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Evaluation of *In Vitro* Anthelmintic Activity of *Phyllanthus fraternus*

	
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ABSTRACT

The present study aimed to determine the *in vitro* anthelmintic activity of methanolic extract of *Phyllanthus fraternus*. The activity was performed by using various concentrations. In this study, Albendazole was used as a standard drug. The activity was performed on Indian earthworm, *Pheretima Posthuma*. The results were noted in terms of time for paralysis and death.



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INTRODUCTION

Phyllanthus fraternus is a medicinal plant, it exhibits different properties, actions, and medicinal uses. *Phyllanthus fraternus* is also called as *Tamalaki*. This plant showed different medicinal uses such as bronchial asthma and other respiratory disorders[1]. In Ayurveda, *Tamalaki* is attributed with Kasahara and Sasahara properties[2,3]. *Phyllanthus fraternus* is used to treat malaria, edema, pain, fever, gonorrhoea, and diarrhea.

World Health Organization(WHO) states that over 2 billion people were suffering from helminthic infections due to worms[4]. Majority of the infections are due to helminths. Intestinal infections with worms can more easily treat than those infections that occur in other locations in the body [5]. It is estimated that by the year 2025, about 57% of the population in developing countries will be influenced [6]. Most of the existing anthelmintics produce side effects such as abdominal pain, loss of appetite, nausea, vomiting, headache, and diarrhea [7]. The use of medicinal plants is to treat and prevention of many health problems such as oedema, diarrhea, malaria and bacterial and viral infections and also used to maintain good health[8].

MATERIALS AND METHODS



Plant collection and authentication

The leaves of *Phyllanthus fraternus* were collected in the month of June from Narsapur, Medak Dist of Telangana, India. The plant was authenticated by D.Venkateshwara Rao, Deputy Director, Telangana. Forest Academy, Dullapally, Hyderabad, Rangareddy District.

Materials used

Methanol, Albendazole, saline, Carboxy Methyl Cellulose(CMC).

Worms Collection

The anthelmintic activity was performed on Indian earthworm, *Pheretima Posthuma*. The worms were collected from waterlogged areas. The earthworms have anatomical and physiological resemblance with the intestinal roundworm parasites of human beings [9,10].

Preparation of Plant extract

The leaves were collected and dried in shade and powdered by using pulverizer. It was passed through the sieve no 20 to get a coarse powder. The weighed quantity of plant powder was extracted with methanol (alcoholic extraction) followed by maceration for 72 hours. Then the extract was subjected to distillation to separate the solvent from the extract. Finally, the extract was used for evaluation of the anthelmintic activity.

Preparation of Concentrations

Alcoholic extract of *Phyllanthus fraternus* concentrations were prepared by dissolving in normal saline. Albendazole was prepared by using 0.5%w/v of Carboxy Methyl Cellulose(CMC) as the suspending agent.

Evaluation of anthelmintic activity

The anthelmintic activity was carried out according to the method[11]. The Indian earthworm (*Pheretima posthuma*) was placed in Petri dish containing different concentrations. Albendazole was used as a standard drug and observed for paralysis and death of worms. Time for paralysis was noted when no movement of any sort could be observed except when worms were shaken vigorously. Death was concluded when the worms lost their motility[12,13]. The results were compared with standard reference drug Albendazole treated samples.

RESULTS AND DISCUSSION

Methanolic extract of *Phyllanthus fraternus* shows significant effect on *Pheretima Posthuma*. Higher concentrations of *Phyllanthus fraternus* extract produce a paralytic effect much earlier and time taken for death was shorter.

Table no 1: Table Showing Anthelmintic activity of the extract of *Pheretima Posthuma*

Extract	Concentrations (mg/ml)	<i>Pheretima Posthuma</i>	
		Paralysis(min)	Death time(min)
Standard	25mg/ml	23±0.65	49±0.11
	50mg/ml	24±0.58	44±0.53
	75mg/ml	19±0.67	39±1.02
	100mg/ml	17±0.97	38±0.24
Methanolic extract	25mg/ml	27±0.31	49±0.84
	50mg/ml	24±1.25	45±0.51
	75mg/ml	18±0.92	40±0.65
	100mg/ml	16±0.25	39±0.12

CONCLUSION

It can be concluded that the methanolic extract of *Phyllanthus fraternus* has shown significant effect on Indian earthworm *Pheretima Posthuma*.

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