**THERAPEUTICS**

NPARR 2(1), 2011-098, *Moringa oleifera* induced potentiation of serotonin release by 5-HT3 receptors in experimental ulcer model

*Moringa oleifera* (Moringaceae), a perennial plant is widely cultivated throughout the world. Extensive pharmacological studies revealed its promising role in modulation of various disorders like antispasmodic, diuretic, abortifacient, antimicrobial antibacterial, antitubercular, antiviral, antifertility, depressant, anti-inflammatory and anticancer property which prompted us to conduct the study to elucidate its role on experimental gastric ulceration. The aim of the present study was to assess the efficacy of its aqueous leaf extract on protection of gastric ulceration and characterize the possible modulatory mechanism underlying the phenomenon. Adult Holtzman strain albino rats (weight 150–200 g) of either sex were used for the study. Ulceration was induced using aspirin (500 mg/kg body weight) and using *Moringa oleifera* (MO), a herbal formulation, the modulatory mechanism has been studied and compared with a commonly used antagonist of 5-HT3 receptors, ondansetron by assessing parameters like mean ulcer index, 5-HT content, EC cell count and mucosal thickness. The results of our study suggest that MO protects ulcer formation by modulating 5-HT secretion through EC cell via 5-HT3 receptors in gastrointestinal tract [Siddhartha Debnath* Debasis Biswas, Koushik Ray and Debjani Guha (S. N. Pradhan Centre for Neurosciences, University of Calcutta, 244B A.J.C. Bose Road, Kolkata 700020, India), Phytomedicine, 2011, 18,(2-3), 91-95].

NPARR 2(1), 2011-099, *Solanum nigrum* Linn. polyphenolic extract inhibits hepatocarcinoma cell growth by inducing G2/M phase arrest and apoptosis

Hepatocellular carcinoma (HCC) is a rapidly progressive cancer with poor prognosis. However, there have been no significant new developments in treating liver cancer. To search for an effective agent against HCC progression, we prepared a polyphenolic extract of *Solanum nigrum* L. (SNPE), a herbal plant indigenous to Southeast Asia and commonly used in oriental medicine, to evaluate its inhibitive effect on hepatocarcinoma cell growth. The growth inhibition of HepG2 cells *in vitro* and *in vivo* was determined in the presence of SNPE. We found 1 µg mL⁻¹ SNPE-fed mice showed decreased tumor weight and tumor volume by 90%. Notably, 2 µg mL⁻¹ SNPE resulted in almost complete inhibition of tumor weight as well as tumor volume. In line with this notion, SNPE reduced the viability of HepG2 cells in a dose-dependent manner. HepG2 cells were arrested in the G2/M phase of the cell cycle; meanwhile, the protein levels of cell CDC25A, CDC25B, and CDC25C were clearly reduced. Moreover, sub-G1 phase accumulation and caspases-3, 8, and 9 cleavages were induced by SNPE. This study shows that SNPE is a potent agent for HCC treatment through targeting G2/M arrest and apoptosis induction, achieving cell growth inhibition [Hsueh-Chun Wang, Pei-Jun Chung, Cheng-Hsun Wu, Kuang-Ping Lan, Mon-Yuan Yang Chau-Jong Wang* (Institute of Biochemistry and Biotechnology, Chung Shan Medical University, Taichung, Taiwan, ROC), Journal of the Science of Food and Agriculture, 2011, 91(1), 178–185].

NPARR 2(1), 2011-0100, Screening of *Caesalpinia bonduc* leaves for antipsoriatic activity

