophytic, and/or parasitic relationships with internal plant metabolism than currently assumed.

471. Limits of selection against cheaters: birds prioritise visual fruit advertisement over taste.

PubMed

Wang, Zhen; Schaefer, H Martin

2014-04-01

The concept of biological markets aims to explain how organisms interact with each other. Market theory predicts that organisms choose the most rewarding partner in mutualisms. However, partner choice may also be influenced by advertisement which may not be reliable. In seed dispersal mutualism, we analysed whether seed dispersers prioritise taste cues over visual advertisement to select the most rewarding fruits and whether they select against partners with unreliable advertisement. We conducted experiments on

black elder (Sambucus nigra), a species of which the colours of the peduncles match the sugar content of their fruits. We created infructescences the colours of which matched or mismatched the sugar content of their fruits. There was no selection against cheaters in the field or by captive blackcaps (Sylvia atricapilla) as seed dispersers. Blackcaps were constrained to select against unreliable advertisement because they swallowed fruits entirely and thus did not obtain an immediate feedback by taste. Instead, blackcaps selected fruits according to the colour variation of red peduncles. Overall, we suggest that the concept of constraints should be incorporated into biological markets. We further contend that biological markets can be more complex than currently acknowledged because a moderate degree of reliability occurred in black elder even in the absence of selection against cheaters.

472. Season and light affect constitutive defenses of understory shrub species against folivorous insects

NASA Astrophysics Data System (ADS)

Karolewski, Piotr; Giertych, Marian J.; Å»muda, MichaÅ‚; JagodziÅ„ski, Andrzej M.; Oleksyn, Jacek

2013-11-01

Understory shrubs contribute to overall species diversity, providing habitat and forage for animals, influence soil chemistry and forest microclimate. However, very little is known about the chemical defense of various shrub species against folivorous insects. Using six shrub species, we tested how seasonal changes and light conditions affect their constitutive defense to insect damage. We monitored leaf perforation, concentrations of total phenols, condensed tannins, nitrogen (N), and total nonstructural carbohydrates (TNC). Leaf damage caused by insects was low in Sambucus nigra, Cornus sanguinea, and Frangula alnus, intermediate in Corylus avellana and Prunus serotina, and high in Prunus padus. Leaves of all the species, when growing in high light conditions, had high concentrations of defense metabolites. Except for C. avellana, leaves of the other shrub species growing in full sun were less injured than those in shade. This may be due to higher concentrations of defense metabolites and lower concentrations of nitrogen. Similar patterns of the effects of light on metabolites studied and N were observed for leaves with varying location within the crown of individual shrubs (from the top of the south direction to the bottom of the north), as for leaves from shrubs growing in full sun and shrubs in the shade of canopy trees. A probable cause of the greater damage of more sunlit leaves of C. avellana was the fact that they were herbivorized mostly by Altica brevicollis, a specialist insect that prefers plant tissues with a high TNC level and is not very sensitive to a high level of phenolic compounds.

473. Complex thiolated mannose/quinone film modified on EQCM/Au electrode for recognizing specific carbohydrate-proteins.

PubMed

Zeng, Hongjuan; Yu, Junsheng; Jiang, Yadong; Zeng, Xiangqun

2014-05-15

A complex thiolated mannose (TM)/quinone functionalised polythiophene (QFPT) thin film was modified on EQCM/Au electrode for recognition of specific carbohydrate-proteins. Different lectins such as those from Sambucus nigra (elder berry), Arachis hypogaea (peanut), Ulex europaeus (gorse, furze), Triticum vulgaris and Concanavalin A (ConA) was used for probes to evaluate bio-sensing performance of the TM/QFPT film. A specific response was observed for ConA from lectins when using the TM/QFPT film as sensing material and employing either elelctrochemical or the QCM method. No response was detected between thiolated mannose and other lectins. The linear relationship between current and ConA concentration is in the range of 0.5-17.5 nM by the elelctrochemical method and the linear relationship between frequency change and ConA concentration is in the range of 0.5-4.5 nM by the QCM method. This shows that the TM/QFPT-modified EQCM biosensor presents a paralleled determination by using electrochemical and the QCM method. The elelctrochemical method of the biosensor can be applicable in

a large concentration range and its frequency change can be more precise. Â© 2013 Published by Elsevier B.V.

474. Chlorogenic acid isomer contents in 100 plants commercialized in Brazil.

PubMed

Meinhart, Adriana Dillenburg; Damin, Fernanda Mateus; CaldeirÃ£o, Lucas; da Silveira, Tayse Ferreira Ferreira; Filho, JosÃ© Teixeira; Godoy, Helena Teixeira

2017-09-01

This study analysed 100 plants employed in Brazil as ingredients to infusions for their caffeic acid, 3-caffeoylquinic acid (3-CQA), 4-caffeoylquinic acid (4-CQA), 5-caffeoylquinic acid (5-CQA), 3,4-dicaffeoylquinic acid (3,4-DQA), 3,5-dicaffeoylquinic acid (3,5-DQA), and 4,5-dicaffeoylquinic acid (4,5-DQA) contents. The samples were collected from public markets and analysed using ultra-high performance liquid chromatography (UPLC). The highest concentrations of chlorogenic acids were found in yerba mate (Ilex paraguariensis), 9,2gÂ·100g -1 , white tea (Camellia sinensis), winter's bark (Drimys winteri), green tea (Camellia sinensis), elderflower (Sambucus nigra), and Boehmeria caudata (known as assa-peixe in Brazil), 1,1gÂ·100g -1 . The present work showcased the investigation of chlorogenic acids in a wide range of plants not yet studied in this regard and also resulted in a comparative table which explores the content of six isomers in the samples. Copyright Â© 2017. Published by Elsevier Ltd.

