THERAPEUTICS

NPARR 5(2), 2014-0183 Ethnomedicinal plants to cure skin diseases—An account of the traditional knowledge in the coastal parts of Central Western Ghats, Karnataka, India

In all, 48 informants were interviewed. Amongst which 38 were the ‘key informants’ who gave the information exclusively about the treatment of skin diseases. Among 102 plant species collected, seven species are endemic to India and eleven species have their nativity outside India. Twelve species could be considered as new claims for skin diseases as their use has not been mentioned in Ayurveda or any other research articles surveyed. Of all the drug formulations, paste is the most preferred method (50%) followed by oil extraction (18.89%), juice (14.44%), ash (4.44%), etc. The highest UV is for Pongamia pinnata, Naregamia alata, Randia dumetorum and Girardinia diversifolia (1.50 each). The treatment for different types of skin diseases by the herbal healers are classified into 13 categories, out of which ringworm scored the highest ICF value. Similarly, the 100% FL value scored was in the order of 10 plants for boils, 4 plants for different types of sore, 2 plants for ringworm, intertrigo, eczema and pruritus respectively. As Caesalpinia mimosoides and Basella alba in the treatment of boils, Hygrophila schulli for inter trigo, Cissus discolor for ringworm, Mammea suriga for eczema scored high FL and high Np value, they can be considered as important species. The documentation and data analysis of the ethnomedicinal knowledge in the coastal regions of Uttara Kannada district of Central Western Ghats have provided the information about important plants in the treatment of different types of skin diseases. Further scientific analysis of such plants may provide novel compounds for the treatment of skin diseases [Pradeep Bhat*, Ganesh R. Hegde, Gurumurthi Hegde and Gangadhar S. Mulgund ( P.G. Department of Studies in Botany, Karnatak University, Dharwad 580003, Karnataka, India). Journal of Ethnopharmacology, 2014, 151(1), 493-502].

NPARR 5(2), 2014-0184 Ethnobotanical study of nutri-medicinal plants used for the management of HIV/AIDS opportunistic ailments among the local communities of western Uganda

The study revealed 81 plant species most of which were herbs (49%). Leaves (71%) were the most frequently used parts in remedy preparations which were mainly administered orally (85%). The majority of plants (54%) were harvested from wild populations. Hibiscus sabdariffa L., Plumeria obtusa L. and Abutilon guineense (Shumach.) Baker. F and Exell were the nutri-medicinal plants that scored the highest Fidelity level values. The informant's consensus about usages of plants ranged from 0.75 to 0.80. Plants that are presumed to be effective in treating a certain disease have higher informant consensus factor (ICF) values. Family Asteraceae accounted for 18% of the total species recorded. Thirteen species (16%) of the plants are edible and provide nutritional support. The study recorded plant species with potential to treat ailments associated with immunocompromised people living with HIV/AIDS in western Uganda. Such studies can help stimulate confidence in traditional medicine and enhance appreciation of herbal medicine among the people and to appreciate the value of the plant resources and therefore enhance conservation efforts of the plant species. The high consensus means the majority of informants agree on the use of plant species and this reflects the intercultural relevance and the agreement in the use of the nutri-medicinal plants to the people. We recommend the documented plants for further Ethnopharmacological studies [Savina Asiimwe*, Maud Kamatenesi-Mugisha, Agnes Namutebi, Anna-Karin Borg-Karlsson and Peace Musiimenta (School of BioSciences, Makerere University, Kampala, Uganda), Journal of Ethnopharmacology, 2013, 150(2), 639–648].
**The medicinal value of *Memecylon umbellatum* leaf extract**

