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Invitro anthelmintic activity of leaves extracts of *Caesalpinia bonducella*(L)

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ABSTRACT

The plant caesalpinia bonducella (L) commonly known as Kalarchi belongs to the family caesalpiniaceae found everywhere in the county. Almost all parts of this plant are being used in traditional medicine to treat various diseases. Methanol, Ethanol, Hexane and Aqueous extracts from leaves of C.bonducella were investigated for their anthelmintic activity against Perionyx excavates and Amplostoma caninum. Three concentrations (0.1%, 0.2% and 0.5%) of each extracts were studied in activity. When compared to all four extract hexane extractive show significant death time and paralysis time. The cause of paralysis followed by death of the worm at all tested dose except at a low level. Potency of the extract was inversely proportional to the taken for paralysis or death of the worms.

Key words: Anthelmintic activity, *Caesalpinia bonducella*, *Perionyx excavates* and *Amplostoma caninum.*

INTRODUCTION

The plant caesalpinia bonducella (L) [1-4] quite commonly known as Kalarchi belongs to the family caesalpiniaceae and is an ethnobotanically important medicinal plants. The obnoxious weed, distributed throughout the tropics and subtropics.

Almost all parts of this plant are being used in traditional medicine to treat various diseases. The leaves of Caesalpinia bonducella (L) have been utilized as a rheumatic joints, anti-pyretic, anti-inflammatory and as cure for diseases.
From folklore claim and literature review, it was found that the leaves of *caesalpinia bonducella* Linn are used for round, tape or thread worms. Crushed leaves applied in rheumatic joints to relieve pain. The juice of leaves are used to kill worms

Based on the ethnophamacological information and earlier literature [5-7] claims the study is aimed to evaluate the anthelmintic property of the Leavess extract of *caesalpinia bonducella* against intestinal worms and earth worm.

MATERIALS AND METHODS

Plant collection and identification:
The flowering whole plant were collected from the fields around the roadside area of kanchipuran, India during months of September-October and the identification of the plant was done by Dr.P.Jayaraman, Director of Plant Anatomy Research Centre (PARC), Thambaram, Chennai.

Extraction:
Fresh plant leaves after collection was shade dried and extracted with ethanol, methanol, hexane, and aqueous by cold maceration method.

Anthelemintic activity of *Caesalpinia bounducella* against Earth worms [8-12]:
Earth worms *(Perionyx excavates* – obtained from Bell Foundation, Thiruvanmiyur, Chennai – 41) of nearly equal size were selected for present study.

0.1, 0.2, and 0.5% dilutions of methanol, ethanol, hexane extract and aqueous extract of *Caesalpinia bounducella* Linn were prepared in 5% propylene glycol in Petri dishes. Piperazine citrate was diluted with normal saline to obtain 0.1, 0.2, and 0.5% which served as standard. Normal saline and 5% propylene glycol served as solvent control.

All the diluted drugs were poured in to Petri dishes six earth worms of nearly equal size were placed in each of these Petri dishes, at room temperature. The time taken treatment for the complete paralysis and death of the organism were recorded. External stimuli were applied to ascertain the paralysis the time and taken and tabulated.

Anthelemintic activity of *Caesalpinia bounducella* against Goat intestinal worms [8-12]:
Goat intestinal worms *(Amplostoma Caninum* – obtained from Tamilnadu Veterinary Medical college, Chennai) of nearly equal size were selected for present

0.1, 0.2, and 0.5% dilutions of methanol,ethanol,hexane extract and Aqueous extract of *Caesalpinia bounducella* Linn were prepared in 5% propylene glycol in Petri dishes. Piperazine citrate was diluted with normal saline to obtain 0.1, 0.2, and 0.5% which served as standard. Normal saline and 5% propylene glycol served as solvent control.

All the diluted drugs were poured in to Petri dishes six earth worms of nearly equal size were placed in each of these Petri dishes, at room temperature. The time taken treatment for the complete paralysis and death of the organism were recorded. External stimuli were applied to ascertain the paralysis the time and taken and tabulated.

Statistical analysis
Unpaired student‘t’ test was used to study the statistical significant of difference between the treated groups and controls.

RESULTS AND DISCUSSION

Anthelmintic activity of *ceasalpinia bounducella linn* was studied at different concentration (0.1, 0.2, and 0.5%) dilution. As compared to aqueous, methanol and ethanol extracts, ethanol extract showed significant death time and paralysis time at all tested concentration. As compared to hexane and methanol, hexane shows slight better than methanol, but not significant different,

hence compared to all four extract hexane extractive show significant death time and paralysis time. The cause of paralysis followed by death of the worm at all tested dose except at a low level. Potency of the extract was inversely proportional to the taken for paralysis or death of the worms Table 1 & 2.

Table No – 1: Anthelmintic activity of *Caesalpinia bounducella* linn against Perioneyx excavates

Treatment	Paralysis in min dilution			Death in min dilution		
	0.1%	0.2%	0.5%	0.1%	0.2%	0.5%
Control propylene glycol (5%)	-	-	-	-	-	-
Piperazine citrate	74.2±2.15	68.17±1.581	54.25±1.515	85.09±2.18	78.12±1.65	66.25±115
Ethanol extact	25.4±2.18	22.6±1.8	18.4±2.12	29.8±1.38	24.2±2.32	21.6±1.12
Methanol extract	23.8±1.18	21.6±1.2	17.4±1.4	29.8±1.38	24.8±2.2	21.1±1.15
Hexane extract	24.2±2.15	21.4±1.22	18.2±1.2	30.2±2.18	24.2±1.8	20.2±1.2
Aqueous methanol	-	-	-	-	-	-

Statistical significance of difference of test Vs Control (P<0.01)

Table No – 2: Anthelmintic activity of *Caesalpinia bounducella* linn against Amplostoma caninum

Treatment	Paralysis in min Dilution			Death in min Dilution		
	0.1%	0.2%	0.5%	0.1%	0.2%	0.5%
Control propylene glycol (5%)	-	-	-	-	-	-
Piperazine citrate	52.02±2.15	48.23±1.5	45.16±1.50	60.02±2.14	56.23±1.2	50.24±1.2
Ethanol extact	21.2±2.15	18.4±1.2	17.2±1.15	23.4±2.15	22.16±1.50	19.2±2.42
Hexane extract	20.2±1.22	18.2±1.2	15.4±1.42	24.2±2.15	22.16±1.5	18.32±2.15
Methanol extract	20.8±1.12	18.2±1.2	16.2±1.58	23.8±2.12	21.78±1.2	18.32.±2.15
Aqueous methanol	-	-	-	-	-	-

Statistical significance of difference of test Vs Control (P<0.01)

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