475. Analysis of urinary PSA glycosylation is not indicative of high-risk prostate cancer.

PubMed

BarrabÃ©s, SÃlvia; Llop, Esther; Ferrer-BatallÃ©, Montserrat; RamÃrez, Manel; Aleixandre, Rosa N; Perry, Antoinette S; de Llorens, Rafael; Peracaula, Rosa

2017-07-01

The levels of core fucosylation and Î±2,3-linked sialic acid in serum Prostate Specific Antigen (PSA), using the lectins Pholiota squarrosa lectin (PhoSL) and Sambucus nigra agglutinin (SNA), can discriminate between Benign Prostatic Hyperplasia (BPH) and indolent prostate cancer (PCa) from aggressive PCa. In the present work we evaluated whether these glycosylation determinants could also be altered in urinary PSA obtained after digital rectal examination (DRE) and could also be useful for diagnosis determinations. For this purpose, Î±2,6-sialic acid and Î±1,6-fucose levels of urinary PSA from 53 patients, 18 biopsy-negative and 35 PCa patients of different aggressiveness degree, were analyzed by sandwich ELLA (Enzyme Linked Lectin Assay) using PhoSL and SNA. Changes in the levels of specific glycosylation determinants, that in serum PSA samples were indicative of PCa aggressiveness, were not found in PSA from DRE urine samples. Although urine is a simpler matrix for analyzing PSA glycosylation compared to serum, an immunopurification step was necessary to specifically detect the glycans on the PSA molecule. Those specific glycosylation determinants on urinary PSA were however not useful to improve PCa diagnosis. This could be probably due to the low proportion of PSA from the tumor in urine samples, which precludes the identification of aberrantly glycosylated PSA. Copyright Â© 2017 Elsevier B.V. All rights reserved.

476. nES GEMMA Analysis of Lectins and Their Interactions with Glycoproteins - Separation, Detection, and Sampling of Noncovalent Biospecific Complexes

NASA Astrophysics Data System (ADS)

Engel, Nicole Y.; Weiss, Victor U.; Marchetti-Deschmann, Martina; Allmaier, GÃ¼nter

2017-01-01

In order to better understand biological events, lectin-glycoprotein interactions are of interest. The possibility to gather more information than the mere positive or negative response for interactions brought mass spectrometry into the center of many research fields. The presented work shows the potential of a nano-electrospray gas-phase electrophoretic mobility molecular analyzer (nES GEMMA) to detect weak, noncovalent, biospecific interactions besides still unbound glycoproteins and unreacted lectins without prior liquid phase separation. First results for Sambucus nigra agglutinin, concanavalin A, and wheat germ agglutinin and their retained noncovalent interactions with glycoproteins in the gas phase are presented. Electrophoretic mobility diameters (EMDs) were obtained by nES GEMMA for all interaction partners correlating very well with molecular masses determined by matrix-assisted laser desorption/ionization mass spectrometry (MALDI-MS) of the individual molecules. Moreover, EMDs measured for the lectin-glycoprotein complexes were in good accordance with theoretically calculated mass values. Special focus was laid on complex formation for different lectin concentrations and binding specificities to evaluate the method with respect to results obtained in the liquid phase. The latter was addressed by capillary electrophoresis on-a-chip (CE-on-a-chip). Of exceptional interest was the fact that the formed complexes could be sampled according to their size onto nitrocellulose membranes after gas-phase separation. Subsequent immunological investigation further proved that the collected complex actually retained its native structure throughout nES GEMMA analysis and sampling.

477. Incidence of Pyrrolizidine Alkaloids in Herbal Medicines from German Retail Markets: Risk Assessments and Implications to Consumers.

PubMed

Letsyo, Emmanuel; Jerz, Gerold; Winterhalter, Peter; Lindigkeit, Rainer; Beuerle, Till

2017-12-01

The occurrence of potentially toxic pyrrolizidine alkaloids (PAs) in herbal medicines (HMs) is currently intensely being discussed in Europe. Pyrrolizidine alkaloids, particularly the 1,2-unsaturated PAs, are undesired compounds in HMs due to their potential hepatotoxic and carcinogenic properties. In this study, 98 widely patronized HMs from six popular German retail supermarkets/drugstores, as well as from pharmacies, were analyzed by high-performance liquid chromatography-electrospray ionization-tandem mass spectrometry for the presence of PAs. The results showed that about 63% of the HMs were PA positive, whereas the average PA concentration of the samples was 201Â Î¼g/kg, the highest concentration of PAs (3270Â Î¼g/kg) was attributed to a product that was purchased from the pharmacy and contained Hypericum perforatum L. (St. John's Wort) as an active ingredient. In addition, H. perforatum-containing products were frequently contaminated with PAs from Echium spp., while both Cynara cardunculus L. products and fixed-combination products of Gentiana lutea L., Rumex acetosa L., Verbena officinalis L., Sambucus nigra L., and Primula veris L. products were commonly contaminated with PAs of Senecio spp. The study showed that H. perforatum, C. cardunculus, Urtica dioica L., and fixed-combination products were frequently contaminated with PA levels above the recommended values of both the German and European Medicines Agencies. Copyright Â© 2017 John Wiley & Sons, Ltd. Copyright Â© 2017 John Wiley & Sons, Ltd.

