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IN VITRO ANTHELMINTIC ACTIVITY OF SEED OILS OF *RICINUS COMMUNIS*, *BRASSICA NIGRA* AND *MADHUCA INDICA*

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ABSTRACT

The aim of the present study was to evaluate the anthelmintic activity of seed oils of *Ricinus communis*, *Brassica nigra* and *Madhuca indica* using adult Indian earthworm *Pheritima posthuma* as test worm. The oils were tested at different concentrations (10mg/ml, 25mg/ml, 50mg/ml) for the determination of time of paralysis (p) and time of death (d) of the worm. Piperazine citrate (10mg/ml) used as a reference standard and distilled water as a control.

KEY WORDS: Anthelmintic activity, *Pheritima posthuma*, *madhuca indica*, *Ricinus communis*, *Brassica nigra*.

1. INTRODUCTION

The traditional system of medicine claims that every plant in the nature is having at least one medicinal property and when used in a right manner only they can be safe and effective, but the modern system of medicines claims that plants can be cheapest source of treatment and can be safely used only after safety evaluation and dose determination for its effective use. Once the safety of plant and its dose dependent effectiveness is determined, plants can serve humans to treat and heal almost all the ailments.

Helminthiasis is a macro parasitic disease of humans and animals in which a part of the body is infested with parasitic worms such as pin worm, round worm, tape worm. Anthelmintics are the drugs or the agents that destroy or cause the expulsion of such parasitic intestinal worms and help to treat helminthiasis, one of the most common infections. Resistant worms accumulate and finally treatment failure occurs. To overcome the resistance, a number of medicinal plants have been used to treat parasitic infection in human and animals. (Nadakarni, 1954; Chopra, 1956; Said, 1969; Akhtar, 2000).

2. MATERIALS & METHODS

The methodology adopted to evaluate the anthelmintic activity of seed oils of *Ricinus communis*, *Brassica nigra* & *Madhuca indica*.

a) Test material: The seed oil of *Ricinus communis* (Euphorbiaceae) commonly known as castor oil & *Brassica nigra* (Brassicaceae) commonly known as mustard oil were procured from the ayurvedic outlet in vizianagaram, Andhrapradesh and seed oil of *Madhuca indica* was procured from angul district of odisha.

b) Collection of worm: The Indian earth worm *Pheritima posthuma* were collected from water logged area of phoolbaugh, Vizianagaram, and identified from the department of zoology, Andhra University, Visakhapatnam.

c) Preparation of test sample: Sample for *in-vitro* studies were randomly selected as 10mg/ml, 25 mg/ml & 50mg/ml by adding tween 80 as suspending agent, the dose of standard was 10mg/ml.

d) Anthelmintic activity: The anthelmintic activity was performed according to the methodology followed by (Ajaiyeoba, 2001) on adult Indian earthworm, *Pheretima possthuma* due to its anatomical and physiological resemblance with human intestinal round worm parasite (Vidyarthi, 1977; Thorn, 1977; Vigar, 1984). Earth worms were divided into 3 groups; consisting of 6 earthworms and were released into 20ml of the desired formulation. Group I serves as control and receives only distill water, Group II serves as standard and receives standard drug Piperazine citrate 10mg/ml, group III serves as the test sample of different concentrations. Observations were done for the time taken for the paralysis and death of individual worms. Paralysis was said to be occurred when there was no movement of any sort could be observed except that the worms shaking vigorously. Death was said to be occurred when the worms lost their motility followed with fading of their body color.

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3. RESULTS

As shown in the table below the data revealed that seed oil of *Ricinus communis* at the concentration of 10mg/ml showed the time of paralysis & time of death at 17.2 min and 25.5 min respectively. For concentration of 25mg/ml the time of paralysis & time of death was found to be 13.6 & 19.4 min respectively, at the concentration of 50mg/ml the time of paralysis and time of death was found to be 3.4min & 12.4min.

In case of seed oil of *Brassica nigra* at the concentration of 10mg/ml the time of paralysis and time of death showed 16.7min & 26.2min respectively. For concentration of 25mg/ml the time of paralysis and time of death was found to be 10.3min & 20.1min. At the concentration of 50mg/ml the time of paralysis & time of death was found to be 4.15min & 14.5min.

In case of the seed oil of *Madhuca indica* no activity was observed at the concentration 10mg/ml, but for the concentration of 25mg/ml the time of paralysis observed at 120 min but no death occurred where observation was made up to 24hr. For the concentration of 50mg/ml the time of paralysis & time of death was found to be 82.5min & 320.5min respectively. Among the three oils, seed oil of *Ricinus communis* showed better activity when compared with the other two oils.

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TABLE1: Anthelmintic activity

Test Substance	Concentration (mg/ml)	Time taken for paralysis (P) in min.	Time taken for death (D) in min.
Vehicle	-	-	-
Standard	10	22.2±1.5	38.5 ±1.2
<i>RICINUS COMMUNIS</i>	10	17.2 ±1	25.5± 1.4
	25	13.6 ±1.6	19.4 ±1.3
	50	3.4 ±1.2	12.4 ±1.5
<i>BRASSICA NIGRA</i>	10	16.7 ±1.02	26.2 ±1.2
	25	10.3 ±1.4	20.1 ±1.5
	50	4.15 ±1.2	14.5 ±1.3
<i>MADHUCA INDICA</i>	10	-	-
	25	120 ±1.01	-
	50	82.5± 1	320.5 ±2

All values represents Mean±SD, n=6 in each group, control worms were alive upto 24hrs of observation

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