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Research Article

EVALUATION OF ANTIFUNGAL ACTIVITY OF *NEOLAMARCKIA CADAMBA* (ROXB.) BOSSER LEAF AND BARK EXTRACT

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ABSTRACT
The present study was designed to evaluate the antifungal activity of alcoholic and aqueous extract from leaves and bark of *Neolamarckia cadamba* (Roxb.) Bosser using the paper disc diffusion method. All the extracts showed antifungal activity against the *Aspagillus fumigatous* and *Candila albicans.* Leaves extract showed more activity than the bark extracts and it was comparable to the standard drug Ketoconazole.
KEY WORDS: *Neolamarckia cadamba* (Roxb.) Bosser, Antifungal activity, Ketoconazole.

INTRODUCTION

Neolamarckia cadamba (Roxb.) Bosser, (Syn: *Anthocephalus cadamba* Miq.) Family: Rubiaceae is commonly known as Kadam[1]. The tree is frequently found in most warm type of deciduous and evergreen forests. It is also frequently cultivated for ornament and as a shade tree in plantations throughout the country. It is also found nearer to temple and river. Leaves are said to be nutritious, astringent and bitter, their decoction is reported to be used for gargling in apathies or stomatities[2]. It is a large deciduous tree about 12-15 m high with dropping and horizontal branches. Leaves are petiole and 12.5-17.5 cm × 7.5- 8.5 cm and stipules are lanceolate and caduceus. It is a medicinally important tropical tree used for the Blood diseases, Cough and Uterine complaints[3]. The stem bark is also reported to have anthelmintic activity.[4] Antibacterial activity of leaf and bark extract of *Neolamarckia cadamba* (Roxb.) Bosser is reported[5]. The work on chemical composition of bark revealed the presence of Saponin[6], alkaloids[7] and steroids[8].

MATERIALS AND METHODS

Plant Material

Fresh leaves and bark of *Neolamarckia cadamba* (Roxb.) Bosser was collected from 'Kadamvan' Tirumala, AP. during December 2004. The plant was identified by botanist, Prof. P.Jayaraman who authenticated the plant with available literature. The materials were collected by cutting the leaves from the branches of plant and bark was collected by felling method, trees cut at the base and bark was peeled out.

Preparation of extracts

Fresh plant parts were washed 2-3 times with tape water and distilled water and surface sterilized with 90% alcohol. The plant parts were dried under shade and then powdered. The powdered was sieved through 85 mesh size BSS mesh. Powder of leaves and bark were extracted with 90% ethanol and water by hot continuous soxhlet extraction process for 24 hours at 60˚ C and 100˚C respectively. After completion of extraction process, extract were filtered and concentrated on hot plate. The extracts thus obtained were used for the in vitro antifungal studies.

Preparation of Seeded Broth

The strains of micro organism obtained inoculated in conical flask containing 100 ml of nutrient broth. These conical flasks were incubated at 37˚ C for 24 hours and were referred as seeded broth.

Preparation of Culture media

The nutrient broth media (Hi-media, Mumbai) was prepared by dissolving 13 gm of nutrient broth in 100 ml of distilled water. The media was sterilized by autoclaving at 15lb/sq.inch pressure at 121˚ C for 20 minutes.

Antifungal activity of plant extracts

The microbial cultures were procured from EPOCH Herb Tech and Research lab, Chennai and maintained on a nutrient agar. The disc diffusion method was used for

testing antimicrobial activity. The media (25ml) inoculated with suspension of experimental organism was poured into sterilized Petri dishes and left to gel at room temperature. Whatman's No.1 filter paper discs (7mm dm) were soaked in 1 mg/ml concentration of all the extracts and with respective solvents as control and 1 mg/ml of Ketokonazole as a standard reference drug. The filter paper discs were placed equidistantly on inoculated media and diffusion of solution was allowed to occur for 30 minutes at room temperature. Plates were incubated at 37˚C for 24 hours. Three plates were employed per treatment and average zone of inhibition was recorded.[9]

RESULTS AND DISCUSSION

Table 1 reveals the antifungal activity of *Neolamarckia cadamba* (Roxb.) Bosser. The leaves and bark extracts inhibited the micro organism growth.

Controls: Zone of inhibition against the fungus by distilled water = 0 mm

Zone of inhibition against the fungus by alcohol = 0 mm

Both the extracts showed antifungal activity against the *Aspagillus fumigatus* and *Candila albicans*. The leaf extracts showed more activity then the bark extracts.

CONCLUSION

It is concluded that antifungal activity of *Neolamarckia cadamba (Roxb.)* Bosser and its active chemical constituents would be helpful in treating various kinds of diseases. Crude extracts and their interactions with different active fractions of the plant are needed to explore the exact mechanism of interaction among the active phytoconstituents. Similarly, the efficacy of crude extracts or polyherbal preparations needs to be studied in vitro to assess their therapeutic utility.

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Table 1: Antifungal activity of *Neolamarckia cadamba* (Roxb.) Bosser Leaf and Bark extracts.

Plant Parts	Extracts	Diameter of Inhibition zone (mm)	
		Aspagillus fumigatus	*Candila albicans*
Leaf	Aqueous(1mg/ml)	26	22
	Alcoholic(1mg/ml)	25	23
Bark	Aqueous(1mg/ml)	20	18
	Alcoholic(1mg/ml)	18	17
Standard	Ketokonazole(1mg/ml)	28	25

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