478. Interaction of glycophorin A with lectins as measured by surface plasmon resonance (SPR).

PubMed

Krotkiewska, Bozena; Pasek, Marta; Krotkiewski, Hubert

2002-01-01

Glycophorin A (GPA), the major sialoglycoprotein of the human erythrocyte membrane, was isolated from erythrocytes of healthy individuals of blood groups A, B and O using phenol-water extraction of erythrocyte membranes. Interaction of individual GPA samples with three lectins (Psathyrella velutina

lectin, PVL; Triticum vulgaris lectin, WGA and Sambucus nigra I agglutinin SNA-I) was analyzed using a BIAcore biosensor equipped with a surface plasmon resonance (SPR) detector. The experiments showed no substantial differences in the interaction between native and desialylated GPA samples originating from erythrocytes of either blood group and each of the lectins. Desialylated samples reacted weaker than the native ones with all three lectins. PVL reacted about 50-fold more strongly than WGA which, similar to PVL, recognizes GlcNAc and Neu5Ac residues. SNA-I lectin, recognizing alpha2-6 linked Neu5Ac residues, showed relatively weak reaction with native and only residual reaction with desialylated GPA samples. The data obtained show that SPR is a valuable method to determine interaction of glycoproteins with lectins, which potentially can be used to detect differences in the carbohydrate moiety of individual glycoprotein samples.

479. A systematic review of the efficacy and safety of herbal medicines used in the treatment of obesity

PubMed Central

Hasani-Ranjbar, Shirin; Nayebi, Neda; Larijani, Bagher; Abdollahi, Mohammad

2009-01-01

This review focuses on the efficacy and safety of effective herbal medicines in the management of obesity in humans and animals. PubMed, Scopus, Google Scholar, Web of Science, and IranMedex databases were searched up to December 30, 2008. The search terms were â€œobesityâ€□ and (â€œherbal medicineâ€□ or â€œplantâ€□, â€œplant medicinalâ€□ or â€œmedicine traditionalâ€□) without narrowing or limiting search elements. All of the human and animal studies on the effects of herbs with the key outcome of change in anthropometric measures such as body weight and waist-hip circumference, body fat, amount of food intake, and appetite were included. In vitro studies, reviews, and letters to editors were excluded. Of the publications identified in the initial database, 915 results were identified and reviewed, and a total of 77 studies were included (19 human and 58 animal studies). Studies with Cissus quadrangularis (CQ), Sambucus nigra, Asparagus officinalis, Garcinia atroviridis, ephedra and caffeine, Slimax (extract of several plants including Zingiber officinale and Bofutsushosan) showed a significant decrease in body weight. In 41 animal studies, significant weight loss or inhibition of weight gain was found. No significant adverse effects or mortality were observed except in studies with supplements containing ephedra, caffeine and Bofutsushosan. In conclusion, compounds containing ephedra, CQ, ginseng, bitter melon, and zingiber were found to be effective in the management of obesity. Attention to these natural compounds would open a new approach for novel therapeutic and more effective agents. PMID:19575486

480. Colds and influenza: a review of diagnosis and conventional, botanical, and nutritional considerations.

PubMed

Roxas, Mario; Jurenka, Julie

2007-03-01

The common cold is the leading cause of doctor visits in the United States and annually results in 189 million lost school days. In the course of one year the U.S. population contracts approximately 1 billion colds. Influenza infection is still a leading cause of morbidity and mortality, accounting for 20-25 million doctor visits and 36,000 deaths per year in the United States. Conventional therapies for colds and flu focus primarily on temporary symptom relief and include over-the-counter antipyretics, anti-inflammatories, and decongestants. Treatment for influenza also includes prescription antiviral agents and vaccines for prevention. This article reviews the common cold and influenza viruses, presents the conventional treatment options, and highlights select botanicals (Echinacea spp., Sambucus nigra, larch arabinogalactan, Astragalus membranaceous, Baptisia tinctoria, Allium sativa, Panax quinquefolium, Eleutherococcus senticosus, Andrographis paniculata, olive leaf extract, and Isatis tinctoria) and

nutritional considerations (vitamins A and C, zinc, high lactoferrin whey protein, N-acetylcysteine, and DHEA) that may help in the prevention and treatment of these conditions.

- «
- 21
- 22
- 23
- 24
- 25
- »

- «
- 21
- 22
- 23
- 24
- 25
- »

481. Cadmium and zinc uptake by volunteer willow species and elder rooting in polluted dredged sediment disposal sites.

    PubMed

    Vandecasteele, Bart; De Vos, Bruno; Tack, Filip M G

    2002-11-01

    Salix species and Sambucus nigra L. (elder) naturally invade dredged sediment landfills and are commonly encountered on substrates contaminated with heavy metals. Foliar concentrations of Cd and Zn in four Salix species and elder were explored in the field. Metal contents in dredged sediment derived soils were elevated compared to baseline concentration levels reported for Flanders. To evaluate foliar concentrations, reference data were compiled from observations in nurseries, young plantations and unpolluted sites with volunteer willow vegetation. Willows grown on polluted dredged sediment landfills showed elevated foliar Cd and Zn concentrations (>6.6 mg Cd/kg DW and >700 mg Zn/kg DW). This was not the case for elder. For willow, a significant relation was found between soil total Zn or Cd and foliar Zn or Cd, regardless of age, species, or clone. Willows proved to be useful bioindicators. Results indicated a possible threat in long-term habitat development of willow brushwood from transfer of Cd and Zn to the food web.

