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Laxative Activity of *Vitex negundo* Linn. Leaves

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Abstract : Crude aqueous extract of *Vitex negundo* Linn. leaves (family: verbenaceae) at doses 100 and 200 mg/kg was investigated for laxative activity according to Cappaso *et al.* in albino rats that were compared with standard drug agar-agar (300mg/kg, p.o.) in normal saline. The rats were fasted for 12 hours before the experiment. After 8 hours of drug administration the faeces were collected and weighed. The extract was found to produce significant laxative activity in dose dependant manner. The activity may be contributed to the phytoconstituents present.

Key words : Vitex; laxative activity, faeces, agar-agar.

Introduction

Vitex negundo Linn. (Synonyms-Indian Privet; Nirgundi; Bana), a large aromatic shrub with bluish purple flowers widely prevalent in north-western Himalayan region, has been used for various medicinal purposes in the Ayurvedic and Unani systems of medicine (Anonymous, 1992). Almost all the parts are employed, but the leaves and the roots are important as drugs. Analgesic and anti-inflammatory actions of *V. negundo* seeds (Chawla *et al*., 1992; Chawla *et al*., 1991) and fruit11 have been reviewed thoroughly. Petroleum ether extract of *V. negundo* leaves has shown significant analgesic activity (Gupta et al., 1997). Dried leaves powder of *V. negundo* showed anti-arthritic activity in rats (Tamhankar and Saraf, 1994). The plant has also been used for the treatment of rheumatism and inflammatory disorders (Kirtikar and Basu, 1991; Wealth of India, 1976). The leaves of the plant have been claimed to be beneficial to the patients of bronchitis and asthma. Preliminary evaluation of the ethanolic extract revealed that the extract inhibited passive peritoneal anaphylaxis and mast cell degranulation in rats in a dose related manner (Nair *et al*., 1994; Wealth of India, 1976).

Present study aims at exploring the details of laxative action of aqueous extract of *V. negundo* leaves.

Materials and Methods

Plant material

The leaves of *Vitex negundo* were collected from Sangli region during July, 2007 and were authenticated by Dr. A. K. Magdum, Department of Botany, Willingdon College, Sangli, M.S., India.

Preparation of Aqueous Extract

The leaves of *V. negundo* were air dried and coarsely powdered. The powdered material was macerated in distilled water: chloroform (9:1) to form an aqueous extract. The extract was concentrated to a small residue (5 gm). The aqueous extract was tested for preliminary phytochemical studies.

Animals

Wistar albino rats, weighing 120-150 gm, were used for evaluation of laxative activity. Animals were housed in standard environmental conditions and fed with standard rodent diet and water ad *libitum*. The Institutional Animals Ethics Committee approved all the experimental protocols.

Screening of Laxative Activity

The laxative activity was performed according to Capasso *et al*. 1986 on rats of either sex, fasted for 12 hours before the experiment, but with water provided *ad libitum*. The animals were

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divided into four groups, each group consisting of six rats. The first group of animals, serving as control, received normal saline (25 ml/kg, oral); second group, serving as reference, received agar-agar (300 mg/kg, oral) in saline; the third and fourth groups received orally the test extract at doses 100 and 200 mg/kg respectively in saline. Immediately after dosing, the animals were separately placed in specially designed plastic containers suitable for collection of faeces. After 8 hours of drug administration, the faeces were collected and weighed (Capasso *et al*., 1986; Ganapathy *et al*., 2002).

Thereafter, food and water were given to all rats and faecal outputs were again were again weighed after a period of 16 hours.

Statistical Analysis

All results are expressed as mean ± standard error. The data was analyzed using two ways of analysis of variance (ANOVA). The statistical significance of the difference of the means was evaluated by Dunnet's test.

Results and Discussion

The aqueous extract of *V. negundo* (100 and 200 mg/kg, oral) showed significant and dose dependant increase in faecal output of rats (Table I) at selected dose levels. The effect was comparable with that of standard (Agar-agar). During the phytochemical analysis of the extract, test for anthracene derivatives was found to be positive. Thus the laxative activity may be attributed to the presence of anthracene derivatives in the leaves.

References

Anonymous. Directory of Indian Medicinal Plants (1992): Lucknow, CIMAP, 49.

Chawla A. S., Sharma A. K., Handa S. S. (1992): Chemical investigation and antiinflammatory activity of Vitex negundo seeds. *J. Nat. Prod*., **55**, 163-167.

Chawla A. S., Sharma A. K., Handa S. S. and Dhar K. L. (1991): Chemical investigation and anti-inflammatory activity of Vitex negundo seeds: Part I. *Indian J. Chem*., **30**, 773-776.

Capasso F., Mascolo N., Autore G. and Ramano V. (1986); Laxatives and the production of autacoids by rat colon. *J. Pharm. Pharmacol*., **38**, 627-629.

Ganapathy S., Dash G. K., Subbaraju T. and Suresh B. (2002): Diuretic and laxative activity of Cocculus hirsuts. *Fitotherapia*, **73**, 28.

Gupta M., Majumdar U. K., Bhawal S. R. and Swami S. M. K. (1997): CNS activity of petroleum ether extract of Vitex negundo Linn in mice. *Indian. J. Pharmaceut. Sci*., **59**, 240-245.

Kirtikar K. R., Basu B. D. (1991): Indian Medicinal Plants. (Delhi: Periodicals Experts Book Agency), pp-1937.

Nair A. M., Rajagopalan V. and Saraf M. N. (1994): Anti-allergic activity of Vitex negundo Linn; Chandigarh: 46th Indian Pharmaceutical Congress, Abstract D-03.

Tamhankar C. P., Saraf M. N. (1994): Antiarthritic activity of Vitex negundo Linn. *Indian J. Pharmaceut. Sci*., **56**, 158-161.

Wealth of India. (1976): Publication and Information (Council of Scientific and Industrial New Delhi), pp-522.

Table I: Laxative Activity of Aqueous Extract of Vitex negundo leaves

Treatment	Dose (mg/kg, p.o.)	Faecal output (mg)	
		8 hrs	8-16 hrs
Control	25	162.40±1.860	1171.60±3.487
Agar-agar	300	438.29±2.765*	1166.00±2.477*
V. negundo	100	418.60±1.600*	1209.80±3.072*
	200	610.80±2.417*	1216.00±1.761*

Values are expressed as mean ± S.E M. (n =5).
** P<0.01 compared with vehicle control (ANOVA followed by Dunnet's t-test)*