Full record of publications of **Dr. R. Govindarajan**, Scientist, Pharmacognosy & Ethnopharmacology Division, National Botanical Research Institute, Lucknow – 226 001, India

Cited in ISIknowledge (http://isiknowledge.com)

Record 1 of 17

Author(s): Govindarajan, R (Govindarajan, Raghavan); Asare-Anane, H (Asare-Anane, Henry); Persaud, S (Persaud, Shanta); Jones, P (Jones, Peter); Houghton, PJ (Houghton, Peter J.)

Title: Effect of Desmodium gangeticum extract on blood glucose in rats and on insulin secretion in vitro

Source: PLANTA MEDICA, 73 (5): 427-432 MAY 2007

Language: English

Document Type: Article

Author Keywords: Desmodium gangeticun; Papilionaceae; antidiabetic; insulin secretion; lipid profile

Keywords Plus: SERUM GLUCOSE

Abstract: Desmodium gangeticum is widely used in the indigenous system of medicine in India and is reported to contain flavone and isoflavonoid glycosides. It forms the ingredient of many Ayurvedic formulations used for diabetes. The present study was thus aimed at evaluating the insulin secretion and antidiabetic activity of Desmodium gangeticum. Treatment of diabetic rats with aerial parts of D. gangeticum extract (DG, 100 and 250mg/kg body weight) for 3 weeks showed a significant reduction in blood glucose. D. gangeticum extract caused a significant increase in insulin secretion from MIN6 cells grown as monolayers and as pseu- doislets, indicating that the antidiabetic activity may be as a result of increased insulin secretion. It also had a role on the lipid profile of the rats by causing reductions in cholesterol and triglycerides and increasing the HDL significantly ($p < 0.05$). This works supports the traditional use of D. gangeticum in the treatment of diabetes and this is likely to be due, at least in part, to its stimulation of insulin secretion by pancreatic islet cells.

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Record 2 of 17

Author(s): Singh, M (Singh, Meenakshi); Rawat, AKS (Rawat, A. K. S.); Govindarajan, R

(Govindarajan, R.)

Title: Antimicrobial activity of some Indian mosses

Source: FITOTERAPIA, 78 (2): 156-158 FEB 2007

Language: English

Document Type: Article

Author Keywords: mosses; antibacteric activity; antifungal activity

Abstract: The present study was designed to evaluate the antimicrobial activity of ethanolic extracts of 15 Indian mosses. The antibacterial activity of ethanolic extracts was investigated against five G(+) and six G(-) bacterial strains. Antimycotic activity was assayed against 8 fungi. Sphagnum junghuhnianum, Barbula javanica, Barbula arcuata, Brachythecium populetan, Brachythecium rutabulum, Mnium marginatum and Entodon cf rubicundus were found to be most active against all the organisms. (c) 2006 Elsevier B.V. All rights reserved.

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Source Item Page Count: 3

Subject Category: Chemistry, Medicinal; Pharmacology & Pharmacy

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Record 3 of 17

Author(s): Govindarajan, R (Govindarajan, R.); Singh, DP (Singh, D. P.); Rawat, AKS (Rawat, A. K. S.)

Title: High-performance liquid chromatographic method for the quantification of phenolics in 'Chyavanprash' a potent Ayurvedic drug

Source: JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS, 43 (2): 527-532 JAN 17 2007

Language: English

Document Type: Article

Author Keywords: 'Chyavanprash'; HPLC; phenolics; antioxidants

Keywords Plus: APPLES; ANTIOXIDANTS; OPTIMIZATION; FLAVONOIDS; FRUIT

Abstract: Quantification of bioactive principles through modern analytical tools is essential for establishing the authenticity, creditability, prescription and usage of Ayurvedic medicines/herbal formulations. 'Chyavanprash' is one of the oldest and most popular Ayurvedic preparations, used widely as a health promotive and disease preventive 'Rasayana' drug in India and elsewhere. The rejuvenating and tonic properties of 'Chavanprash' are considered majorly due to their antioxidant principles, which in turn is due to the presence of phenolic compounds. A simple high-performance liquid chromatography (HPLC) method for the separation and quantitative determination of the major antioxidant compounds from 'Chyavanprash' has been developed. The use of Waters Symmetry((R)) column and an acidic mobile phase enabled the efficient

separation of phenolic compounds (catechin, quercetin-3-O-rutinoside, syringic acid and gallic acid) within a 35 min analysis. Validation of the method was done with a view to demonstrate its selectivity, linearity, precision, accuracy and robustness. In addition optimization of the complete extraction of phenolic compounds were also studied. (c) 2006 Elsevier B.V. All rights reserved.

