Research Article

Anti-Inflammatory activity of Indigofera enneaphylla Linn. in Rats

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ABSTRACT
The methanolic extract of *Indigofera enneaphylla* Linn was tested for its anti-inflammatory activity using the technique of carrageenan induced paw significant anti- inflammatory activity comparable to the reference standard Indomethacin.

INTRODUCTION

Indigofera enneaphylla (Leguminosae), a small trailing, much-branched annual or biennial herb distributed throughout India. Various parts of this plant are being used in the traditional system of medicine to treat different ailments like, Anti microbial activity, Analgesic activity, antipyretic activity, anti cancer activity (Anonymous, 1988).

MATERIALS AND METHODS

Preparation of the Extract

The plant materials were collected from Tirunelveli district and identified by the Department of botany, Central Siddha Research Unit, Tirunelveli. The shade dried and extracted with petroleum ether and methanol successively using a soxhlet apparatus. The extracts were evaporated under vaccuum.

Animals

Wistar rats of either sex weighing between 150-200 g procured from king Institute, Guindy, Chennai were selected for the studies. The experimental protocol was subjected to the scrutiny of Institutional Animal Ethics Committee and was cleared by the same before starting.

Phytochemical Analysis

The preliminary phytochemical screening of petroleum ether and methanolic extracts were performed using standard qualitative chemical tests (Rasheeduz et al., 1994) and the phytoconstituents identified were flavonoids, terpenoids, saponins, carbohydrates and tannins.

Anti- inflammatory Activity

Anti- inflammatory activity was evaluated using carrageenan- induced hind paw edema method (Winter et al., 1962). The rats were divided into four groups of six animals each. The first group served as control and received vehicle only (polyethylene glycol). Second group was administered standard drug Indomethacin (150 mg/kg, i.p.) (Tawfeg et al., 1993), (Satynarayana et al., 2004). The animals of third and fourth groups were treated with petroleum ether and methanol etract of the plant extracts of *Indigofera enneaphylla* (100m/kg, p.o.). paw volumes were measured plethysmometrically at 0, 30, 60, 90, 120, 150 and 180 min after the administration of carrageenan to each group. The data was analysed using students “t” test and the level of significance was set at $p< 0.05$. data is represented in table 1.

RESULTS

The whole plant extract of *Indigofera enneaphylla* showed reduction in rat paw edema volume at a dose of 150 mg/kg body weight which is comparable to standard drug (Indomethacin). The reduction is the paw volume of rat with the time shown in Table-1.

DISCUSSION

Carrageenan induced paw edema was taken as a prototype of exudative phase of inflammation. The development of edema has been described as biphasic (Vinegar et al., 1969). The initial phase is due to release of histamine, serotonin and kinin in the first hour after injection of carrageenan. A more pronounced second phase is related to release of prostaglandin like substances in 2-3 hrs. The significant ($p < 0.05$) anti –

inflammatory activity of methanolic extract of *Indigofera enneaphylla* could be related to its inhibitory effect on release of histamine, kinin and prostaglandin.

Table 1: Anti- inflammatory activity of *Indigofera enneaphylla* on Carrageenan- induced edema in Rats

Group	Mean increase in paw volume mi ± SEM (%) Reduction						
	0 min	30 min	60 min	90 min	120 min	150min	180 min
Carrageenan	0.25±0.01	00.54±0.0	0.77±0.09	0.83±0.12	0.88±0.14	0.93±0.02	1.08±0.06
Indomethacin (150 mg/kg)	0.24±0.05 (-)	0.24±0.06* (56.4)	0.28±0.15* (62.3)	0.25±0.14* (69.9)	0.23±0.08* (73.6)	0.22±0.07* (76.3)	0.21±0.08* (80.5)
PEE (100 mg/kg)	0.25±0.14 (-)	0.33±0.13 (40.0)	0.41±0.08* (45.2)	0.42±0.08* (52.4)	0.39±0.05* (58.4)	0.33±0.08* (69.8)	0.38±0.02* (58.2)
ME (100 mg/kg)	0.24±0.08 (-)	0.34±0.12 (35.6)	0.42±0.12 (45.6)	0.56±0.08* (32.2)	0.50±0.07* (43.4)	0.45±0.02* (51.6)	0.38±0.02* (65.2)

PEE = Petroleum Ether Extract; ME = Methanolic Extract
All values are expressed as mean ± SEM, n=6.
*P<0.05 significant compared to control group.

REFERENCES

1. Anonymous, In; The Wealth of India: a Dictionary of India Raw Materials and Industrial Products, Vol. IV, Publications and Information Directorate, CSIR. New Delhi, 1988, 173-183.
2. Rasheeduz Zater and Neerja Gandhi. Practical Pharmacognosy, [CBS, Delhi,1994] , 10-38.
3. Winter CA, Riskey EA and Nuss GW. Proc Soc Exp Biol Med. 1962;111:544 - 547.
4. Tawfeg A, Mohamed A, Yahya- Al, Mansur S, Said–Al and Ratatuallah S. J Bil Sci. 1993;7.
5. Sathyanarayana D, Joshi AB and Chandrasekar KS. Indian Drugs. 2004;41: 405.
6. Vinegar RW, Schreiber and Hugo R. Biphasic Development of Carrageenan Oedema in Rats. J Pharmacol Exp Ther. 1969;166:96-103.