[P. nigrum, 0.5% (w/w) mixed with the diet] throughout the experimental period. After the total experimental period of 32 weeks (including 2 weeks of acclimatization) the incidence and number of tumours in the colon were observed to be significantly higher in the rats administered DMH and/or red chillies, as compared with the cumin + DMH and black pepper+DMH groups. No tumours were observed in the control, cumin + DMH, or black pepper + DMH groups. The levels of faecal bile acids and neutral sterols in 24-hour faecal samples were significantly decreased in DMH+chilli-administered rats, while the excretion of faecal bile acids and neutral sterols was significantly increased in cumin +DMH- and black pepper +DMH-administered rats. In DMH-, chilli-, and chilli+DMH-administered rats the levels of cholesterol, cholesterol/phospholipid ratio, and 3-hydroxy-3-methylglutaryl-CoA reductase activity were decreased in cumin+DMH- and black pepper+DMH-treated rats. The phospholipid levels were reduced in the DMH, chilli and chilli+DMH groups as compared with the cumin +DMH and black pepper+DMH groups. The results showed that chilli supplementation promotes colon carcinogenesis, whereas cumin or black pepper suppresses colon carcinogenesis in the presence of the procarcinogen DMH [Nalini N, Manju V and Menon VP, Effect of spices on lipid metabolism in 1,2-dimethylhydrazine-induced rat colon carcinogenesis, J Med Food, 2006, 9(2), 237-245].

**Therapeutics**

### Olive oil and the cardiovascular system

Olive oil is the primary source of fat in the Mediterranean diet which is associated with a low mortality for cardiovascular disease. The beneficial effects of olive oil on Coronary Heart Disease (CHD) risk factors are now recognized and often only attributed to its high levels of monounsaturated fatty acids (MUFA). A scientist at Spain has reviewed the state-of-the-art concerning the knowledge of the most important biological and clinical effects related to the intake of diets rich in olive oil/MUFA and the health benefits of olive oil and its minor components. The clinical effects related to the intake of olive oil rich diets on lipoprotein metabolism, oxidative damage, inflammation, endothelial dysfunction, blood pressure, thrombosis and carbohydrate metabolism have also been discussed. The benefits of olive oil consumption are beyond a mere reduction of the low density lipoprotein cholesterol. The wide range of anti-atherogenic effects associated with olive oil consumption could contribute to explain the low rate of cardiovascular mortality found in Southern European Mediterranean countries, in comparison with other western countries, despite a high prevalence of coronary heart disease risk factors [Covas María-Isabel, Olive oil and the cardiovascular system, Pharmacol Res, 2007, 55(3), 175-186].

### Gymnema montanum Hook.f. leaves extract reduces glycoprotein components

It has been reported that Gymnema extracts (Gymnema sylvestre R. Br., G. inodorum Decne, G. yunnanense Tsiang) may actually help to repair or regenerate the pancreas beta cells that are responsible for insulin secretion. Since, there is no available reports on the effect of G. montanum Hook. f. (Hindi – Gurmar) plant on glycoprotein levels in diabetic rats, the researchers at Tamil Nadu and Hyderabad jointly carried out studies to determine the effect of ethanol extract of the G. montanum leaves (GLEt) on plasma and tissue glycoproteins in alloxan-induced diabetic rats. The ethanol extract of G. montanum leaves was administered orally (200 mg/kg of body
Commonly practiced pharmacologic treatment of diabetes mellitus includes oral hypoglycemic agents and insulin. There is an increasing demand by patients for the use of natural products and other dietary modulators with antidiabetic activity. This tendency is because insulin, to date, cannot be used orally and its repeated injections have many undesirable adverse effects. In addition, certain oral hypoglycemic agents are not effective in lowering the blood sugar in chronic diabetic patients. The global information on ethnobotanicals includes about 800 medicinal plants used for controlling diabetes mellitus. All of these herbs possess potent hypoglycemic activity; however, their effect on oxidative stress in diabetes mellitus has not been thoroughly studied. Therefore, the scientists at Lucknow, India investigated the potential beneficial effects of these natural products on blood antioxidant status of streptozotocin-induced diabetic rats.