Leaves of *Caesalpinia bonduc* (L.) Roxb. (Caesalpiniaeae) have been used by traditional Siddha healer of Malabar region for psoriasis treatment. To evaluate the *Caesalpinia bonduc* decoction (CBD), *Caesalpinia bonduc* hydroalcoholic extract (CBHA) for antipsoriatic activity, mouse tail test for psoriasis was used for the evaluation of antipsoriatic activity. Extracts were tested at a dose of 500mg/kg b.w. and fractions at 250mg/kg b.w. in Swiss albino mice. Parameters studied in the mouse tail test were changes in epidermal thickness and percentage orthokeratotic values. *In vitro* antiproliferant assay on HaCaT cell lines and *in vitro* lipoxygenase inhibition were also carried out. Butanol fraction of *Caesalpinia bonduc* hydroalcoholic extract (CBHAB) and water fraction of *Caesalpinia bonduc* hydroalcoholic extract (CBHAW) produced significant orthokeratosis (p < 0.001). In relative epidermal thickness, a significant (p < 0.05) reduction with respect to control was observed in groups treated with retinoic acid, CBD, butanol fraction of *Caesalpinia bonduc* decoction (CBDB), water fraction of *Caesalpinia bonduc* hydroalcoholic extract...
(CBHAW). Maximum antiproliferant activity was shown by CBHA (IC$_{50}$: 77.5 ± 12.7 µg/ml). In lipoxygenase inhibition assay, water fraction of Caesalpinia bonduc decoction (CBDW) showed maximum activity with an IC$_{50}$ value of 164.71 ± 4.57 µg/ml. Among all the tested samples only CBHAW showed good activity in the mouse tail test, antiproliferant activity in HaCaT cells and lipoxygenase inhibition assay. Other extracts and fractions showed varying degrees of activity. The present study supports the traditional use of Caesalpinia bonduc leaves for psoriasis treatment [N. Muruganantham*, K.H. Basavaraj, S.P. Dhanabal T.K. Praveen, N.M. Shamasundar and K.S. Rao (Department of Phytopharmacy and Phytomedicine (TIFAC CORE HD), JSS College of Pharmacy, Rocklands, Ooty, India), Journal of Ethnopharmacology, 2011, 133(2), 897-901].

NPARR 2(1), 2011-0101, Effects of an n-butanol extract from the stem of Tinospora crispa on blood pressure and heart rate in anesthetized rats

Tinospora crispa has been used in folkloric medicine for control of blood pressure, as an antipyretic, for cooling down the body temperature and for maintaining good health. Present study was done to investigate the effects and mechanisms of action of an n-butanol extract from the stems of Tinospora crispa (T. crispa extract) on blood pressure and heart rate in anesthetized rats. Air-dried stems of T. crispa were extracted with water, followed by partitioned extract with chloroform, ethyl acetate, and finally by n-butanol. The n-butanol soluble part was evaporated under reduced pressure and lyophilization to obtain a crude dried powder (T. crispa extract). The effects and mechanisms of the T. crispa extract on blood pressure and heart rate were studied in anesthetized normal and reserpinized rats in vivo in the presence of different antagonists. T. crispa extract (1–100 mg/kg, i.v.) caused a decrease in mean arterial blood pressure (MAP) and this effect was inhibited by propranolol, phentolamine, atenolol and/or the β$_2$-antagonist ICI-118,551, but not by atropine or hexamethonium. In reserpinized rats, the T. crispa extract had a dual effect: reduction in hypotensive activity, followed by a small increase in blood pressure. The decrease in MAP in reserpinized rat was slightly potentiated by phentolamine, but inhibited by propranolol or ICI-118,551 only if atenolol and phentolamine were also present. The increase in MAP was potentiated by propranolol and ICI-118,551, but was inhibited by phentolamine. The T. crispa extract had a dual effect on heart rate in the normal rat: a small transient decrease, followed by an increase in heart rate. The positive chronotropic effect of T. crispa extract was inhibited by propranolol, phentolamine and atenolol, but not by ICI-118,551, atropine or hexamethonium. Reserpine potentiated the positive chronotropic effect of the T. crispa extract and this effect was inhibited by propranolol, atenolol and ICI-118,551, but not by phentolamine. From these results we suggest that T. crispa extract possesses at least three different cardiovascular-active components that act directly via (1) β$_2$-adrenergic receptors to cause a decrease in blood pressure, and β$_1$- and β$_2$-adrenergic receptors to cause an increase in heart rate, (2) α-adrenergic receptors to cause an increase in blood pressure and heart rate, and (3) a non-adrenergic and non-cholinergic pathway to cause a decrease in MAP and heart rate. These findings provide scientific support for the tradition of using this plant to modify the actions of the human cardiovascular system [Siwaporn Praman*, Michael J. Mulvany, Yves Allenbach, Andrew Marston, Kurt Hostettmann, Poungpen Sirirugs and Chaweewan Jansakul (Department of Physiology, Faculty of Science, Prince of Songkla University, Hat-Yai, Songkhla 90112, Thailand), Journal of Ethnopharmacology, 2011, 133(2), 675-686].

