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COMPARATIVE EFFICACY OF FOUR ANTIMICROBIALS AGAINST KERATOPHILIC FUNGI

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ABTRACT: *Comparative efficacy of miconazole nitrate, graphite, Thuja and Chrysorobin ointments was assessed against three keratinophillic fungi, viz., Trichophyton terrestris, Chrysosporium tropicum and Microsporum gypseum. All the test fungi were sensitive to the anti microbials tested in the present study. Miconazole nitrate, showed the maximum activity followed by Graphite, and Thuja, whereas the minimum inhibition was exhibited by Chrysorobin. Among all the test fungi, T. terrestris was found to be the most sensitive fungus while M. gypseum showed the least activity.*

INTRODUCTION

A survey of literature indicates that many antimycotic agents have emerged in the recent past to combant mycosis (Sawyer et. al., 1975; De Carneri et al., 1976; Cartwright, 1977, 1979; Janseen and symoens, 1983; Fromtling, 1984; Denning et al., 1989; Mc Intyre and Galgiani, 1989; Fierere et al., 1990; Tanio et al., 1990; Dixit and Kushwaha, 1991; Dixit et al., 1991; Garg;1991; Bahuguna and Kushwaha, 1992). However, due to increased rate of fungal infections, there is an urgent need to evaluate broad spectrum antimycotic agents. Most of the antifungal agents are used as topical applicants owing to their toxic effect. Among these, azoles are very common, viz., Miconazole, Econazole, Ketoconazole, etc. In homeopathy also some antimicrobials are used for various dermal infections. Such ointments include Graphite, Thuja, Chrysorobin, etc.

The main aim of the present investigation was to study the comparative efficacy of four topical antimicrobial agents, viz., Miconazole nitrate, Graphite, Thuja and Chrysorobin.

MATERIALS AND METHODS

Organisms

All the test fungi, viz., *T.terrestris, C. tropicum* and *M.gypseum* were isolated from soil by keratin-bait technique (Vanbreueeghem, 1952).

The fungi were maintained on Sabouraud dextrose agar and Potato dextrose agar at 28 $\pm$ 2^0C.

Antimicrobial agents

The antimicrobial agents tested against the fungi were Miconazole nitrate, Graphite, Thuja and Chrysorobin.

Spore Suspension and Drug evaluation

The spore suspensions of keratinophilic fungi were prepared by two fold serial dilution technique. Two-week old fungi which were grown on Sabouraud dextrose agar were washed in sterile normal saline solution by glass-wool filter apparatus to obtain parent suspension (PS). The PS was used for two-fold serial dilution. Triplicates of each dilution were maintained. The CFU/ml of all the test fungi were determined, and the test inocula was adjusted between 1-5 x 10^5 conidia / ml.

The drug evaluation was carried out by disc diffusion technique (Loo et al., 1945).

RESULTS AND DISCUSSION

In the present investigation, all the test fungi, viz., *T. terrestris, C. tropicum* and *M. gypseum* were sensitive to miconazole nitrate, Graphite, Thuja and Chrysorobin. Miconazole nitrate showed the maximum activity followed by Graphite and Thuja, whereas the minimum activity was exhibited by Chrysorobin.

It was recorded that *T. terrestris* was found to be the most sensitive fungus while the least sensitivity was shown by *M. gypseum.* It was also noted that sensitivity of *T. terrestris* to Thuja was similar to the sensitivity of *C. tropicum* when tested with miconazole nitrate, and *M. gypseum* to Graphite. Moreover, Chrysorobin exhibited similar rate of inhibition with *C. tropicum* and *M. gypseum.*

The lesser activity of homeopathic preparations against *T. terrestris, C. tropicum,* and *M. gypseum* must be due to the fact that these drugs treat the patients and not the disease. In homeopathy symptoms of patients including history are more important than the disease. In contrast, in allopathy disease and not the patients is given priority.

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TABLE 1

Sensitivity of keratinophillic fungi to antimicrobials

Drug	Inhibition zone in mm*		
	T.T.	**C.T.**	**M.G.**
Miconazole nitrate	20	12	15
Graphite	18	10	12
Thuja	12	04	03
Chrysorobin	05	02	02

* = Inhibition zone includes 6 mm diameter of disc.
T.T. = *Trichophyton terrestris*
C.T. = *Chrysosporium tropicum*
M.G. = *Microsporum gypseum*

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