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Source Item Page Count: 6

Subject Category: Chemistry, Analytical; Pharmacology & Pharmacy

ISI Document Delivery No.: 130MC

Record 4 of 17

Author(s): Narasimhan, S (Narasimhan, Sreevidya); Govindarajan, R (Govindarajan, Raghavan); Madhavan, V (Madhavan, Vijayalumar); Thakur, M (Thakur, M.); Dixit, VK (Dixit, V. K.); Mehrotra, S (Mehrotra, Shanta); Madhusudanan, KP (Madhusudanan, K. P.)

Title: Action of (2 -> 1)fructo-oligopolysaccharide fraction of Chlorophytum borivilianum against streptozotocin-induced oxidative stress

Source: PLANTA MEDICA, 72 (15): 1421-1424 DEC 2006

Language: English

Document Type: Article

Abstract: A fructo-oligosaccharide was isolated from Chlorophytum borivilianum and identified as O-beta-D-fructofuranosyl-(2 -> 1)-(beta-D-fructofuranosyl)(n)-(2 -> 1)-alpha-D-glucopyranoside(n = 5-30)using high-pressure anion exchange chromatography, MALDI-MS, NMR, GC, HPTLC and chemical analysis. The extract and the fructo-oligosaccharide were found to have significant antidiabetic activity with the blood sugar levels being 118.32 +/- 3.56 and 110.21 +/- 4.22, respectively, as compared to the control value of 231.25 +/- 3.03 along with moderate antioxidant activity in streptozotocin-incluced diabetic animals.

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Record 5 of 17

Author(s): Houghton, PJ (Houghton, P. J.); Kumar, V (Kumar, V.); Govindarajan, R (Govindarajan, R.); Mukherjee, PK (Mukherjee, P. K.)

Title: Asarones in Acorus calamus and their acetylcholinesterase inhibition

Source: JOURNAL OF PHARMACY AND PHARMACOLOGY, 58: A55-A55 Suppl. 1 2006
Language: English
Document Type: Meeting Abstract

Addresses: Kings Coll London, Pharmaceut Sci Res Div, London SE1 9NH, England; Univ Jadavpur, Dept Pharmaceut Technol, Sch Nat Prod Studies, Calcutta 700032, W Bengal, India; Natl Bot Res Inst, Lucknow 226001, Uttar Pradesh, India

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Record 6 of 17

Author(s): Singh, M (Singh, Meenakshi); Govindarajan, R (Govindarajan, Raghavan); Nath, V (Nath, Virendra); Rawat, AKS (Rawat, Ajay Kumar Singh); Mehrotra, S (Mehrotra, Shanta)

Title: Antimicrobial, wound healing and antioxidant activity of Plagiochasma appendiculatum Lehm. et Lind

Source: JOURNAL OF ETHNOPHARMACOLOGY, 107 (1): 67-72 AUG 11 2006
Language: English
Document Type: Article
Author Keywords: antimicrobial activity; antioxidant; wound healing; Plagiochasma appendiculatum; phytochemical constituents
Keywords Plus: EXTRACT; MOSSES

Abstract: Plagiochasma appendiculatum (Aytoniaceae) of the order Marchantiales is widely used in the form of paste ethnomedicinally by Gaddi tribe in Kangra valley for treating skin diseases. In this context, antimicrobical potential of Plagiochasma appendiculatum against a wide range of microorganisms was studied. To validate the ethnotherapeutic claims of the plant in skin diseases, wound healing activity was studied, besides antioxidant activity to understand the mechanism of wound healing activity. The plant (alchoholic and aqueous extract) showed significant antibacterial and antifungal activity against almost all the organisms: Micrococcus luteus, Bacillus subtilis, Bacillus cereus, Staphylococcus aureus, Streptococcus pneumoniae,

