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PHYTOCHEMICAL SCREENING AND ANTI HELIMENTHIC ACTIVITY OF *PHYLLANTHUS EMBLICA* FRUITS

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ABSTRACT

INTRODUCTION

Helminths are recognized as a major constraint to livestock production as well as blood loss in humans throughout the tropics [1,2]. They achieve these characteristics because majority of them live as pure obligate parasite in humans and other livestock of economic importance. These worms are grouped into two major phyla namely phylum Platyhelminthes (flatworms) and phylum Nematoda (roundworms) and they have developed various adaptive structures to survive in their hosts [3].

Plants extracts have been used since time immemorial for managing various diseases in traditional medicine especially in Africa and other developing worlds. Plants prescription has found that it's relevant as anti-cancer, anti-malarial, anti-coagulant, anti-histamine, antibiotic, food supplements, etc. However, the rapid spread of intestinal worm induced sickness in the rural populace , which had resulted into many deaths and physical impairments among children from age five to thirteen years, and negligence of orthodox medications by the these rural dwellers, justifies why this research was carried out.

The present research was therefore designed to scientifically validate by using the fruit extract of *Phyllanthus emblica*. ***Phyllanthus emblica***, also known as **emblic**,[1][3] **emblic myrobalan**,[1] **myrobalan**,[3] **Indiangooseberry**,[1][3] **Malaccatree**,[3] or **amla**[3]from Sanskrit **amalika** is a deciduous tree of the family Phyllanthaceae. It is known for its edible fruit of the same name.

Previously Methanolic and aqueous extracts of emblica showed positive results against common human pathogens including bacteria, viruses, and fungi. Activity appears to be stronger against gram-positive bacteria, and only limited efficacy against fungi. Activity against herpes simplex viruses 1 and 2 has been attributed to the phenolic content.

MATERIALS AND METHODS

Collection of plant material :[4,5]

The fruit s of *Phyllanthus emblica* was collected in the campus of Sri Sivani group of Colleges , chilakapalem , srikakulum district, Andra Pradesh , india Nov 2015. It was authenticated by Dr S.B.Padal, Department of Botany , Andhra University , Visakhapatnam.

Extract Preparation :[6,7]

The freshly collected plant was shade dried and powered in a Whely Mill . the powered material was then subjected to maceration (cold extraction). The air dried powdered materials (50mg) of

fruits of plant was extracted with Methanol , Chloroform, Distilled water by cold extraction kept for several hours for about seven days of occasional shaking . the extract thus obtained was concentrated under vaccum in rotary evaporator , dried completely and weighed .

***In vitro* antihelminthic activity of extracts :**[8,9]

Adult motility assay: Mature earthworm from clinical isolates were used to determine the effect of Crude Aqueous, methanol, chloroform Extracts by method described previously by Iqbal et al. [4]. Briefly, the female mature worms were collected from freshly excreted faeces. The worms were washed and finally divided in to 5 groups in each group taken 2 earthworms .Each group placed in a separate petri dishes at room temperature (25-30°C) 1) group 1 placed in a 10ml of normal saline solution 2)group 2,3,4 Placed in a different concentrations(5,10,20 mg/ml) of methanol ,chloroform and aqueous extracts respectively 3) group 5 placed in a Abendazole 10 mg/ml concentration. Earth worms were observed and the time taken for paralysis and time taken for death was monitored and documented in minutes . Paralysis time was analysed based on the behaviour of the earth worms with no revival body state in normal saline medium . Death concluded on total loss of motility with faded body colour .

RESULTS

Figure 1: ***In vitro* anti helimenthic activity of methanol extract of *Phyllanthus emblica* against *Pheretima posthuma***

Table 1: ***In vitro* anti helimenthic activity of methanol extract of *Phyllanthus emblica* against *Pheretima posthuma***

TEST SAMPLE	CONCENTRATION	TIME TAKEN FOR PARALYSIS(MIN)	TIME TAKEN FOR DEATH(MIN)
Control (Normal saline)		64.33± 0.2	200.33±0.2
Methanol extract	5mg/ml 10 mg /ml 20mg/ ml	150±0.23 121±0.15 113±0.13	273±0.15 201±1.2 152±0.14
Albendazole	10mg/ml	11±1.62	63±1.53

