

EVALUATION OF ANTI-INFLAMMATORY RESPONSE OF *PLATOSTOMA MENTHOIDES* (L.)

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Abstract

The ethanolic and aqueous extracts of the aerial part of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth*, exhibits equal anti-inflammatory response but the extent of activity manifested was dissimilar among the extracts and also varied with dose. It was found that the ethanolic extract (200 mg/kg) possessed a significant anti-inflammatory response.

INTRODUCTION

Platostoma menthoides (L) also known as *Geniosporum prostratum* (L) *Benth* is an aromatic annual herb, creeping, glabrous, succulent, rooting at nodes, distributed throughout India in all plain districts, ascending to an altitude of 1,320 m is an aromatic annual herb found in India and Sri Lanka. The plant *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* belongs to the Lamiaceae family and is found in the Deccan Peninsula, especially near the coast. It is known as Nazel nagai in Tamil. This plant is an erect or procumbent glabrous or pubescent herb. Traditionally, this plant is used to treat the common cold and fever in children. The plant is reported also to show sedative, antiepileptic, and vasoconstrictor activity^{1&2}. The plant has not been yet studied pharmacologically for anti-inflammatory activity. It has been reported that the plant contains triterpenoids, saponins, β -sitosterols, glycosides, alkaloids, phenols, and flavonoids³. The purpose of this investigation was to evaluate the anti-inflammatory response of aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth*.

MATERIALS AND METHODS

Plant Material:

During the month of July 2007, the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* were collected from the forest area near Chennai and were authenticated by the Head, Department of Botany, Shrimad Andavan Arts and Science College, Trichy. All the collected materials were then shade-dried and powdered.

Plant Extract:

The shade-dried, aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* were coarse powdered and packed into Soxhlet's column and extracted successively with ethanol and distilled water^{4&5}. The extracts were concentrated under reduced pressure and the yield of each extract was 9.5% w/w and 12.6% w/w respectively. The dried extracts were stored in a desiccator till experimentation.

Standard Drug:

The standard drug used for evaluating the anti-inflammatory activity of the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* was Indomethacin (10mg/kg).

Animals:

For the evaluation of the anti-inflammatory response of the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth*, male albino rats weighing 150-200 gms were used. These rats were divided into four groups of six animals each.

Acute Oral Toxicity Study:

The acute oral toxicity of aqueous and ethanolic extracts of the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* was determined in Albino rats. The acute oral toxicity study was performed using OECD guidelines 420⁶. The LD₅₀ for ethanolic and aqueous extracts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* was more than 2000mg/kg.

Experimental Procedure:

The Anti-inflammatory activity of the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) *Benth* was determined using a Carrageenan-Induced Paw Edema test⁷. Male albino rats weighing 150-200 grams were divided into four groups of six animals each. The dosages of the drugs administered to the different groups were as follows. Group 1- control, group 2, 3 test drugs at a dose of 200 mg/kg, and group 4-indomethacin (10 mg/kg). All the

drugs were administered orally. After one hour of the administration of the drugs, a dose of 0.1 ml of 1%w/v carrageenan solution in normal saline was injected into the sub plantar tissue of the left hind paw of the rat and the right hind paw served as the control. The paw volume of the rats was measured in the digital Plethysmograph (UGO, Basile, Italy), at the end of 0 min, and 60 min. and 120min., 180min. The % increase in paw edema of the treated group was compared with that of the control and the inhibitory effect of the drugs was studied. The relative potency of the drugs under investigation was calculated based on the percentage inhibition of the inflammation.

Statistical Analysis:

The results were subjected to statistical analysis using ANOVA and Duncel’s test and the value of significance was set at P< 0.001.

RESULTS AND DISCUSSION

Evaluation of the anti-inflammatory response of aqueous and ethanolic extracts of the aerial parts of *Platostoma menthoides* (L) also known as *Geniosporum prostratum* (L) Benth against acute paw edema has been shown in Table 1, which shows that the ethanolic extracts show significant anti-inflammatory activity and results were comparable to that of Indomethacin. Edema which develops after carrageenan inflammation is a biphasic event. The initial phase is attributed to the release of histamine and serotonin. The edema maintained between the first and the second phase is due to kinin-like substances, the second phase is said to be promoted by prostaglandin-like substances. It has been reported that the second phase of edema is sensitive to drugs like Hydrocortisone, Phenylbutazone, and Indomethacin.

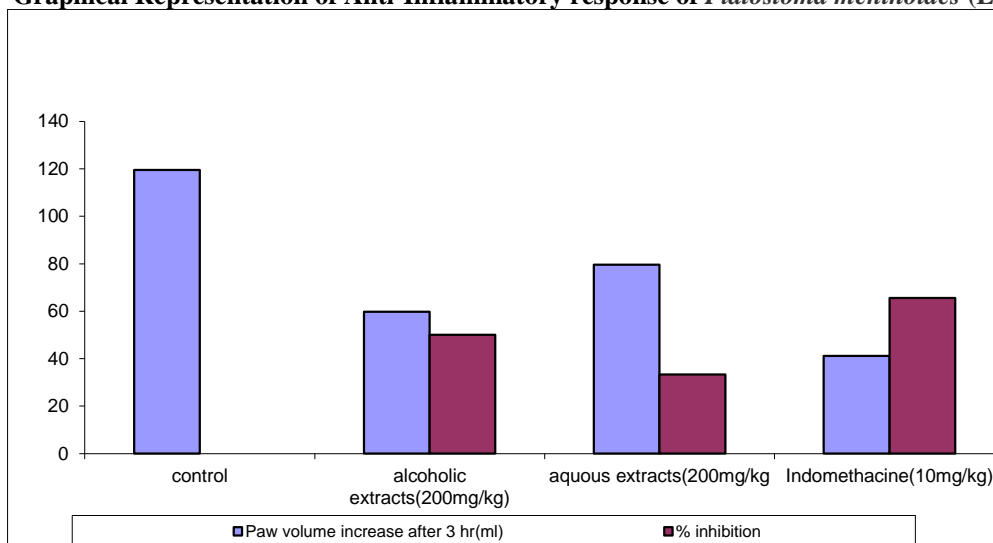
Table No-1

Anti-Inflammatory response of Test Compounds against Carrageenan Induced Paw Edema in Albino Rats

S. No	Treatment	Dose Mg/kg p.o.	Paw Volume Increase After 3hr (ml)	% Inhibition
1	Control		119.56±10.56	-
2	Test Drug (Alcoholic)	200	59.74±4.4	50.03*
3	Test Drug (Aqueous)	200	79.66±6.6	33.37
4	Indomethacin	10	41.2±4.62	65.54

Graph No-1

Graphical Representation of Anti-Inflammatory response of *Platostoma menthoides* (L)



*P< 0.001 values are expressed as ± SEM. Number of animals used was 6 in each group.

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