NPARR 2(1), 2011-0102, Anti-malarial herbal remedies of northeast India, Assam: An ethnobotanical survey

Malaria is a serious public health problem in the north-eastern region of India including Assam, in view of development of chloroquine resistant Plasmodium falciparum. There is need for alternative and affordable therapy. This study was conducted to document indigenous knowledge, usage customs and practices of medicinal plant species traditionally used by the residents of Sonitpur district of Tezpur, Assam to treat malaria and its associated symptoms. A total of 50 randomly selected sampling represented by male (38.76%) and female respondents (12.24%) were interviewed using a semi-structured questionnaire. The present ethnobotanical survey revealed 22 species of plants belonging to 17 botanical families were reported to be used
exclusively in this region for the treatment of malaria. Verbenaceae (three species), Menispermaceae (two species), and Acanthaceae (two species) botanical families represented the species that are most commonly cited in this survey work and the detailed use of plants has been collected and described. The most serious threat to the existing knowledge and practice on traditional medicinal plants included cultural change, particularly the influence of modernization and lack of interests shown by the next younger generations were the main problems reported by the informants during the field survey. Hence, the proper documentation of traditional medicinal plants being used as anti-malarial agents and related indigenous knowledge held by the tribal community is an important approach to control the spread of vector-borne diseases like malaria reported in this survey work [Nima D. Namsa*, M. Mandal and S. Tangjang (Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur 784 028, Assam, India), *Journal of Ethnopharmacology, 2011, 133(2), 565-572].

NPARR 2(1), 2011-0103, Normal and delayed wound healing is improved by sesamol, an active constituent of *Sesamum indicum* (L.) in albino rats

The seeds of *Sesamum indicum* Linn. (Pedaliaceae) has been used traditionally for the treatment of wounds in Buldhana district of Maharashtra state. Sesamol is the main anti-oxidative constituent contained mainly in the processed sesame seed oil which has not been explored scientifically for its wound healing activity. Present study was done to investigate the influence of sesamol (SM) on wound repair, both in normal and dexamethasone (DM) delayed healing processes in albino rats. Incision, excision and dead space wounds were inflicted on albino rats (180–220 g) of either sex, under ketamine anaesthesia. Group I served as control, group II received SM 50 mg/kg i.p., group III was treated with dexamethasone (DM) i.m. (0.17 mg/kg) and SM + DM was given to group IV. The tensile strength, wound contraction, hydroxyproline, lysyl oxidase and total RNA and DNA levels (in granulation tissue) were measured. The tensile strength significantly ($p < 0.05$) increased with SM at 471.40 ± 14.66 g when compared to control at 300.60 ± 9.16 g in normal and DM suppressed healing. No significant change was observed in duration of wound contraction and lysyl oxidase when compared to control at 2.98 ± 0.10 mg. SM treated rats showed a significant ($p < 0.05$) rise in hydroxyproline levels at 6.45 ± 0.45 mg when compared to control at 1.75 ± 0.20 mg. These results indicate that sesamol could be a promising drug in normal as well as delayed wound healing processes [Rekha R. Shenoy*, Arun T. Sudheendra, Pawan G. Nayak, Piya Paul, N. Gopalan Kutty and C. Mallikarjuna Rao (Department of Pharmacology, Manipal College of Pharmaceutical Sciences, Manipal University, Manipal 576104, Karnataka, India), *Journal of Ethnopharmacology, 2011, 133(2), 608-612].

