PHYTOCHEMICALS

NPARR 5(3), 2014-0282 Pharmacological effects and active phytoconstituents of Swietenia mahagoni: a review

The usage of Swietenia mahagoni, a popular medicinal plant in India and some African countries, dates back to ancient times for its curative properties in diseases like malaria, diabetes, and diarrhea. It is also used as an antipyretic, bitter tonic and astringent. Its pharmacological activities are being widely explored. Although many important groups of phytochemicals have been identified and isolated from various parts of the plant, most of these researches have been focused on seeds. Toxicological studies have established the safety of many of these plant extracts, and found insignificant side effects. Here we present a comprehensive review of all the pharmacological effects and constituent phytochemicals of the plant [Yelaware Puttaswamy Naveen, Gunashekar Divya Rupini, Faiyaz Ahmed and Asna Urooj* (Department of Studies in Food Science and Nutrition, University of Mysore, Manasagangotri, Mysore-570006, India), Journal of Integrative Medicine, 2014, 12(2), 86-93].

NPARR 5(3), 2014-0283 GC-MS analysis of Cocus nucifera flower extract and its effects on heterogeneous symptoms of polycystic ovarian disease in female Wistar rats

To evaluate the effect of Cocus nucifera L. flowers in reducing the major multiple symptoms of letrozole-induced polycystic ovarian disease (PCOD) in female rats. Female, virgin Wistar rats were treated with letrozole (1 mg/kg body wt) to induce PCOD, and after 21 days of induction rats were administered orally with 100 and 200 mg·kg⁻¹ of Cocus nucifera flower aqueous extract, respectively. Estrus cycle and blood sugar were monitored once a week throughout the study. After scarification, various biochemical parameters, such as antioxidant status (superoxide dismutase (SOD) and glutathione reductase (GSH)) of the uterus homogenate, lipid profile (total cholesterol (TC), high density lipoprotein (HDL), low density lipoprotein (LDL), and triglycerides (TG)) of the serum were determined. Weights of the uterus and ovaries were separately monitored. The characteristics of changes in the ovary were evaluated by histopathological studies. GC-MS analysis of the aqueous extract showed the presence of volatile and pharmacologically active phytoconstituents. C. nucifera flower extract-treated groups showed estrus cyclicity and increased uterus weight which indicates the estrogenic effect. The improved blood sugar level, ideal lipid profile, good antioxidant status, and histopathology results revealed the recovery from poly cystic ovaries. The results indicate that C. nucifera flower is a potential medicine for the treatment of PCOD and this study supports the traditional uses of C. nucifera flower [V. Soumya*, Y. Indira Muzib, P. Venkatesh and K. Hariprasath (Department of Pharmaceutical Technology, Sri Padmavathi Mahila Viswavidyalayam, Tirupathi-517502 Andhra Pradesh, India), Chinese Journal of Natural Medicines, 2014, 12(9), 677–684].

NPARR 5(3), 2014-0284 Extraction of piperine from Piper longum using ultrasound

Efforts were made to enhance the yield of piperine using ultrasound assisted extraction (UAE) from fruit of Piper longum. The effects of various factors such as solvent, extraction time, solid to solvent ratio, duty cycle, ultrasound frequency, ultrasound power and temperature on the yield of piperine were investigated and optimized. The maximum yield of piperine (5.8 mg/g) from Piper longum powder was obtained at optimal UAE conditions such as, ethanol as extracting solvent, extraction time 18 min, solid to solvent ratio 1:10, ultrasound power 125 W, 80% duty cycle, ultrasound frequency 25 kHz and temperature 50°C. The experimental results
revealed the advantage of UAE over traditional method of batch extraction and solvent extraction. The extraction time is reduced from 8 h of batch solvent extraction and 4 h of Soxhlet to 18 min in UAE with enhanced extraction yield of piperine. Extraction yields of piperine obtained from Soxhlet extraction and batch extraction methods were found to be 1.67 mg/g and 0.98 mg/g, respectively, which were much lower than UAE optimized results. Hence, ultrasound assisted extraction of natural phytoconstituents will diminish the problem of lower extractability and higher extraction time over traditional methods [Sachin S. Rathod and Virendra K. Rathod* (Department of Chemical Engineering, Institute of Chemical Technology, Matunga (E), Mumbai 400019, India), Industrial Crops and Products, 2014, 58, 259-264].

NPARR 5(3), 2014-0285 A review on phytochemical and pharmacological potential of genus Chelidonium

Many herbal remedies have so far been employed for the treatment of various ailments since the beginning of human civilization. Chelidonium is the smallest genus of family Papaveraceae, occurring in Europe and Asia. This review is intended to integrate traditional ethnomedical knowledge and modern scientific findings about Chelidonium majus in order to promote understanding of its therapeutic actions as well as its toxic potential. Through this review, the authors hope to attract the attention of natural product researchers throughout the world to focus on the unexplored potential of Chelidonium genus. An exhaustive literature survey revealed that alkaloids, flavonoids and phenolic acids constitute major classes of phytoconstituents of the genus. A few species of this genus have medicinal value, among these, C. majus Linn. (Papaveraceae) has been traditionally used in the treatment of skin diseases such as eczema, ringworm, oral infection, pains and nervous disorders. C. majus has also been included in homeopathic formulations which are in clinical use. Ukrain, a thiophosphate derivative of alkaloids from C. majus, exerts cytotoxic and cytostatic effects on tumor cells, simultaneously acting as an immune response modifier. C. majus seems to hold great potential for in-depth investigation for various biological activities, especially on central nervous system [Disha Arora and Anupam Sharma* (University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh 160 014, India), Pharmacognosy Journal, 2013, 5(4), 184–190].