



ANTIFUNGAL AND ANTIHELMINTIC ACTIVITY OF *CARALLUMA FIMBRIATA* STEM : A HERB

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ABSTRACT

Present study reports the antifungal and antihelmintic activity of ethylacetate and n-butanol extract from the stem of *Caralluma fimbriata* via, *ascendens* belonging to the family Asclepiadaceae. Antifungal activity was studied against *Aspergillus niger*, *Candida albicans* and antihelmintic activity was studied against earthworms *Pheritima posthuma*. Results were compared with that of standard drug.

Key words: *Caralluma fimbriata*, Antifungal activity, Antihelmintic activity.

INTRODUCTION

Caralluma fimbriata is a tender succulent that is found in the wilds of Africa, the Canary Islands, Arabia, southern Europe, Ceylon, and Afghanistan. *Caralluma fimbriata* is consumed daily as a vegetable in the Kollu Hills of South India. In Western India it is also called as Ranshabar, Makad shenguli, Kallimudayan and Shindala makadi. *Caralluma fimbriata* is listed as a vegetable in The Wealth of India, the Indian Health Ministry's Comprehensive compilation on medicinal plants; it is used in pickles and chutneys in the arid regions of Andhra Pradesh¹. *Caralluma* contains a variety of phytochemicals including pregnane glycosides, flavone glycosides, megastigmane glycosides, bitter principles, and saponins²⁻⁵. *Caralluma* species have shown antinociceptive anti-inflammatory activity⁶, antihyperglycemic activity⁷, anti-gastric ulcer and cytoprotective properties⁸ and antibacterial activity⁹. The present study is to evaluate antifungal and antihelmintic activity of the stem of *caralluma fimbriata*.

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EXPERIMENTAL

Collection and extraction of aerial part

The plant was collected in surrounding districts of Hyderabad and the stem of the plant was removed and dried under shade and powdered. The powder was extracted in Soxhlet apparatus using ethyl acetate and n-butanol. The extracts were filtered and concentrated under reduced pressure. All chemicals and reagents used for the study of pharmacological and phytochemical investigation were analytical grade.

Antifungal activity

The extract was prepared using suitable solvent system and the antifungal activity was studied employing the standard cup-plate method¹⁰⁻¹². The fungi used were *Aspergillus niger* and *Cladosporium* and the activity was compared with standard miconazole nitrate.

Antihelmintic activity

The antihelmintic activity was evaluated on adult earthworms, *Pheretima posthuma* (earthworm obtained from Horticulture Department) was selected for the present study due to its anatomical and physiological resemblance with the intestinal roundworm parasite of human beings¹³⁻¹⁵. The methods of Mathew et al.¹⁶ and Dash et al.^{17,18} were followed for antihelmintic screening.

RESULTS AND DISCUSSION

The antifungal activity of *Caralluma fimbriata* stem extract was studied by employing the standard cup-plate method against the fungi *Aspergillus niger* and *Cladosporium*. The ethylacetate extract have shown good antifungal, when compared to n-butanol extract and the activity was compared with standard drug miconazole nitrate (Table 1).

Table 1. Antifungal activity of *Caralluma fimbriata* stem

Type of extract	Concentration (mg/mL)	<i>A. niger</i>	<i>Cladosporium</i>
Ethylacetate	2.0	15	14
	5.0	17	16

Cont...

Type of extract	Concentration (mg/mL)	<i>A. niger</i>	<i>Cladosporium</i>
n-Butanol	8.0	19	15
	2.0	12	10
	5.0	15	12
Standard (Miconazole nitrate)	8.0	17	15
	50	19	18

The antihelmintic activity was evaluated. Ethylacetate extract showed significant activity when compared to n-butanol extract and the activity was compared with the standard drug piperazine citrate (Table 2).

Table 2. Antihelmintic activity of *Caralluma fimbriata* stem

Type of extract	Concentration ($\mu\text{g/mL}$)	Time taken for paralysis (in min)	Time taken for death (in min)
Ethyl acetate	5.0	65.50 ± 0.20	110 ± 0.50
	10.0	23.0 ± 0.95	73 ± 0.20
	20.0	15.0 ± 0.40	30 ± 0.60
n-Butanol	5.0	54 ± 1.05	112 ± 0.76
	10.0	40 ± 0.43	85 ± 0.98
	20.0	35 ± 0.73	70 ± 1.20
Standard (Piperazine citrate)	5.0	81 ± 0.45	125 ± 0.79
	10.0	50 ± 1.01	75 ± 1.00
	20.0	25 ± 0.50	68 ± 0.52
Control (Normal saline)	5.0	-	-
	10.0	-	-
	20.0	-	-

From these results, we may conclude that certain nonpolar constituents may be

responsible for antifungal and antihelmintic activity than polar substituents.

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