

ANTHELMINTIC ACTIVITY OF *CLITORIA TERNATEA*

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Summary

Flowers, leaves, stems and roots of the plant *C. ternatea* were dried, powdered and extracted with methanol by cold maceration. Anthelmintic activity of these extracts was evaluated on adult Indian earthworms *Pheretima posthuma*. Results showed that roots of the *C. ternatea* took less time to paralyze and death of the earthworms, so roots were extracted successively with petroleum ether, chloroform, ethyl acetate and methanol in Soxhlet extractor. Again these extracts were screened for anthelmintic activity. Results showed that methanol extract of *C. ternatea* root is more potent. It can be concluded that anthelmintic activity of the plant *C. ternatea* is might be because of active principles present in methanol extract of the root.

Key words: *Clitoria ternatea*, anthelmintic activity, *Pheretima posthuma*.

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Introduction

It is a perennial twinning herb; stems terete, more or less pubescent. Leaves are imparipinnate; 5-7 leaflets, found in white flowered and blue flowered varieties. Natural habitat to tropical and subtropical region, known as the *aparajita*. This plant is used as laxative, diuretic, brain tonic, antiulcer, in the treatment of headache and snakebite^{1,2}.

Plant shows the significant activities like immunomodulatory, antistress, antidepressant, analgesic, anti-inflammatory, antipyretic effects^{3,4} and increase in memory⁵. Also the anthocyanins, flavonoids and flavanol glycosides were isolated.⁶
^{7, 8} Literature survey indicates that no systematic studies were carried out to evaluate the anti-parasitic potential.

Material and methods

Plant Material

Flowers, leaves, stem and roots of the plant *C. ternatea* was collected from the western rural area of the Shirdi, Ahmednagar District (M. S.) during June 2005 at the flowering stage of the plant and get authenticated from Botanical Survey of India, Pune. (Voucher specimen no. BRD-2)

Extraction

Dried and powdered plant parts were extracted with methanol by maceration for 7 days. Extracts were concentrated by distillation under reduced pressure. As the methanolic extract of roots showed potent anthelmintic activity, Soxhlet extractor using petroleum ether, chloroform, ethyl acetate and methanol did successive extraction of roots. Extracts were concentrated by vacuum distillation and then dried in open air.

Anthelmintic Activity⁹

The earthworms *P. posthuma* were collected from moist soil and washed with normal saline to remove all the faecal matter. The anthelmintic activity was evaluated on adult Indian earthworms, *P. posthuma* due to its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings.^{10, 11}

Six groups of earthworms were made consisting six in each group were released into 10 ml 5% DMF in normal saline of desired extract and standard drugs in petri dish at room temperature. Each group was treated with vehicle (5% DMF in normal saline) or albendazole (20 mg/ml) or methanolic extracts of roots or stems or leaves or flowers of *C. ternatea* (20 mg/ml, each). The time taken by worms to paralysis and death was noted. Death was ascertained by applying external stimuli, which stimulate and induce movements in worms as well as fed of the body color was noted.

In second part of experiment six groups of earthworms were made consisting six in each group were released into 10 ml 5% DMF in normal saline of desired extract and standard drugs in petri dish at room temperature. Each group was treated with vehicle (5% DMF in normal saline) or albendazole or petroleum ether extract or chloroform extract or ethyl acetate extract or methanolic extract (20 mg/ml, each). The time taken by worms to paralysis and death was noted. Death was ascertained by applying external stimuli, which stimulate and induce movements in worms as well as fed of the body color was noted.

Results and conclusions

Result of current investigation indicates that among all the extracts of *C. ternatea*, methanolic extract of root is most potent and required very less time to paralysis and death of worms as compared to other extracts.

Data reveals that methanolic extract of roots of *Clitoria ternatea* posses potent anthelmintic activity (Table 1). The potency increases from flowers, leaves, stems to roots. After successive extraction of roots using petroleum ether, chloroform, ethyl acetate and methanol; methanolic extract of root showed potent anthelmintic activity as compared to other extracts and standard drug albendazole (Table 2).

TABLE 1

Anthelmintic activity of methanolic extract of *Clitoria ternatea*

Test substance	Time taken to paralysis (min)	Time taken for death (min)
Control	-	-
MeR	2.5±0.12	6.55±0.24
MeS	4.00±0.15	25.34±0.45
MeL	4.15±0.19	22.25±0.42
MeF	10.10±0.32	20.35±0.41
Albendazole	5.04±0.21	10.43±0.31

Where, MeR= Total methanolic extract of roots, MeS= Total methanolic extract of seeds, MeL= Total methanolic extract of leaves and MeF= Total methanolic extract of flowers. All the values are expressed as mean±SEM, N=6.

TABLE 2

Anthelmintic activity of various extract of *Clitoria ternatea* roots

Test substance	Time taken to paralysis (min)	Time taken for death (min)
Control	-	-
Pet-ether extract	3.39±1.23	7.52±0.98
Chloroform extract	4.76±0.98	10.53±2.34
Ethyl acetate extract	5.45±1.56	14.65±1.98
Methanolic extract	2.54±2.01	5.32±0.98
Albendazole	3.42±2.35	7.02±1.89

All the values are expressed as mean±SEM, N=6.

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