The results revealed an increased level of plasma lipid peroxide associated with diminution of the corresponding antioxidant enzymes in red blood cells, namely, catalase, glutathione reductase, glutathione peroxidase and superoxide dismutase after marked depletion of glutathione in diabetic rats. Treatment with these herbal hypoglycemic agents not only inhibited the process of lipid peroxidation but also significantly reactivated the antioxidant enzymes and restored glutathione levels in the rat model. These herbs possess both antidiabetic and antioxidative activities and that their proper use in diet may help decrease the oxidative load in diabetes mellitus. Furthermore, these herbs might help in minimizing diabetic-related complications such as diabetic retinopathy, neuropathy and nephropathy [Chandra Anu, Mahdi Abbas Ali, Ahmad Sohail and Singh Raj Kumar, Indian herbs result in hypoglycemic responses in streptozotocin-induced diabetic rats, Nutr Res, 2007, 27(3), 161-168].

Indian herbs for streptozotocin-induced diabetic rats

The hypolipidemetic effect of rice bran oil (RBO) is not entirely explained by its fatty acid composition. Because RBO has a greater content of the unsaponifiables, which also lower cholesterol compared to most vegetable oils, the scientists at University of Massachusetts Lowell and Wistar Institute, Philadelphia, USA evaluated whether oryzanol or ferulic acid, two major unsaponifiables in RBO, have a greater cholesterol-lowering activity. Forty-eight
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F. B. Golden Syrian hamsters (*Mesocricetus auratus*) (BioBreeders, Watertown, MA) were group housed (three per cage) in cages with bedding in an air-conditioned facility maintained on a 12 hours light/dark cycle. The hamsters were fed a chow-based hypercholesterolemic diet (HCD) containing 10% coconut oil and 0.1% cholesterol for 2 weeks, at which time they were bled after an overnight fast (16 hours) and segregated into 4 groups of 12 animals with similar plasma cholesterol concentrations. Group 1 (control) continued on the HCD, group 2 was fed the HCD containing 10% RBO in place of coconut oil, group 3 was fed the HCD plus 0.5% ferulic acid and group 4 was fed the HCD plus 0.5% oryzanol for an additional 10 weeks. After 10 weeks on the diets, plasma total cholesterol (TC) and non-high-density lipoprotein cholesterol (HDL-C) (very low- and low-density lipoprotein) concentrations were significantly lower in the RBO (-53 and -61%, respectively) and oryzanol (-61 and -70%, respectively) diets compared to the ferulic acid. Compared to control and ferulic acid, plasma HDL-C concentrations were significantly higher in the RBO (10 and 20%, respectively) and oryzanol (13 and 24%, respectively) diets. The ferulic acid diet had significantly lower plasma HDL-C concentrations compared to the control (-9%). The RBO and oryzolan diets were significantly lower for plasma triglyceride concentrations compared to the control (-53 and -65%, respectively) and ferulic acid (-47 and -60%, respectively) diets. Hamsters fed the control and ferulic acid diets had significantly higher plasma vitamin E concentrations compared to the RBO (201 and 161%, respectively) and oryzanol (548 and 462%, respectively) diets; the ferulic acid and oryzanol diets had significantly lower plasma lipid hydroperoxide levels than the control (-57 and -46%, respectively) diet. The oryzanol-fed hamsters excreted significantly more coprostenol and cholesterol in their faeces than the ferulic acid (127 and 120%, respectively) diet. The control diet had significantly greater aortic TC and FC accumulation compared to the RBO (115 and 89%, respectively), ferulic acid (48 and 58%, respectively) and the oryzanol (74 and 70%, respectively) diets. However, only the RBO and oryzanol diets had significantly lower aortic cholesterol ester accumulation compared to the control (-73 and -46%, respectively) diet. The present study suggests that at equal dietary levels, oryzanol has a greater effect on lowering plasma non-HDL-C levels and raising plasma HDL-C than ferulic acid, possibly through a greater extent to increase faecal excretion of cholesterol and its metabolites. However, ferulic acid may have a greater antioxidant capacity via its ability to maintain serum vitamin E levels compared to RBO and oryzanol. Thus, both oryzanol and ferulic acid may exert similar antiatherogenic properties, but through different mechanisms [Wilson Thomas A, Nicolosi Robert J, Woolfrey Benjamin and Kritchevsky David, Rice bran oil and oryzanol reduce plasma lipid and lipoprotein cholesterol concentrations and aortic cholesterol ester accumulation to a greater extent than ferulic acid in hypercholesterolemic hamsters, *J Nutr Biochem*, 2007, 18(2), 105-112].

