Selective inhibition of *Leishmania donovani* by active extracts of wild mushrooms used by the tribal population of India: An *in vitro* exploration for new leads against parasitic protozoans

The study was intended at evaluating the anti-proliferating effect of mushrooms used in traditional folklore of Santal tribal population in India against *Leishmania donovani* (MHOM/IN/83/AG83). A total of eighteen extracts, three extracts from each mushroom [(80\% ethanol extracted; Fa), (water-soluble polysaccharide fraction; Fb), (polyphenolic fraction; Fc)], from six wild mushrooms were obtained. These extracts were tested against the promastigotes and amastigotes for their antileishmanial capacity. Fa fractions (250 µg/mL) of *Astraeus hygrometricus* and *Tricholoma giganteum* significantly inhibited the growth of *L. donovani* promastigotes and interfered in lipid biosynthesis. Moreover, both fractions induced apoptosis in promastigotes. Water soluble Fb fractions of *A. hygrometricus*, *Russula laurocerasi*, *Russula albonigra*, *Termitomyces eurhizus*, *Russula delica* and polyphenolic Fc fraction of *R. laurocerasi* were found to inhibit the replication of intracellular amastigotes in macrophages dose dependently. Significantly, 50\% inhibitory concentration of the active extracts against intracellular amastigotes induced release of nitric oxide and IL-12 in murine macrophages and dendritic cells assay and also found considerably non-toxic on murine splenocytes. Results of this study can be used as a basis for further phytochemical and pharmacological investigations in the effort for search of novel anti-leishmanial leads [Suvadip Mallick, Aritri Dutta, Somaditya Dey, Joydip Ghosh, Debarati Mukherjee, Sirin Salma Sultana, Supratim Mandal, Soumitra Paloi, Somanjana Khatua, Krishnendu Acharya and Chiranjib Pal* (Cellular Immunology and Experimental Therapeutics Laboratory, Department of Zoology, West Bengal State University, Barasat, West Bengal, India) , *Experimental Parasitology*, 2014, 138, 9–17].

Hypolipidemic activity of *Piper betel* in high fat diet induced hyperlipidemic rat

The hypolipidemic effect of *Piper betel* in high fat diet induced hyperlipidemia rat was evaluated. The methanol leaf extract was tested for hypolipidemic effect in the albino rats at the selected optimum dosage of 250 mg/kg body weight and administered orally. Adult male albino rats of six numbers in each group were undertaken study and evaluated. In group II animals, the activity levels of serum total cholesterol (TC), triglycerides (TG), low density lipoprotein (LDL) and very low density lipoprotein-cholesterol (VLDL) were significantly enhanced when compared to that of normal rat. It could be said that the methanolic leaf extract of *P. betel* exhibited a significant hypolipidemic effect.[Thirunavukkarasu Thirumalai, Narayanaswamy Tamilselvan and Ernest David*(Department of Biotechnology, Thiruvalluvar University, Serkadu, Vellore-632115(T.N.), India), *Journal of Acute Disease*, 2014, 3(2), 131–135].

*Zizyphus xylopyrus* (Retz.) Willd: a review of its folkloric, phytochemical and pharmacological perspectives

*Zizyphus xylopyrus* (Retz.) Willd (Rhamnaceae) is an ever-green shrub of tremendous medicinal importance, distributed throughout the North-Western India, Pakistan, and China. Various parts of plant are used in Ayurvedic and other folk medicine for the treatment of different ailments such as obesity, diabetes, snake bite, fever, diarrhoea, insomnia and digestive disorders. The plant also possesses antisteroidogenic, anticonvulsent, antinoicceptive, antiinflammatory, antidepressant, antidiarroheal and wound healing activity. Research has been carried out using different techniques to support most of these claims. This review is an attempt to compile an up-to-date on its folkloric or traditional
uses, phytochemical as well as pharmacological properties of *Zizyphus xylopyrus* [Anuj Modi*, Shweta Jain and Vimal Kumar (Department of Pharmacognosy, Adina Institute of Pharmaceutical Sciences, Sagar, Madhya Pradesh, India), *Asian Pacific Journal of Tropical Disease*, 2014, 4, Supplement 1, S1–S].


Medicinal plants have played an important role in treating and preventing a variety of diseases throughout the world. Metabolic syndrome had become a global epidemic, defined as a cluster of three of five criteria: insulin resistance and glucose intolerance, abdominal obesity, hypertension, low high-density cholesterol, and hypertriglyceridemia. The current review focuses on Indian medicinal plant drugs and plants used in the treatment of diabetes and hyperlipidemia. Though there are various approaches to reduce the ill-effects of diabetes and hyperlipidemia and its secondary complications, plant-based drugs are preferred due to lesser side effects and low cost. The current review focuses on twenty-three medicinal plants used in the treatment of Diabetes mellitus and nine medicinal plants used in the treatment of hyperlipidemia. The wealth of knowledge on medicinal plants points to a great potential for research and the discovery of new drugs to fight diseases, including diabetes and hyperlipidemia [Nisha H. Parikh, Palak K. Parikh and Charmy Kothari (Arithant School of Pharmacy and Bio-Research Institute, Adalaj, Gandhinagar, Gujarat, India), *Chinese Journal of Natural Medicines*, 2014, 12(5), 335-344].

**NPARR 5(4), 2014-0378 Cress seed (Lepidium sativum) mucilage, an overview**

Cress seed mucilage (*Lepidium sativum* L.), which is used in pharmaceuticals, has attained increased significance in the growing trend towards using natural ingredients. The physicochemical, pharmacological, functional and textural properties are here reviewed, along with its potential as a pharmaceutical excipient, herbal drug, and food ingredient. There is evidence that it can exhibit antimicrobial, antihypertensive, antioxidant, antispasmodic, antidiarrheal, antiasthmatic, hypoglycemic and hypolipidemic properties. The rheological properties, gel formation, emulsification, foaming stability and textural attributes are reviewed as a function of pH, sugars, salts and thermal treatments to assess its potential as a natural pharmaceutical and food hydrocolloid [Fataneh Behrouzian, Seyed M.A. Razavi and Glyn O. Phillips* (Food Hydrocolloids Research Center, Department of Food Science and Technology, Ferdowsi University of Mashhad (FUM), PO Box 91775-1163, Mashhad, Iran), *Bioactive Carbohydrates and Dietary Fibre*, 2014, 3(1), 17–28].

**NPARR 5(4), 2014-0379 Therapeutic properties of rice constituents and derivatives (Oryza sativa L.): A review update**

Rice is used in traditional medicines as a remedy against inflammation, gastrointestinal ailments, hypercholesterolemia, diabetes, and skin diseases. Experimental and clinical evidence indicate that brown rice and bran oil reduce hypercholesterolemia and cardiovascular risk, rice bran is anti-inflammatory and immunostimulatory, the monacolin-rich red yeast rice regulates hypercholesterolemia, and the GABA-rich germinated brown rice has chemopreventive effects. The rice constituent γ-oryzanol has been intensively investigated for cholesterol regulation and antioxidant/anti-inflammatory activities. Bran derivatives and other products are used for dermatologic and cosmetic applications. Pharmacologically relevant compounds could be extracted from rice byproducts, providing an economic boost to rice farming and processing [Bruno Burlando* and Laura Cornara (Dipartimento di Scienze e Innovazione Tecnologica, DiSIT, Università del Piemonte Orientale “Amedeo Avogadro”, viale Teresa Michel 11, 15121 Alessandria, Italy), *Trends in Food Science & Technology*, 2014, 40(1), 82-98].