482. An ethnobotanical study on the usage of wild medicinal herbs from Kopaonik Mountain (Central Serbia).

    PubMed

    JariÄ‡, Snezana; PopoviÄ‡, Zorica; MacukanoviÄ‡-JociÄ‡, Marina; DjurdjeviÄ‡, Lola; MijatoviÄ‡, Miroslava; KaradziÄ‡, Branko; MitroviÄ‡, Miroslava; PavloviÄ‡, Pavle

    2007-04-20

    An ethnobotanical survey was carried out on the territory of the highest mountain in Central Serbia, Kopaonik, which is characterized by great plant diversity. In total, 83 wild species from 41 families and 96 preparations for use in human therapy were recorded. Among those wild plants which are most commonly used for medicinal purposes, Hypericum perforatum L., Urtica dioica L., Achillea millefolium L., Matricaria chamomilla L., Sambucus nigra L., and Thymus serpyllum L. were particularly highly recommended by the majority of informants as being 'beneficial for all ailments'. The most frequently

reported medicinal uses were for treating gastrointestinal ailments (50%), skin injuries and problems (25.6%), followed by respiratory, urinary-genital and cardiovascular problems (20.5%, 20.5%, 19.2%, respectively). Plants with unusual phytotherapeutic uses are Galium verum L. (sedative properties) and Eupatorium cannabinum L. (influenza-like illnesses), while plants with interesting but lesser-known properties include Daphne laureola L. (rheumatism and skin ailments) and Ficaria verna Huds. (tubers for treating haemorrhoids). In addition, 10 wild species used in veterinary medicine, as well as 25 herbs used for human nourishment were noted.

483. Model of human recurrent respiratory papilloma on chicken embryo chorioallantoic membrane for tumor angiogenesis research.

PubMed

Uloza, Virgilijus; KuzminienÄ—, Alina; PalubinskienÄ—, Jolita; BalnytÄ—, Ingrida; UlozienÄ—, Ingrida; ValanÄ□iÅ«tÄ—, Angelija

2017-07-01

We aimed to develop a chick embryo chorioallantoic membrane (CAM) model of recurrent respiratory papilloma (RPP) and to evaluate its morphological and morphometric characteristics, together with angiogenic features. Fresh RRP tissue samples obtained from 13 patients were implanted in 174 chick embryo CAMs. Morphological, morphometric, and angiogenic changes in the CAM and chorionic epithelium were evaluated up until 7 days after the implantation. Immunohistochemical analysis (34Î²E12, Ki-67, MMP-9, PCNA, and Sambucus nigra staining) was performed to detect cytokeratins and endothelial cells and to evaluate proliferative capacity of the RRP before and after implantation on the CAM. The implanted RRP tissue samples survived on CAM in 73% of cases while retaining their essential morphologic characteristics and proliferative capacity of the original tumor. Implants induced thickening of both the CAM (241-560%, p=0.001) and the chorionic epithelium (107-151%, p=0.001), while the number of blood vessels (37-85%, p=0.001) in the CAM increased. The results of the present study confirmed that chick embryo CAM is a relevant host for serving as a medium for RRP fresh tissue implantation. The CAM assay demonstrated the specific RRP tumor growth pattern after implantation and provided the first morphological and morphometric characterization of the RRP CAM model that opens new horizons in studying this disease.

484. Plant Ethnoveterinary Practices in Two Pyrenean Territories of Catalonia (Iberian Peninsula) and in Two Areas of the Balearic Islands and Comparison with Ethnobotanical Uses in Human Medicine

PubMed Central

CarriÃ³, EsperanÃ§a; Rigat, Montse; Garnatje, Teresa; Mayans, Marina; Parada, Montse; VallÃ¨s, Joan

2012-01-01

This paper presents the results of an ethnobotanical study centred in veterinarian uses in two Catalan Pyrenean regions (Alt EmpordÃ -AE- and High River Ter Valley -AT-, Iberian peninsula) and two Balearic Islands areas (Formentera -FO- and northeastern Mallorca -MA-). In the areas studied, 97 plant species have been claimed to be useful for veterinary purposes. A total of 306 veterinary use reports have been gathered and analysed. The ten most reported plants are Tanacetum parthenium (24 use reports), Parietaria officinalis (15), Ranunculus parnassifolius (14), Meum athamanticum (13), Olea europaea (13), Quercus ilex (12), Ruta chalepensis (12), Sambucus nigra (10) and Thymus vulgaris (10). According to comprehensive reviews, a high number of novelties for plant ethnoveterinary are contributed: 34 species and one subspecies, 11 genera, and three families have not been reported in previous works in this field, and 21 species had only been mentioned once. Several ethnoveterinary uses are coincidental with those in human medicine. Although ethnoveterinary practices are less relevant than in the past in the territories considered, as in all industrialised countries, the knowledge on plant properties and applications is still

rich and constitutes a large pool of evidence for phytotherapy, both in domestic animals and humans. PMID:22829861

