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Research Article

Anti inflammatory activity of Methanolic stem extract of *Tephrosia purpurea*.

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Abstract: *Tephrosia purpurea* L. plant is used in the indigenous system of medicine, belonging to the Family Fabaceae. To study the anti-inflammatory activity of methanolic stem extract of *T. purpurea by* using Carrageenan induced model. Anti-inflammatory activity of methanolic stem extract of *T. purpurea* was studied, in which inflammation was induced by injecting 0.1ml of 1 per cent Carrageenan in to the sub plantar side of the left hind paw. Test drugs were administered in a dose of 10, 20 and 40 mg/kg (body weight) one hour before commencing the experiment. The anti-inflammatory activity was assessed by determining and comparing the paw volume (ml) in the test drug group with that of the vehicle control group. Diclofenac sodium 5 mg/kg (body weight) was used as a reference drug. Inflammation in the methanolic stem extract of *T. purpurea* treated animals was found to be significantly less compared to vehicles control animals. Diclofenac sodium (5 mg/kg body weight) produces significant reduction in inflammation when compared to control group. Methanolic stem extract of *T. purpurea* (M.S.E.T.) produced significant anti-inflammatory activity. Our results suggest that all the Methanolic stem extract of *T. purpurea* (M.S.E.T.) possess significant anti-inflammatory activity. Among the three doses of *T. purpurea* 40 mg/kg body weight showed maximum activity.
Keywords: Anti inflammatory activity, Carrageenan induced method, Methanolic stem extract of *T. purpurea* (M.S.E.T.), Diclofenac sodium.

INTRODUCTION

Tephrosia purpurea is a species of flowering plant in the pea family, Fabaceae that has a pantropical distribution. It is a common wasteland weed. In many parts it is under cultivation as green manure crop. It is found throughout India and Sri Lanka in poor soils.

Vernacular name

Bengali: Jangli Neel
English: Fish poison, Wild indigo
Hawaiian: ‘Auhuhu, Ahuhu, ‘Auhola, Hola
Hindi name: Sarphonk, Sharpunkha
Rajasthani: Masa
Tamil: Kollukkai Velai
Telugu: Vempali

It is used as a fish poison; the leaves and seeds contain tephrosin, which paralyzes fish. Larger doses are lethal to fish, but mammals and amphibians are unaffected. It is also used traditionally as folk medicine. A decoction of the roots is given in dyspepsia, diarrhea, rheumatism, asthma and urinary disorders. The root powder is salutary for brushing the teeth, where it is said to quickly relieve dental pains and stop bleeding. An extract, termed 'betaphroline' is claimed to promote release of endorphins, and finds use in certain cosmetic preparations. *T. purpurea* L. is commonly known as Kattu Kolingi belongs to family Fabaceae. Decoction of roots has given in dyspepsia, diarrhoea, rheumatism, asthma and urinary disorders, roots given with black pepper in colic. A liniment prepared from the roots is used in elephantiasis. Pulverized roots smoked for relief from asthma and cough, decoction of pods used as a vermifuge and to stop vomiting [1]. Root powder is smoked for respiratory disease and boiled in with is applied on leprosy and wounds [2]. Though many pharmacological works has been undertaken in *T. purpurea*, little Pharmacognostical work has been done on *T. purpurea* root. With this background, the present work was undertaken and was subjected to anti-inflammatory study using Carrageenan induced model.

Fig-1: Aerial part of *T. purpurea*

Fig-2: *T. purpurea* plant

MATERIALS AND METHODS

Plant material**:** The plant material was collected from Rohilkhand region of U.P. on May 2015. The plant materials was identified and authenticated taxonomically by Dr. Alok Khare, Reader, Department of Botany, Bareilly College Bareilly. A voucher specimen of each of the collected samples was deposited in Bareilly College Herbarium for further reference. (BHK-231)

Preparation of powder:

The stem of *Tephrosia* is dried under shade. These dried materials were mechanically powered and sheaved using 60 meshes and stored in airtight container.

Preparation of Extract:

The powder was extracted with methanol by soxhelation method. Preliminary phytochemical screening of stem extract gave positive result for carbohydrates, flavonoids, tannin & phenols, alkaloids, phytosterols and saponins [3].

Animals:

Swiss Albino Wistar male rats (120 to 220 g) were procured from IVRI, Izaatnagar, Bareilly. Permission for animal experiments was obtained from Institutional Animal Ethical Committee.

Anti-inflammatory activity:

The anti-inflammatory effect was evaluated by different doses of methanolic stem extract of *T. purpurea* using Carrageenan an induced paw edema method [4, 5].

STATISTICAL ANALYSIS:

The present study was subjected to students't' test are computed for all the biochemical estimation, to find out statistical significant results.

Values are mean SEM for Six rats $P < 0.001$ Compared to control group.

RESULT

Result revealed that Diclofenac sodium (5 mg/Kg) reduced the paw volume to the extent of 69.0 per cent at 3rd hour of Carrageenan injection and the test drugs showed dose dependent activity. The dose of 40 mg/Kg exerted maximum percentage of (62.1%) inhibition in edema volume (Table-1).

Table 1: Effect of Methanolic stem extract of *T. purpurea* on Carrageenan induced oedema in rats

Treatment (0.1ml of 1% CMC)	Dose (mg/kg)	Decrease of paw volume after 3h (ml)	%inhibition
Control	-	1.811 ± 0.011	0
Diclofenac Sodium	5	0.616 ± 0.003	69.0***
M.S.E.T.	10	0.841 ± 0.130	53.2***
M.S.E.T.	20	0.921 ± 0.051	57.6***
M.S.E.T.	40	0.669 ± 0.036	62.1***

DISCUSSION

The present study was undertaken on root of *T. purpurea*. Anti-inflammatory activity was examined by Carrageenan model. The Carrageenan paw inflammation has been accepted as a useful diagnostic tool for investigation of systemic anti-inflammatory activity for any drugs. Methanolic stem extract of *T. purpurea* showed dose dependent and significant inhibitory activity in Carrageenan induced paw inflammation at 3rd hour.

CONCLUSION

From the result, 40 mg/Kg showed maximum percentage of inhibition in edema volume than the remaining dose levels in Carrageenan induced model, which might due to the higher concentration of active compounds involved in inhibiting prostaglandin synthesis.

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