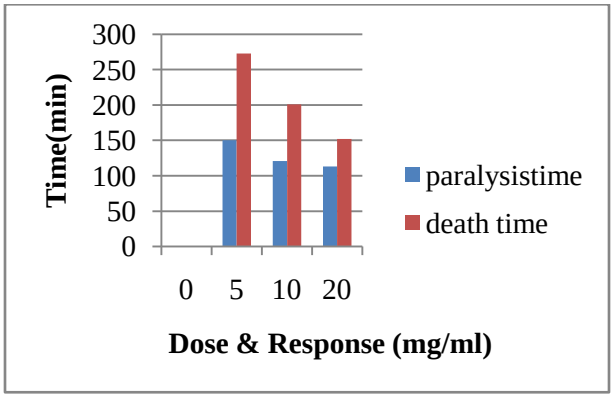

Figure 2: ***In vitro*** **anti helimenthic activity of methanol extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

Figure 3 : ***In vitro*** **anti hilmenthic activity of chloroform extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

Table 2 : ***In vitro*** **anti hilmenthic activity of chloroform extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

TEST SAMPLE	CONCENTRATION	TIME TAKEN FOR PARALYSIS (MIN)	TIME TAKEN FOR DEATH(MIN)
Control (Normal saline)		64.33±0.2	200.33±0.2
Chloroform extract	5mg/ml 10mg/ml 20mg/ml	135±0.13 107±0.22 90±1.3	210±1.2 190±0.6 120±0.5
Albendazole	10 mg/ml	11±1.62	63±1.53

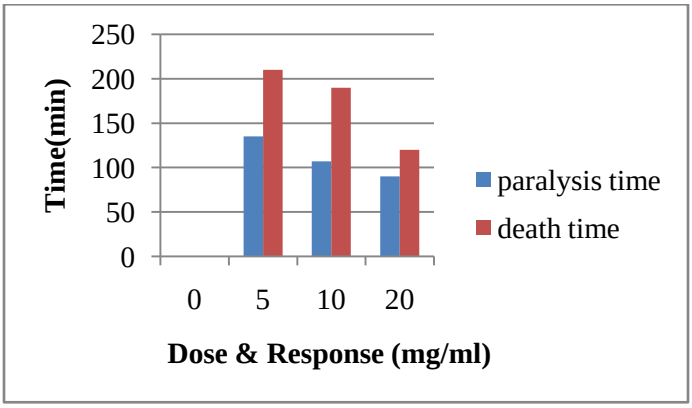

Figure 4 : ***In vitro*** **anti hilmenthic activity of chloroform extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

Figure 5 : ***In vitro*** **anti hilmenthic activity of aqueous extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

Table 3 : ***In vitro*** **anti hilmenthic activity of aqueous extract of** ***Phyllanthus emblica*** **against** ***Pheretima posthuma***

TEST SAMPLE	CONCENTRATION	TIME TAKEN FOR PARALYSIS (MIN)	TIME TAKEN FOR DEATH(MIN)
Control (Normal saline)		64.33±0.2	200.33±0.2
Aqueous extract	5mg/ml	45±0.2	86±1.2
	10mg/ml	25±0.5	65±1.24
	20mg/ml	10±0.9	46±2.0
Albendazole	10mg/ml	11±1.62	63±1.53

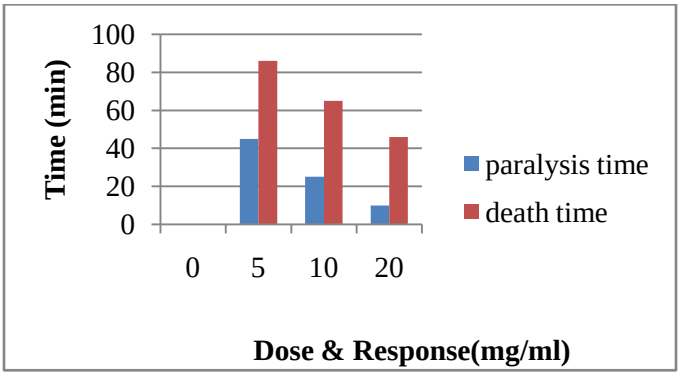

Figure 6 : ***In vitro*** **anti hilmenthic activity of aqueous extract of *Phyllanthus emblica* against *Pheretima posthuma***

