

# ADVANCED CLINICAL PHARMACOLOGY AND TOXICOLOGY, THERAPEUTICS

## Pharmacological Studies for Investigation of Antihelmintic Activity of *Paspalidum flavidum* Against Adult Indian Earthworm *Pheritima posthuma*

N. Swathi\*  
P. Mounika  
T. Shivani  
B. Mounika

Department of pharmacy practice, MNR College of Pharmacy, MNR nagar,  
Fasalwadi, Telangana, India

### Article Information

<b>Article Type:</b>	Research Article	<b>*Corresponding author:</b>	<b>Citation:</b> N. Swathi et al., (2018) Pharmacological Studies for Investigation of Antihelmintic Activity of <i>Paspalidum flavidum</i> Against Adult Indian Earthworm <i>Pheritima</i> <i>posthuma</i> . Adv Clin Pharmacol Toxicol Ther, 1(1);1-3.
<b>Journal Type:</b>	Open Access	<b>N. Swathi</b>	
<b>Volume:</b>	1	Department of pharmacy practice	
<b>Issue:</b>	1	MNR College of Pharmacy	
<b>Manuscript ID:</b>	ACPTT-1-102	MNR nagar, Fasalwadi	
<b>Publisher:</b>	Science World Publishing	Telangana, India	
<b>Received Date:</b>	04 June 2018		
<b>Accepted Date:</b>	10 July 2018		
<b>Published Date:</b>	15 August 2018		

**Copyright:** © 2018, N. Swathi et al., This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 international License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

### ABSTRACT

The present research program was carried out to investigate the antihelmintic activity of the aqueous and methanolic extract of *Paspalidum flavidum* against adult Indian earthworm *Pheritima posthuma*. Various concentrations (25, 50 and 100 mg/ml) of methanolic extract evaluated for antihelmintic activity by recording the time required for paralysis and death of worms. Albendazole was used as standard. Result indicates methanolic extracts of *P. flavidum* significantly ( $p < 0.01$ ) exhibited antihelmintic activity in dose dependent manner when compared with standard. The shortest time required for paralysis and death was observed with concentration of 100 mg/ml. Further studies are under progress to confirm the possible chemical constituents responsible for activity.

### KEYWORDS

*Paspalidum flavidum*, Anti-helmentic, *Pheritima posthuma*

### INTRODUCTION

Helminthes, also commonly known as parasitic worms are large multicellular organisms, which when mature can generally be seen with the naked eye. They are often referred to as intestinal worms even though not all helminths reside in the intestines; for example Schistosomes are not intestinal worms, but rather reside in blood vessels. Soil-transmitted helminthiasis (SHT) and schistosomiasis are the most important group of helminthiases, collectively belonging to the "neglected tropical diseases" [1]. Soil-transmitted helminthiasis is responsible for parasitic infections in a quarter of the total human population [2]. *Paspalidum flavidum* (water crown grass) is a genus of tropical and subtropical plants in the grass family. It is commonly known as Grass. The name of *Panicum falvidum* is its synonym. A wild, annual to perennial grass, with decumbent- ascending culm and rooting at lower nodes. Leaves: 1-105 cm broad. Ligule a ring hairs. Sheaths with a hairy throat. Panicle: facliform, recurved, with 5-10 remote racemes, upto 60 cm long. Spikelets: 2-nate, sessile and ellipsoid [3-5]. Anthelmintics or antihelminthics are drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host. They may also be called vermifuges (those that stun) or vermicides (those that kill). They are used to treat people or animals that are infected by helminths-a condition called *helminthiasis* [6]. Ascariasis may exist as a zoonotic infection correlated with pigs and use of hog manure [7]. Treatment with an antihelmintic drug kills worms whose phenotype renders them susceptible to the drug. But resistant parasites survive and pass on their "resistance" genes. Resistant varieties accumulate and finally treatment failure occurs [8].

"London Declaration on Neglected Tropical Diseases" which was launched on 30 January 2012. It aims to control or eradicate those particular diseases by 2020, by ensuring necessary supply of drugs and other intervention and promoting sanitation and health education" [9]. Hence this first attempt is made to evaluate the anthelmintic activity from the leaves of *P. flavidum* ehrenb.

## MATERIALS AND METHODS

### Collection and authentication

*P. flavidum* were collected from Narsapur, Medak District and authenticated by D. Venkateshwara Rao, Deputy Director, A.P. Forest Academy, Dullapally, Hyderabad, Ranga Reddy Dist.

### Preparation of plant material

The plant leaves was washed under running tap water to make it free from dust and foreign particles. The plant leaves were powdered and kept in air tight container before analysis.

### Preparation of methanolic extract

50 gm of powder was soaked in a 300 ml of methanol, heated at 20-30°C for 20 min and filtered using (Whatman filter paper No. 1) filter paper. The filtrate was centrifuged at 2000 rpm for 20 min and analyzed by antihelminthic activity.

### Selection of worms

Adult Indian earthworms, *P. posthuma* having anatomical and physiological resemblance with intestinal roundworm parasite of the human being. So *P. posthuma* were used for present study [10].

