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RESEARCH ARTICLE

Comparative Studies on Anthelmintic Activity of *Moringa Oleifera* and *Vitex Negundo*

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ABSTRACT
Ethanolic extracts of *Moringa oleifera* and *Vitex negundo* were taken for anthelmintic activity against Indian earthworm Pheritima posthuma. Various concentrations of both extracts were tested and results were expressed in terms of time for paralysis and time for death of worms. Piperazine citrate (10 mg/ml) was used as a reference standard and distilled water as a control group. Dose dependent activity was observed in both plant extracts but *Moringa oleifera* shows more activity as compared to *Vitex negundo*.

KEY WORDS: *Moringa oleifera, Vitex negundo*, Anthelmintic activity, Piperazine citrate.

INTRODUCTION:
Since the time immemorial, our traditional system of medicine and folklore claiming that medicinal plants as a whole or their parts are being used in all types of diseases successfully including antibacterial and anthelmintic, anti-inflammatory etc. As we know very well, now a days the medicinal preparation available in the market from which most of them either not effective up to the mark or has to develop resistance resulting in reoccurrence again. Plant derived drug serve as a prototype to develop more effective and less toxic medicines.

Moringa oleifera (Moringaceae) is commonly known as Drumstick. It is a small or medium sized tree, about 10m high, found wild in the sub-himalayan tract. It contains various chemical constituents such as alkaloids, tannins, flavonoids, carbohydrates, amino acids, glycosides. Traditionally its roots are applied as plaster to reduce the swelling and rheumatism. The root , flower, fruit and leaf have analgesic and anti-inflammatory activity.

Vitex negundo (Verbenaceae) commonly known as Nirgundi. It is a large, aromatic shrub , sometimes a small slender tree found throughout the greater part of the India. It contains various chemical classes such as alkaloids, tannins, flavonoids, carbohydrates. Traditionally leaves reported to posses tranquilizing effect, insecticidal properties and laid over grain to ward off insects.

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MATERIALS AND METHODS:
The methodology adopted to evaluate the anthelmintic activity of two plants viz *Moringa oleifera* and *Vitex negundo* hereunder.

Plant Material :
Leaves of *Moringa oleifera* and roots of *Vitex negundo* were collected from local area of Amravati city (M.S.).The collected material was authenticated by Dr. Prabha Y. Bhogaoankar, Taxonomist, Vidarbha Institute of Science and Humanities, Amravati .

Worm Collection and Authentication:
The Indian earthworm *Pheritima posthuma* (Annelida) was collected from Agriculture college of Shivaji Science, Amravati and authenticated from the Department of Zoology, Sant Gadge Baba Amravati University, Amravati.

Extract Preparation:
The collected materials were washed thoroughly in water, chopped, air dried for a week at 35-40^{o}C and pulverized in electric grinder and exhaustively extracted successively in soxhlet apparatus, using petroleum ether, ethanol respectively. The extracts were concentrated under reduced pressure and were then made to powder.

Table -1Anthelmintic activity of *Moringa oleifera* and *Vitex negundo*

Plant extract	Conc. (mg/ml)	Time taken for paralysis(min)	Time taken for death of worms (min)
Moringa oleifera	25	14.32±2.2	63.57±12.6
	50	8±1.6	52.33±3.1
	100	6±1.2	45±11.4
Vitex negundo	25	91.65±1.6	465.75±5.3
	50	32.65±3.7	322.5±5.5
	100	23.25±4.2	245.5±12.7
Piperazine citrate	10	23.36±1.5	62±6.8

All values represent Mean ±SD; n= 6 in each group.

Anthelmintic Activity:

The anthelmintic activity was performed according to the method of Ghosh et al.on adult Indian earthworm *Pheritima posthuma* as it has anatomical and physiological resembalance with the intestinal roundworm parasites of human beings. Eighteen groups of approximately equal sized Indian earthworms consisting of six earthworms in each group were released into 50 ml of desired formulation. Three groups were prepared as control i.e distilled water , reference i.e piperazine citrate (10mg/ml) and third of extracts (25,50,100 mg/ml).Observations were made for the time taken to paralyse or death of individual worms. Paralysis was said to occur when the worms do not receive even in normal saline. Death was concluded when the worms lose their motility followed with fading away of their body colour. Results are shown in table-1.

RESULTS AND DISCUSSION:

Preliminary phytochemical screening has shown the presence of saponin, steroids, carbohydrates, alkaloids, tannins, proteins, flavonoids in ethanolic extracts of plants. From the results it is observed that Moringa oleifera shown potent anthelmintic activity while the Vitex negundo has taken long time for death of worms. Moringa oleifera is showing paralysis within 6-15 min while death is comparable with that of piperazine citrate as death of worms was observed at 64 min. Vitex negundo was taken 23-92 min to bring paralysis and 4-8 hrs. to bring death of worms. Future scope involves need of isolation of phytoconstituents responsible for activity.

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