

A Clinical and Epidemiological Study on Dermatophytosis at a Rural Tertiary Care Centre in Dhauj, Faridabad

Dr. Chirag Chadha¹, Sanyam Seth², Aditya Khanna³, Dr. Salman Dawood Siddiqui⁴, Fayiq Bin Naseer⁵,
Dr. Ali Ahmed⁶, Aada Bhat⁷, Saatvik Sharma⁸

¹*Departement of Dermatology, Al Falah School of Medical Sciences and Research Centre, Dhauj, Faridabad*

^{2,3,5,7}*3rd Year MBBS Student, Al Falah School of Medical Sciences and Research Centre, Dhauj, Faridabad*

^{4,6}*Intern, Al Falah School of Medical Sciences and Research Centre, Dhauj, Faridabad*

⁸*1st Year MBBS Student, Al Falah School of Medical Sciences and Research Centre, Dhauj, Faridabad*

I. INTRODUCTION

Around the globe, the most common fungal agents which have been linked with superficial infections of the skin are dermatophytes¹. Dermatophytosis form over 16–75% of all the mycological infections. It is more prevalent in tropical and subtropical countries including India, where heat and moisture play an important role². These dermatophytes yield keratinases and these keratinases by degrading the keratin result in an invasion of the superficial tissues of the skin³. Though, in conditions which are chronic, there may be involvement and invasion of deeper tissues, especially when there is infection occurring concurrently with other organisms as well.

Accurate assessment of the prevalence and etiological agent is desirable to estimate the size of therapeutic problem and to prevent the transmission and spread of such infections with adequate measures. Trichophyton, Epidermophyton and Microsporum are common species implicated in superficial fungal infections. Dermatophyte infections are frequently referred to as ringworm infections because the lesions often have a characteristic circular or annular appearance with a raised border. Despite the name, these infections are not caused by worms; the term "ringworm" simply describes the ring-shaped pattern of the skin lesions. They are also known as tinea infections, and the nomenclature is based on the anatomical site involved. For example, tinea capitis

denotes a dermatophyte infection affecting the scalp and head region. This study was focused specifically on patients with dermatophytosis caused by tinea infections.

The diagnostic tests include potassium hydroxide (KOH) wet mount examination, wood's lamp examination, skin biopsy and fungal culture⁴. This study was conducted to determine the prevalence and epidemiological patterns of dermatophyte infections in the study area and to document the prescribing patterns of drugs used for the management of various types of tinea infections across different patient groups.

II. METHODS

Study Design – Descriptive Retrospective Study

Study Setting – Medical Records from Dermatology OPD at Al Falah Hospital

Study Subject – 550 patients from March, 2025 to July, 2025

Methodology - This retrospective descriptive study was conducted using hospital outpatient department (OPD) records to determine the prevalence and epidemiological patterns of dermatophytosis in the study area and to document the prescribing patterns of medications used in the management of various types of tinea infections among different patient groups.

Statistical Analysis – The demographic variables like age, gender of the affected person and clinical diagnosis were considered as relevant parameters.

Data was entered into Microsoft Office Excel -2007 and results were presented in terms of numbers & percentage charts.

III. RESULTS

A total of 550 patients with clinically diagnosed dermatophytosis were included in the study. The age of the patients ranged from 1 month to 79 years, with a mean age of 31.39 ± 15.36 years. Males constituted 283 (51.5%) and females constituted 267 (48.5%) of the study population.

The highest number of patients belonged to the 21–30 years age group (176 cases; 32.0%), followed by the 31–40 years age group (94 cases; 17.1%). The most common clinical presentation was tinea cruris (230 cases; 41.8%), followed by tinea corporis (169 cases; 30.7%) and tinea incognito (102 cases; 18.5%).

Table 1 shows number of effected males and females in various age groups. This shows us that tinea infections are not limited to any specific age group or gender. Rather Dermatophytosis is highly prevalent in rural communities such as Dhauj due to a combination of climatic, socioeconomic, occupational, and hygiene-related factors that facilitate the transmission of dermatophytes. The hot and humid environmental conditions prevailing in the region promote excessive sweating and prolonged skin moisture, creating a favourable environment for fungal growth. A large proportion of the rural population is engaged in agricultural and manual labour, involving prolonged outdoor activity, the use of occlusive clothing, and repeated friction in intertriginous areas, all of which predispose individuals to tinea infections.

