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

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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 disturbance in metabolic activity. To overcome the challenge we can examine the plant Dioscorea Villosa which has good medicinal properties. Albendazole is taken as the standard drug.

Index Terms—bioassy, dioscorea villosa, pherithima posthuma

I. INTRODUCTION

Helminthic infections are the most common infections 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 helminthias have 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
Divisionolophy: flowering
Class: liliopsida
Sub class: Liliidae
Order: Dioscoreales
Family: Discoreaceae
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 antihelminic assay was carried out in vitro using adult earthworm (Pheretima posthuma) as it has 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 Albendazole 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>
<thead>
<tr>
<th>S. No.</th>
<th>Standard drugs (mcg)</th>
<th>Paralysis</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low dose 0.0020mcg</td>
<td>70 mins</td>
<td>105 mins</td>
</tr>
<tr>
<td>2.</td>
<td>Medium dose 0.0025mcg</td>
<td>62 mins</td>
<td>95 mins</td>
</tr>
<tr>
<td>3.</td>
<td>High dose 0.0030mcg</td>
<td>55 mins</td>
<td>87 mins</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>S. No.</th>
<th>Extract drugs (mg)</th>
<th>Paralysis</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low dose 0.5mg/ml</td>
<td>29 mins</td>
<td>61 mins</td>
</tr>
<tr>
<td>2.</td>
<td>Medium dose 0.7mg/ml</td>
<td>19 mins</td>
<td>55 mins</td>
</tr>
<tr>
<td>3.</td>
<td>High dose 0.9mg/ml</td>
<td>11 mins</td>
<td>43 mins</td>
</tr>
</tbody>
</table>

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.

VI. SUMMARY

Ethanolic extract of Dioscorea villosa fruits give better results when compared to other solvents antihelminthic activity of ethanolic extract of Dioscorea villosa fruits in prophylactic studies was performed in phe retima 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 ethanolic extract of Dioscorea villosa fruits has considerable antihelminthic activity.

VII. CONCLUSION

The results of the present study clearly indicated that the crude methanol extract of Dioscorea villosa produce antihelminthic activity against Indian earthworms phe retima 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 antihelminthic activity when compared with the conventionally used drugs. The result did not, however, exclude the possibility that doses of the extract with lower antihelminthic 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 ar required to carry out and established the effectiveness and pharmacological rational for the use of DIOSCOREA VILLOSA as an antihelminthic drug

REFERENCES