



Received on 22 May 2020; received in revised form, 23 September 2020; accepted, 28 September 2020; published 01 November 2020

ANTHELMINTIC ACTIVITY OF THE FLOWER EXTRACT OF KACHNAR AGAINST *PHERETIMA POSTHUMA*

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Keywords:

Kachnar, Alcohol, Flowers, Motility, Anthelmintic

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ABSTRACT: The main objective of this present work is to evaluate the anthelmintic activity of crude alcohol extracts of the flowers of kachnar (*Bauhinia variegata*) against *Pheretima posthuma* as a test worm. The activity was assessed by worm motility assay, which involved the determination of time of paralysis and death of worms. The preliminary phytochemical study of the alcoholic extract was also carried out. The alcoholic extracts exhibited a dose-dependent (25, 50, and 100 mg/ml) inhibition of spontaneous motility and time of death of the worms. The alcoholic extract was found to be effective; the activity was comparable with the standard drug Piperazine citrate and water as a control.

INTRODUCTION: The plant *Bauhinia variegata* (Fabaceae) is called “Kachnar” in Hindi, commonly known as ‘Rakta Kanchan’ in Sanskrit. *Bauhinia variegata* is distributed in sub Himalayan and outer Himalaya of the Punjab and Sikkim state, India¹. It is used traditionally in dysentery, diarrhea, hemorrhoids, piles, edema, laxative, anti-helmintic, astringent, anti-leprotic, wound healing, anti-goitrogenic, anti-tumor, the antidote for snake poisoning, dyspepsia, and carminative disease².

Various parts of the tree have been reported to phyto-chemicals such as flavonoids, tannin, kaempferol, terpenoids, saponins, reducing sugars, steroids, cardiac glycosides, and quercetin.

It is also reported to have anti-bacterial, anti-helmintic, anti-arthritis, anti-inflammatory, anti-diabetic, immune-modulatory, hepatoprotective, anti-oxidant, trypsin inhibitor, and anti-carcinogenic activity in modern science³. The present study was aimed ‘to evaluate anthelmintic activity of flowers of Kachnar’.

MATERIALS AND METHODS:

Procurement of Plant Material: Flowers of plant kachnar (*Bauhinia variegata*) were collected from ‘SMBT Campus Dhamangaon Nashik; Maharashtra, India, in the month of Nov-Dec 2019. Botanical identification was carried out, and the voucher specimen of the plant material has been deposited at the Institute level.

Preparation of the Extract: The flowers of Kachnar (*Bauhinia variegata*) were shade dried, crushed to produce coarse powder, and subjected to extraction in Soxhlet’s extractor using ethanol (95%). The extract was filtered while hot and concentrated by vacuum, which is further

	<p>QUICK RESPONSE CODE</p>
	<p>DOI: 10.13040/IJPSR.0975-8232.IJP.7(11).326-27</p>
<p>The article can be accessed online on www.ijpjournals.com</p>	
<p>DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.7(11).326-27</p>	

evaporated to dryness to obtain alcoholic extract and stored at 4 °C until used.

Collection of Worm: The adult earthworms were collected from a waterlogged area of soil. The collected earthworm washed with normal saline to remove all fecal matter. The earthworm is long (3-5 cm in length and 0.1-0.2 cm in width), cylindrical worms with a brownish color, and have physiological resemblance with the intestinal round-worms parasite of human beings. The collected earthworm is authenticated as a *Pheretima posthuma* (Indian earthworm).

Preliminary Phytochemical Test: The Preliminary Phytochemical study for various secondary metabolites (phytoconstituent's) carries out as per the procedure of Kokate CK (1994) ⁴.

Anthelmintic Bio-Assay: The anthelmintic assay carried out as per the procedure of Gururaja MP *et al.*, (2009) ^{5, 6}. The different concentration for an alcoholic extract of *Bauhinia variegates*, *i.e.*, Kachnar (25, 50, 100 mg/ml) and piperazine citrate (10 mg/ml) as a standard was prepared. Then formulations were prepared of all concentrations of sample and standard by triturating them with 50 ml 15% tween 80, after triturating the formulation mix well for 30 min using a mechanical stirrer. The earthworms kept in petridish the sample and standard tested separately, 15% tween 80 with distilled water is a negative control. The observation was made for the time of paralysis and time for death required for the earthworm. When there is no movement after vigorous shaking of petridish with an earthworm, consider as a time of paralysis. Time for death also noted after ascertaining that worm neither moved when shaken vigorously nor when dipped in warm water (50 °C).

RESULTS AND DISCUSSION:

Preliminary Phytochemical Investigation: The presence of secondary metabolites as glycosides-flavonoid, phenols, tannins, terpenoids and keto-steroids.

How to cite this article:

Chindarkar PV: Anthelmintic activity of the flower extract of kachnar against *Pheretima posthuma*. Int J Pharmacognosy 2020; 7(11): 326-27. doi link: [http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.7\(11\).326-27](http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.7(11).326-27).

Anthelmintic Bio-Assay: Alcohol extracts of flowers of kachnar (*Bauhinia variegata*) showed significant anthelmintic activity in **Table 1** at the concentration 50 mg/ml and 100 mg/ml against *Pheretima posthuma*. The activity was found to be increased with dose (shortest time of paralysis and death was observed at 100 mg/ml), and the activity was comparable to the well known anthelmintic agent Piperazine citrate.

TABLE 1: ANTHELMINTIC ACTIVITY OF THE FLOWERS OF KACHNAR

Substance	Conc. mg/ml	Paralyzing time (min)	Death time (min)
Alcoholic Extract	25	9.1	93
	50	7.3	78
	100	5.1	63
Piperazine citrate	10	3.1	48.6
15% Tween	--	--	--

CONCLUSION: These data and parameters have been investigated for Kachnar to set pharmacological and phytochemical standards, which could be useful to find the authenticity of this traditional medicinal system plant. In conclusion, the use of Kachnar flowers as an anthelmintic has been confirmed, and further studies are suggested to isolate the active principle responsible for the anthelmintic activity.

ACKNOWLEDGEMENT: Nil

CONFLICTS OF INTEREST: Nil

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