**Inhibitory effect of fermented milk on delayed-onset muscle damage after exercise**

In Japan fermented skim milk with a starter culture containing *Lactobacillus helveticus* and *Saccharomyces cerevisiae* is marketed as a soft drink. It possesses several beneficial effects, such as prolonged lifespan, antihypertensive effect and antitumorigenic effect. Fermented milk has been traditionally used as a drink for daily consumption. It is also often taken by athletes during or after exercise. However, the effect of this fermented milk drink on physiological changes that occur during exercise is not yet well-known. Therefore, the Japanese scientists investigated the effect of fermented milk on muscle damage after exercise in relation to its antioxidant activity. Wistar rats were divided into four groups: rested controls, rested rats given fermented milk diet, exercised rats and exercised rats given fermented milk diet. After 3 weeks of acclimatization, both exercise groups were made to run on a treadmill at 26 m/
minute for 60 minutes. Exercise increased the serum creatine kinase level, as well as myeloperoxidase activity and the level of thiobarbituric-acid-reactive substances in the gastrocnemius muscle after 24 hours. These changes were ameliorated by intake of fermented milk. An increase of CINC-1 was also ameliorated by fermented milk. Furthermore, milk diet increased the mRNA and protein levels of protective proteins such as antioxidants and chaperone proteins. These results indicate that fermented milk can ameliorate delayed-onset muscle damage after prolonged exercise, which is associated with an increased antioxidant capacity of muscles [Aoi Wataru, Naito Yuji, Nakamura Teppei, Akagiri Satomi, Masuyama Akihiro, Takano Toshiaki, Mizushima Katsura and Yoshikawa Toshikazu, Inhibitory effect of fermented milk on delayed-onset muscle damage after exercise, J Nutr Biochem, 2007, 18(2), 140-145].

Hypercholesterolemia, resulting from cholesterol metabolic changes, is a major cause of cardiovascular disturbance, such as atherosclerosis and coronary heart disease. Epidemiologic data showed that a high consumption of vegetables and fruits is consistently associated with a low risk of cancer and cardiovascular disease. However, little is known from human experimental studies about the physiologic effects of nutrients consumed from processed vegetables and fruits. *Hibiscus sabdariffa* Linn. (Malvaceae) is a traditional Chinese rose tea and is used effectively in folk medicines for the treatment of hypertension, inflammatory diseases and cancer. It has recently become a popular soft drink in Taiwan, although its biologic and pharmacologic effects are still poorly understood. The chemical components contained in its flowers include anthocyanins, flavonoids and polyphenols. The researchers at Taiwan investigated whether intake of *H. sabdariffa* Linn. flower extract (HSE) decreases the serum cholesterol level in humans.