Enterobacter aerogenes, Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, Pseudomonas aeruginosa, Salmonella typhimurium, and eight fungi Candida albicans and Cryptococcus albidus-dimorphic fungi, Trichophyton rubrum-dermatophyte fungi, Aspergillus niger, Aspergillus flavus, Aspergillus spinulosus, Aspergillus terreus and Aspergillus nidulans-systemic fungi, with especially good activity against the dermatophyte (Trichophyton rubrum) and some infectious bacteria (Escherichia coli, Proteus mirabilis and Salmonella typhimurium) with an MIC of 2.5 mu g/disc. The results show that Plagiochasma appendiculatum extract has potent wound healing capacity as evident from the wound contraction and increased tensile strength. The results also indicated that Plagiochasma appendiculatum extract possesses potent antioxidant activity by inhibiting lipid peroxidation and increase in the superoxide dismutase (SOD) and Catalase activity.

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Record 7 of 17

Author(s): Govindarajan, R; Vijayakumar, M; Singh, M; Rao, CV; Shirwaikar, A; Rawat, AKS; Pushpangadan, P

Title: Antiulcer and antimicrobial activity of Anogeissus latifolia

Source: JOURNAL OF ETHNOPHARMACOLOGY, 106 (1): 57-61 JUN 15 2006

Language: English

Document Type: Article

Author Keywords: Anogeissus latifolia; antiulcer; antimicrobial; antioxidant

Keywords Plus: GASTRIC-MUCOSA; RATS; ULCER; SECRETION; DISEASE; BARK

Abstract: Ethnobotanically, the bark of Anogeissus latifolia (Roxb. ex. DC.) Wall. ex Guill. & Perr.(Combretaceae) has been reported to be used in the treatment of various disorders including stomach and skin diseases. We studied the antiulcer potential and antimicrobial activity of the 50% aqueous alcoholic extract in order to validate ethnobotanical claims regarding the plant use in the above-mentioned disorders. Gastroprotective potential of the Anogeissus latifolia extract (ALE) (100 and 200 mg/kg/body weight) was studied on aspirin, cold-resistant stress (CRS), pylorus ligated (PL) and ethanol-induced ulcers. Status of the antioxidant enzymes superoxide dismutase (SOD) and catalase along with lipid peroxidation (LPO) was also studied in CRS-induced ulcers. The results of the present study showed for the first time that the ALE possessed gastroprotective activity as evidenced by its significant inhibition in the formation of ulcers induced by physical and chemical agents with a maximum of 84.16% curation (200 mg/kg body weight) in CRS-induced ulcers. ALE decreased LPO and SOD with concomitant increase in

catalase activity in CRS-induced ulcers. Moderate antibacterial activity and antifungal activity was also observed. High performance thin layer chromatography (HPTLC) showed the presence of gallic acid and ellagic acid (0.95%, w/w, 0.25%, w/w, respectively) in the plant. These findings could justify, at least partially, the inclusion of this plant in the management of gastric disorders in traditional medicine. (c) 2005 Elsevier Ireland Ltd. All rights reserved.

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Subject Category: Plant Sciences; Chemistry, Medicinal; Integrative & Complementary Medicine; Pharmacology & Pharmacy

ISI Document Delivery No.: 053HW

Record 8 of 17

Author(s): Mishra, S; Srivastava, S; Tripathi, RD; Govindarajan, R; Kuriakose, SV; Prasad, MNV

Title: Phytochelatin synthesis and response of antioxidants during cadmium stress in Bacopa monnieri L

Source: PLANT PHYSIOLOGY AND BIOCHEMISTRY, 44 (1): 25-37 JAN 2006

Language: English

Document Type: Article

Author Keywords: antioxidant enzymes; Bacopa monnieri; cadmium; glutathione; phytochelatin

Keywords Plus: BEAN PHASEOLUS-VULGARIS; OXIDATIVE STRESS; SUPEROXIDE-DISMUTASE; HIGHER-PLANTS; HEAVY-METALS; GLUTATHIONE; ACCUMULATION; TOXICITY; LEAVES; PEROXIDASE