485. Combinatorial chemoenzymatic synthesis and high-throughput screening of sialosides.

PubMed

Chokhawala, Harshal A; Huang, Shengshu; Lau, Kam; Yu, Hai; Cheng, Jiansong; Thon, Vireak; Hurtado-Ziola, Nancy; Guerrero, Juan A; Varki, Ajit; Chen, Xi

2008-09-19

Although the vital roles of structures containing sialic acid in biomolecular recognition are well documented, limited information is available on how sialic acid structural modifications, sialyl linkages, and the underlying glycan structures affect the binding or the activity of sialic acid-recognizing proteins and related downstream biological processes. A novel combinatorial chemoenzymatic method has been developed for the highly efficient synthesis of biotinylated sialosides containing different sialic acid structures and different underlying glycans in 96-well plates from biotinylated sialyltransferase acceptors and sialic acid precursors. By transferring the reaction mixtures to NeutrAvidin-coated plates and assaying for the yields of enzymatic reactions using lectins recognizing sialyltransferase acceptors but not the sialylated products, the biotinylated sialoside products can be directly used, without purification, for high-throughput screening to quickly identify the ligand specificity of sialic acid-binding proteins. For a proof-of-principle experiment, 72 biotinylated alpha2,6-linked sialosides were synthesized in 96-well plates from 4 biotinylated sialyltransferase acceptors and 18 sialic acid precursors using a one-pot three-enzyme system. High-throughput screening assays performed in NeutrAvidin-coated microtiter plates show that whereas Sambucus nigra Lectin binds to alpha2,6-linked sialosides with high promiscuity, human Siglec-2 (CD22) is highly selective for a number of sialic acid structures and the underlying glycans in its sialoside ligands.

486. Removal of floral microbiota reduces floral terpene emissions

PubMed Central

PeÃ±uelas, Josep; FarrÃ©-Armengol, Gerard; Llusia, Joan; Gargallo-Garriga, Albert; Rico, Laura; Sardans, Jordi; Terradas, Jaume; Filella, Iolanda

2014-01-01

The emission of floral terpenes plays a key role in pollination in many plant species. We hypothesized that the floral phyllospheric microbiota could significantly influence these floral terpene emissions because microorganisms also produce and emit terpenes. We tested this hypothesis by analyzing the effect of removing the microbiota from flowers. We fumigated Sambucus nigra L. plants, including their flowers, with a combination of three broad-spectrum antibiotics and measured the floral emissions and tissular concentrations in both antibiotic-fumigated and non-fumigated plants. Floral terpene emissions decreased by ca. two thirds after fumigation. The concentration of terpenes in floral tissues did not decrease, and floral respiration rates did not change, indicating an absence of damage to the floral tissues. The suppression of the phyllospheric microbial communities also changed the composition and proportion of terpenes in the volatile blend. One week after fumigation, the flowers were not emitting Î²-ocimene, linalool, epoxylinalool, and linalool oxide. These results show a key role of the floral phyllospheric microbiota in the quantity and quality of floral terpene emissions and therefore a possible key role in pollination. PMID:25335793

487. PLE in the analysis of plant compounds. Part II: One-cycle PLE in determining total amount of analyte in plant material.

PubMed

Dawidowicz, Andrzej L; Wianowska, Dorota

2005-04-29

Pressurised liquid extraction (PLE) is recognised as one of the most effective sample preparation methods. Despite the enhanced extraction power of PLE, the full recovery of an analyte from plant material may require multiple extractions of the same sample. The presented investigations show the possibility of estimating the true concentration value of an analyte in plant material employing one-cycle PLE in which plant samples of different weight are used. The performed experiments show a linear dependence between the reciprocal value of the analyte amount (E*), extracted in single-step PLE from a plant matrix, and the ratio of plant material mass to extrahent volume (m(p)/V(s)). Hence, time-consuming multi-step PLE can be replaced by a few single-step PLEs performed at different (m(p)/V(s)) ratios. The concentrations of rutin in Sambucus nigra L. and caffeine in tea and coffee estimated by means of the tested procedure are almost the same as their concentrations estimated by multiple PLE.

488. Screening for Bioactive Metabolites in Plant Extracts Modulating Glucose Uptake and Fat Accumulation

PubMed Central

El-Houri, Rime B.; Kotowska, Dorota; Olsen, Louise C. B.; Bhattacharya, Sumangala; Christensen, Lars P.; Oksbjerg, Niels; FÃ¦rgeman, Nils; Kristiansen, Karsten; Christensen, Kathrine B.

