

Phytochemical Examination of Plant and Preforming Anthelmintic Activity of Ethanolic Extract of *Dioscorea Mexicana* Fruits on *Pherithima Posthuma* and Bioassay on Frog Rectum Abdominal Muscle

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Abstract—Anthelmintic is an major disease in Africa continent, this is occurred with various helmentis species like ascaris ,lukeworm ,ring worms etc. *Dioscorea Mexican* is an scientific plant which has lot of medical remedies this plant is been extracted by the ethanoic extraction and it is tested and identified with the chemical constituents present in it .Then the sample is taken in various dosage forms and tested under the standard drug Ivermectin . The results are compared and recorded.

Index Terms— Anthelmintic, *Dioscorea*

I. INTRODUCTION

Helminthiasis (plural helminthiasis), also known as worm infection, is any macroparasitic disease of humans and other animals in which a part of the body is infected with parasitic worms, known as helminths. There are numerous species of these parasites, which are broadly classified into tapeworms, flukes, and roundworms. They often live in the gastrointestinal tract of their hosts, but they may also burrow into other organs, where they induce physiological damage.

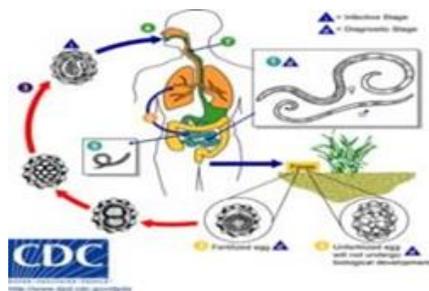


Fig. 1. Description

Ascaris life cycle: Adult worms in the lumen of the small intestine (1). The female produces eggs (approximately 200,000 per day) that are excreted with the feces (2). Unfertilized eggs are harmless, but fertilized ones are infective after 18 days to several weeks (3). Infective eggs are ingested (4), enter the gut (5), develop into larvae in the intestine, and penetrate the blood vessel to enter lungs, where they develop further (6), after 10 to 14 days, penetrate the alveolar walls, ascend the bronchial tree to the throat, and are re-swallowed

(7). Upon reaching the small intestine, they develop into adult worms (8). It takes 2 to 3 months for one complete cycle. Adult worms can live 1 to 2 years.

Collage of various helminth eggs, from left to right: Trichosomoides egg, *Ascaris lumbricoides* with larva hatching, sample of adult roundworms, *Hymenolepis nana*, *Schistosoma mansoni* and *Toxocara canis* with larva hatching

Of all the known helminth species, the most important helminths with respect to understanding their transmission pathways, their control, inactivation and enumeration in samples of human excreta from dried feces, faecal sludge, wastewater, and sewage sludge.

II. LITERATURE REVIEW

Binomial Name: *DIOSCOREA MEXICANA*

Botanical Classification:

- KINGDOM : PLANTAE
- CLADE : ANGIOSPERM
- CLADE : MONOCOTS
- ORDER : DIOSCOREALES
- FAMILY : DIOSCOREACEAE
- GENUS : DIOSCOREA
- SPECIES : DIOSCOREA MEXICAN

Vernacular Names:

- Dukka Pendalam, Guna Pendalam : Telugu
- Kaayvalli : Tamil
- Chupri Alu : Hindi
- Mexican yam : English
- Barbasco de placa : Spanish
- Sköldpaddsjams : Swedish

III. METHODS AND PROCEDURE

SOXHLELT EXTRACTION: Named after “Franz Ritter von Soxhelt,” a German agricultural chemist, it is the best method for the continuous extraction of a solid by a hot solvent. Soxhelt apparatus is a specialized glass refluxing unit mainly used for organic solvent extraction. The powdered solid material is placed in a thimble made up of filter paper and is placed inside the soxhelt apparatus.

The anthelmintic assay was carried out in vitro using adult earthworm (*Pheretima posthuma*) as it is having anatomical and physiological resemblance with the intentional roundworm parasites of human beings for preliminary evaluation of anthelmintic activity of *Dioscorea Mexicana* fruit extract with the of the drug ivermectin which currently available as an anthelmintic drug in the market.

This process of extraction is done by soxhelt apparatus, this extraction was done for about one week and then it is evaporated, and made into solid form, then the sample is given in various dosage forms and then compared with standard.

IV. RESULTS

A. For standard drug:

- The animal was given a dose of 0.0015 mcg dose and it was found to be an low dose which has taken long time for the paralysis conditions
- Later it was given a dose of 0.0020 mcg as this dose was the lethal dose and has a perfect time for paralysis compared to low and high doses.
- For an extensive studies we have also performed to know the toxicity level and it was found to be 0.0025 mcg, as this dose gave rapid results.

TABLE I
 RESULTS (STANDARD DRUG)

S. No.	Standard drug (mcg)	Paralysis	Death
1.	Low dose: 0.0015mcg	66 mins	97 mins
2.	Medium dose: 0.0020mcg	58 mins	89 mins
3.	High dose: 0.0025mcg	52 mins	82 mins

B. For extract material:

TABLE II
 RESULTS (EXTRACT DOSE)

S. No.	Extract dose (mg)	Paralysis	Death
1.	Low dose: 0.4 mg/ml	27 mins	63 mins
2.	Medium dose: 0.5 mg/ml	23 mins	58 mins
3.	High dose: 0.6 mg/ml	18 mins	47 mins

- The animal was given a dose of 0.04 mg/ml dose and it was found to be a low dose which has taken long time for the paralysis conditions.
- Later it was given a dose of 0.05 mg/ml as this dose was the lethal dose and has a perfect time for paralysis compared to low and high doses.
- For an extensive studies we have also performed to know the toxicity level and it was found to be 0.06 mg/ml, as this dose gave rapid results.

C. Bioassay:



Fig. 2. Bioassay

The sample of *Dioscorea Mexicana* was found to be an antagonist.

V. CONCLUSION

The results of the present study clearly indicated that the crude methanole extract of *Dioscorea Mexicana* produce anthelmintic activity against Indian earthworms *pheretima posthuma*, activity at 0.5 mg/ml concentration measured by time taken for paralysis /death of earthworms. The current investigation leads to conclusion that the fruits of *Dioscorea Mexicana* have potent anthelmintic activity when compared with the conventionally used drugs. the result did not, however, exclude the possibility that doses of the extract with lower anthelmintic activity in this study might be efficacious against other species of helminthes. Further studies using in vivo models and to isolate active constituents from extract acquired to carry out and established the effectiveness and pharmacological rational for the use of *DIOSCOREA MEXICANA* as an anthelmintic drug.

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