

**ANTHELMINTIC ACTIVITY OF
CAJANUS SCARABAEOIDES (L).**

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Summary

Whole plant of *Cajanus Scarabaeoides (L)* were dried, powdered and successively extracted with petroleum ether, chloroform, methanol in Soxhlet extractor. The Phytochemical screening of these extract were performed. The petroleum ether extract shows the presence of alkaloids and glycosides, chloroform extract shows the presence of glycosides and steroids and methanol extract shows the presence of glycosides, flavonoids and steroids. Anthelmintic activity of these extracts was evaluated on Indian adult earthworms, *Pheretima posthuma*. Results showed that the petroleum ether took less time to cause paralysis and death of the earthworms. It can be concluded that anthelmintic activity of the whole plant *Cajanus Scarabaeoides* due to the alkaloids present mostly in the petroleum ether extract.

Key words: *Cajanus Scarabaeoides*, anthelmintic activity, *Pheretima posthuma*.

Introduction

Diseases caused by helminth parasites in livestock continue to be a major productivity constraint, especially in small ruminants in the tropics and subtropics ⁽¹⁾. In the developing countries, with the exception of those countries in the southern hemisphere, the greatest impact is probably found in the costs of control, particularly in the case of the helminth parasitoses.

In the Developing countries, the greatest impact of parasitic diseases is in direct and potential productivity losses ⁽²⁾. Many researches show that some plants not only affect the nutrition of animals, but also have antiparasitic effects ⁽³⁾. For example, plants that contain condensed alkaloids, tannins secondary metabolites, have these effects. *Cajanus Scarabaeoide* belongs to the Fabaceae family. Locally known as Rantur, Banurkali or Thitkalai. It is traditionally claimed as antidiarrhoeal and antimicrobial drug ⁽⁴⁾. The plant is found in the Indian states of Maharastra and West Bengal as a weed. The whole plant closely resemble like small variety of *Cajanus Cajan* (L). However the work on pharmacological profile of the plant is very less. The phytochemicals reported in this plant are terpinoids and flavonoids.

Materials and methods

Plant materials

The Whole plant of *Cajanus Scarabaeoides*(L) was collected in September 2008 from Vimasankar hill, Maharastra, India. The whole plant material was taxonomically identified by Dr.S.C.Majumdar, Taxonomist, Botanical Survey of India, Koregaon Road, Pune 411001. The whole plant were dried under shade with occasional shifting and then powdered with a mechanical grinder and stored in an airtight container.

Drugs and chemicals

The following drugs and chemicals were used. Drugs: Albendazole (BANDY, Mankind Pharma Ltd., New Delhi), Nitazoxamide (NITACURE, Alembic Ltd., Vadodara), Chemicals: Petroleum ether (60-80°C) A.R. (SD FINE, Mumbai), Chloroform A.R. (SD FINE, Mumbai), Methanol A.R. (SD FINE, Mumbai), Dimethyl formamide (DMF) (SD FINE, Mumbai).

Preparation of extracts

The powder obtained was subjected to successive soxhlet extraction with the solvents with increasing order of polarity i.e. Pet. Ether (50°), Chloroform (50°), methanol (60°). Yield respectively 3.5, 1.19, and 8.94%.

Anthelmintic Activity

The method, described by Gangurde S.A, Pal S.C, Yeole D.U.(2008) *Pharmacologyonline* 2: 726-732 was followed for this study.

Animals

Indian adult earthworms (*Pheretima posthuma*) collected from moist soil and washed with normal saline to remove all faecal matter were used for the Anthelmintic study. The earthworms of 3-5cm in length and 0.1-0.2 cm in width were used for all the experimental protocol due to their anatomical and physiological resemblance with the intestinal roundworm parasites of human beings ^{(7)&(8)}.

Anthelmintic activity

All the extracts of *C.Scarabaeoides* were dissolved in minimum amount of DMF and then volume is adjusted to 10 ml with saline water. All drugs and extract solutions were freshly prepared before starting the experiment. Six groups of six earthworms each were released into 10 ml of desired formulations as follows; vehicles (5% DMF in normal saline), Albendazole (20 mg/ml), Nitazoxamide (20 mg/ml), petroleum ether, chloroform, and methanol of *C.Scarabaeoides*(20mg/ml, each) in normal saline containing 5% DMF. Observations were made for the time taken to paralysis and death of individual worms. Paralysis was said to occur when the worms did not revive even in normal saline. Death was concluded when the worms lost their motility followed with fading away of their body colors ⁽⁹⁾.

Results and Discussion

The data revealed that petroleum ether of *C.Scarabaeoides* showed significant anthelmintic activity at 20 mg/ml concentrations. Results are comparable with standard drugs Albendazole and Nitazoxamide, at same concentration best anthelmintic activity (Table 1). In order to find out active constituents from *C.Scarabaeoides*, which are responsible for the anthelmintic activity, they may be alkaloids. The results show that petroleum ether extracts of *C.Scarabaeoides* took

the least time to cause paralysis and death of earthworms followed by chloroform and methanol respectively. Results of preliminary phytochemical tests suggest that petroleum ether extract shows the presence of alkaloids and glycosides, chloroform extract shows the presence of glycosides and steroids and methanol extract shows the presence of glycosides, flavonoids and steroids. This indicates that the anthelmintic principles are nonpolar compounds.

Table 1. Anthelmintic activity of *Cajanus Scarabaeoides*

| Group | Sample | Time for paralysis(min) | Time for Death(min) |
|-------|-----------------------|------------------------------|--------------------------|
| 1. | Control | No paralysis (Up to 25 min.) | No Death (Up to 25 min.) |
| 2. | Albendazole (20mg/ml) | 8.35 | 15.26 |
| 3. | Nitazoxamide(20mg/ml) | 7.83 | 15.01 |
| 4. | PECS(20mg/ml) | 7.06 | 11.40 |
| 5. | CECS(20mg/ml) | 12.40 | 15.06 |
| 6. | MECS(20mg/ml) | 18.30 | 22.42 |

Results are expressed as average of three observations.

PECS: Petroleum ether extract of *Cajanus Scarabaeoides*

CECS: Chloroform extract of *Cajanus Scarabaeoides*

MECS: Methanolic extract of *Cajanus Scarabaeoides*

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