2014-01-01

Dichloromethane and methanol extracts of seven different food and medicinal plants were tested in a screening platform for identification of extracts with potential bioactivity related to insulin-dependent glucose uptake and fat accumulation. The screening platform included a series of in vitro bioassays, peroxisome proliferator-activated receptor (PPAR) Î³-mediated transactivation, adipocyte differentiation of 3T3-L1 cell cultures, and glucose uptake in both 3T3-L1 adipocytes and primary porcine myotubes, as well as one in vivo bioassay, fat accumulation in the nematode Caenorhabditis elegans. We found that dichloromethane extracts of aerial parts of golden root (Rhodiola rosea) and common elder (Sambucus nigra) as well as the dichloromethane extracts of thyme (Thymus vulgaris) and carrot (Daucus carota) were able to stimulate insulin-dependent glucose uptake in both adipocytes and myotubes while weekly activating PPARÎ³ without promoting adipocyte differentiation. In addition, these extracts were able to decrease fat accumulation in C. elegans. Methanol extracts of summer savory (Satureja hortensis), common elder, and broccoli (Brassica oleracea) enhanced glucose uptake in myotubes but were not able to activate PPARÎ³, indicating a PPARÎ³-independent effect on glucose uptake. PMID:25254050

489. Flowering phenological changes in relation to climate change in Hungary

NASA Astrophysics Data System (ADS)

SzabÃ³, Barbara; Vincze, EnikÅ‘; CzÃºcz, BÃ¡lint

2016-09-01

The importance of long-term plant phenological time series is growing in monitoring of climate change impacts worldwide. To detect trends and assess possible influences of climate in Hungary, we studied flowering phenological records for six species (Convallaria majalis, Taraxacum officinale, Syringa vulgaris, Sambucus nigra, Robinia pseudoacacia, Tilia cordata) based on phenological observations from the Hungarian Meteorological Service recorded between 1952 and 2000. Altogether, four from the six examined plant species showed significant advancement in flowering onset with an average rate of 1.9-4.4 days per decade. We found that it was the mean temperature of the 2-3 months immediately preceding the

mean flowering date, which most prominently influenced its timing. In addition, several species were affected by the late winter (January-March) values of the North Atlantic Oscillation (NAO) index. We also detected sporadic long-term effects for all species, where climatic variables from earlier months exerted influence with varying sign and little recognizable pattern: the temperature/NAO of the previous autumn (August-December) seems to influence Convallaria, and the temperature/precipitation of the previous spring (February-April) has some effect on Tilia flowering.

490. Flowering phenological changes in relation to climate change in Hungary.

PubMed

SzabÃ³, Barbara; Vincze, EnikÅ‘; CzÃºcz, BÃ¡lint

2016-09-01

The importance of long-term plant phenological time series is growing in monitoring of climate change impacts worldwide. To detect trends and assess possible influences of climate in Hungary, we studied flowering phenological records for six species (Convallaria majalis, Taraxacum officinale, Syringa vulgaris, Sambucus nigra, Robinia pseudoacacia, Tilia cordata) based on phenological observations from the Hungarian Meteorological Service recorded between 1952 and 2000. Altogether, four from the six examined plant species showed significant advancement in flowering onset with an average rate of 1.9-4.4Â days per decade. We found that it was the mean temperature of the 2-3Â months immediately preceding the mean flowering date, which most prominently influenced its timing. In addition, several species were affected by the late winter (January-March) values of the North Atlantic Oscillation (NAO) index. We also detected sporadic long-term effects for all species, where climatic variables from earlier months exerted influence with varying sign and little recognizable pattern: the temperature/NAO of the previous autumn (August-December) seems to influence Convallaria, and the temperature/precipitation of the previous spring (February-April) has some effect on Tilia flowering.

491. Removal of floral microbiota reduces floral terpene emissions

NASA Astrophysics Data System (ADS)

PeÃ±uelas, Josep; FarrÃ©-Armengol, Gerard; Llusia, Joan; Gargallo-Garriga, Albert; Rico, Laura; Sardans, Jordi; Terradas, Jaume; Filella, Iolanda

2014-10-01

The emission of floral terpenes plays a key role in pollination in many plant species. We hypothesized that the floral phyllospheric microbiota could significantly influence these floral terpene emissions because microorganisms also produce and emit terpenes. We tested this hypothesis by analyzing the effect of removing the microbiota from flowers. We fumigated Sambucus nigra L. plants, including their flowers, with a combination of three broad-spectrum antibiotics and measured the floral emissions and tissular concentrations in both antibiotic-fumigated and non-fumigated plants. Floral terpene emissions decreased by ca. two thirds after fumigation. The concentration of terpenes in floral tissues did not decrease, and floral respiration rates did not change, indicating an absence of damage to the floral tissues. The suppression of the phyllospheric microbial communities also changed the composition and proportion of terpenes in the volatile blend. One week after fumigation, the flowers were not emitting Î²-ocimene, linalool, epoxylinalool, and linalool oxide. These results show a key role of the floral phyllospheric microbiota in the quantity and quality of floral terpene emissions and therefore a possible key role in pollination.

492. Removal of floral microbiota reduces floral terpene emissions.

PubMed

PeÃ±uelas, Josep; FarrÃ©-Armengol, Gerard; Llusia, Joan; Gargallo-Garriga, Albert; Rico, Laura; Sardans, Jordi; Terradas, Jaume; Filella, Iolanda

2014-10-22

The emission of floral terpenes plays a key role in pollination in many plant species. We hypothesized that the floral phyllospheric microbiota could significantly influence these floral terpene emissions because microorganisms also produce and emit terpenes. We tested this hypothesis by analyzing the effect of removing the microbiota from flowers. We fumigated Sambucus nigra L. plants, including their flowers, with a combination of three broad-spectrum antibiotics and measured the floral emissions and tissular concentrations in both antibiotic-fumigated and non-fumigated plants. Floral terpene emissions decreased by ca. two thirds after fumigation. The concentration of terpenes in floral tissues did not decrease, and floral respiration rates did not change, indicating an absence of damage to the floral tissues. The suppression of the phyllospheric microbial communities also changed the composition and proportion of terpenes in the volatile blend. One week after fumigation, the flowers were not emitting Î²-ocimene, linalool, epoxylinalool, and linalool oxide. These results show a key role of the floral phyllospheric microbiota in the quantity and quality of floral terpene emissions and therefore a possible key role in pollination.