Table 1: Age and Sex Distribution

Age/Sex	Males	Females	Total	Percentage
1 Month-1 Year	2	2	4	0.7%
2-10 Years	23	12	35	6.4%
11-20 Years	54	38	92	16.7%
21-30 Years	91	85	176	32%
31-40 Years	41	53	94	17.1%
41-50 Years	31	50	81	14.7%
51-60 Years	25	17	42	7.6%
>60 Years	12	10	22	4%

Overcrowding, limited access to adequate sanitation facilities, and poor awareness regarding personal hygiene further contribute to the spread of infection. Frequent sharing of towels, clothing, bed linen, combs, and other personal items within households facilitates person-to-person transmission. Additionally, the practice of sleeping together, common use of community bathing areas, and delayed healthcare-seeking behaviour may perpetuate the transmission cycle.

Table 2 shows various clinical types and their prevalence in the demographic belt. The likely

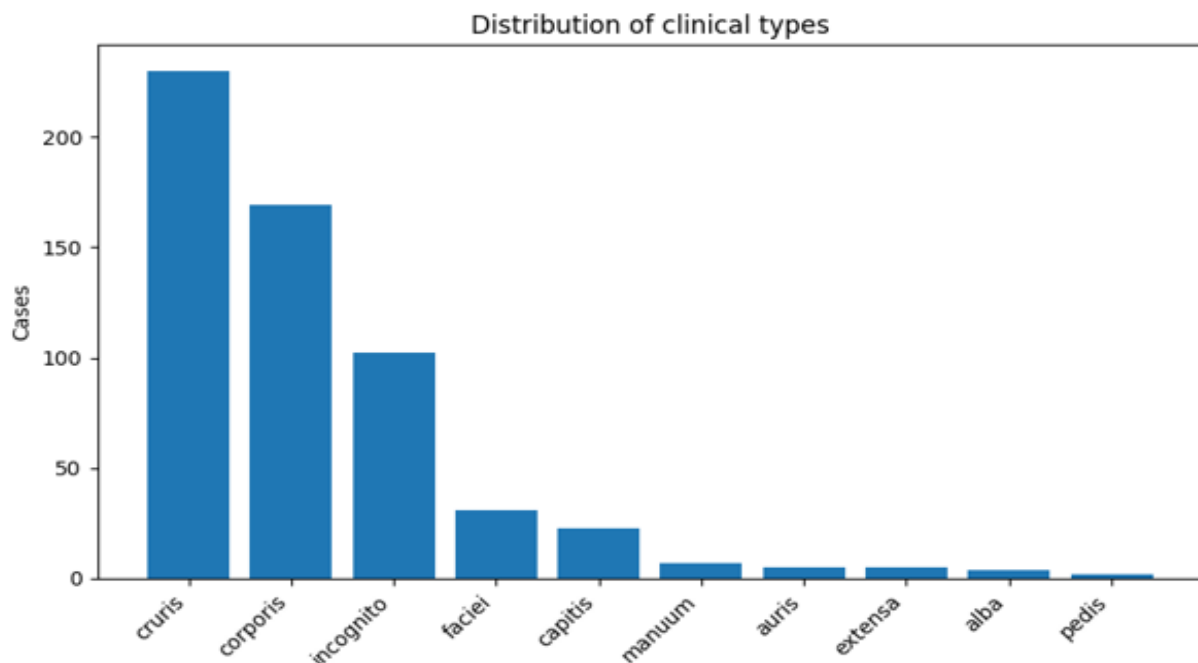
reservoirs of dermatophyte infections in rural settings include infected individuals, asymptomatic carriers, domestic animals such as cattle, buffaloes, goats, dogs, and cats, and contaminated fomites including clothing, towels, bedding, footwear, and grooming instruments. Soil may also serve as an environmental reservoir for geophilic dermatophytes, particularly among agricultural workers who have frequent contact with soil and livestock. The persistence of fungal spores on contaminated surfaces and fabrics for prolonged periods contributes significantly to recurrent and household transmission.