During experiment, an oral preparation of HSE capsules were given to 42 volunteers who were observed over a period of 4 weeks. The volunteers ranged from 18 to 75 years old with a cholesterol level of 175 to 327 mg/dl. Subjects were randomly assigned to 3 groups: group I (1 capsule of HSE during each meal), group II (2 capsules), and group III (3 capsules). Serum cholesterol levels were determined at baseline before the study commenced and at 2 and 4 weeks of the treatment period. In general, taking HSE led to a significant decrease in serum cholesterol level in subjects from groups I and II after 4 weeks. After HSE had been administered for 2 weeks, serum cholesterol levels were found to be lower in all groups ($P<0.05$ for groups I-III) compared with baseline values by 7.8 to 8.2 per cent. A similar response was observed, a reduction in serum cholesterol level by 8.3 to 14.4%, after 4 weeks of taking the supplement. It is important to note that the serum cholesterol level for 71% of group II volunteers was significantly lowered with a mean reduction of 12% ($P < 0.05$). We conclude that a dosage of 2 capsules of HSE (with a meal) for 1 month can significantly lower the serum cholesterol level. The observation of lowered serum cholesterol in these subjects suggests that HSE may be effective in hypercholesterolemic patients [Lin Tzu-Li, Lin Hui-Hsuan, Chen Chang-Che, Lin Ming-Cheng, Chou Ming-Chih and Wang Chau-Jong, *Hibiscus sabdariffa* extract reduces serum cholesterol in men and women, Nutr Res, 2007, 27(3), 140-145].
In vitro and in vivo anthelmintic activity of Coriander extracts against Haemonchus contortus

Helminth infection is a major threat to small ruminant production leading to enormous economic losses particularly in areas where extensive grazing is practiced. Compared to other nematodes, *Haemonchus contortus* is a highly pathogenic parasite of small ruminants and is capable of causing acute disease and high mortality in all classes of stock. Haemonchosis is characterized by haemorrhagic anemia attributable to blood loss via the blood-sucking activities of worms in the abomasums. Commercial anthelmintics have been used for some decades throughout the world to minimize the losses caused by helminth infections. However, the threats of anthelmintic resistance, risk of residue, availability and high cost especially to farmers of low income in developing countries have led to the need of other alternative control methods. Screening and proper evaluation of the claimed medicinal plants could offer the possible alternatives that may both be sustainable and environmentally acceptable.

The scientists at Ethiopia assessed the in vitro and in vivo anthelmintic potential of the Coriander, *Coriandrum sativum* Linn. seeds on egg and adult of nematode parasite *H. contortus*.

The aqueous extract of *C. sativum* was also investigated for in vivo anthelmintic activity in sheep infected with *H. contortus*. Both extract types of coriander inhibited hatching of eggs completely at a concentration less than 0.5mg/ml. ED$_{50}$ of aqueous extract of *C. sativum* was 0.12mg/ml while that of hydro-alcoholic extract was 0.18mg/ml. There was no statistically significant difference between aqueous and hydro-alcoholic extracts (P>0.05). The hydro-alcoholic extract showed better in vitro activity against adult parasites than the aqueous one. For the in vivo study, 24 sheep artificially infected with *H. contortus* were randomly divided into four groups of six animals each. The first two groups were treated with crude aqueous extract of coriander at 0.45 and 0.9g/kg dose levels, the third group with albendazole at 3.8mg/kg and the last group was left untreated. Efficacy was tested by faecal egg count reduction (FECR) and total worm count reduction (TWCR). On day 2 post treatment, significant FECR was detected in groups treated with higher dose of *C. sativum* (P<0.05) and albendazole (P<0.001). On days 7 and 14 post treatment, significant FECR was not detected for both doses (P>0.05). Significant (P<0.05) TWCR was detected only for higher dose compared to the untreated group. Reduction in male worms was higher than female worms. Treatment with both doses did not help the animals improve or maintain their PCV while those treated with albendazole showed significant increase in PCV (P<0.05) [Eguale T, Tilahun G, Debella A, Feleke A and Makonnen E, In vitro and in vivo anthelmintic activity of crude extracts of *Coriandrum sativum* against *Haemonchus contortus*, *J Ethnopharmacol*, 2007, 110(3&4), 428-433].