493. Differences between influenza virus receptors on target cells of duck and chicken and receptor specificity of the 1997 H5N1 chicken and human influenza viruses from Hong Kong.

PubMed

Gambaryan, A S; Tuzikov, A B; Bovin, N V; Yamnikova, S S; Lvov, D K; Webster, R G; Matrosovich, M N

2003-01-01

To study whether influenza virus receptors in chickens differ from those in other species, we compared the binding of lectins and influenza viruses with known receptor specificity to cell membranes and gangliosides from epithelial tissues of ducks, chickens, and African green monkeys. We found that chicken cells contained Neu5Ac alpha(2-6)Gal-terminated receptors recognized by Sambucus nigra lectin and by human viruses. This finding explains how some recent H9N2 viruses replicate in chickens despite their human virus-like receptor specificity. Duck virus bound to gangliosides with short sugar chains that were abundant in duck intestine. Human and chicken viruses did not bind to these gangliosides and bound more strongly than duck virus to gangliosides with long sugar chains that were found in chicken intestinal and monkey lung tissues. Chicken and duck viruses also differed by their ability to recognize the structure of the third sugar moiety in Sia2-3Gal-terminated receptors. Chicken viruses preferentially bound to Neu5Ac alpha(2-3)Gal beta(1-4)GlcNAc-containing synthetic sialylglycopolymer, whereas duck viruses displayed a higher affinity for Neu5Ac alpha(2-3)Gal beta(1-3)GalNAc-containing polymer. Our data indicate that sialyloligosaccharide receptors in different avian species are not identical and provide a potential explanation for the differences between the hemagglutinin and neuraminidase proteins of duck and chicken viruses.

494. Asymmetric effects of native and exotic invasive shrubs on ecology of the West Nile virus vector Culex pipiens (Diptera: Culicidae).

PubMed

Gardner, Allison M; Allan, Brian F; Frisbie, Lauren A; Muturi, Ephantus J

2015-06-16

Exotic invasive plants alter the structure and function of native ecosystems and may influence the distribution and abundance of arthropod disease vectors by modifying habitat quality. This study investigated how invasive plants alter the ecology of Culex pipiens, an important vector of West Nile virus (WNV) in northeastern and midwestern regions of the United States. Field and laboratory experiments were conducted to test the hypothesis that three native leaf species (Rubus allegheniensis, blackberry; Sambucus canadensis, elderberry; and Amelanchier laevis, serviceberry), and three exotic invasive leaf species (Lonicera maackii, Amur honeysuckle; Elaeagnus umbellata, autumn olive; and Rosa multiflora, multiflora rose) alter Cx. pipiens oviposition site selection, emergence rates, development time, and adult body size. The relative abundance of seven bacterial phyla in infusions of the six leaf species also was determined using quantitative real-time polymerase chain reaction to test the hypothesis that variation in emergence, development, and oviposition site selection is correlated to differences in the diversity and abundance of bacteria associated with different leaf species, important determinants of nutrient quality and availability for mosquito larvae. Leaf detritus from invasive honeysuckle and autumn olive yielded significantly higher adult emergence rates compared to detritus from the remaining leaf species and honeysuckle alleviated the negative effects of intraspecific competition on adult emergence. Conversely, leaves of native blackberry acted as an ecological trap, generating high oviposition but low emergence rates. Variation in bacterial flora associated with different leaf species may explain this asymmetrical production of mosquitoes: emergence rates and oviposition rates were positively correlated to bacterial abundance and diversity, respectively. We conclude that the displacement of native understory plant species by certain invasive shrubs

495. Biodiversity and Landscape Planning: Alternative Futures for the Region of Camp Pendleton, California

DTIC Science & Technology

1996-01-01

beetles, ants, wasps, flies, and caterpillars. Vegetable items include small fruits such as currants, grapes, elderberries, and mistletoe . [m Bluebirds...small fruits such as currants, grapes, elderberries, and mistletoe . Bluebirds maintain a territory used for mating, nesting, and feeding. Territories

496. Isolation and characterization of a floral homeotic gene in Fraxinus nigra causing earlier flowering and homeotic alterations in transgenic Arabidopsis

Treesearch

Jun Hyung Lee; Paula M. Pijut

2017-01-01

Reproductive sterility, which can be obtained by manipulating floral organ identity genes, is an important tool for gene containment of genetically engineered trees. In Arabidopsis, AGAMOUS (AG) is the only C-class gene responsible for both floral meristem determinacy and floral organ identity, and its mutations produce...