Table 2: Clinical Types

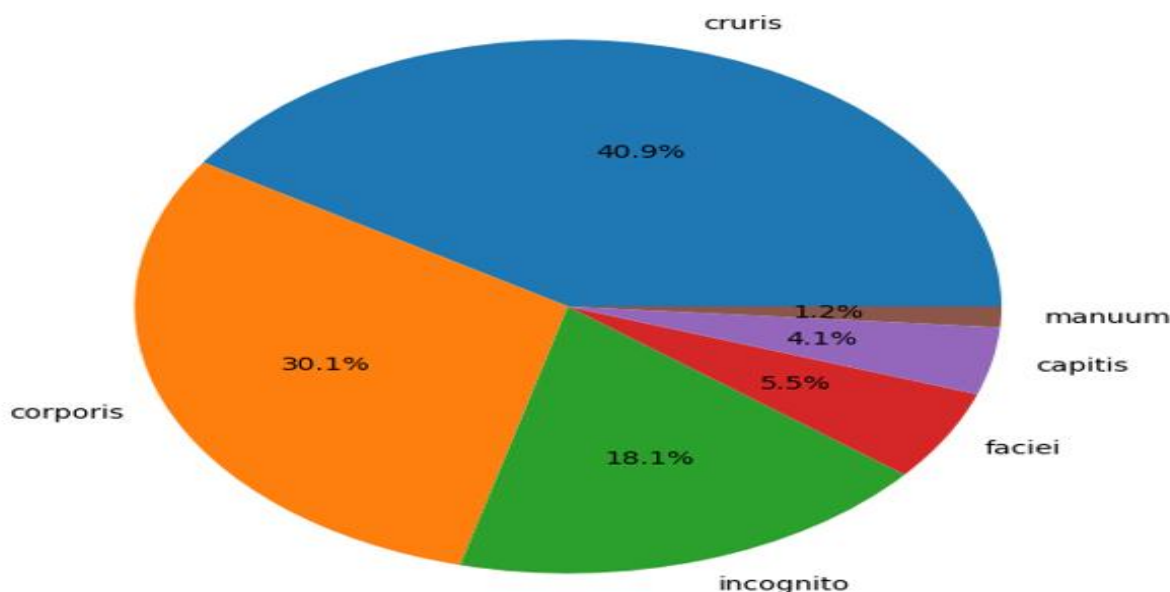
<i>Clinical Type</i>	<i>Cases</i>	<i>Percentage</i>
T. cruris	230	41.8%
T. corporis	169	30.7%
T. incognito	102	18.5%
T. faciei	31	5.6%
T. capitis	23	4.2%
T. manuum	7	1.3%
T. auris	5	0.9%
T. extensa	5	0.9%
T. alba	4	0.7%
T. pedis	2	0.4%

Prevention of dermatophytosis in rural communities requires a multifaceted approach. Maintaining good personal hygiene, keeping the skin clean and dry, avoiding prolonged moisture retention, and wearing loose-fitting cotton clothing are essential preventive measures. Individuals should be advised against sharing personal items such as towels, clothing, and combs. Regular washing and sun-drying of clothes and bedding can help eliminate fungal spores. Early diagnosis and prompt treatment of infected individuals

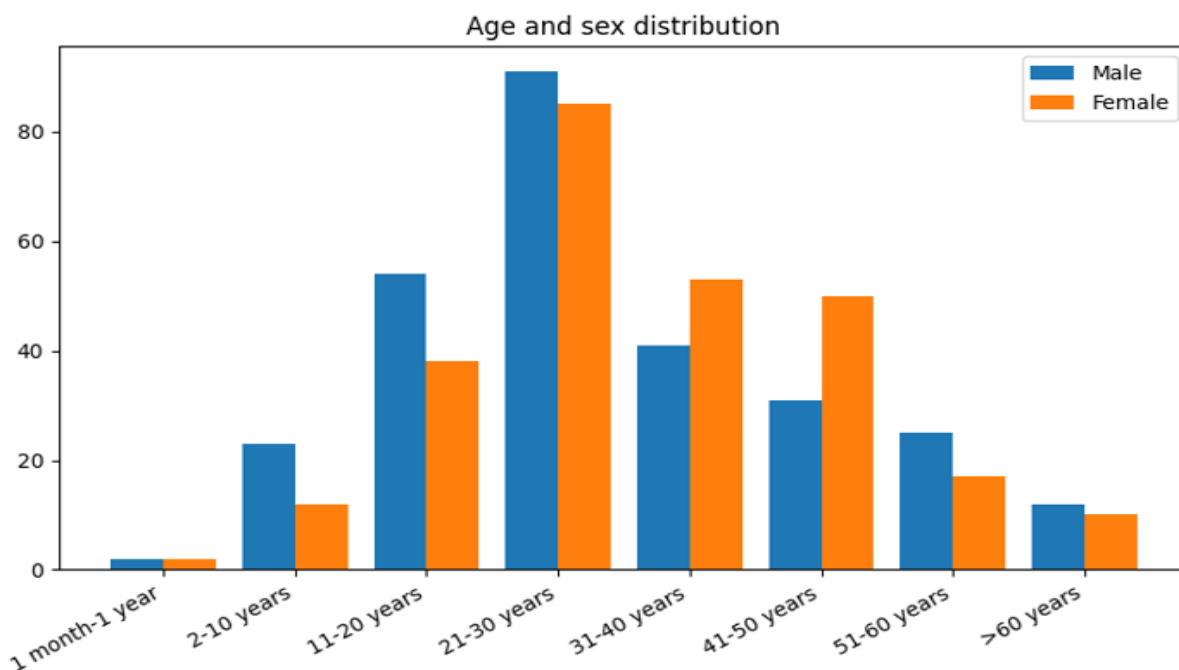
and family members are crucial to prevent reinfection and household spread. Community-based health education programmes focusing on personal hygiene, recognition of symptoms, and avoidance of indiscriminate use of topical steroid-containing creams are equally important. Screening and treatment of infected domestic animals and improving sanitation and living conditions may further reduce the burden of dermatophytosis in rural areas such as Dhauj.