Reactive oxygen species play important roles in cell signaling and homeostasis which can induce a chain of reactions such as DNA damage, lipid peroxidation, and oxidation of amino acids in proteins. Although many synthetic antioxidants are currently in use, the natural compounds from plant origin are of great interest. In this study, we have analyzed the extracts of *Memecylon umbellatum* for its phytochemical constituents and in vitro pharmacological activities. *M. umbellatum* is a small shrub found in the Western Ghat region of India which is being used extensively for the treatment of variety of diseases. The extracts were prepared by continuous Soxhlet extraction using petroleum ether, chloroform and methanol. The concentrated extracts were assayed for phytochemical constituents and measured their antioxidant, antibacterial and antifungal activity. The phytochemical analysis revealed the presence of significant levels of terpenoids, flavonoids, tannins and moderate amount of phenols and glycosides. The methanolic and chloroform extract showed good antioxidant property that is comparable to the standard. The crude methanolic extract also showed very good radical scavenging activity as compared to the standard. Further, as compared to other extracts, only the methanolic extract showed good antibacterial and moderate antifungal activity. Although the results of this study suggest the usefulness of *M. umbellatum* in the treatment of various diseases, in depth studies are needed to substantiate this. The isolation of individual active components from the extract and their detailed analysis should reveal the exact structure – function relationship. [Ravindra Puttaswamy and Rajeshwara N. Achur* (Department of Biochemistry, Kuvempu University, Shankaraghatta, Shimoga, Karnataka 577451, India), *Journal of Pharmacy Research*, 2013, 6(4), 447–451].

**Hyptis suaveolens** is used by the traditional population in several parts of the world to treat inflammation, gastric ulcer and infection and is used as a crude drug to relieve symptoms related with gastric ulcer or gastritis in northeaster and central region of Brazil. The standardized ethanolic extract (*Hs*-EtOHE) and hexanic fraction (*Hs*-HexF) of *Hyptis suaveolens* (62.5, 125, 250 and 500 mg/kg) was evaluated in several models of acute gastric ulcers. The participation of NO was evaluated by pretreatment with L-NAME and non-protein sulphydryls by NEM in the gastroprotective effect. *Hs*-EtOHE and *Hs*-HexF markedly reduced the gastric lesions induced by all ulcerogenic agents (HCl/ethanol, ethanol, NSAIDs and hypothermic restraint-stress). Gastric ulcerations were exacerbated by administration of NEM suggesting that the gastroprotective mechanism of action of *Hs*-EtOHE and *Hs*-HexF involves sulphydryl groups. Our results show that an extract of *Hyptis suaveolens*, administered orally to rodents, present gastro protective activity in different models of acute of gastric ulcer and give some support to the reported claims on the use of this plant as a gastro protective agent. [N.Z.T. Jesus, H.S. Falcão, G.R.M. Lima, M.R.D. Caldas Filho, I.R.P. Sales, I.F. Gomes, S.G Santos, J.F. Tavares, J.M. Barbosa-Filho and L.M. Batista* (Department of Pharmaceutical Sciences, Federal University of Paraiba (UFPB), 58051-970 João Pessoa, PB, Brazil), *Journal of Ethnopharmacology*, 2013, 150(3), 982–988].

**Phytochemical investigation and In vitro antioxidant activity of an indigenous medicinal plant *Alpinia nigra***

To investigate antioxidant potential of methanol extract of *Alpinia nigra* leaves. The study was done by using various *In vitro* methods such as 1,1-diphenyl-2-picrylhydrazyl (DPPH), 2,2-azino-bis(3-ethylbenzthiazoline-6-sulphonic
acid) (ABTS), nitric oxide and hydrogen peroxide radical scavenging assays. Phytochemical constituents, total phenolic content and total flavonoid content of the extract at different concentrations (10-500 µg/mL) were determined. Alpinia nigra leaves showed high free radical scavenging activity as evidenced by the low IC50 values in DPPH (64.51 µg/mL), in ABTS (28.32 µg/mL), in nitric oxide (80.02 µg/mL) and in H2O2 (77.45 µg/mL) scavenging assays. Furthermore the TPC and TFC of the extract were found to be 69.25 mg gallic acid equivalent per gram of extract and 78.84 mg quercetin equivalent per gram of extract respectively. The results of present comprehensive analysis demonstrated that Alpinia nigra leaves possess high phenolic, flavonoid contents and potential antioxidant activity, and could be used as a viable source of natural antioxidants and might be exploited for functional foods and nutraceutical applications [Suprava Sahoo, Goutam Ghosh, Debajyoti Das and Sanghamitra Nayak* (Centre of Biotechnology, Siksha O Anusandhan University, Bhubaneswar, Odisha-751030, India), Asian Pacific Journal of Tropical Biomedicine, 2013, 3(11), 871–876].

