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IN-VITRO ANTIDANDRUFF ACTIVITY OF HILL GLORY BOWER, *CLERODENDRUM INFORTUNATUM*

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ABSTRACT

Clerodendrum infortunatum (Verbenaceae), is a largely medicinal imperishable flowering shrub, generally known as hill glory bower has been reported to retain antidiabetic, antipyretic, anti-inflammatory, antioxidant, anticancer, analgesic, anticonvulsant, anthelmintic and antidandruff properties. However, the scientific basis of its anti-dandruff property is still unknown. The Antidandruff exertion of hydroalcoholic leaf extract of *C. infortunatum* against *Candida albicans* was determined by the Antifungal disk diffusion method. The *in-vitro* antidandruff activity of hydroalcoholic extract of *C. infortunatum* leaves against *Candida albicans* was found to be 54%. The findings in the study support the use of this plant in the traditional system of medicine as an antidandruff formulation.

Keywords: *Clerodendrum infortunatum*, Verbenaceae, *Candida albicans*, Antifungal disk diffusion, Hydroalcoholic extract of the leaves of *C. infortunatum* (CIHA)

INTRODUCTION

Dandruff is a common crown complaint characterized by the presence of corneocytes that form clusters due to their high cohesive power, in the form of short white to unheroic scales accompanied by itching. It has been observed that dandruff occurs substantially between puberty to middle age the phase when sebaceous glands are more active. the main causes of dandruff are fungus. *Malassezia* and *Candida albicans* are the leading cause of dandruff. it stimulates the enzyme lipase on the crown, these enzymes beget oxidations of triglyceride sebum and will produce impregnated and unsaturated adipose acids. That is oleic acid and arachidonic acid. Those will irritate and potentiate seditious responses. This causes fungal growth and produces dry flakes.

Currently, numerous chemical treatments are available for reducing and removing largely resistant dandruff against remedial cures. Some of the antidandruff agents like ketoconazole, selenium sulfide, coal tar, salicylic acid, ciclopirox olamine, and zinc pyrithione are generally used for antidandruff soap phrasings. It has several side goods similar as skin vexation, dry skin or dry hair, temporary hair loss, and antipathetic responses similar to skin rash, itching, burning, etc. Thus, herbal medicines are gaining fashionability in the treatment of dandruff.

The main advantage of herbal drug seems to be their efficacity, low prevalence of adverse goods, and low cost.

Clerodendrum infortunatum, known as Bhant or hill glory bower, is a small shrub belonging to the family Verbenaceae. It is set up throughout the plains of India. The major phytoconstituents present in Hill glory bower are sterols, sugars, flavonoids, and saponins. The different parts of this plant have been used in traditional systems of medicine. Traditionally this plant is used as an antipyretic and anthelmintic. Leaves of the plant are specified for excrescences, certain skin conditions, and scorpion stings. Until now, there have been no reports on antidandruff examinations of this plant. The present study was thus intended to investigate the antidandruff effect of the hydroalcoholic extract of the leaves of *C. infortunatum* (CIHA) against *Candida albicans.*

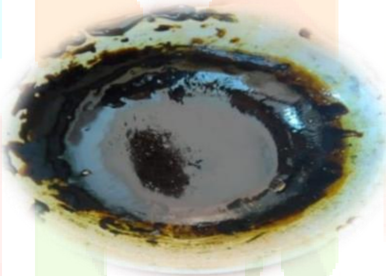
PLANT COLLECTION

The leaves of the *Clerodendrum infortunatum* were collected from the original areas of othera townlets in the month of March and April. They were first washed with running valve water. The leaves were dried by shade drying system to avoid string sun to maintain the color and to save the unpredictable and sweet composites by reducing evaporation. The drying of leaves was carried out under natural tailwind and girding temperatures for fifteen days. The air-dried instance (leaves) was pulverized and settled through sieve number 80 mesh size and stored in an air-tight vessel at 25°C.

Hill glory bower (*Clerodendrum infortunatum*)

EXTRACT PREPARATION

According to our analysis, we set up Hydroalcoholic solvent as the most suitable solvent for extraction. About 95g of powdered leaves were macerated independently with 70% methanol and 30% water in a container. The container is also closed and kept for about two days. The content is stirred periodically. After two days filtration is done and the micelle is also separated from the marc, the micelle is then separated from the menstruum by evaporation in a hot air oven. Hydroalcoholic leaf extract of *Clerodendrum infortunatum* stored safely.