Comparative analysis of the in vitro antioxidant activity of white and black pepper

The compounds that can scavenge free radicals can play a role in improving health in oxidative stress-related disorders. Peppercorns are the berries of *Piper nigrum* Linn. and *P. guineense* Schum. & Thonn. and are also known as African black pepper or Ashanti pepper. They are used as spices and preservatives; they also have applications as insecticides and are used in herbal medicine and in the cosmetic industry. Peppercorns are usually white or black depending on the time of harvest. The white peppercorn is produced from fully ripe berries, whereas the black peppercorn is produced from
Antioxidant effect of *Cytisus scoparius* Link

*Cytisus scoparius* Link (Fabaceae) is used as diuretic, hypnotic and sedative, anti-diabetic and also as hepatoprotective. The scientists at Department of Pharmaceutical Technology, Jadavpur University and Molecular Endocrinology Laboratory, Indian Institute of Chemical Biology, Kolkata, India investigated the antioxidant activity of hydroalcoholic extract in CCl₄ (carbon tetrachloride)-treated liver injury in rats. CCl₄ injection induced oxidative stress by a significant rise in serum glutamate oxaloacetate transaminases (SGOT), serum glutamate pyruvate transaminases (SGPT), lactate dehydrogenase (LDH) and thiobarbituric acid reactive substances (TBARS) along with reduction of superoxide dismutase (SOD), catalase (CAT), reduced glutathione (GSH), glutathione peroxidase (GPx), glutathione-s-transferase (GST) and glutathione reductase (GRD). Pretreatment of rats with different doses of plant extract (250 and 500mg/kg) significantly lowered SGOT, SGPT, LDH and TBARS levels against CCl₄ treated rats. GSH and hepatic enzymes like SOD, CAT, GPx, GRD, and GST were significantly increased by treatment with the plant extract, against CCl₄ treated rats. The activity of extract at the dose of 500mg/kg was comparable to the standard drug, silymarin (25mg/kg). Based on these results, it was observed that *C. scoparius* extract protects liver from oxidative stress induced by CCl₄ in rats and thus helps in evaluation of the traditional claim on this plant [Raja S, Nazeer Ahamed KFH, Kumar V, Mukherjee Kakali, Bandyopadhyay A and Mukherjee Pulok K, Antioxidant effect of *Cytisus scoparius* against carbon tetrachloride treated liver injury in rats, *J Ethnopharmacol*, 2007, 109(1&3), 41-47].

Anti-anxiety effects of *Apocynum venetum* Linn. in the elevated plus maze test

The need for robust anxiolytic compounds that have lesser side effects than benzodiazepines and a more immediate onset of action than currently available 5-HT₁₆ receptor acting drugs led the scientists at Japan and USA to study and characterize the anxiolytic-like activity of an Ethanolic extract prepared from the leaves of *Apocynum venetum* Linn. Since ancient times a tea of its leaves is used widely in traditional Chinese medicine as an important treatment of hypertension, nephritis and neurasthenia and recently, teas prepared from leaves of this plant have become a popular healthy beverage in Japan and are marketed as anti-ageing nutritional supplements. The anxiolytic activity was examined using the elevated plus maze (EPM) in mice. In addition, it was of interest to investigate which receptor systems are involved in the anxiolytic-like effects of its leaves through the co-administration of the benzodiazepine-antagonist flumazenil and...
the 5-HT\textsubscript{1A} receptor antagonist WAY-100635.