Abstract: The phytotoxicity imposed by cadmium (Cd) and its detoxifying responses of Bacopa monnieri L. have been investigated. Effect on biomass, photosynthetic pigments and protein level were evaluated as gross effect, while lipid peroxidation and electrolyte leakage reflected oxidative stress. Induction of phytochelatins and enzymatic and non-enzymatic antioxidants were monitored as plants primary and secondary metal detoxifying responses, respectively. Plants accumulated substantial amount of Cd in different plant parts (root, stem and leaf), the maximum being in roots (9240.11 mu g g(-1) dw after 7 d at 100 mu M). Cadmium induced oxidative stress, which was indicated by increase in lipid peroxidation and electrical conductivity with increase in metal concentration and exposure duration. Photosynthetic pigments showed progressive decline while protein showed slight increase at lower concentrations. Enzymes viz., Superoxide dismutase (SOD, EC 1.15. 1.1), guaiacol peroxidase (GPX, EC 1.11. 1.7) ascorbate peroxidase (APX, EC 1.11.1.11) and glutathione reductase (GR, EC 1.6.4.2) showed stimulation except catalase (CAT, EC 1.11.1.6) which showed declining trend. Initially, an enhanced level of cysteine, glutathione and non-protein thiols was observed, which depleted with increase in

exposure concentration and duration. Phytochelatins induced significantly at 10 mu M Cd in roots and at 50 mu M Cd in leaves. The phytochelatins decreased in roots at 50 mu M Cd, which may be correlated with reduced level of GSH, probably due to reduced GR activity, which exerted increased oxidative stress as also evident by the phenotypic changes in the plant like browning of roots and slight yellowing of leaves. Thus, besides synthesis of phytochelatins, availability of GSH and concerted activity of GR seem to play a central role for Bacopa plants to combat oxidative stress caused by metal and to detoxify it. Plants ability to accumulate and tolerate high amount of Cd through enhanced level of PCs and various antioxidants suggest it to be a suitable candidate for phytoremediation.

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Subject Category: Plant Sciences

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Record 9 of 17

Author(s): Vijayakumar, M; Govindarajan, R; Rao, GMM; Rao, CV; Shirwaikar, A; Mehrotra, S; Pushpangadan, P

Title: Action of Hygrophila auriculata against streptozotocin-induced oxidative stress

Source: JOURNAL OF ETHNOPHARMACOLOGY, 104 (3): 356-361 APR 6 2006

Language: English

Document Type: Article

Author Keywords: Hygrophila auriculata; diabetes; antioxidant enzymes; photochemiluminescence

Keywords Plus: INDUCED DIABETIC-RATS; LIPID PEROXIDE LEVEL; SUPEROXIDE-DISMUTASE; ANTIOXIDANT STATUS; GLUTATHIONE LEVELS; FREE-RADICALS; ALLOXAN; LONGIFOLIA; GLUCOSE; MICE

Abstract: Hygrophila auriculata (K. Schum.) Heine (Family: Acanthaceae) is a wild herb widely used in 'Ayurveda' as 'Rasayana' drug for treatment of various disorders. Treatment of diabetic rats with aerial parts of Hygrophila auriculata extract (HAEt, 100 and 250 mg/kg body weight) for 3 weeks showed significant reduction in blood glucose, thiobarbituric acid reactive substances (TBARS) and hydroperoxide in both liver and kidney. The treatment with HAEt significantly increased the glutathione (GSH), glutathione peroxidase (GPx), glutathione S-transferase (GST) and catalase (CAT) in the drug-treated group, which is comparable to the control group. HAEt and glibenclamide-treated rats also showed decreased lipid peroxidation that is associated with increased activity of superoxide dismutase (SOD) and catalase. The ability of HAEt on tissue lipid peroxidation and antioxidant status in diabetic animals has not been studied before. The result of this study thus shows that HAEt possesses significant antidiabetic activity along with potent antioxidant potential in diabetic conditions.

