

Research Article**ANTIINFLAMMATORY ACTIVITY OF *HELICTERES ISORA* LINN. STEM BARK EXTRACTS IN RATS**

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ABSTRACT

The petroleum ether and methanol extract of stem bark of *Helicteres isora* were screened for anti-inflammatory activity, using Carrageenan-induced inflammation in albino rats. Methanol extract showed significant activity as compared to Petroleum ether extract.

KEYWORDS Antiinflammatory activity, *Helicteres isora*, Petroleum ether and methanol extract.

INTRODUCTION

The inflammatory process involves a series of events that can be elicited by numerous stimuli (e.g. infectious agents, ischemia, antigen-antibody interactions and thermal or other physical injury). The response is usually accompanied by the familiar clinical signs of erythema, edema, tenderness (hyper- analgesia) and pain. Inflammation response occurs in three distinct phases each apparently mediated by different mechanisms. 1) An acute transient phase characterized by local vasodilatation and increased permeability. 2) A delayed sub-acute phase characterized by infiltration of leukocytes and phagocytic cells. 3) A chronic proliferative phase, in which tissue degeneration and fibrosis occur.

Helicteres isora belongs to family Sterculiaceae is a sub-deciduous shrub or small tree of having spreading habit with stem 1-5 inches in diameter, reaching a height of 5-15 feet. The species is native to Asia and Australia¹. It occurs, throughout India, from Jamuna eastwards to Nepal, Bihar and Bengal and southern

India and Andaman Islands. It occurs as undergrowth, especially as a secondary growth in forests. The literature survey reveals the presence of flavones², triterpenoids³, cucurbitacin⁴, phytosterols, saponins, sugars and phlobatannins. The root and stem barks are considered to be expectorant, demulcent, astringent and anti-galactagogue and are useful in colic, scabies, empyema, gastropathy, diabetes, diarrhea and dysentery⁵. The fruits are astringent, acid, refrigerant, demulcent, constipating, stomachic, vermifuge, vulnerary, haemostatic and urinary astringent. They are useful in vitiated conditions of pitta ophthalmitis, colic, flatulence, diarrhea, dysentery, verminosis, wounds, ulcers, hemorrhages, epistaxis and diabetes⁶.

**MATERIALS AND METHODS
(Experimental):-**

The stem bark of *Helicteres isora* was collected from Nashik (MS) and authenticated by a botanist from Botany department of K.T.H.M.college, Nashik.

Preparation of extracts

The stem bark was dried and powdered. The powder was extracted, successively with petroleum ether, and methanol using soxhlet extractor. The extracts were evaporated under vacuum. Extractive values (% w/w) of petroleum ether, and methanol dry extracts were 0.56, and 13.4.

group was of Ibuprofen + Carrageenan treated. The IIIrd group was of Petroleum ether extract + Carrageenan treated. The IVth group was of methanol extract + Carrageenan treated.

In IIIrd to IVth group oral dose of extract was given to the test group and in IInd group oral dose of ibuprofen was given. After 1 hr 0.1 ml of 1% w/w

Table 1-Effect of various extracts of *Helicteres isora* on carrageenan induced paw edema in rats

Treatment	Dose	0 hr.	1 hr.	2 hr.	3 hr.	% inhibition of paw oedema at 3hr
Carrageenan	40 mg/kg	0.2±0.00	0.38 ± 0.37	0.09±0.09	1.38±0.08	----
Ibuprofen	40 mg/kg	0.2±0.00	0.54±0.20*	0.11±0.03*	0.70±0.03	56.0%
Petroleum Extract	50 mg/kg	0.2±0.00	0.3±0.04*	0.46±0.02*	0.92±0.08	36.84%
Methanol Extract	50 mg/kg	0.22±0.01	0.29±0.01*	0.4 ±0.03*	0.76±0.03	56.14%

All values are expressed as mean ± S.E.M., (n = 5), *Significantly different from control at P < 0.005.

Animals used

Wistar albino rats (100 gms) were procured from National Toxicological Centre, Pune, India. Before and during the experiment the rats were fed with standard diet. After randomization into various groups and before initiation of experiment, the rats were acclimatized for a period of 7 days under standard environmental conditions of temperature, relative humidity and dark/light cycle.

Method^{7,8}

The animals were weighed, numbered and marked on both hind paws, beyond the tarsal junction. So that, every time the paw was dipped in mercury column up to the fixed mark to ensure constant paw volume. The initial paw volume of each rate was noted by mercury displacement method. The animals were divided in five groups. The Ist group was of control i.e. Carrageenan treated. The IInd

carrageenan was given in subplantar volume of control and test group was noted at 0, 60, 120, 180 min. Then % inhibition of unknown extract was calculated.

Statistical Analysis

All the data were analyzed statistically using one-way analysis of variance followed by Dunnett's t-test. The data are expressed as mean ± S.E.M. P-values less than 0.05 imply significance.

RESULTS AND DISCUSSION

The methanol extract (100 mg/kg) showed 56.14 % inhibition of paw oedema, Whereas petroleum ether extract showed 36.84 % inhibition. Methanol extract showed significant anti-inflammatory activity as compared to petroleum ether extract. Therefore, it revealed that *Helicteres isora* stem-bark

extracts has potent anti-inflammatory activity.

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