Hydroalcoholic leaf extract of *Clerodendrum infortunatum* (CIHA)

ANTIDANDRUFF ACTIVITY

Antidandruff Activity of leaves extract of *Clerodendrum infortunatum*

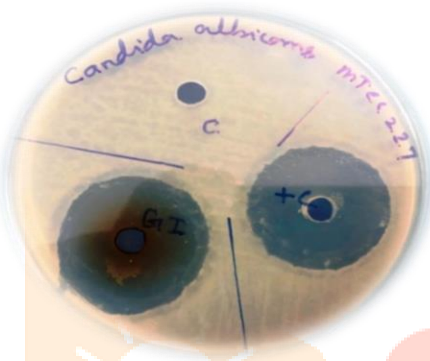
Antifungal disk diffusion method

Microorganism: *Candida albicans*
Standard Antifungal agent: Ascorbic acid (vitamin C)

Procedure: The fungal strains were dressed on potato dextrose agar and incubated at 35°C for 24 hours and 5 days on potato dextrose agar slant for the earth fungi. Using a sterile circle, pure colonies of the *Candida albicans MTCC227* species were transferred into a tube containing sterile normal saline. For the earth, 1 ml of sterile distilled water supplemented with 0.1% Tween 20 was used to cover and resuspend the colonies. Using a hemocytometer, the suspense was acclimated to 2–5×10^6 conidia/ml. The suspense was further diluted 1:10 to gain final working inoculums 2–5×10^5 conidia/ml. The inoculums were poured over MHA supplemented with 2% of glucose. The sterile 6 mm disks that were saturated with 20 μL test emulsion (with a concentration of 10 mg/ml) were placed over the plate. The control of samples A and B was incubated at 35°C for 48 hours. The zone of inhibition was measured in millimeters.

OBSERVATION AND RESULTS

The hydroalcoholic leaf extract of *Clerodendrum infortunatum* was screened against standard antifungal agent Ascorbic acid to check the Antidandruff activity by Antifungal disc diffusion method which showed a zone of inhibition.



Zone of inhibition of hydroalcoholic leaf extract of *Clerodendrum infortunatum*

SL.NO	COD	SOD	%INHIBITION	AVERAGE
1	0.36	0.16	55%	54%
2	0.36	0.15	55%	
3	0.36	0.19	47%	
4	0.36	0.15	58%	
5	0.36	0.15	58%	
6	0.36	0.18	50%	

Invitro Antidandruff activity of *C. infortunatum (100mg)*

SL.NO	COD	SOD	%INHIBITION	AVERAGE
1	0.36	0.05	86.11%	84.86%
2	0.36	0.06	83.33%	
3	0.36	0.06	83.33%	

Invitro Antidandruff activity of standard Ascorbic acid

The hydroalcoholic extract of leaves of *C. infortunatum* displayed 54% in vitro antidandruff activity against *Candida albicans*. The study revealed the anti-dandruff activity of CIHA leaf extract. The leaf extract showed good activity against the dandruff-causing organism *Candida albicans*. From the results, we conclude that the hydroalcoholic extract of *Clerodendrum infortunatum* leaves has antifungal exertion and could be safely used for treating dandruff.

CONCLUSION

The Antidandruff activity of hydroalcoholic leaf extract of *Clerodendrum infortunatum* was estimated by the Antifungal disc diffusion method against *Candida albicans.* The issues of the anti-dandruff exertion of CIHA leaf extract suggest that the plant may have the eventuality for the discovery of new antidandruff formulations. The present study concludes that CIHA leaf extract has anti-dandruff properties.

Plant-based Antifungal agents have lower side effects and are helpful for the development of traditional medicinal systems. Hence the antidandruff activity of CIHA leaf extract was assessed against the fungus *Candida albicans.* The results exhibited that *C. infortunatum* is an implicit remedial Anti-dandruff medicine and curing fungal-affiliated conditions. The present attempt provides information that may induce interest among experimenters to explore similar natural coffers.

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