

## DERMATOPHYTIC PROFILE OF JAIPUR (RAJASTHAN)

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**ABSTRACT:** Out of 410 clinically diagnosed cases of superficial mycoses encountered during 1985 – 87, direct KOH mounts were positive in 250 (62.19%) cases and the cultures were positive in 123 (30.00%) cases. The organisms isolated included *Trichophyton rubrum* (36.58%), *T. simii* (32.52%), *T. mentagrophytes* (12.19%), *C. tropicum* (8.13%), *Microsporum gypseum* (6.50%), *Epidermophyton floccosum* (2.43%), *T. violaceum* (0.81%) and *Candida albicans* (0.81%). Majority of cases occurred among the age group of 21 – 30 years. *Tinea corporis* and *tinea cruris* were the commonest clinical types encountered.

### INTRODUCTION

Several species of keratinophilic fungi have the ability to cause superficial infections in man and animals involving the keratinized tissues such as epidermis, hair, nails, horn and feathers. This closely related group of keratinophilic fungi is known as dermatophytes (*Raktaja krimi*) and disease is designated as dermatomycoses (dermatophytoses) because of the characteristic ring-shaped lesions and due to earlier belief that it was caused by worms has been commonly called 'Ringworm infection'.

Ever since prehistoric time man did have knowledge of this infection and references to *Dadru kushtha* equivalent to dermatomycoses (1) in *Charaka Samhitai* goes as far back as 700 B.C. when this book was composed.

The present work was undertaken to explore more fungal species of dermatophytes in a bid to study the pattern of distribution and

prevalence of a particular fungal species in Jaipur district compared to other parts of the country. Several case of dermatophyte infection have been described in the literature (2-8) in general and about the studies done in Rajasthan in particular (9-12).

### MATERIALS AND METHODS.

Materials comprised infected skin of 410 patients attending the skin O.P.D of S.M.S. Medical College Hospital and E.S.I. Hospital at Jaipur during 1985 – 87.

First of all, the infected part of the patients was cleaned with the help of 70% alcohol swabs and using sterilized scalpel or blade, the skin was gently scaped from the peripheral region of the lesion because peripheral area is the most active site of the fungus. The infected skin, nails or hair were collected in sterilized polythene bags.

The preliminary examination of the material was done immediately by mounting a portion of skin/hair so collected in 10% KOH and observed under microscope for the presence of fungal spores or hyphae, if any.

Apart from the name of the patient the following additional information was recorded – Date of collection of sample, sex, age, nature of infection, site of infection, occupation, history of illness, result of KOH test, etc. The skin samples so collected were mounted on the slopes of Sabouraud's agar fortified with chloramphenicol (0.05 mg/ml) and cycloheximide (0.5 mg/ml) and incubated in the oven at  $28 \pm 2^{\circ}\text{C}$  for four weeks. Culture positive tubes were retained and further sub-culturing was done in petriplates using dilution technique in order to obtain absolutely pure colony of fungus. Identification of dermatophyte was based on morphological, cultural and biochemical studies.

## RESULTS

*Tinea corporis* (infection of the glabrous skin) was the most commonly encountered clinical type 38.82% during the survey. *Trichophyton rubrum* was the most commonly occurring fungi, its prevalence being 36.58% (Table 1), Male preponderance was higher (69.25%) in all tinea infections as compared to females (30.74%).

The age group of 21-30 showed highest cases of infection constituting 26.33% of all age groups studies. The incidence of tinea capitis was higher among children.

An important feature observed during our study is that *Chrysosporium tropicum*

infection has become common in Jaipur District.

## DISCUSSION

*Trichophyton rubrum* has been reported as the most common fungus occurring in various parts of the country (5-12). Our findings are in agreement with the results of previous workers. The common occurrence of this species of fungus in various parts of the country may be due to its greater adaptability to survive in the varying climatic conditions existing in India.

*T. rubrum* has also found to have higher protease secreting capacity which acts as weapon for gaining an easy access into the host tissues (13).

Lower rate of infection in females observed by us could be perhaps due to the social restriction and restricted mobility of majority of female population in Rajasthan owing to superstitions and illeracy. Thus fewer females report to the hospital than males do.

Compared to the other states of India, infection due to *M.gypseum* was higher. On the contrary, incidence of *E.floccosum* infection was lower (Table 2).

The dermatophyte infection during 1985 – 87 in Jaipur (Rajasthan) has shown an increase of 9.19% over 1980 – 82.

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**TABLE 1: FUNGI ISOLATED FROM CASES OF DERMATOMYCOSES IN JAIPUR**

S. No.		Tinea Corporis	Tinea Cruris	Tinea Capitis	Tinea Unguinum	Tinea Pedis	Tinea barbae	Tinea manum	Tinea manum + pedis	Total
1	Number examined	155	110	58	14	29	13	30	1	410
2	Number positive by Microscopy	99 (38.82%)	56 (21.96%)	42 (16.47%)	10 (3.92%)	23 (9.02%)	7 (2.74%)	17 (6.66%)	1 (0.39%)	255 (62.19%)
3	Number Positive by culture	52	29	10	10	9	5	7	1	123 (30.00%)
4	<i>Fungi involved –</i>									
	<i>Trichophyton rubrum</i>	17	9	-	6	4	2	6	1	45
	<i>T. simii</i>	17	12	4	2	2	2	1	-	40
	<i>T. mentagrophytes</i>	5	4	-	2	3	1	-	-	15
	<i>T. violaceum</i>	1	-	-	-	-	-	-	-	1
	<i>Chrysosporium tropicum</i>	6	2	2	-	-	-	-	-	10
	<i>Microsporum gypseum</i>	4	-	4	-	-	-	-	-	8
	<i>Epidermophyton floccosum</i>	1	2	-	-	-	-	-	-	3
	<i>Candida albicans</i>	1	-	-	-	-	-	-	-	1

**TABLE 2. COMPARATIVE PREVALENCE OF DERMATOPHYTES IN DIFFERENT PARTS OF INDIA**

<b>Authors</b>	<b>Place</b>	<b>Year of Study</b>	<b>T. rubrum</b>	<b>T. menta-grophytes</b>	<b>E. Floccosum</b>	<b>M. Gypseum</b>
Klokke & Durairaj, 1969	Vellore	1967	33.9%	-	9.3%	-
Stephen & Rao	Manipal	1969-75	1.50%	-	5.56%	16.67%
Mulay <i>et. al</i>	Delhi	17-970	88.8%	-	3.2%	0.1%
Kaur	Chandigarh	1970	56.1%	-	1.75%	-
Amin	Ahmedabad	1971	92.60%	-	1.05%	-
Verma & Singh	Rohtak	1972	71.42%	-	9.53%	-
Sehgal & Shome	Varanasi	1973	69.5%	-	4.0%	-
Khalique <i>et. al.</i>	Aurangabad	1974	42.8%	-	58.0%	-
Garg	Jaipur	1966-74	70.8%	1.9%	9.9%	-
Pankaj Lakshmi & Subramanian	Madras	1974	54.2%	-	9.2%	0.4%
Sharma <i>et al.</i> 1980	Chandigarh	1977-78	84%	-	11%	-
Singh <i>et al.</i> 1980	Delhi	1978	74.5%	7.6%	14.2%	-
Prasad & Prakash 1979	Ranchi	1978	31.80%	-	30.9%	-
Sharma 1983	Jaipur	1979-80	49.0%	31.3%	5.9%	13.7%
Present study	Jaipur	1985-87	36.58%	12.19%	2.43%	6.50%

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