NPARR 2(1), 2011-0104, Randomized and double-blinded pilot clinical study of the safety and anti-diabetic efficacy of the *Rauvolfia-Citrus* tea, as used in Nigerian Traditional Medicine

The aim of this randomized and double blinded pilot clinical trial was to investigate the anti-diabetic efficacy of the *Rauvolfia-Citrus* (RC) tea in humans. We have earlier shown that a combination of calorie-restriction and chronic administration of the RC tea to the genetic diabetic (BKS-db) mice resulted in the normalization of blood sugar, reduction in lipid accumulated in the mice eyes and prevention of the degeneration of the otherwise brittle BKS-db pancreas. The tea is made by boiling foliage of *Rauvolfia vomitoria* and fruits of *Citrus aurantium* and is used to treat diabetes in Nigerian folk medicine. The RC tea was produced using the Nigerian traditional recipe and tested in the traditional dosage on 23 Danish type 2 diabetes (T2D) patients. The participants were divided into two equivalent groups after stratification by sex, age and BMI, in a 4-month double-blinded, placebo-controlled and randomized clinical trial. Most of the study subjects (19/23) were using oral anti-diabetic agents (OADs). Mean disease duration was 6 ± 4.6 years, mean age was 64 ± 7 years and mean BMI was 28.7 ± 3.8 kg/m². Prior to starting the treatment, the participants received individual dietician consultations. At the end of the 4-month treatment period, the treated group showed an 11% decrease in 2-h postprandial plasma glucose relative to the 3% increase in the placebo group ($p = 0.004$). The improvement in blood glucose clearance with RC tea treatment was reflected in a 6% reduction in HbA₁c.
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(p = 0.02) and in a 10% reduction in fasting plasma glucose (p = 0.02), when comparing the post 4-month treatment to pre-treatment baseline values. Though the basal levels of phosphorylated acetyl CoA carboxylase enzyme in skeletal muscle were significantly reduced in the treated group (p = 0.04), as compared to the placebo, only the pattern of reductions in the tissue fatty acids (FAs) differed in the two groups. While all types of FAs were reduced in placebo, only saturated (SFA) and monounsaturated (MUFA) FAs were reduced with treatment. Interestingly, a modest increase in the polyunsaturated FAs fraction was observed in the RC treated group. In addition, the reduction in SFA and MUFA with RC tea treatment came solely from the triglyceride fractions, as there was an increase in the skeletal muscle phospholipids. Chronic administration of the RC tea to overweight T2D on OADs caused significant improvements in markers of glycaemic control and modifications to the fatty acid profile of skeletal muscle, without adverse effects or hypoglycaemia. Further exploration of the anti-diabetic effects of the RC tea is warranted [Joan I.A. Campbell-Tofte*, Per Mølgaard, Knud Josefsen, Zostam Abdallah, Steen Honoré Hansen, Claus Cornett, Huiling Mu, Erik A. Richter, Henning Willads Petersen, Jens Christian Nørregaard and Kaj Winther (Dept. of Medicinal Chemistry, Faculty of Pharmaceutical Sciences, University of Copenhagen, Universtitetsparken 2, 2100 Copenhagen, Denmark), Journal of Ethnopharmacology, 2011, 133(2), 402-411].

NPARR 2(1), 2011-0105, Antidiabetic activity of alcoholic stem extract of Nervilia plicata in streptozotocin-nicotinamide induced type 2 diabetic rats

Nervilia plicata (Orchidaceae) has long been used in the antidiabetic medicinal preparations of traditional healers of Wayanad (Kerala), but recuperative potential of the plant was remained undefined. We demonstrated the regenerative potential of the plant extract on kidney affected by type 2 diabetes besides lowering blood glucose. The aim of the current study was to investigate the recuperative and regenerative potential of alcoholic stem extract of Nervilia plicata on streptozotocin-nicotinamide induced type 2 diabetic models. Non insulin dependent diabetes mellitus (NIDDM) was induced in overnight fasted rats by intramuscular injection (IMI) of 60 mg/kg STZ and 120 mg/kg of nicotinamide after 5 min interval. Blood glucose was assessed by a glucometer, serum urea and creatinine levels were determined by diacetylmonooxime method and Jaffe reaction respectively. Kidney sections were taken and stained with Masson's tri-dye and Periodic Acid Schiff (PAS) and examined for structural changes. Also lipid peroxidation product (LPP) levels were determined as thio barbituric acid reactive substance levels (TBARS) method. On administration of 5 mg/kg of plant extract, blood glucose levels of the NIDDM rats showed 62.00 and 76.29% decrease in the blood glucose levels on day 0 and day 30 respectively. Damages caused to the kidney tissue were negligible or not seen. Serum urea and creatinine levels showed 61.49 and 70.96% decrease on day 30. LPP levels of kidney and pancreas showed 70.58 and 77.41% decrease respectively. These results demonstrate significant antidiabetic and regenerative potential of the Nervilia plicata, justifying the use of plant in the indigenous system of medicine. Isolation and characterisation of the compound(s) playing pivotal role in the cure would open new vistas in the therapy of type 2 diabetes [E.K. Dilip Kumar* and G.R. Janardhana (Phytopharmacology Laboratory, Department of Studies in Botany, University of Mysore, Manasagangotri, Mysore 570006, Karnataka, India), Journal of Ethnopharmacology, 2011, 133(2), 480-483]

