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SHORT COMMUNICATION

In Vitro Anthelmintic Activity of Crude Extract of Roots of *Abelmoschus moschatus* Medik. against *Pheritima posthuma*

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ABSTRACT
Abelmoschus moschatus Medik., also known as Musk mallow (E) and Kasturi bhendi (Hindi), is a Malvaceae family member that is both aromatic and medicinal. According to traditional and folklore, the plant has a variety of medical benefits. The anthelmintic activity of the adult earthworm Pheritima posthuma is the topic of the current paper. Abelmoschus moschatus Medik. PEE, CE, EE, and AE root extracts were tested for anthelmintic activity, and it was discovered that the aqueous extract shown more activity than other extracts when compared to the standard medicine albendazole.
***Key-words**: Abelmoschus moschatus, Anthelmintic activity, Root*

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INTRODUCTION

Abelmoschus moschatus Medik. is an aromatic and medicinal plant in the Malvaceae family, which is native to India. The plant is used in the treatment of various diseases as described in traditional and folk remedies. Every part of this medicinal plant is used in one or the other way [1-2]. Additionally effective for treating skin conditions, hysteria, neurological disorders, digestive problems, and urine discharge. Ambrette seeds, roots, and (rarely) leaves are valued traditional medicines in India. The seeds' bitter, sweet, acrid, and aromatic flavours are used as a tonic and are believed to have a variety of health benefits, including cooling, aphrodisiac, ophthalmic, cardiotonic, digestive, stomachic, constipating, carminative, pectoral, diuretic, stimulant, antispasmodic, deodorant, and effectiveness against kapha and vata, intestinal complaints, stomatitis, and diseases of the heart [3-5]. The plant has wide therapeutic efficacy but so far, no any systematic studies has been carried out to reveal the anthelmintic activity. Therefore, the present work was conceived to determine the anthelmintic activity of PEE, CE, EE and AE of root extract of *Abelmoschus moschatus* Medik.

MATERIAL AND METHODS

Selection and Collection of Plant Material

Abelmoschus moschatus Medik. (Kasturi bhendi) belongs to family Malvaceae is oil yielding and medicinally important plant, commonly found wild in some parts of our country, till yet no any systematic studies has been carried out in evaluating the species as concerned to anthelmintic activity, therefore, the plant was selected for present investigation.

Authentication of Plant/Plant Material

The roots of the selected plant were collected in the months of July 2023 from Malwa region of Madhya Pradesh and identified & authenticated by Dr. S.N. Dwivedi, Retd. Professor, Department of Botany, Janata PG College, A.P.S. University, Rewa, M.P. and was deposited in our Laboratory, Voucher specimen No. J-Bot./AMR/035. The collected leaves were dried under shade, powdered and stored in an air-tight container for further use.

Anthelmintic Activity [6-8]

Selection and Collection of Earthworm

For the anthelmintic activity, Indian adult earthworms (*Pheretima posthuma*) 6 cm in length and 0.1-0.1-2 cm in width were used. The earthworms were collected from College of Agriculture, Indore, (M.P.) due to their anatomical and physiological resemblance with the intestinal roundworm parasites of human being – from moist soil and washed out of sand.

Sample Preparation

100 mg of extract was weighed accurately and was dissolved in 1% gum acacia in normal saline. The concentration of stock solution is 1000 µg/ml. From the above stock solution 10, 7.5, 5 and 2.5 ml were dissolved in 100 ml separately to produce 100, 75, 50 and 25 µg/ml.

Standard Preparation

100 mg of standard drug (Albendazole) was weighed accurately and was dissolved in 1% gum acacia in normal saline. The concentration of stock solution is 1000 µg/ml. From the above stock solution 10, 7.5, 5 and 2.5 ml were dissolved in 100 ml separately to produce 100, 75, 50 and 25 µg/ml.

Anthelmintic Investigation

The earthworms were divided in 6 groups and 4 sub-divided groups of six earthworms in each group having uniform size. Group I was control and treated with distilled water, Group II served as standard drug albendazole while Group III to VI was treated with different concentrations of Pet. Ether, Chloroform, ethanolic and aqueous extract of *Abelmoschus moschatus* Medik. Observation was made for time taken to paralyze; paralysis was said to occur when earthworms did not revive in normal saline and shows no motility and death, death was concluded when earthworms lost their motility and followed by their body colors fading away.