The pie chart depicting the distribution of major clinical types of dermatophytosis revealed that tinea cruris constituted the largest proportion of cases, accounting for 41.8% (n=230) of all patients. This was followed by tinea corporis, which comprised 30.7% (n=169) of the cases, and tinea incognito, accounting for 18.5% (n=102).



Less common clinical presentations included tinea faciei (5.6%; n=31) and tinea capitis (4.2%; n=23), while other forms collectively represented a very small proportion of the study population. The findings indicate that infections involving the groin and glabrous skin were the predominant clinical manifestations of dermatophytosis in the study population.



The age-sex distribution bar graph demonstrated that dermatophytosis affected individuals across all age groups, ranging from 1 month to 79 years. The highest burden of disease was observed in the 21–30 years age group, followed by the 31–40 years and 11–20 years age groups. A slight male predominance was observed across most age categories, with males constituting a marginally higher proportion of cases than females. The incidence of dermatophytosis declined progressively after the fifth decade of life, with the fewest cases being observed in patients aged more than 60 years. The predominance of cases in young adults suggests that increased physical activity, occupational exposure, and environmental factors such as sweating and humidity may contribute to the higher occurrence of dermatophytosis in this age group.

IV. DISCUSSION

Dermatophytosis continues to be one of the most common superficial fungal infections in tropical and subtropical countries such as India, where high ambient temperature, humidity, overcrowding, and poor hygienic practices facilitate the transmission and persistence of infection. The present retrospective descriptive study was undertaken to evaluate the epidemiological profile and clinical patterns of dermatophytosis in patients attending a tertiary care centre in Faridabad, Haryana.

In the present study, the age of the patients ranged from 1 month to 79 years, with a mean age of approximately 31 years. The majority of cases belonged to the 21–30 years age group, followed by the 31–40 years age group. Similar findings have been reported by Janardhan et al., Munusamy et al., Agarwal et al., and Hanumanthappa et al., who observed that dermatophytosis predominantly affects young adults in the third and fourth decades of life. The increased prevalence in this age group may be attributed to greater physical activity, increased perspiration, occupational exposure, and frequent outdoor activities, all of which create a favourable environment for the proliferation of dermatophytes.

A slight male predominance was observed in our study, with males accounting for 51.5% of cases. Male preponderance has been consistently reported in several Indian studies. Janardhan et al. reported a male-to-female ratio of 1.86:1, whereas Munusamy et al. documented that 72% of their study population

comprised males. The higher incidence among males has been attributed to increased outdoor activity, occupational exposure, greater sweating, and the use of occlusive clothing. However, the relatively narrow difference between males and females in the present study may indicate changing lifestyle patterns and increasing exposure among women as well.

The present study demonstrated that tinea cruris was the most common clinical presentation, accounting for 41.8% of all cases, followed by tinea corporis (30.7%) and tinea incognito (18.5%). This finding differs from many previous Indian studies, in which tinea corporis has been reported as the predominant clinical variant. Janardhan et al. observed tinea corporis in 45% of patients, followed by tinea cruris in 28%, whereas Munusamy et al. also reported tinea corporis as the most common presentation, accounting for 47.5% of cases.

The predominance of tinea cruris in the present study may be explained by the climatic conditions of northern India, characterized by prolonged hot and humid weather, excessive sweating, and the use of tight-fitting or synthetic undergarments that increase moisture retention in the groin region. Furthermore, obesity, sedentary lifestyles, and poor genital hygiene may have contributed to the increased frequency of groin involvement. Similar observations have been reported by Karmakar et al., Poria et al., and Siddappa et al., who documented a high incidence of tinea cruris in adult males.