NPARR 2(1), 2011-0106, Hypotensive effect of aqueous extract of Averrhoa carambola L. (Oxalidaceae) in rats: An in vivo and in vitro approach

Averrhoa carambola L. (Oxalidaceae) leaves are used in Brazilian traditional medicine to treat hypertension. This study was conducted to evaluate the hypotensive effect of the aqueous extract of Averrhoa carambola (AEAc) and its underlying mechanisms in the isolated rat aorta. The effect of AEAc on the mean arterial pressure (MAP) was determined in vivo in anesthetized rats. In vitro, thoracic aortic rings were isolated and suspended in organ baths, and the effects of AEAc were studied by means of isometric tension recording experiments. In HPLC analysis, the fingerprint chromatogram of AEAc was established. In normotensive rats, AEAc
(12.5–50.0 mg/kg, i.v.) induced dose-dependent hypotension. In vitro, AEAc caused a depression in the $E_{max}$ response to phenylephrine without a change in sensibility. Also, in a depolarized Ca$^{2+}$-free medium, AEAc inhibited CaCl$_2$-induced contractions and caused a concentration-dependent rightward shift of the response curves, indicating that AEAc inhibited the contractile mechanisms involving extracellular Ca$^{2+}$ influx. These results demonstrate the hypotensive effects of AEAc, and these effects may, in part, be due to the inhibition of Ca$^{2+}$, which supports previous claims of its traditional use [Roseli Soncini *, Michael B. Santiago, Lidiane Orlandi, Gabriel O.I. Moraes, André Luiz M. Peloso, Marcelo H. dos Santos, Geraldo Alves-da-Silva, Valdemar A. Paffaro Jr, Antonio C. Bento and Alexandre Giusti-Paiva (Department of Physiological Sciences, Institute of Biomedical Sciences, Federal University of Alfenas, Alfenas-MG, Brazil), Journal of Ethnopharmacology, 2011, 133(2), 353-357].

NPARR 2(1), 2011-0107, Evaluation of the disease modifying activity of Colchicum luteum Baker in experimental arthritis

Colchicum luteum (CL) has been traditionally used in the Unani system of medicine as a chief ingredient of many polyherbal formulations for the treatment of joint pain and rheumatoid arthritis (RA). The present study was done to evaluate the antiarthritic activity of CL hydroalcoholic extract (CLHE) in formaldehyde and complete Freund's adjuvant (CFA) induced arthritis. Arthritis was induced by administration of either formaldehyde (2% v/v) or CFA into the subplantar surface of the hind paw of the animal. Joint swelling was measured on days 8, 9 and 10 in formaldehyde induced arthritis and days 3, 7, 14 and 21 in CFA induced arthritis. In order to evaluate the effect of CLHE on disease progression, serum TNF-α level and synovial expression of proinflammatory mediators (TNF-R1, IL-6 and IL-1β) was determined in CFA induced arthritis. CLHE produced a significant and dose dependent inhibition of joint swelling during the entire duration of the study in both, formaldehyde and CFA induced arthritis. Serum TNF-α level was also reduced significantly in a dose dependent manner in all the CLHE treated groups. The expression of proinflammatory mediators (TNF-R1, IL-6 and IL-1β) was also found to be less in the CLHE treated group as compared to control. We believe that the antiarthritic activity of CLHE was due to its modulatory effect on the expression of proinflammatory cytokine in the synovium. Our results contribute towards validation of the traditional use of CL in the treatment of RA and other inflammatory joint disorders [Vinod Nair, Surender Singh and Y.K. Gupta* (Department of Pharmacology, All India Institute of Medical Sciences (AIIMS), Ansari Nagar, New Delhi 110029, India), Journal of Ethnopharmacology, 2011, 133(2), 303-307].

