

**IN VITRO ANTHELMINTIC ACTIVITY OF ROOT EXTRACT OF *MURRAYA KOENIGII (LINN) SPRENG.***

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**Abstract:**

Development of anthelmintic resistance and high cost of conventional anthelmintic drugs lead to the evaluation of medicinal plants as an alternative source of Anthelmintics. The aim of the present study was to determine the anthelmintic activity of crude ethanolic and aqueous extracts of root of *Murraya koenigii (Linn)* using *Eudrilus eugeniae*. Three concentrations (25, 50, 100mg/ml) of each extract were studied in the activity, which involved the determination of time of paralysis and time of death of the worms. Albendazole was used as standard reference and normal saline as control. The present study proves the potential usefulness of root of *Murraya koenigii (Linn)* as comparable anthelmintic agent.

**Keywords:** *Wrightia tinctoria*, Anthelmintic, Albendazole, *Eudrilus eugeniae*.

**Introduction**

Helminthiasis, or worm infection, is one of the most prevalent diseases in the world. It has been estimated that about half of the world's population suffers from Helminthiasis, and the number is on the increase. It is not only limited to tropical and subtropical countries, but is also endemic in many regions because of poor sanitation, poor family hygiene, malnutrition, and crowded living conditions [1]. Three categories of worms, namely nematodes (roundworm), cestodes (tapeworm), and trematodes (flukes) parasitize man. Most Anthelmintic in use today is active against specific parasites, and some are toxic [2]. Hence here it is planned to evaluate Anthelmintics activity of *Murraya koenigii (Linn)* Spreng.root.

The Anthelmintic activity of root extract of *Murraya koenigii (Linn)* Spreng.root was

studied by using method of R. Gunasekaran et al. [3]. The Anthelmintics activity was evaluated on adult Indian earthworm due to its anatomical and physiological similarity with the intestinal parasites of human being.

**Material and Method**

**Extraction of Plant Material:**

The species for the proposed study that is *Murraya Koenigii (linn)* spreng.root were collected in the month of August 2006 from the village Mangladevi of Yavatmal District, Maharashtra. Care was taken regarding the age and the health of the plant to obtain a best condition root part. The species for the proposed study was identified and authenticated as *Murraya koenigii (Linn)* Spreng. By Dr. P.

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Jayaraman, Botanist, plant Anatomy Research Center (PARC), Chennai. The roots were washed properly with water to remove the mud or dust if any; initially it was dried in sunlight for an hour and shade dried completely. Also all the foreign matter like dead or destructed part was removed precautionary. The dried root was then powdered by means of wood grinder and was sieved through sieve no.60 to get coarse powder.

#### A) Ethanol Extract

The shade dried course powder of the root (200mg) was packed well in soxhlet apparatus and was subjected for continuous hot extraction with 90% ethanol. The extract was filtered while hot and the resultant extract was distilled in vaccum under reduced pressure in order to remove the solvent completely. Dried extract of *Murraya koenigii* (Linn) and kept in a desiccators till experimentation.

#### B) Aqueous extract

The shade dried course powder of the root (200mg) was packed well in soxhlet apparatus and was subjected for continuous hot extraction with distilled water. The extract was filtered while hot and the resultant extract was distilled in vaccum under reduced pressure in order to remove the solvent completely. Dried extract of *Murraya koenigii* (Linn) and kept in a desiccators till experimentation.<sup>[4, 5]</sup>

#### Selection of Worm

The assay was performed on adult earthworm, *Eudrillus eugeniae* due to its anatomical and physiological resemblance with the intestinal round worm parasites of

human beings. Because of easy availability, earthworms have been widely used for the initial evaluation of Anthelmintic compounds *invitro*. Adult earthworm *Eudrillus eugeniae* were collected from a local supplier.<sup>[6, 14]</sup>

#### Anthelmintic Activity

Ethanolic and aqueous extracts from the *Murraya Koenigii* (linn) spreng.root were investigated for their Anthelmintic activity against *Eudrillus eugeniae*. Various concentrations of each extract were tested in the bioassay, which involved determination of time of paralysis and time of death of the worms. Albendazole was included as standard reference and normal saline as control. Sample for the Anthelmintic activity were prepared by dissolving the dried extract in 1% gum acacia in normal saline.

Five groups of approximately equal size earthworm consisting of six worm in each group were released in 50ml of desired formulation (normal saline).Each was then treated with one of the following.