Male mice were either treated orally with the extract or the positive controls diazepam and buspirone, respectively, 1 hour before behavioural evaluation in the EPM. A single treatment of the extract markedly increased the percentage time spent on and the number of entries into the open arms of the EPM in doses of 30 and 125 mg/kg p.o., respectively. This effect was comparable to that of the benzodiazepine diazepam (1.5 mg/kg p.o.) and the 5-HT\textsubscript{1A} agonist buspirone (10 mg/kg p.o.). The effects of extract in 125 mg/kg were effectively antagonized by the benzodiazepine antagonist flumazenil (3 mg/kg i.p.). However, the effects of extract could only partially be blocked by the unspecific 5-HT1A receptor antagonist WAY-100635 (0.5 mg/kg i.p.). Neither diazepam and buspirone nor the extract produced any overt behavioural change or motor dysfunction in the open field test. These results indicate that extract of \textit{A. venetum} Linn. leaves is an effective anxiolytic agent and suggest that the anxiolytic-like activities of this plant are mainly mediated via the GABAergic system [Oliver Grundmann, Jun-Ichiro Nakajima, Shujiro Seo and Veronika Butterweck, Anti-anxiety effects of \textit{Apocynum venetum} L. in the elevated plus maze test, \textit{J Ethnopharmacol}, 2007, \textbf{110}(3&4), 406-411].

The dried ripe fruits of \textit{Carum carvi} Linn. (Apiaceae) (caraway) are used in folk medicine as a carminative, found to be effective against spasmodic gastrointestinal complaints, flatulence, irritable stomach, indigestion, lack of appetite, and dyspepsia in adults and in relieving flatulent colic of infants. Similarly, tansy, \textit{Tanacetum vulgare} Linn. (Asteraceae) has been used as panacea for diverse health problems. Two widely used diuretics, thiazides and the high ceiling loop diuretic, furosemide, have been associated with a number of adverse effects. Although, both caraway and tansy are well recognized in traditional medicine as having a diuretic effect at a dose of 100 mg/kg, the scientists at Morocco and Atlanta, GA, USA evaluated the acute and sub-chronic diuretic, saliuretic, and kaliuretic effects of orally administered aqueous extracts of caraway seeds and tansy leaves in normal rats.

Water extracts of \textit{C. carvi} and \textit{T. vulgare} (100 mg/kg) or the reference drug, furosemide (10 mg/kg) were administrated orally to male Wistar rats and their urine output was quantitated at several intervals of time after the dose. After single doses of the extracts of both caraway seeds and tansy leaves, urine output was significantly increased at all time points, and at 24 hours after the dose, the total volume of urine excreted was similar for the plant extracts and furosemide. Both extracts increased urinary levels of Na\textsuperscript{+} and K\textsuperscript{+}, to about the same extent, while furosemide increased urinary levels of only Na\textsuperscript{+} and decreased urinary K\textsuperscript{+}. Despite changes in urinary excretion of the electrolytes, plasma Na\textsuperscript{+} and K\textsuperscript{+} levels were not affected by any of the three substances. In the 8-day sub-chronic study, all three substances induced significant diuresis and natriuresis; only tansy increased urinary potassium excretion. The plant extracts did not appear to have renal toxicity or any other adverse effects during the study period. In conclusion, water extracts of both \textit{C. carvi} and \textit{T. vulgare} have strong diuretic action confirming their ethnopharmacological use. From the pattern of excretion of water, sodium and potassium, it may be deduced that there are at least two types of active principals present in these extracts, one having a furosemide-like activity and the other a thiazide-like activity [Lahlou Sanaa, Tahraoui Adil, Israili Zafar and Lyoussi Badaâ, Diuretic activity of the aqueous extracts of \textit{Carum carvi} and \textit{Tanacetum vulgare} in normal rats, \textit{J Ethnopharmacol}, 2007, \textbf{110}(3&4), 458-463].
Antiulcer and antioxidant activities of Jasminum leaves