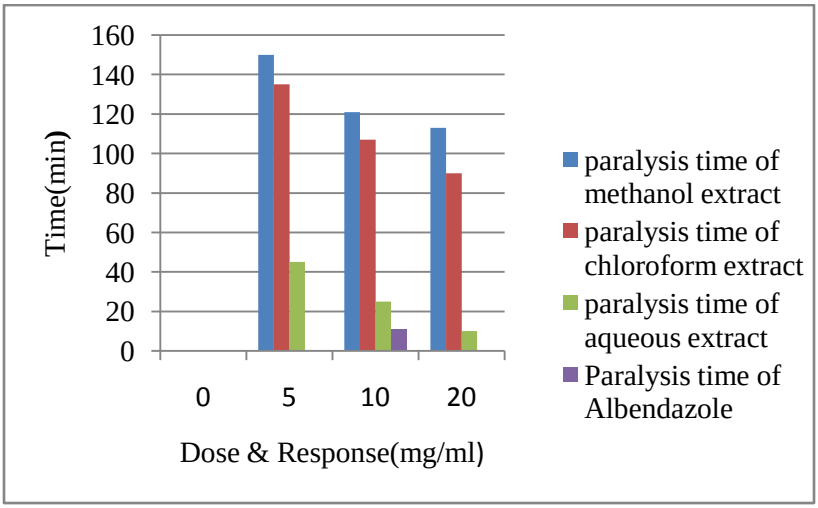

Figure 7 : **Comparision studies between three extracts of *Phyllanthus emblica***

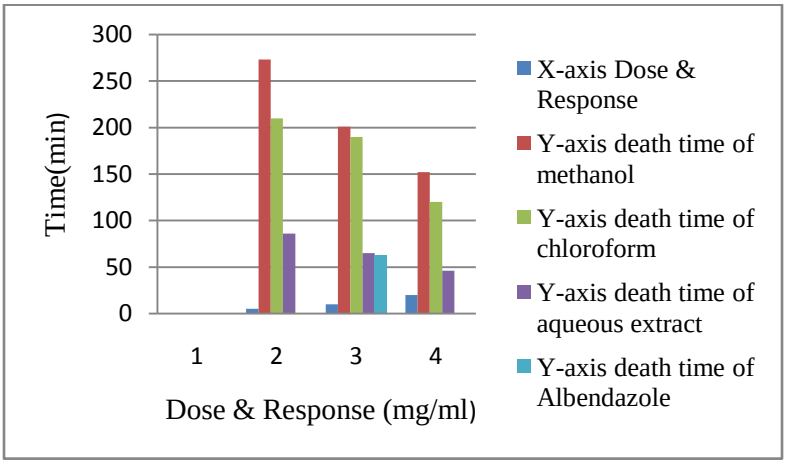

Figure 8 : **Comparision studies between three extrats of *Phyllanthus emblica***

DISCUSSION

The whole plant of *Phyllanthus emblica* was used for anti helimenthic activity . For evaluation of these activity time taken for paralysis and time taken for death of Pheritima posthuma on administration of *Phyllanthus emblica* fruit extract had been carried out in this study. In this method the concentration of different extracts increases , then the time taken for paralysis and death decreases respectively which shows near action with standard group.

SUMMARY AND CONCLUSION

Phyllanthus emblica is a well known medical plant and widely used in ayurvedic system of medicine. In the present study , solvents namely methanol chloroform distilled water were used sequentely for crude extraction of *Phyllanthus emblica* fruits.

According to the above assessment it is observed that the aqueous extract of *Phyllanthus emblica* has more efficient activity among the other 2 extracts (chloroform, methanol extracts). At the concentration of 5, 10 ,20 mg/ ml against Pheritima Posthuma activity was found to be increased with dose . But the activity of aqueous extract is having near effect as compared with standard Albendazole drug.

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