497. Glutathione Peroxidase 4 is associated with Neuromelanin in Substantia Nigra and Dystrophic Axons in Putamen of Parkinson’s brain

DTIC Science & Technology

2011-01-21

the substance accumulates in the SN of aging primates [4, 21]. Neuromelanin is specific to catecholaminergic neurons of higher mammals, and SN...Zambenedetti P , Arslan P , Galzigna L: Increased dopamine peroxidation in postmortem Parkinsonian brain. Biochim Biophys Acta 2002,

1573:63-67. 6. Arthur JR...Havlik RJ, Wergowske G, et al: Prevalence of dementia in older Japanese-American men in Hawaii: The Honolulu-Asia Aging Study. Jama 1996, 276:955

498. Effects of heating method and conditions on the evaporation rate and quality attributes of black mulberry (Morus nigra) juice concentrate.

PubMed

Fazaeli, Mahboubeh; Hojjatpanah, Ghazale; Emam-Djomeh, Zahra

2013-02-01

Black mulberry juice was concentrated by different heating methods, including conventional heating and microwave heating, at different operational pressures (7.3, 38.5 and 100Â kPa). The effects of each method on evaporation rate, quality attributes of concentrated juice were investigated. The final juice concentration of 42Â° Brix was achieved in 140, 120, and 95Â min at 100, 38.5, and 7.3Â kPa respectively by using a rotary evaporator. Applying microwave energy decreased required times to 115, 95, and 60Â min. The changes in color, anthocyanin content during the concentration processes were investigated. Hunter parameters (L, a, and b) were measured to estimate the intensity of color loss. All Hunter color parameters decreased with time. Results showed that the degradation of color and consequently anthocyanins, was more pronounced in rotary evaporation compared to microwave heating method.

499. Alterations in striatal dopamine catabolism precede loss of substantia nigra neurons in a mouse model of Juvenile Neuronal Ceroid Lipofuscinosis

PubMed Central

Weimer, Jill M.; Benedict, Jared W.; Elshatory, Yasser M.; Short, Douglas W.; Ramirez-Montealegre, Denia; Ryan, Deborah A.; Alexander, Noreen A.; Federoff, Howard J.; Cooper, Jonathan D.; Pearce, David A.

2016-01-01

Batten disease, or juvenile neuronal ceroid lipofuscinosis (JNCL), results from mutations in the CLN3 gene. This disorder presents clinically around the age of five years with visual deficits progressing to include seizures, cognitive impairment, motor deterioration, hallucinations, and premature death by the third to forth decade of life. The motor deficits include coordination and gait abnormalities, myoclonic jerks, inability to initiate movements, and spasticity. Previous work from our laboratory has identified an early reduction in catechol-O-methyltransferase (COMT), an enzyme responsible for the efficient degradation of dopamine. Alterations in the kinetics of dopamine metabolism could cause the accumulation of undegraded or unsequestered dopamine leading to the formation of toxic dopamine intermediates. We report an imbalance in the catabolism of dopamine in three month Cln3-/- mice persisting through nine months of age that may be causal to oxidative damage within the striatum at nine months of age. Combined with the previously reported inflammatory changes and loss of post-synaptic D1Î± receptors, this could facilitate cell loss in striatal projection regions and underlie a general locomotion deficit that becomes apparent at twelve months of age in Cln3-/- mice. This study provides evidence for early changes in the kinetics of COMT in the Cln3-/- mouse striatum, affecting the turnover of dopamine, likely leading to neuron loss and motor deficits. These data provide novel insights into the basis of motor deficits in JNCL and how alterations in dopamine catabolism may result in oxidative damage and localized neuronal loss in this disorder. PMID:17617387

500. Reversal of dopamine-mediated firing inhibition through activation of the dopamine transporter in substantia nigra pars compacta neurons.

PubMed

Aversa, Daniela; Martini, Alessandro; Guatteo, Ezia; Pisani, Antonio; Mercuri, Nicola Biagio; Berretta, Nicola

2018-06-22

One of the hallmarks of ventral midbrain dopamine (DA)-releasing neurons is membrane hyperpolarization in response to somato-dendritic D 2 receptors (D 2 Rs) stimulation. At early postnatal age, under sustained DA, this inhibitory response is followed by a slow recovery, resulting in dopamine inhibition reversal (DIR). In the present investigation we aimed to get a better insight onto the cellular mechanisms underlying DIR. We performed single unit extracellular recordings with a multi-electrode array (MEA) device and conventional patch-clamp recordings on midbrain mouse slices. While continuous DA (100 Î¼M) perfusion gave rise to firing inhibition that recovered in 10 to 15 min, the same effect was not obtained with the D 2 R agonist quinpirole (100 nM). Moreover, firing inhibition caused by the GABA B receptor agonist baclofen (300 nM), was reverted by DA (100 Î¼M), albeit D 2 Rs had been blocked by sulpiride (10 Î¼M). Conversely, the block of the DA transporter (DAT) with cocaine (30 Î¼M) prevented firing recovery by DA under GABA B receptor stimulation. Accordingly, in whole cell recordings from single cells the baclofen-induced outward current was counteracted by DA (100 Î¼M) in the presence of sulpiride (10 Î¼M), and this effect was prevented by the DAT antagonists cocaine (30 Î¼M) and GBR12909 (2 Î¼M). Our results indicate a major role played by DAT in causing DIR under conditions of sustained DA exposure and point to DAT as an important target for pharmacological therapies leading to prolonged enhancement of the DAergic signal. This article is protected by copyright. All rights reserved.