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Sector-67, S.A.S. Nagar-160 062, Punjab, India
Website: www.niper-ddnptm.com, www.niper.gov.in, www.niper.ac.in
Bioactivity guided isolation of analgesic and CNS depressant phytoconstituents from *Machilus macrantha* Nees. Bark

Tatiya Anil U1, Patil Raviraj2, Surana Sanjay J3
1,2 Dept. of Pharmacognosy, R. C. Patel institute of Pharmaceutical Education and Research, Shirpur (dist: Dhule) MS, India
E-mail: aniltatiya12171@gmail.com

*Machilus macrantha* (MM) Bark is widely used in Indian traditional system of medicine for the treatment of various conditions like pain, epileptic seizure and mental disorders conditions. The objectives of this work was to separate the active fractions responsible for analgesic and CNS depressant property of the bark of *Machilus macrantha*. The methanolic extract of MM was sequentially fractionated into pet. ether and chloroform extract. Further the chloroform extract (MMCE) was subjected to flash chromatography on silica gel 230–400 mesh and eluted with a gradient mixture of CHCl3–MeOH. Fifty eight fractions were collected; fractions with similar TLC profile were pooled into six major fractions (Fr 1–6). Analgesic activity of MMCE was evaluated using hot plate test and acetic acid-induced writhing in mice while the phenobarbitone induced sleeping time, spontaneous locomotion activity and pentylenetetrazol (PTZ) induced seizure was used to investigate CNS depressant activity. Fr-2 and Fr-5 being most active in analgesic study therefore they were further subjected to flash chromatography to obtain aporphine alkaloids like reticuline (CF2) and glaucine (CF5). Both alkaloids were produced significant (p<0.05) dose dependent inhibition of pain response elicited by increased nociceptive reaction latency in hot plate test and acetic acid. MMCE exhibits a significant protection against pentylenetetralzol induced convulsion with respective to prolonged onset of convulsion, death latency and decreased mortality. Overall, results showed that *M. macrantha* possesses analgesic and CNS depressant effect.


PP-2

Pharmaceutical potential of *Pongamia pinnata* against diabetic complications

Morajkar A. S.1, Hardikar B. P. 2, Sharma B. B. 3
1,2,3 KET’S V. G. Vaze college, Mulund, Mumbai
E-mail: aby_morajkar@yahoo.com; aby_morajkar@rediff.com

Diabetes mellitus is one of the most common endocrine disorders accompanied by many metabolic syndromes. Traditional systems of
medicine like Ayurveda, traditional Chinese medicine (TCM) or the European phytotherapy generally assume that a synergy of all ingredients of the plants will bring about the maximum of therapeutic efficacy. Drug synergy can occur both in biological activity and because of pharmacokinetics shared metabolic enzymes can cause drugs to remain in the bloodstream much longer in higher concentrations than if individually taken. The recent development in synergy research have opened highly interesting perspective for new generation of phytopharmaceuticals due to “reverse pharmacology”[1] The objective of the present study is to explore the antihyperglycemic, antihyperlipidemic and hepatoprotective effects of Pongamia pinnata alcoholic stem extract (PPAlcExt) in alloxan (150mg/kg b.w.) induced diabetic wistar albino rats. PPAlcExt (28 mg/kg b w/day) was given to the experimental animal’s ad labium for three months. In diabetic rats (DC) and Vehicle control rats (VC) the serum glucose, TC, TG, SGOT, SGPT and Bilirubin levels were significantly increased whereas Total proteins and albumin levels were decreased in comparison with the normal control group (NC). Significant recovery was observed in all the parameters with PPAlcExt treated rats (TD) as well as in Standard drug metformin (80 mg/kg b w) treated group (SD). Histopathological observations were also in coordination with these results. The results are obtained after analyzing the observations of three such separate experiments. The results suggest that PPAlcExt possesses potential therapeutic antidiabetic properties to neutralize diabetic complications.


PP-3

Evaluation of anti-depressant activity of curcumin loaded solid lipid nanoparticles

Chander Harman¹, Kaur Amrit Pal¹, Kakkar Vandita ², Kaur Indu Pal ³
1University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India, 160014.
²Department of Pharmacetics, University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India, 160014.
E-mail: akaur0896@gmail.com

Curcumin a hydrophobic polyphenol is derived from the rhizome of Curcuma longa L. It has been shown to exert anti-depressant effects in rodent models (1). However, the poor bioavailability (<1%) associated with curcumin curb its usage as a therapeutic agent (2,3,4). In view of the above curcumin loaded solid lipid nanoparticles (C-SLNs) were prepared by microemulsification (ME) and high pressure homogenization (HPH) and evaluated for their antidepressant effect post administration of C-SLNs (1, 2.5 and 10 mg/kg, p.o.) in the chronic unpredictable model of mild stress in mice using forced swim test (FST). Various markers of oxidative stress and levels of BDNF (5) were measured in hippocampus while cortisone levels were measured in plasma of mice. Results revealed that 10mg/Kg dose of C-SLNsHPH could completely ameliorate increased MDA levels, restore the BDNF levels and reverse the immobility time