The high prevalence of tinea corporis observed in our study is in accordance with several Indian studies and may be attributed to the extensive exposure of glabrous skin to environmental factors, sweating, friction, and the sharing of fomites such as towels and clothing. Additionally, the increasing practice of self-medication and indiscriminate use of topical corticosteroid combinations may alter the classical morphology of lesions and contribute to the persistence and spread of infection.

One of the notable findings of the present study was the high proportion of tinea incognito cases. The increasing incidence of tinea incognito has emerged as an important public health concern in India and may reflect the rampant and irrational use of over-the-counter fixed-dose combinations containing corticosteroids. Such preparations suppress local immunity, modify the clinical appearance of lesions, delay diagnosis, and predispose patients to extensive

and recurrent disease. The emergence of steroid-modified dermatophytosis has been increasingly recognized in recent years and may explain the changing epidemiological profile observed in the present study.

The following recommendations are based on the IADVL Textbook of Dermatology, Rook's Textbook of Dermatology and current Indian expert consensus guidelines. Table 3, Table 4 and Table 5 illustrate the regimen followed during the study.

Table 3: Topical Therapy (All Age Groups)

<i>Drug</i>	<i>Strength</i>	<i>Frequency</i>	<i>Duration</i>
Luliconazole	1% cream	Once Daily	2 weeks
Sertaconazole	2% cream	Twice Daily	2-4 weeks
Terbinafine	1% cream	Once or Twice Daily	2-4 weeks
Eberconazole	1% cream	Twice Daily	2-4 weeks
Ketoconazole	2% cream	Twice Daily	2-4 weeks

Table 4: Oral Drug Therapy

<i>Drug</i>	<i>Paediatric Dose</i>	<i>Adult Dose (>40 Kg)</i>
Terbinafine	<20 Kg – 62.5 mg OD 20-40 Kg – 125 mg OD	250 mg OD
Itraconazole	3-5 mg/kg/day	100 mg BD or 200 mg OD after meal
Fluconazole	3-6 mg/kg/day	50 mg OD or 150 mg once weekly
Griseofulvin	10-15 mg/kg/day	500-1000 mg/day

The age-sex distribution further revealed that the burden of disease was highest among economically productive age groups, particularly individuals between 21 and 40 years of age. Similar findings have been documented by Munusamy et al. and Janardhan et al., who reported that the majority of patients

belonged to the young adult population. The socioeconomic implications of dermatophytosis in this age group are substantial because recurrent infections may lead to decreased productivity, increased healthcare expenditure, and impaired quality of life.

Table 5: Species wise Regimens

<i>Clinical Type</i>	<i>Paediatric Regimen</i>	<i>Adult Regimen</i>	<i>Duration</i>
T. corporis	Terbinafine weight based or Itraconazole 3-5 mg/kg/day	Terbinafine 250 mg OD or Itraconazole 100 mg BD	2-4 weeks
T. cruris	Same as above	Same as above	2-4 weeks
T. faciei	Same as above	Same as above	2-4 weeks
T. incognito	Itraconazole 3-5 mg/kg/day	Itraconazole 100 mg BD	4-6 weeks
T. capitis	Griseofulvin 20-25 mg/kg/day	Griseofulvin 500-1000 mg/day	6-8 weeks
T. manuum	Terbinafine weight based	Terbinafine 250 mg OD	2-6 weeks
T. pedis	Terbinafine weight based	Terbinafine 250 mg OD	2-6 weeks
T. extensa	Itraconazole 3-5 mg/kg/day	Itraconazole 100 mg BD	4-8 weeks

Although dermatophytosis is generally considered a benign condition, its increasing prevalence, recurrent nature, and changing clinical presentation have made it a significant public health problem in India. The findings of the present study emphasize the need for early diagnosis, patient education regarding personal

hygiene, avoidance of sharing fomites, and strict regulation of over-the-counter topical corticosteroid preparations. Public awareness programmes and adherence to rational antifungal therapy are essential to curb the growing burden of dermatophytosis.

The present study has certain limitations. Being a retrospective study based on hospital OPD records, certain epidemiological variables such as socioeconomic status, occupational details, associated comorbidities, duration of disease, and laboratory confirmation by KOH examination and fungal culture were not available for all patients. Nevertheless, the study provides valuable insights into the changing epidemiological and clinical profile of dermatophytosis in a tertiary care setting in northern India and adds to the existing literature on this increasingly prevalent infection.