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Record 10 of 17

Author(s): Narasimhan, S; Govindarajan, R; Vijayakumar, M; Mehrotra, S

Title: Free radical scavenging potential of Chlorophytum tuberosum baker

Source: JOURNAL OF ETHNOPHARMACOLOGY, 104 (3): 423-425 APR 6 2006

Language: English

Document Type: Article

Author Keywords: Chlorophytum tuberosum; amino acids; arginine; antioxidant; Rasayana drug

Abstract: Chlorophytum tuberosum Baker commonly referred as 'Musli' has been widely used as a potent 'Rasayana' drug in 'Ayurveda' as a rejuvenator and tonic. Antioxidant potential of Chlorophytum tuberosum has been investigated for their ability to scavenge 1,1,diphenyl picryl hydrazyl (DPPH), nitric oxide radical along with their capacity to reduce lipid peroxidation in rat liver homogenate, chelation of ferrous ion, radical scavenging potential using chemiluminescence and their total antioxidant capacity. Sugar, starch, protein, and Vitamin C content were estimated spectrophotometrically along with the percentages of the individual amino acids by HPLC and individual Sugars by using HPTLC as standardization tool. The extract has been found to possess antioxidant activity in all the models tested as evident by IC50 values being 225.31, 888.44, 809.22 and 422.97 mu g/ml for scavenging of DPPH, nitric oxide, lipid peroxidation and ferry bi-pyridyl complex, respectively, along with a integral anitoxidant activity of 2.986 nmol ascorbic acid/g equivalents in photochemiluminescence assay.

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Record 11 of 17

Author(s): Govindarajan, R; Vijayakumar, M; Pushpangadan, P

Title: Antioxidant approach to disease management and the role of 'Rasayana' herbs of Ayurveda

Source: JOURNAL OF ETHNOPHARMACOLOGY, 99 (2): 165-178 JUN 3 2005

Language: English

Document Type: Review

Author Keywords: Rasayana; antioxidant; Ayurveda; Panchkarma

Keywords Plus: INDUCED OXIDATIVE STRESS; LOW-DENSITY-LIPOPROTEIN; RAT FRONTAL-CORTEX; TINOSPORA-CORDIFOLIA; FREE-RADICALS; WITHANIA-SOMNIFERA; MEDICINAL-PLANTS; ALOE-VERA; AUTOXIDATIVE GLYCOSYLATION; ANDROGRAPHIS-PANICULATA

Abstract: The disease preventive and health promotive approach of 'Ayurveda', which takes into consideration the whole body, mind and spirit while dealing with the maintenance of health, promotion of health and treating ailments is holistic and finds increasing acceptability in many regions of the world. Ancient Ayurvedic physicians had developed certain dietary and therapeutic measures to arrest/delay ageing and rejuvenating whole functional dynamics of the body system. This revitalization and rejuvenation is known as the 'Rasayan chikitsa' (rejuvenation therapy). Traditionally, Rasayana drugs are used against a plethora of seemingly diverse disorders with no pathophysiological connections according to modem medicine. Though, this group of plants generally possesses strong antioxidant activity, only a few have been investigated in detail. Over about 100 disorders like rheumatoid arthritis, hemorrhagic shock, CVS disorders, cystic fibrosis, metabolic disorders, neurodegenerative diseases, gastrointestinal ulcerogenesis and AIDS have been reported as reactive oxygen species mediated. In this review, the role of free radicals in these diseases has been briefly reviewed. 'Rasayana' plants with potent antioxidant activity have been reviewed for their traditional uses, and mechanism of antioxidant action. Fifteen such plants have been dealt with in detail and some more plants with less work have also been reviewed briefly. (c) 2005 Elsevier Ireland Ltd. Ail rights reserved.

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Record 12 of 17

Author(s): Govindarajan, R; Vijayakumar, M; Rao, CV; Shirwaikar, A; Rawata, AKS; Mehrotra, S; Pushpangadan, P

Title: Antioxidant potential of Anogeissus latifolia

Source: BIOLOGICAL & PHARMACEUTICAL BULLETIN, 27 (8): 1266-1269 AUG 2004

Language: English

Document Type: Article

Author Keywords: Anogeissus latifolia; H-donating ability; chemilumiscence; high performance thin layer chromatography (HPTLC); lipid peroxidation; gallic acid