NPARR 2(1), 2011-0108, Bronchospasm potentiating effect of methanolic extract of Ficus religiosa fruits in guinea pigs

The sacred tree Peepal (Ficus religiosa family: Moraceae) has numerous therapeutic utility in folk medicine. It has been reported to be used in ethnomedical treatment of asthma and also in epilepsy due to its high serotonin content, which has been implicated in pathophysiology of asthma, this led us to carry out the present study. The in vivo studies of histamine induced bronchospasm in guinea pigs and in vitro isolated guinea pig tracheal chain and ileum preparation. Pre-treatment of guinea pigs with ketotifen (1 mg/kg, p.o.) has significantly delayed the onset of histamine aerosol induced pre-convulsive dyspnea, compared with vehicle control (281.8 ± 11.7 vs. 112.2 ± 9.8). The administration of methanolic extract (125, 250 and 500 mg/kg, p.o.) did not produced any significant effect on latency to develop histamine induced pre-convulsive dyspnea. On the other hand, methanolic extract of the fruits at the doses employed (i.e., 0.5, 1 and 2 mg/ml) has significantly potentiate the EC$_{50}$ doses of both histamine and acetylcholine in isolated guinea pig tracheal chain and ileum preparation. In addition, HPLC analysis of the methanolic extract showed the presence of high amounts of serotonin (2.89%, w/w). On the basis of data, it may be concluded that Ficus religiosa fruits have been found to be ineffective against histamine induced bronchospasm in guinea pigs. In addition, methanolic extract of the fruits have shown to potentiate the bronchoconstriction induced by both histamine and acetylcholine on guinea pig tracheal chain preparation [Deepti Ahuja*, Krishna Reddy V. Bijjem and Ajudhia N. Kalia (Department of Pharmacognosy, ISF College of Pharmacy, Moga
The aim of this study was to investigate the anti-inflammatory effects of the crude extract (CE) of *Rosmarinus officinalis* L. its derived fractions: hexane (HEX), ethyl acetate (AcOEt), and ethanolic (ET), and isolated compounds: carnosol, betulinic acid and ursolic acid, in the mouse pleurisy model induced by carrageenan. Swiss mice were used in the *in vivo* experiments. The CE and its derived fractions and isolated compounds inhibited leukocytes, exudation, interleukin-1 beta (IL-1β) and tumour necrosis factor-alpha (TNF-α) levels, myeloperoxidase activity (MPO), and nitrite/nitrate production (NOx) (p < 0.05). *R. officinalis* L. showed an important anti-inflammatory activity by inhibition not only of leukocytes and exudation, but also of a pro-inflammatory enzyme and mediators (MPO, NOx, IL-1β, and TNF-α). The present study showed that carnosol, betulinic acid and ursolic acid compounds could be responsible for this anti-inflammatory effect [Jucélia Pizzetti Benincá*, Juliana Bastos Dalmarco, Moacir Geraldo Pizzolatti and Tânia Silvia Fröde (Department of Clinical Analysis, Center of Health Sciences, Federal University of Santa Catarina, Campus Universitário – Trindade, 88040-970 Florianópolis, SC, Brazil), *Food Chemistry*, 2011, 124(2), 468-475]

NPARR 2(1), 2011-0111, *Moringa oleifera* induced potentiation of serotonin release by 5-HT3 receptors in experimental ulcer model