Statistical Analysis

All the values ware statistically analyzed by one-way analysis of variance (ANOVA) followed by Student t-test. Comparison between standard and drug treated groups were considered to be significant (*P<0.0001). All values are expressed as mean ± SEM.

RESULTS AND CONCLUSION

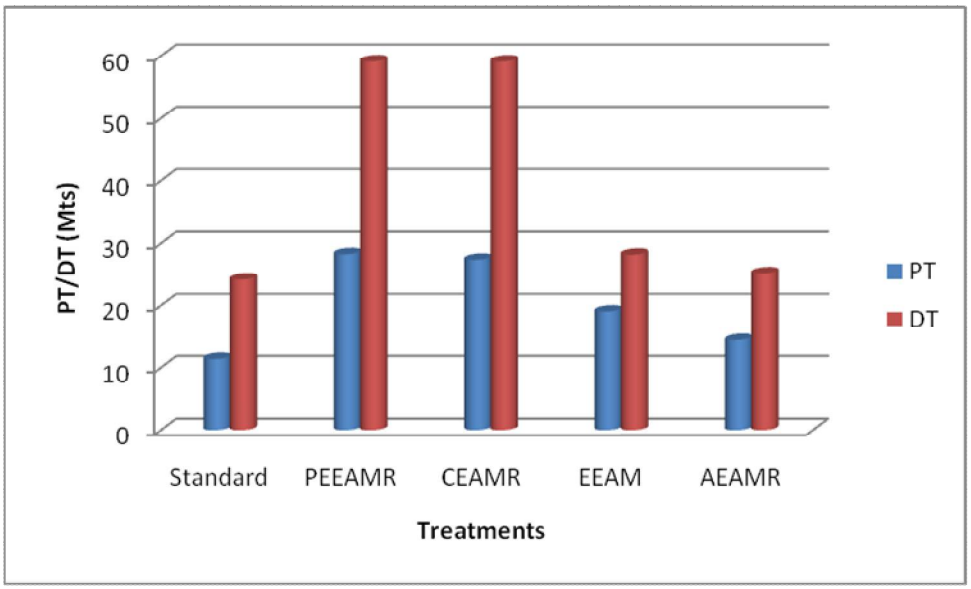
Animal productivity in poor countries is seriously threatened by gastrointestinal parasites. Chemotherapy is still the most popular method for helminthes control, even when parasites with great economic relevance are developing anthelmintic resistance. Infections with the helminthes parasite are a worldwide issue that have negative social and economic effects in the Third World. A sizable portion of the human population as well as animals are affected by the diseases in terms of their health. Only a few treatment options exist for some severe helminthes infections, such as filariasis. Many helminthic strains have developed medication resistance as a result of constant and prolonged reliance on a small number of drugs. Additionally, after receiving albendazole or mebendazole treatment, hosts have experienced a number of adverse effects, including gastrointestinal symptoms (epigastric discomfort, diarrhoea, nausea, and vomiting), nervous system symptoms (headache, dizziness), and allergic phenomena (edema, rashes, urticaria). Praziquantel and albendazole, two anthelmintic medications, are contraindicated in patients who are pregnant or nursing. Additionally, hepatitis patients should use these medications with caution, as should young children under the age of two. The quest for a natural anthelmintic must take all of these factors into consideration [6-8].

The attempt was made to study *in vitro* anthelmintic activity of various root extract of *Abelmoschus moschatus* Medik. The anthelmintic activities of the root extract (100 (µg/ml) was determined and were reported and found to be significant when compared with the standard drug (Table 1 & Graph 1). The anthelmintic activities were determined and it was found that aqueous extract possesses higher activity than other extract and found to be significant when compared with the standard drug.

Table 1: Anthelmintic activity of root extract of *Abelmoschus moschatus* Medik.

S/No.	Treatment	Paralysis Time	Death Time
1.	Control	-	-
2.	Standard	11.39±0.08	24.21±0.31
3.	PEEAMR	28.28±0.02	59.12±0.10
4.	CEAMR	27.39±0.21	59.11±0.13
5.	EEAM	19.02±0.22	28.21±0.02
6.	AEAMR	14.39±0.21	25.20±0.03

Values are expressed as X (Mean) ± SEM, n=6. (One way ANOVA followed by Student t-test). Statistically significance of P<0.001 in comparison to standard.



Graph 1: Comparative Paralysis and Death time of root extract of *Abelmoschus moschatus* Medik.

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