V. CONCLUSION

Dermatophytosis remains a significant public health problem in tropical countries such as India, predominantly affecting young adults and showing a slight male preponderance, findings that are consistent with previous Indian studies by Janardhan et al. and Munusamy et al. The present study demonstrated that tinea cruris and tinea corporis were the most common clinical presentations, with a notable proportion of tinea incognito cases, reflecting the changing epidemiological pattern of dermatophytosis in India. The high burden of disease in the economically productive age group and the increasing occurrence of steroid-modified infections underscore the need for early diagnosis, rational use of antifungal therapy, strict regulation of over-the-counter corticosteroid combinations, and improved patient education regarding personal hygiene and preventive measures. Continuous epidemiological surveillance is essential to understand the evolving trends of dermatophytosis and to formulate effective strategies for its prevention and management.

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Conflict of Interest – None.

REFERENCES

[1] Bhatia VK, Sharma PC. Epidemiological studies on Dermatophytosis in human patients in Himachal Pradesh, India. Springerplus. 2014;3:134.

[2] Venenkar MP, PintoMJ, RodriguesS, RoqueWP, SinghI. Clinicomicrobiological study of

dermatophytoses. IndianJ. Pathol. Microbiol.1991;34(3):186-92.

[3] Munusamy R et al. Int J Res Dermatol. 2021 May;7(3):429-434

[4] TschenE. Clinical aspects of superficial fungal infections. Dermatol Clin.1984;2(1):3-18

[5] Sumathi S, Mariraj J, Shafiyabi S, Krishna S. Clinicomycological study of dermatophytoses at a tertiary health care centre. Int J Curr Microbiol App Sci. 2015;4(9):63-68.

[6] Agarwal US, Saran J, Agarwal P. Clinico-mycological study of dermatophytes in a tertiary care centre in northwest India. Indian J Dermatol Venereol Leprol. 2014;80(2):194.

[7] Hanumanthappa H, Sarojini K, Shilpashree P, Muddapur SB. Clinico-mycological study of 150 cases of dermatophytosis in a tertiary care hospital in South India. Indian J Dermatol. 2012;57(4):322-323.

[8] Kumar S, Tilak R, Prakash P, Nigam C. Clinicomycological study of dermatophytosis in a tertiary care centre in North India. Indian J Med Microbiol. 2011;29(3):281-283.

[9] Gupta CM, Tripathi K, Tiwari S, et al. Current trends of clinicomycological profile of dermatophytosis in central India. J Dent Med Sci. 2014;13(10):23-26.

[10] Poria VC, Singh M, Pandey A. Clinico-mycological profile of superficial fungal infections in a tertiary care hospital. Indian J Clin Exp Dermatol. 2016;2(4):177-181.

[11] Siddappa K, Madava V, Nanjappa CN. Pattern of dermatophytosis in Mysore. Indian J Dermatol Venereol Leprol. 1982;48:254-256.

[12] Janardhan B, Vani G. Clinico mycological study of dermatophytosis. Int J Res Med Sci. 2017;5(1):31-39. doi:10.18203/2320-6012.ijrms20164399.

[13] Verma S, Madhu R. The great Indian epidemic of superficial dermatophytosis: An appraisal. Indian J Dermatol. 2017;62(3):227-236.

[14] Karmakar S, Kalla G, Joshi KR, Karmakar S. Dermatophytoses in a desert district of western Rajasthan. Indian J Dermatol Venereol Leprol. 1995;61(5):280-283.

[15] Grover S, Roy P. Clinico-mycological profile of superficial mycosis in a hospital in North-East India. Med J Armed Forces India. 2003;59(2):114-116.

- [16] Singh S, Beena PM. Profile of dermatophyte infections in Baroda. *Indian J Dermatol Venereol Leprol.* 2003;69(4):281-283.
- [17] Das K, Basak S, Ray S. A study on superficial fungal infection from West Bengal: A brief report. *J Life Sci.* 2009;1(1):51-55.
- [18] Maraki S, Tselentis Y. Dermatophytoses in Crete, Greece: An eight-year survey. *Mycoses.* 2000;43(11-12):471-474.
- [19] Yehia MA, El-Ammawi TS, Al-Mazidi KM, Abu El-Ela MA, Al-Ajmi HS. The spectrum of fungal infections with a special reference to dermatophytoses in Kuwait. *Mycopathologia.* 2010;169(6):443-448.