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Short Communication

Anthelmintic Activity of *Asta Churna*

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Abstract

Purpose: To determine the effect of *Asta churna* (an ayurvedic preparation of *Impcops*) on Indian earthworms.

Methods: *Asta churna* (2.5 mg/mL and 5 mg/mL) were investigated for activity in Indian earthworms (*Pheretima postuma*) against piperazine citrate (15 mg/mL) and albendazole (20 mg/mL) as standard references and normal saline as control. The time to achieve paralysis of the worms was determined.

Results: The two concentrations of *Asta churna* exhibited significant anthelmintic activity ($p < 0.001$) when compared with the piperazine citrate, albendazole and normal saline.

Conclusion: *Asta churna* has paralytic effect on Indian earthworms.

Keywords: *Asta churna*, *Pheretima postuma*, Anthelmintic activity

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Introduction

Helminthiasis or infections with parasitic worms are pathogenic for 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 helminths or development forms that 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 tool to cure and control helminth infection, as effective vaccines against helminths 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 in preventing the development of resistance⁴.

Food supplements like papaya (*Carica papaya*), cinnamom (*Cinnamomum camphora*, *C.zeylanicum*), turmeric (*Curcuma longa*), asafoetida (*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. *Asta churna* contains *Zingiber officinale* - 125 mg, *Piper longa* -125 mg, *Piper nigrum* - 125 mg, *Trachyspermum ammi* - 125 mg, *Cuminum cyminum* -125 mg, *Ferula foetida* - 125 mg, *Nigella sativa* - 125 mg and Rock salt - 125 used as carminative, digestant, astringent, antacid and to improve appetite. The objective of this study was to investigate the anthelmintic its activity.

Methods

Materials

Asta churna, a product of Impcops, is an ayurvedic preparation was purchased from Impcops, Chennai-41, India. Two concentrations (2.5 mg/mL and 5 mg/mL) of Asta churna 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 posthuma*) 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 50 mL of desired solution. Each group was treated with either normal saline (control), piperazine citrate (15 mg/mL), albendazole (20 mg/mL) or *Asta churna* (2.5 mg/mL and 5 mg/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±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

Asta churna produced a potent anthelmintic activity against the *P.*

Table 1: Time taken for paralysis of *P. posthuma* to occur following contact with piperazine, albendazole and *Asta chuna*

Group	Treatment	Concentration (mg/mL)	Time for paralysis (min)
I	Normal saline (control)	-	-
II	Piperazine citrate	15	6.13±0.22
III	Albendazole	20	2.20±0.03
IV	<i>Asta churna</i>	2.5	8.72±0.17
V	<i>Asta churna</i>	5	6.57±0.16

posthuma when compared with reference standards ($p < 0.001$). This activity was concentration dependent. The potency was found to be inversely proportional to the time (Table 1) taken for paralysis of the worms.

Previous reports have noted the anticestode, nematode activity¹² and anthelmintic activity¹³ of *Nigella sativa*. The anthelmintic activity of *Ferula foetida*, *Cuminum cyminum*, *Piper longum*, *Piper nigrum* have also been reported. The possible mechanism of the anthelmintic activity of *Asta churna* cannot be explained on the basis of our present results. However, it may be due to its effect on inhibition of glucose uptake in the parasites and depletion of its glycogen synthesis. *Asta churna* may also have activated nicotinic cholinergic receptor in the worms resulting in either persistent depolarisation or hyperpolarisation¹⁴.

Conclusion

Asta chuma has paralytic effect on Indian *P. posthuma*. This effect may be explored in the possible use of the product as an anthelmintic agent.

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