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Anthelmintic activity of polyherbal preparation

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Abstract

The present study was done with the aim to investigate the anthelmintic activity of different herbs in polyherbal combination. The aqueous and ethanolic extract of the different concentration were tested which involve determination of paralysis time and time to kill the worms. Piperazine citrate was used as standard and it was found that the PHF ethanolic extract activity is higher than PHF aqueous extract.

Key-words: Anthelmintic activity, piperazine citrate, herbs

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., *Thespesia populnea* (root bark), *Terminalia alata* (root bark) and *Clematis triloba* (roots). [1-3]

Material and methods

The plants were collected from the local village farmers of Allahabad district during July 2010 to Dec. 2010 and then authentified by Dept. of Pharmacognosy, AAIDU. The plant parts after collection were shade dried, powdered (40 mesh size) to get a coarse powder. The dried powder material of were thoroughly mixed 100 gm each herb, taken in 1 lit. beaker and distill water in sufficient quantity was added, then it was kept for maceration for 72 hours. The aqueous extract obtained was filtered and concentrated on hot plate. The ethanolic extract were obtained by soxhlet extraction process, the extract obtained was filtered and concentrated. Adult earthworm phertima prosthuma were collected (due to its anatomical and physiological resemblance with the intestinal roundworm parasites of human being) frommoist soil, obtained from Agriculture College Allahabad, U.P.-India. Four groups of approximately equal size earthworms (8+1 cm) consisting of six earthworms in each group were used for the present study. Piperazine citrate is taken as standard drug and the concentration of the standard drug was prepared in 1% normal saline to obtained 0.5, 0.75 and 1.0 gm% concentration. The PHF extract (both aqueous and ethanolic) were prepared in minimum quantity of distill water and diluted to 15 ml with normal saline to obtained 0.5, 0.75 and 1.0 gm% concentration. Four groups of approximately equal size earthworms consisting of six earthworms in each group were used for the present study.

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Group first serve as control, receive only normal saline; Group second serve as test-1, receive PHFAE; Group third serve as test-2, receive PHFEE and Group four serve as standard, receive standard drug piperazine citrate of different 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. The results were analysed for stastical significance using one-way ANOVA followed by Student 't' test. [4-7]

Results and discussion

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, (though all these plants alone exhibit anthelmintic activity but when combined will give more potent activity) than the aqueous extract as compared to standard drug piperazine citrate 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	60±0.31 25±0.78 17±0.02	92±0.65 70±0.07 40±0.31
3.	Ethanolic Extract	0.5 0.75 1.0	70±0.47 35±0.58 21±0.62	90±0.76 80±0.01 65±0.81
4.	Standard Drug	0.5 0.75 1.0	33±0.15 20±0.31 13±0.67	80±0.98 60±0.32 40±0.99

Results expressed as Mean ± SEM from 6 observations, $p<0.001$ as compared to standard

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