The scientists at Department of Pharmacology, College of Pharmacy, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, India, evaluated the antiulcer and antioxidant activities of ethanolic extract (70%) of leaves of Jasminum, *Jasminum grandiflorum* Linn. (JGLE). The leaves of Jasminum are used in folk medicine for treating ulcerative stomatitis, skin diseases, ulcers, wounds, corns—a hard or soft hyperkeratosis of the sole of the human foot secondary to friction and pressure. Antiulcerogenic activity of JGLE (100 and 200mg/kg, b.w., orally) was evaluated employing aspirin+pylorus ligation (APL) and alcohol (AL) induced acute gastric ulcer models and ulcer-healing activity using acetic acid-induced (AC) chronic ulcer model in rats. Both the antisecretory and cytoprotection hypothesis were studied. The antioxidant activity of JGLE has been assayed by using *in vitro* methods like 2, 2-diphenyl-l-picrylhydrazylhydrate (DPPH) assay, reductive ability, superoxide anion scavenging activity, nitric oxide scavenging activity and total phenolic content, in order to explain the role of antioxidant principles in the antiulcerogenic activity of the extract. There was a significant (*P*<0.01) dose-dependent decrease in the ulcerative lesion index produced by all the three models in rats as compared to the standard drug famotidine (20mg/kg, b.w., orally). The reduction in gastric fluid volume, total acidity and an increase in the *pH* of the gastric fluid in APL rats proved the antisecretory activity of JGLE. Additionally, JGLE completely healed the ulcer within 20 days of treatment in AC model as evidenced by histopathological studies. Like antiulcer activity, the free radical scavenging activities of JGLE depends on concentration and increased with increasing amount of the extract. These results suggest that leaves of *J. grandiflorum* possess potential antiulcer activity, which may be attributed to its antioxidant mechanism of action [Umamaheswari M, Asokkumar K, Rathidevi R, Sivashanmugam AT, Subhadradevi V and Ravi TK, Antiulcer and *in vitro* antioxidant activities of *Jasminum grandiflorum* Linn., *J Ethnopharmacol*, 2007, 110(3&4), 464-470].

Anti-inflammatory potential of the club moss

*Lycopodium* genus (Lycopodiaceae), commonly known as club moss, ground pine, devil’s claw, devil ash, is a pteridophyte abundantly found in subtropical and tropical forests in the world. Among these species, *L. serratum* Thunb. has been popularly used in Chinese traditional medicine for its memory-enhancing effect since centuries. Its claimed traditional use has also been proved on scientific base using *in vivo* experiments as well as clinical trials and lead to isolation of huperzine A (shuangyiping), a nitrogen-containing compound with potent acetylcholinesterase. Based on the traditional uses of this genus, the scientists at Turkey evaluated anti-inflammatory effect of the five extracts obtained through successive solvent extractions from *L. clavatum* Linn. in order to prove the ethnobotanical application of the plant for wound-healing purpose in Turkish folk medicine. Studies on four extracts prepared with petroleum ether, chloroform, ethyl acetate and methanol as well as the alkaloid fraction from the aerial parts of *L. clavatum* of Turkish origin using acetic acid-induced increase in capillary permeability assessment in mice revealed that only the chloroform extract and the alkaloid fraction displayed marked anti-inflammatory effect at a dose of 500mg/kg having inhibition of 24.3 and 32.1%, respectively, as compared to indomethacin, which exhibited 44.6% of inhibition at 10mg/kg dose. Bioassay-guided fractionation of the alkaloid fraction of *L. clavatum* revealed that the alkaloidal-type of compounds might possibly be responsible for the anti-inflammatory activity of the extract, which supports the folk medicinal utilization of the plant. Gas chromatographic–mass spectrophotometric analysis of the active alkaloid fraction revealed that lycopodine (84.5%) is the major component [Orhan Ilkay, Küpeli Esra, Sener Bilge and Yesilada Erdem, Appraisal of anti-inflammatory potential of the club moss, *Lycopodium clavatum* L., *J Ethnopharmacol*, 2007, 109(1&3), 146-150].