NPARR 5(2), 2014-0188 The methanolic extract of Cordyceps militaris (L.) Link fruiting body shows antioxidant, antibacterial, antifungal and antihuman tumor cell lines properties

Being Cordyceps militaris (L.) Link recognized as a medicinal and edible mushroom, this work intends to reveal new interesting bioactive molecules that could be isolated from this species. Hydrophilic and lipophilic compounds were analyzed by chromatographic techniques coupled to different detectors. The methanolic extract of C. militaris was tested for its antioxidant, antibacterial, antifungal and anti-proliferative properties in different human tumor cell lines. Mannitol (2.01 g/100 g dw) and trehalose (24.71 g/100 g) were the free sugars found in C. militaris. Polynsaturated fatty acids (68.87%) predominated over saturated fatty acids (23.40%) and δ-tocopherol was the only isoform of vitamin E detected (55.86 µg/100 g). The organic acids found in this mushroom were oxalic, citric and fumaric acids (0.33, 7.97 and 0.13 g/100 g, respectively). p-Hydroxybenzoic acid was the only phenolic acid quantified in this species (0.02 mg/100 g); although cinnamic acid was also found (0.11 mg/100 g). The methanolic extract of C. militaris proved to inhibit lipid peroxidation, have reducing power and scavenge free radicals. This extract also revealed strong antibacterial and antifungal properties. Finally, the C. militaris extract was able to inhibit the proliferation of MCF-7 (breast), NCI-H460 (non-small lung), HCT-15 (colon) and HeLa (cervical) human carcinoma cell lines [Filipa S. Reis, Lillian Barros, Ricardo C. Calhelha, Ana Ćirić, Leo J.L.D. van Griensven, Marina Soković* and Isabel C.F.R. Ferreira (University of Belgrade, Department of Plant Physiology, Institute for Biological Research “Siniša Stanković”, Bulevar Despota Stefana 142, 11000 Belgrade, Serbia), Food and Chemical Toxicology, 2013, 62, 91–98].

NPARR 5(2), 2014-0189 Exploring a natural MDR reversal agent: potential of medicinal food supplement Nerium oleander leaf distillate

To investigate the molecular effects of Nerium oleander leaf distillate on paclitaxel and vincristine resistant (MCF–7/Pac and MCF–7/Vinc) cells and sensitive (MCF–7/S) cell lines. Nerium oleander (N. oleander) leaf extract was obtained by hydrodistillation method. The toxicological effects of N. oleander distillate, previously suggested as medicinal food supplement, on drug resistant cells were evaluated by XTT tests. MDR modulation potential of the plant material was evaluated by flow cytometry and fluorescent microscopy. Paclitaxel and vincristine were applied to the sublines in combination with N. oleander distillate. Fractional inhibitory indices show that
N. oleander distillate did not increase the antiproliferative effects of anticancer drugs. N. oleander treatment in to MCF-7/Pac and MCF-7/Vinc did not inhibit P–gp activity and MDR1 gene expression level. As a result it may be suggested that although N. oleander distillate has some medicinal effects as food supplement it may not be suitable as an MDR modulator for drug resistant breast cancer cells [Meltem Demirel Kars*, Ufuk Gündüz, Kamil Üney and Ahmet Levent BaŞ (Selçuk University, Sarayönü Vocational High School, 42430 Konya, Turkey), Asian Pacific Journal of Tropical Biomedicine, 2013, 3(8), 644–649].