Keywords Plus: OXIDATIVE STRESS; NEURODEGENERATION; GLUTATHIONE; INHIBITION

Abstract: Anogeissus latifolia is widely used in the Indian indigenous system of medicine and is reported to contain leucocyanidins and tannoid principles like ellagic acid and its derivatives. In view of its wide use and its chemical composition, this study was aimed at examining the antioxidant activity of the extract of A. latifolia. The extract was studied for total antioxidant capacity, hydrogen-donating ability, nitric oxide, superoxide scavenging activity, hydrogen peroxide decomposition activity along with lipid peroxidation. Integral antioxidative capacity was determined by chemiluminescence assay. The extract was also studied for lipid peroxidation assay by thiobarbituric acid-reactive substances (TBARS) method using rat liver homogenate. The results indicate that A. latifolia extract has potent antioxidant activity. Also to ascertain the possible reason for the potent activity, percentage of gallic acid was estimated and was found to be 0.95%, which could be one of the reasons for potent antioxidant activity exhibited by the plant.

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Record 13 of 17

Author(s): Rao, CV; Ojha, SK; Radhakrishnan, K; Govindarajan, R; Rastogi, S; Mehrotra, S; Pushpangadan, P

Title: Antiulcer activity of Utleria salicifolia rhizome extract

Source: JOURNAL OF ETHNOPHARMACOLOGY, 91 (2-3): 243-249 APR 2004

Language: English

Document Type: Article

Author Keywords: Utleria salicifolia; ulcer; mucin; antioxidant

Keywords Plus: GASTRIC-MUCOSAL INJURY; SUPEROXIDE-DISMUTASE; RATS; ULCER; ETHANOL; STRESS; SUCRALFATE; MECHANISM; OXYGEN; DAMAGE

Abstract: The effect of 50% ethanolic extract of Utleria salicifolia (USE) was assessed in different acute and chronic gastric ulcer models in rats. USE, 50-200 mg/kg administered orally, twice daily for 5 days showed dose-dependent ulcer protective effect in pylorus ligation (14.48-5 1.03% protection, P < 0.5 to P < 0.01), aspirin (28.80-56.52% protection, P < 0.5 to P < 0.05), ethanol (13.22-60.74% protection, P < 0.05 to P < 0.001), cold-restraint stress (21.22-77.14% protection, P < 0.05 to P < 0.001), and acetic acid (20.0-84.37% protection, P < 0.5 to P < 0.001)-induced acute and chronic ulcers. USE also significantly (P < 0.001) reduced the ulcer incidence (50 and 10%)andseverity (67.83 and 91.34% protection) of duodenal ulcer, induced by cysteamine. Besides USE offered protection (53.52 and 60.58%) against ethanol-induced depletion of gastric wall mucus. However, USE reduced the ulcer index with significant decrease in plasma corticosterone (25.53 and 39.52% protection, P < 0.1 and P < 0.05), lipid peroxidation (18.75 and 47.92% protection, P < 0.01 and P < 0.001), superoxide dismutase (15.80 and 26.61 % protection, P < 0.05 and P < 0.001) and increased in catalase (28.42 and 7 1.0% protection, P < 0.05 and P < 0.001) activity, respectively. Preliminary phytochemical screening of the USE gave the positive test for steroids, alkaloids, terpenoids, saponins and tannins. The HPTLC studies in the toluene: ethyl acetate: formic acid and the densitometric scanning, at 254 nm gave three major spots with area corresponding to 28.16, 17.17. and 13.79% at 0.69, 0.78, and 0.88 Rt values, respectively. The results indicate that USE possesses antiulcer activity. (C) 2004 Elsevier Ireland Ltd. All rights reserved.