Vehicle (1% gum acacia in normal saline), Albendazole (25, 50,100mg/ml) and ethanolic and aqueous extract of *Murraya koenigii* (linn) Spreng at different concentration (25, 50,100 mg/ml)<sup>[7-15]</sup>

Observations were made for the time taken to paralysis and death of individual worms. Time for paralysis was noted when no movement of any sort could be observed except, when the worms were shaken vigorously. Death was concluded when the worms lost their motility followed with fading away of their body colors.

#### Result and Discussion

From the results shown in the Table No1.ethanolic extract of root of *Murraya*

*koenigii* (linn) Spreng exhibited anthelmintic activity giving shortest time of paralysis and deaths related to Albendazole especially with 100 mg/ml concentration. Ethanolic and aqueous extract of root of *Murraya koenigii* (linn) Spreng caused paralysis of 16.91 and 20.37 min and time of death of 28.42 and 31.72 min respectively against *Eudrilllus eugeniae*. The reference drug Albendazole showed the related at 12.37 and 222.66 min respectively. The predominant effect of Albendazole on worm is to cause a flaccid paralysis those results in expulsion of the worm by peristalsis. The values are showed in Table 1.

### Conclusion

It was concluded that aqueous & ethanol extract of root of *Murraya koenigii* (linn) Spreng possess potent anthelmintic activity by exhibiting effectiveness for the parameters studied. In the light of the above, further investigation is warranted in order to identify the specific molecules which are responsible for the biological activity.

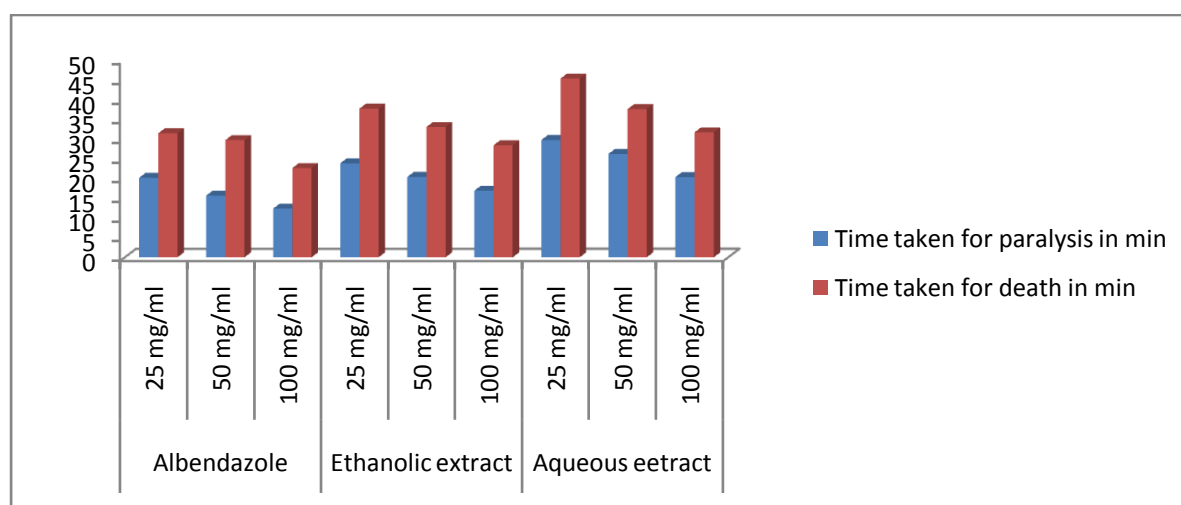
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**Table 1:- Anthelmintic Activity of Ethanolic and Aqueous Extracts of Root of *Murraya koenigii* (linn) spreng**

Drug/treatment	Conc.	Time taken for paralysis (min.)	Time taken for death (min.)
Albendazole	25 mg/ml	20.19 $\pm$ 0.50	31.49 $\pm$ 0.42
	50 mg/ml	15.66 $\pm$ 0.58	29.74 $\pm$ 0.60
	100 mg/ml	12.37 $\pm$ 0.36	22.66 $\pm$ 0.58
Ethanol extract	25 mg/ml	23.86 $\pm$ 0.57	37.72 $\pm$ 0.76
	50 mg/ml	20.40 $\pm$ 0.41	33.06 $\pm$ 0.35
	100 mg/ml	16.91 $\pm$ 0.86	28.42 $\pm$ 0.56
Aqueous extract	25 mg/ml	29.77 $\pm$ 0.34	45.35 $\pm$ 0.57
	50 mg/ml	26.22 $\pm$ 0.55	37.60 $\pm$ 0.47
	100 mg/ml	20.37 $\pm$ 0.24	31.72 $\pm$ 0.47



**Figure 1:-Anthelmintic Activity of Ethanolic and Aqueous Extracts of Root of *Murraya koenigii* (linn) spreng**