

PHARMACOLOGICAL SCREENING FOR ANTHELMINTHIC ACTIVITY OF THE SIDDHA FORMULATION LINGA BHUPATHI

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ABSTRACT:

Purpose: To determine the effect of Linga bhupathi tablets (Siddha formulation of Impcops) on Indian earthworms.

Methods: Linga bhupathi (100mg/ tablet) were investigated for activity in Indian earthworms (*Pheretima postuma*) against piperazine citrate (15mg/ml) and albendazole (20mg/ml) as standard reference and normal saline as control. The time to achieve paralysis of the worms was determined.

Results: The two concentration of Linga bhupathi tablet exhibited significant anthelmintic activity ($p < 0.001$) when compared with the piperazine citrate, albendazole and normal saline.

Conclusion: Linga bhupathi tablet has paralytic effect on Indian earthworms.

Keywords: Linga bhupathi tablet, *Pheretima postuma*, anthelmintic activity.

INTRODUCTION

Helminthiasis or infection with parasitic worms is pathogenic for the human beings. Immature forms of the parasites invade human beings via the skin or gastrointestinal tract (GIT) and evolve into well differentiated adult worms that have characteristic tissue distribution. Anthelmintics are drugs that may act locally to expel worms from the GIT or systemically to eradicate adult helminthes or development forms the invade organs and tissues. Most of the existing anthelmintics produces side effects such as abdominal pain, loss of appetite, nausea, vomiting, head ache and diarrhoea¹. Chemotherapy is the only treatment and effective vaccines against helminthes have not been developed so far. Indiscriminate use of synthetic anthelmintics

can lead to resistance of parasites². Herbal drugs have been in use since ancient times for the treatment of parasitic diseases in human³ and could be of value on preventing the development of resistance⁴.

Food supplement like papaya (*Carica papaya*), cinnamom (*Cinnamomum camphora*, *C. zeylanicum*), turmeric (*Curcuma longa*), asafotida (*Ferula foetida*), long pepper (*Piper longum*), black pepper (*Piper nigrum*), carrot (*Daucus carota*), saffron (*Crocus sativus*), moringa (*Moringa pterygosperma*), bitter guard (*Momordica charantia*) and fresh juices of pine apple have anthelmintic property⁵. The "Linga bhupathi" tablet containing each parts of Clove, Purified Cinnabar, Ajowan, Purified Erasa chendooram and purified calomel. The objective of this study was to investigate the anthelmintic activity.

METHODS

Materials

Linga bhupathi tablet, a product of Impcops, is the Siddha formulation was purchased from Impcops, Puducherry-1, and India. Two concentrations (50mg/ml and 75mg/ml) of Linga bhupathi were prepared in normal saline and used for this study.

Drugs and chemicals

Piperazine citrate (Noel, Mumbai) and albendazole (Pfizer, Mumbai) were used as reference standards. Normal saline were used as control.

Anthelmintic activity

The anthelmintic activity was evaluated in adult earthworm (*Pheretima postuma*) due to its anatomical and physiological resemblance with the intestinal round worm parasites of human beings^{6,7,8} using previously described procedure^{9,10}. Five groups of approximately equal sized Indian earthworms consisting of six earthworms in each group were released into 50ml of desired solution. Each group was treated with either normal saline (control), piperazine citrate (15mg/ml) and albendazole (20mg/ml) and Linga bhupathi tablet (50mg/ml and 75mg/ml). Observations were made for the time of

paralysis of individual worms. Paralysis assumed to occur when the worms did not revive even in normal saline.

Statistical analysis

The data obtained were expressed as mean \pm SEM. Statistical analysis were performed by one way analysis of variance (ANOVA) followed by student's T test. At 95% confidence interval, p values < 0.001 were considered significant¹¹.

RESULTS AND DISCUSSION

Linga bhupathi tablet produced a potent anthelmintic activity against the *Pheretima postuma* when compared with reference standards (p<0.001). This activity was concentration dependent. The potency was found to be inversely proportional to the time (Table1) taken for paralysis of the worms.

CONCLUSION

Linga bhupathi tablet has paralytic effect on Indian *Pheretima postuma*. This effect may be explored in the possible use of the product as an anthelmintic agent.

Table 1: Time taken for paralysis of *Pheretima postuma* to occur following contact with Piperazine, albendazole and Linga bhupathi tablet

Group	Treatment	Concentration (mg/ml)	Time for paralysis(min)
1.	Normal saline(control)	–	–
2.	Piperazine citrate	15	6.13 \pm 0.22
3.	Albendazole	20	2.22 \pm 0.03
4.	Linga bhupathi tablet	50	8.72 \pm 0.17
5.	Linga bhupathi tablet	75	6.57 \pm 0.16

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