

Phytochemical Examination of Plant and Performing Antihelmentic Activity of Ethanolic Extract of Dioscorea Villosa War Fruits on Pherithima Posthuma and Bioassy on Frog Rectum Abdominal Muscle

S. Sai Krishna¹, Aashrit Naraparaju², Abdul Sufiya³, K. Sumasree⁴, Jakariya Islam⁵, Sk.Jilani⁶, M.Janardhan⁷

^{1,2,3,4,5}Student, Department of Pharmacology, Nimra College of Pharmacy, Vijayawada, India

⁶Assistant Professor, Department of Pharmacology, Nimra College of Pharmacy, Vijayawada, India

⁷Principal, Department of Pharmacology, Nimra College of Pharmacy, Vijayawada, India

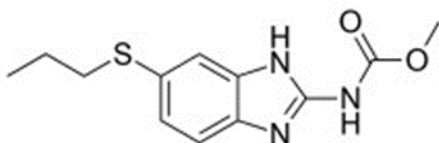
Abstract— Examination of a plant material by using soxhelt apparatus for extracting the chemical constituents present in it. The antihelmentic activity is caused by worms that grow in intestinal area and causes distrubance in metabolic activity. To overcome the challenge we can examine the plant Dioscorea Villosa which has good medicinal properties. Albendazole is take as the standard drug.

Index Terms—bioassy, dioscorea villosa, pherithima posthuma

I. INTRODUCTION

Helminthic infections are the most common infection in man affecting the large proportions of the world's population Helminths, the word, is derived from the Greek, meaning "WORMS", have plagued humans since before the era of our earliest recorded history. The eggs of intestinal helminths can be found in the mummified faeces of humans dating back thousands of years, and we recognize many of the characteristic clinical features of helminthic infections from the ancient writings of Hippocrates, Egyptian medical papyri & the Bible. These same helminthiasis markedly altered the course of modern 20th century of world history, especially in China during the Cold War, when the schistosomiasis sickened Mao's troops and aborted their amphibious assault of Taiwan (historically known as Formosa) just long enough for American ships to enter the straits of Taiwan.

II. INTRODUCTION OF STANDARD DRUGS



Formula: C₁₂H₁₅N₃O₂S

Molar mass: 265.333 g/mol

Melting point: 208 to 210°C (406 to 410 °F)

Clinical data:

Trade names: Albenza, Valbazen, others

Routes of administration: By mouth

Pharmacokinetic data:

Bioavailability: <5%

Protein binding: 70%

Metabolism: Hepatic

Biological half-life: 8-12 hours

Excretion: Bile (humans) Urine (ruminants)

III. LITERATURE REVIEW

Binomial Name: Dioscorea Villosa Var

Botanical Classification:

Kingdom: Plantae-plants

Sub-kingdom: Tracheobionta

Division: Angiosperms

Class: Liliopsida

Sub class: Lilidae

Order: Dioscoreales

Family: Dioscoreaceae

Genus: Dioscorea

Species: Dioscorea villosa

Clade: Angiosperms

Common names:

- Asian spider flower
- Cleome
- Ticweek-hindi
- Bagra-urdu

IV. METHODS

Soxhelt 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 antihelminthic 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 antihelminthic activity of *Dioscorea Villosa* fruit extract with the of the drug Albendazol which currently available as an antihelminthic drug in the market.

Procedure: This process of extraction is done by soxhelt apparatus, this extraction was done for about 15 days and then it is evaporated for 3-4 days and made into solid form by heating on mantle, then the sample is given in various dosage forms and then compared with standard.

V. RESULTS

TABLE I
STANDARD DRUGS

S. No.	Standard drugs (mcg)	Paralysis	Death
1.	Low dose 0.0020mcg	70 mins	105 mins
2.	Medium dose 0.0025mcg	62 mins	95 mins
3.	High dose 0.0030mcg	55 mins	87 mins

Expressing the individual activity:

For standard drugs:

1. The animal was given the dose of 0.0020mcg dose and it's found to be low dose which has taken long time to go for the paralysis conditions.
2. The animal was given a dose of 0.0025mcg as this dose was the lethal dose and has a perfect time for paralysis compare to low and high doses.
3. For an extensive studies we have also performed to know the toxicity level and it was found to be 0.0030mcg .as this dose give rapid result.

For extract material:

TABLE II
EXTRACT DRUGS

S. No.	Extract drugs (mg)	Paralysis	Death
1.	Low dose 0.5mg/ml	29 mins	61 mins
2.	Medium dose 0.7mg/ml	19 mins	55 mins
3.	High dose 0.9mg/ml	11 mins	43 mins

Test Dose:

1. The animal was given a dose of 0.5 mg/ml dose and it was found to be and low dose which has taken long time for the paralysis condition.
2. The animal was given a dose of 0.7mg/ml at this dose was the lethal dose and has perfect time for paralysis compared to low and high doses.

For extensive studies we have also performed to know the toxicity level and it was found to be 0.9mg/ml. as this dose give rapid results.

Bioassay on frog rectum abdominal muscle:

The sample drug hence proved as antagonist drug.

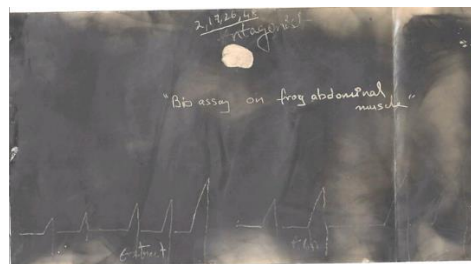


Fig. 1. Bioassay on frog abdominal muscle

VI. SUMMARY

Ethanollic extract of *Dioscorea villosa* fruits give better results when compared to other solvents anthelminthic activity of ethanollic extract of *Dioscorea villosa* fruits in prophylactic studies was performed in *pheretima posthuma* using dose of 0.5mg/ml, 0.7mg/ml, 0.9 mg/ml, and albendazole was used as a standard at dose of 0.0030mg/ml. Finally, it shows that ethanollic extract of *Dioscorea villosa* fruits has considerable anthelminthic activity.

VII. CONCLUSION

The results of the present study clearly indicated that the crude methanole extract of *doscorea villosa* produce anthelminthic 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 villosa* have potent anthelminthic activity when compared with the conventionally used drugs. The result did not, however, exclude the possibility that doses of the extract with lower anthelminthic activity in this study might be efficacious against other species of helminths. Further studies using in vivo models and to isolate active constituents from extract arrequired to carry out and established the effectiveness and pharmacological rational for the use of *DIOSCOREA VILLOSA* as an anthelminthic drug

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