Research Article

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Investigation of anthelmintic activity of polyherbal preparation

Nihal Singh Verma and Paras Gupta

Mittal Institute of Pharmacy, Bhopal, (M.P.) – India

Abstract

The different extracts (alcoholic and aqueous) of *Erythrina indica* bark, *Fumaria officinalis* stem and *Cleome viscosa* leaves were screened to evaluate anthelmintic activity in adult earthworm *Pheritima posthuma*. They showed significant anthelmintic activity and was found that the alcoholic extract activity is higher than aqueous extract and the standard drug of albendazole.

Key-Words: Polyherbal, Anthelmintic activity, Albendazole, Earthworm.

Introduction

Anthelmintics drugs are that which expel parasitic worms from the body, by either stunning or killing them.[1] Helminthes infections are now being recognized as cause of many acute as well as chronic ill healths among the various human beings as well as cattle's. More than half of the population of the world suffers from infection of one or the other and majority of cattle's suffers from worm infections.[2] Treatment with an antihelminthic drug kills worms whose genotype renders them susceptible to the drug. Worms that are resistant survive and pass on their "resistance" genes. Resistant worms accumulate and finally treatment failure occurs. Intestinal worm infections in general are more easily treated than those in other locations in the body.[3] Because the worms need not be killed by the drug and the drug need not be absorbed when given by mouth, there is usually a wider margin of safety than with drugs for worm infections in other sites. Traditional system of medicine reports the efficacy of several natural plants in eliminating worms[4]; the present work was conceived by us to evaluate the anthelmintic activity of polyherbal preparation containing three herbs viz., *Erythrina indica* bark, *Fumaria officinalis* stem and *Cleome viscosa* leaves [1-3]

* Corresponding Author

Material and Methods

Collection of Plant Materials

The plant parts were collected from the various regions of Bhopal district of M.P., India and then authentified by Dept. of Botany, Govt. College, Bhopal.

Preparation of Extract[4-5]

The dried plant parts were mixed in equal proportion (200 gm) in a beaker and alcohol in sufficient quantity was added, then it was kept for maceration for 72 hours. The alcoholic extract obtained was filtered and concentrated on hot plate. Similarly, the aqueous extract of fruits was prepared by macerating coarse powder for 24 hours. And was filtered and concentrated. The extracts were prepared by dissolving 2.5 ml of 1% gum acacia solution prepared in normal saline to give 0.5, 0.75 and 1gm% concentration.

Experimental Model[4-5]

Adult earthworms of the genus and species, *Phertima prosthuma*, were collected (due to their anatomical and physiological resemblance with the intestinal roundworm parasites of human beings) from moist soil and washed out of sand. Five groups of approximately equal size earthworms consisting of six earthworms in each group were used for the present study.

Standard Drug[4-5]

Albendazole is taken as standard drug and the concentration of the standard drug was prepared in 1% gum acacia in normal saline to give 0.5, 0.75 and 1gm% concentration.

Anthelmintic Investigation[4-5]

Four groups of approximately equal size earthworms consisting of six earthworms in each group were used for the present study. Each group was treated with one of the following vehicle (1% gum acacia in normal saline), albendazole, alcoholic and aqueous extract

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(100mg/ml, 80mg/ml, 60mg/ml, 40mg/ml and 20mg/ml concentration). Observations were made for the time taken to paralysis and death of individual worms. Paralysis was said to occur when the worms do not revive even in normal saline. Death was concluded when the worms lost their motality followed with fading away of their body color.

Statistical analysis

All the data obtained was presented as Mean of six values (Table 1).

Results and Conclusion

The polyherbal prepration of aqueous and ethanol extracts showed significant anthelmintic activity. The result of anthelmintic activity of on earthworm's phertima prosthuma was given in Table 1. Thus the present study reveals that the ethanolic extract of PHF showed marked anthelmintic activity, than the aqueous extract as compared to standard drug albendazole and the this preparation will effectively kill the worms.

Table 1: Anthelmintic activity of Polyherbal preparation

S/N	Treatment	Conc. (gm %)	Paralysis time (min.)	Death time (min.)
1.	Normal Control	0.5 0.75 1.0	- - -	- - -
2.	Aqueous Extract	0.5 0.75 1.0	58 22 11	78 60 32
3.	Ethanolic Extract	0.5 0.75 1.0	70 35 21	90 80 65
4.	Standard Drug	0.5 0.75 1.0	33 20 13	80 60 40

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