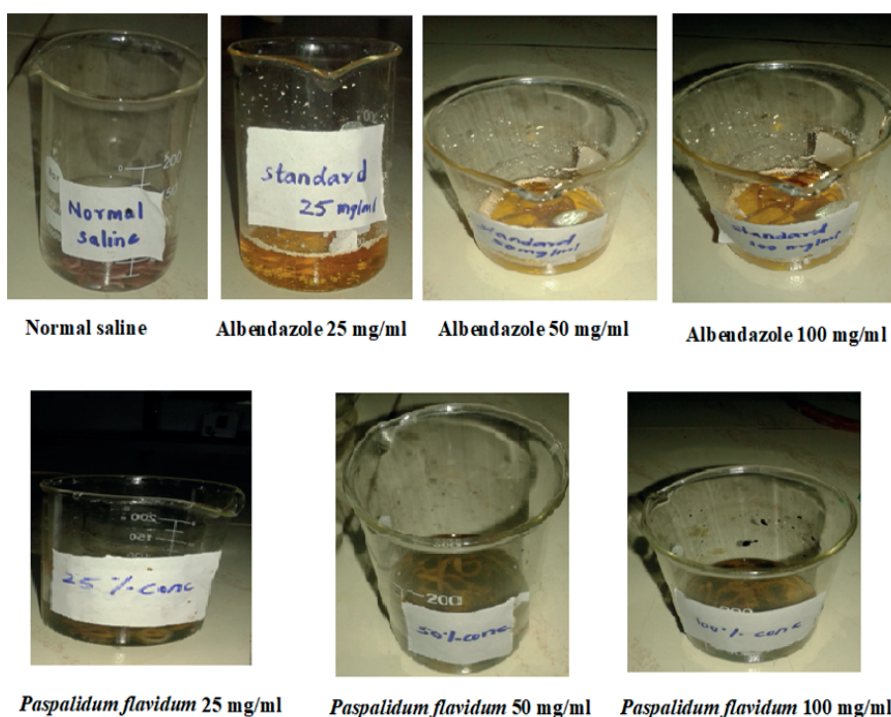
## EVALUATION OF ANTIHELMENTIC ACTIVITY

The antihelminthic activity was evaluated on adult Indian earth worm, *P. posthuma*. Standard concentrations of albendazole (25, 50 and 100 mg/ml) were prepared by dissolving in normal saline. The methanolic leaf extract of *P. flavidum* extract was dissolved in normal saline at the concentrations of 25, 50 and 100 mg/ml. 50 ml of saline was taken as control. 5 earthworms were placed in each beaker containing concentrations of standard, leaf extract and control respectively. The paralytic time and death time were noted. Death time was noted only when worms lost their motility. The readings was compared with the standard drug albendazole at concentrations of 25, 50 and 100 mg/ml showed closest result with that of standard drug albendazole (Figure 1).

## RESULTS AND DISCUSSION

Experimental data showed that, the methanolic extract of *P. flavidum* has antihelminthic activity in dose dependent manner as shown in Table 1. The shortest time required for paralysis and death was observed with concentration of 100 mg/ml. higher concentration of methanolic extract showed maximum effect when compared with lower concentration.

**Figure 1:** The readings was compared with the standard drug albendazole at concentrations of 25, 50 and 100 mg/ml showed closest result with that of standard drug albendazole.



**TABLE 1:** The methanolic extract of *Paspalidum flavidum* has antihelminthic activity in dose dependent.

Groups	Treatments	Concentration (mg/ml)	Paralysis time (min)	Death time (min)
Group I	Vehicle (Normal saline)	---	---	---
Group II	Methanolic extract ( <i>Paspalidum flavidum</i> )	25	52.14 ± 1.37	73.21 ± 1.36
Group III		50	37.25 ± 1.36	65.43 ± 0.32
Group IV		100	19.24 ± 1.49	60.15 ± 0.90
Group V	Albendazole	25	34.33 ± 0.84	60.83 ± 1.15
Group VI		50	25.10 ± 1.65	49.45 ± 1.72
Group VII		100	14.32 ± 0.57	26.31 ± 0.81

## CONCLUSION

Anthelmintics are drugs that expel parasitic worms (helminths) from the body, by either stunning or killing them (Dwivedi et al., 2000). Moreover, these drugs are unaffordable because of their high cost. These factors paved the way for herbal remedies as alternative anthelmintics. In present study of whole plant extract of *P. flavidum* was selected and studies for its anthelmintic activity and the experimental results concluded that *P. flavidum* extract showed significant anthelmintic activity.

## ACKNOWLEDGEMENTS

I would like to thank my principal Dr. V. Alagarsamy, MNR College of Pharmacy, for his guidance, encouragement and advice and for the facilities provided.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## BIBLIOGRAPHY

1. Soil-transmitted helminth infections, Fact sheet N°366, 2015.
2. Schistosomiasis, Fact sheet N°115. WHO Media centre, 2014.
3. Tropicos, *Paspalidium* Stapf.
4. Stapf, Otto, InPrain, David, Flora of Tropical Africa, 1920;9:582.
5. Ausgrass, Grasses of Australia.
6. Department of the Army Headquarters. U.S. Army Survival Manual Fm 21-76. Barnes & Noble Inc., 2004.
7. Notes from the field: ascariasis associated with pig farming-Maine, 2010-2013. MMWR Morb Mortal Wkly Rep. 24 2013;62(20):413.
8. Department of the Army Headquarters. U.S. Army Survival Manual Fm 21-76. Barnes & Noble Inc. 2004.
9. Neglected Tropical Diseases. cdc.gov. 2014.
10. Chatterjee KD, Parasitology, Protozoology and Helminthology, Guha Ray. Sree Saraswati Pres Ltd. Calcutta, 1967;168.