*Moringa oleifera* (Moringaceae), a perennial plant is widely cultivated throughout the world. Extensive pharmacological studies revealed its promising role in modulation of various disorders like antispasmodic, diuretic, abortifacient, antimicrobial antibacterial, antitubercular, antiviral, antifertility, depressant, anti-inflammatory and anticancer property which promoted us to conduct the study to elucidate its role on experimental gastric ulceration. The aim of the present study was to assess the efficacy of its aqueous leaf extract on protection of gastric ulceration and characterize the possible modulatory mechanism underlying the phenomenon. Adult Holtzman strain albino rats (weight 150–200 g) of either sex were used for the study. Ulceration was induced using aspirin (500 mg/kg body weight) and using *Moringa oleifera* (MO), a herbal formulation, the modulatory mechanism has been studied and compared with a commonly used antagonist of 5-HT3 receptors.
ondansetron by assessing parameters like mean ulcer index, 5-HT content, EC cell count and mucosal thickness. The results of our study suggest that MO protects ulcer formation by modulating 5-HT secretion through EC cell via 5-HT<sub>3</sub> receptors in gastrointestinal tract. MO showed maximum protective activity at a dose of 300 mg/kg body weight against above-mentioned experimental rat ulcer model by modulating 5-HT secretion through EC cell receptors in gastrointestinal tract which has given a glimpse of a therapeutic approach for gastric ulcer management, which may be beneficially used in contrast to the classical antacid, antihistamine or surgical treatment. Further investigations and proper screening regarding various phytochemicals, alkaloids present within MO leaf will help to formulate effective herbal preparation that will be used to combat gastrointestinal disorders in future.

*Siddhartha Debnath, Debasis Biswas, Koushik Ray and Debjani Guha* (S. N. Pradhan Centre for Neurosciences, University of Calcutta, 244B A.J.C. Bose Road, Kolkata 700020, India, Defence Institute of Physiology & Allied Sciences, DRDO, Timarpur, Delhi 54, India), *Phytomedicine*, 2011, 18(2-3), 91-95.

**NPARR 2(1), 2011-0112, Anticonvulsant activity of embelin isolated from Embelia ribes**

Anticonvulsant activity of embelin (2.5, 5 and 10 mg/kg, i.p.) was studied. It showed a significant inhibition of the seizures induced by electroshock and pentylenetetrazole in a dose dependent manner and the activity was comparable to phenytoin and diazepam. Significant decrease in locomotion revealing its CNS depressant activity was observed. The findings suggest that embelin possess anticonvulsant activity against both grand mal and petit mal epilepsy [S. Mahendran*, B.S. Thippeswamy, V.P. Veerapur and S. Badami* (J.S.S. College of Pharmacy, Ootacamund 643 001, TN, India), *Phytomedicine*, 2011, 18(2-3), 186-188].

**NPARR 2(1), 2011-0113, Isolation of anxiolytic principle from ethanolic root extract of Cardiospermum halicacabum**

*Cardiospermum halicacabum* roots have been used traditionally for the treatment of epilepsy and anxiety disorders. The purpose of this study was to characterize the putative phytoconstituents present in the ethanolic root extract having anxiolytic activity using an elevated plus-maze (EPM) and light dark transition model. Control mice were orally treated with an equal volume of vehicle (4% gum acacia), and positive control mice were treated with diazepam (1 mg/kg). In the EPM test, out of pool of 19 master fractions (MF) only MF-14, 16 and 17 significantly increased the number of entries in the open arm. MF-14, 16 and 17 (10, 20 and 30 mg/kg) had also increased the time spent by mice in illuminated part of the box significantly (p < 0.05, p < 0.01 and p < 0.001), as compared to control. However, significant changes (p < 0.05, p < 0.01 and p < 0.001) were recorded in other parameters, e.g., rearing, time spent in the closed arm and dark zone in both the models. These results suggested that *C. halicacabum* root is an effective anxiolytic agent. The phytoconstituent responsible for the observed central effects was isolated from MF-14 and identified as well-known compound, Cardiospermin, a cyanogenic glucoside [Rajesh Kumar*, G. Murugananthan, K. Nandakumar and Sahil Talwar (Department of Pharmacognosy, PES College of Pharmacy, 50 Feet Road, Hanumanthnagar, Bangalore, Karnataka, India), *Phytomedicine*, 2011, 18(2-3), 219-223].