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Record 14 of 17

Author(s): Govindarajan, R; Rastogi, S; Vijayakumar, M; Shirwaikar, A; Rawat, AKS; Mehrotra, S; Pushpangadan, P

Title: Studies on the antioxidant activities of Desmodium gangeticum

Source: BIOLOGICAL & PHARMACEUTICAL BULLETIN, 26 (10): 1424-1427 OCT 2003

Language: English

Document Type: Article

Author Keywords: Desmodium gangeticum; diphenyl picryl hydrazyl (DPPH); nitric oxide; hypochlorous acid; ferryl-bipyridyl; lipid peroxidation

Keywords Plus: HYPOCHLOROUS ACID; LIPID-PEROXIDATION; SUPEROXIDE; EXTRACTS; LEGUMINOSAE; INHIBITION; INFUSION

Abstract: Desmodium gangeticum is herbal species which is widely used in the indigenous system of medicine and is reported to contain flavone and isoflavanoid glycosides. In view of its wide use and it's chemical composition, this study was aimed at examining the antioxidant activity of the extract of D. gangeticum. The extract was studied for diphenyl picryl hydrazyl (DPPH), nitric oxide, ferryl-bipyridyl and hypochlorous acid scavenging activity along with lipid peroxidation. Nitric oxide was generated using sodium nitroprusside and was studied using Griess reagent. In order to study the iron chelating capacity of the extract, the percentage ferryl-bipyridyl inhibition was studied. Hypochlorous acid scavenging activity was tested by measuring the inhibition of 5-thio-2-nitrobenzoic acid oxidation. The extract was also studied for lipid peroxidation assay by thiobarbituric acid-reactive substances (TBARS) method using rat brain homogenate. The results indicate that D. gangeticum extract has potent antioxidant activity.

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Record 15 of 17

Author(s): Govindarajan, R; Beena, T; Bhat, AR

Title: Synthesis and comparison of biological activities of azetinone, thiazolidinone and related compounds

Source: HETEROCYCLIC COMMUNICATIONS, 9 (3): 259-264 2003

Language: English

Document Type: Article

Abstract: Recent discoveries of non-classical beta-lactam antibiotics such as nocardicines, monobactams and thienamycin have stimulated much interest(1,2,3). Besides this, the unique feature of these strained molecules is that these heterocycles are becoming powerful building blocks for the synthesis of a variety of organic compounds(4,5). During the present work, azetidinone and thiazolidinone derivatives of 3-chloro, 4-fluoro aniline and 4-chloro aniline were prepared. The synthesis was further extended for deriving arylidene derivatives from the thiazolidinones.

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Record 16 of 17

Author(s): Govindarajan, R; Jameela, HJ; Bhat, AR

Title: Synthesis of azetidinone and thiazolidinone derivatives of pyrazinoic acid for possible antitubercular, antifungal and antibacterial activity

Source: INDIAN JOURNAL OF HETEROCYCLIC CHEMISTRY, 12 (3): 229-232 JAN-MAR 2003

Language: English

Document Type: Article

Abstract: A series of azetidinones (JA1-6) and thiazolidinones (JT1-4) derivatives of pyrazinoic acid were prepared and studied for their in vitro antitubercular (Mycobacterium tuberculosis H-37 Rv strain), antifungal (Candida albicans and Aspergillus fumigatus) and antibacterial activity (Staphylococcus aureus, Bacillus, Escherichia coli and Psuedomonas aeruginosa). Compounds were not effective against the species belonging to Candida, however they were effective on Aspergillus fumigatus at 1 mug/ml. Compounds thiazolidinones and azetidinones and Schiffs bases were only effective, whereas the hydrazide failed to show any antifungal activity. This was substantiated further during antitubercular screening both azetidinones and thiazolidinones proved to be effective antitubercular agents. This variation in activity is due to the difference in the structure of cell wall of bacteria and the Mycobacteria.

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Subject Category: Chemistry, Organic

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Record 17 of 17

Author(s): Govindarajan, R; Bhat, AR

Title: Synthesis of pyrazinoyl and related heterocycles as possible antitubercular agents

Source: INDIAN JOURNAL OF HETEROCYCLIC CHEMISTRY, 11 (4): 337-338 APR-JUN 2002

Language: English

Document Type: Article

Abstract: A series of pyrazinoyl derivatives were prepared and studied for their in vitro activity against the human strain Mycobacterium tuberculosis H(37)Rv. Pyrazinoic acid hydrazide was condensed with carbon disulphide to obtain oxadiazolethione derivative, which was further, converted in to Mannich bases, The acid hydrazide was further reacted with phenyl isothiocyanate and later cyclised to form triazolethione. For comparison of results thiadiazole derivative was also synthesized.

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