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IN VITRO EVALUATION OF ANTHELMINTIC ACTIVITY OF *ALTERNANTHERA PUNGENS*

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ABSTRACT

The current study aimed to investigate the *in vitro* anthelmintic activity of *Alternanthera pungens.* Various concentrations of methanolic extract was evaluated(50,100mg/ml). Albendazole drug was used as a standard drug. Albendazole causes death of the parasite. At higher concentration the plant showed significant effect on Indian earthworm *Pheretima posthuma.*

KEYWORDS: *Alternanthera pungens, Pheretima posthuma,* Methanolic extract, Albendazole.

INTRODUCTION

A number of medicinal plants have been used to treat parasitic infections in man and animals. Parasitic helminthes effect the human beings as well as animals leading to considerable hardship and stunted growth. Majority of the infections are due to the worms are generally limited to a topical regions. The world health organization reveals that over two billion people are suffering from parasitic infections.[1] Traditional medicine is one of the oldest method of curing diseases and infections by using various plants. A huge population partially or entirely still depends on botanicals to treat human diseases and infections. Whole plant and different parts of the plant are used to treat various forms of diseases and infections. During the past few decades, despite numerous advances made in understanding the mode of transmission and treatment of these parasites, there are still no efficient products to control certain helmenthiasis. As an important component of complementary and alternative medicine, traditional medicinal plants may be useful to discovery and development of new chemical substance for helminthes control.[2] The prevalence of parasitic helminthes typically displays a negative binomial

distribution within an infected population such that relatively few persons carry heavy parasite burdens. Without treatment, those individuals are most likely to become ill and to perpetuate infection within their community.[3] Drugs with multiple mechanisms of protective action provide minimizing the diseases.[4] Helminthes infections are now being recognized as cause of many aute as well as chronic ill health among the various human beings as well as cattle's. More than half of the population of the world suffer from infection of one or the other and majority of cattle's suffer from worm infections.[5]

Plant collection and authentication

The plant *Alternanthera pungens* was collected from the local region of Narsapur, Medak district and Telangana and the plant was authenticated by D.Venkateshwara Rao, Deputy Director, Telangana. Forest Academy, Dullapally, Hyderabad, Rangareddy District.

Worms collection

Anthelmintic assay was performed on Indian earthworm *Pheretima posthuma.* Because of easy availability. The Indian earthworms(*Pheretima posthuma*) were collected from the water logged areas of the soil and remove all the earthy matter with water. The earth worms has anatomical and physiological resemblance with the intestinal roundworm parasites of human beings.[6,7]

Concentrations

The methanolic extract of *Alternanthera pungens* was made into a different concentrations (50mg/ml,100mg/ml) by dissolving in normal saline solution. Albendazole was prepared by using 0.5% w/v of CMC (Carboxy Methyl Cellulose) as suspending agent.

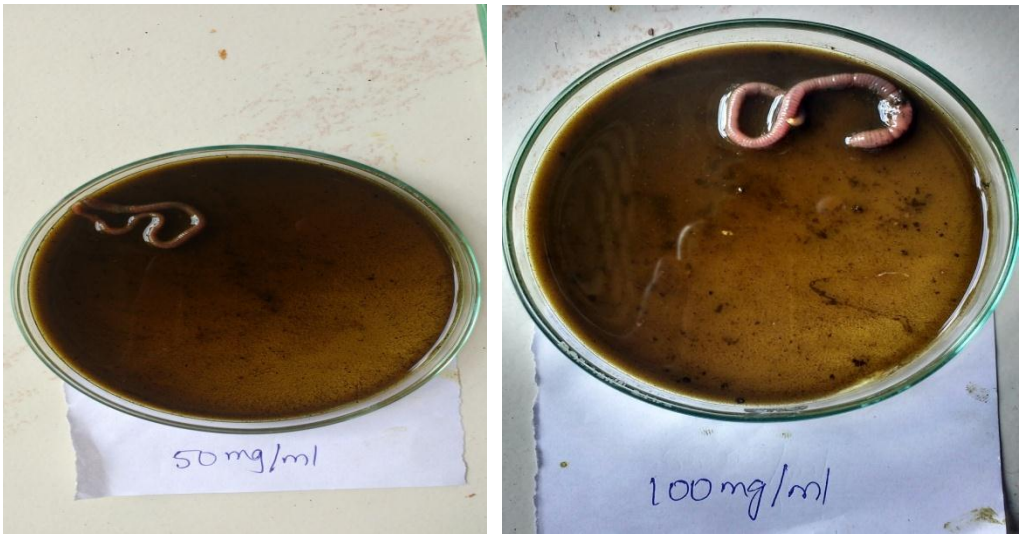
Anthelmintic activity procedure

The anthelmintic activity was carried out according to the method.[8] The Indian earthworm(*Pheretima posthuma*) was placed in petridish containing four different concentrations(50, 100mg/ml) of aqueous extract of *Alternanthera pungens.* Albendazole was used as a standard drug and observed for paralysis and death of worms. The lethal effect of Albendazole was attributed to its inhibition of tubulin polymerization and blocking glucose uptake.[9] 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.[10,11] The results were compared with standard reference drug Albendazole treated samples.

RESULTS AND DISCUSSION

The alcoholic(Methanolic) extract of *Alternanthera pungens* has shown significant effect on Indian earthworm *Pheretima posthuma* in concentration dependent manner. The paralysis and death of earthworm justifies the continued use of these plant in traditional medicinal practice. It has been demonstrated that the all anthelmintics are toxic to earthworms and a substance toxic to earthworms is worthy for investigation as an anthelmintic.[12]

Treatment groups	Concentration in mg/ml	*Pheretima posthuma*	
		Time of Paralysis (min)	Time of Death (min)
Standard	50mg/ml	16±0.325	28±0.652
	100mg/ml	11±215	21±1.567
Methanolic extract	50mg/ml	18±2.342	30±1.651
	100mg/ml	12±1.065	21±1.821



A) 50mg/ml **B) 100mg/ml**

CONCLUSION

It can be concluded that the methanolic leaf extract of *Alternanthera pungens* has showed significant anthelmintic activity. At higher concentrations the methanolic extract shows higher activity.

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