

## Clinicomycological Study of Dermatophyte Infections in Patients of DVL OPD, In Tertiary Care Hospital at Sangli

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### Abstract

A research was carried out to determine the most common clinical type of dermatophytosis and the species that causes it. It was conducted at DVL OPD with collaboration with the microbiology department. A total number of 130 patients were enrolled who had no history of any treatment whether topical or systemic for the dermatophytosis. All the patients underwent Pottasium Hydroxide (KOH) mount test for fungal element by taking skin scrapings with aseptic precautions from the scaly skin lesions while for hair and nails, clippings were taken and send to central laboratory of microbiology department. The samples were simultaneously sent for culture in Sabouraud agar media. The reports of KOH mount and culture was thoroughly studied, analyzed and correlated with the clinical presentation of each patient. In this study, we found that *Tinea corporis* was the most common type followed by *Tinea cruris* and the most common causative organism being the *Trichophyton mentagrophytes*. This study also proved that KOH mount preparation is a good screening test for Dermatophytosis and hence we can abruptly start treatment based on clinical suspicion and the KOH mount findings which we can procure within few minutes.

*Keywords;* Dermatophytosis; KOH mount; Sabouraud Agar medium; *Tinea corporis*; *Tinea cruris*; *Trichophyton mentagrophyte*.

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### 1. Introduction

Dermatophytes means skin plants and the infection they cause are called dermatophytosis. They are a diverse group of fungi that exists as saprophytes, parasites or commensals. Nowadays, fungal infections or dermatophytosis comprise around seventy percent of total patients encountered by a dermatologist.

There are different clinical types according to the site of infection and there are various species of dermatophyte that causes dermatophytosis.

Fungi are a diverse group of organisms that exists as saprophytes, parasites or commensals. According to observations made worldwide, dermatophytosis are the most common of all the superficial fungal infections and has therefore drawn a lot of attention. Nowadays, fungal infections of skin comprise around seventy percent of the total patients encountered by a Dermatologist in a day. P . The incidence of dermatophytosis has become alarmingly high since the last few years maybe due to the change of lifestyle, urbanisation, pollution, global warming and variation in the climate.

There are thousands of known fungi species out of which less than hundred are human pathogens. They infect the skin, hair and nails. The harmful effects are due to the mycotoxins and allergic reactions evoked by the fungi. The different clinical types of Dermatophytosis are Tinea capitis, Tinea faciei, Tinea barbae, Tinea corporis, Tinea cruris, Tinea manuum, Tinea pedis, Tinea unguium or Onychomycosis and Tinea incognita.

Although Dermatophytosis is considered to be a trivial disease, the psychological effects of the disease are highly significant because of its high morbidity and difficulty to treat in short span. The increased prevalence and incidence of Dermatophytosis needs to be studied and analysed thoroughly at the microbiological level to obtain an idea of the changing pattern of fungal growth. Recent studies and surveys have indicated that the most common clinical types are Tinea corporis and Tinea cruris with the most common causative fungi being the *Trichophyton* species.

The diagnostic investigations that should be done for Dermatophytosis are the Potassium Hydroxide (KOH) mount and Culture in Sabouraud dextrose agar medium. Literature states that potassium hydroxide mount preparations have the advantages like simplicity of procedure, reliability and rapid availability of results. Hence, this study was done to study the genera or species of fungi associated with the different clinical types of Dermatophytosis. The study has helped in understanding the different morphology of fungi that infect and reside on human skin. Dermatophytosis is a superficial fungal infection of the keratinised tissue. They are commonly designated as TINEA (literal meaning of Tinea is *larva* as the Romans mistakenly thought the infection to be due to insects). They can also be defined as the keratinophilic organisms that have the ability to invade the hair, nails and skin of the living host. They can be classified as :-

KINGDOM: FUNGI

PHYLUM: ASCOMYCETA

ORDER: ONYGENALES

GENUS: ARTHRODERMA, NANNIZIA

1.1. Dermatophytes represent 39 closely related species in 3 main genera namely MICROSPORUM, TRICHOPHYTON & EPIDERMOPHYTON of Deuteromyceta or fungi imperfecta. They can also be classified according to the place it dwells/ or survives as:-

**GEOPHILIC:** Includes species residing in the soil. They sporadically infect humans and lead to a highly inflammatory variant of infection Eg: **Microsporum gypsum, Trichophyton eboreum, Trichophyton terrestre, Microsporum cookie.** They cause sporadic human infection upon direct contact with the soil. *Microsporum gypsum* is the most common geophilic dermatophyte isolated from humans. They have high virulence and are able to produce long living spores that can reside in blankets and grooming tools and has potential to cause epidemics. They produce intense inflammatory response in humans.

**ZOOPHILIC:** Includes species residing in animals. They can also be transmitted to human sporadically through direct contact with animals in rural areas and through domestic pets. The infection is often suppurative type. Eg **Trichophyton mentagrophytes, Trichophyton interdigitale, Trichophyton verrucosum, Microsporum canis.** They are transmitted to humans from animals like cats, dogs, rabbits, guinea pigs, birds, horses, cattle etc. through direct contact or indirectly via infected animal hair. Exposed areas like scalp, beard, face and arms are the favoured sites of infection. They tend to produce acute and intense inflammatory response in humans

**ANTHROPOPHILIC:** Includes species residing in humans. They often produce epidemics and the mode of transmission is from humans either by direct contact or by fomites. They produce relatively non inflammatory infection often located in the covered areas of the body. Eg: *Trichophyton rubrum, Trichophyton tonsurans, Trichophyton mentagrophytes, Microsporum audouinii, Epidermophyton floccosum.* They are typically restricted to human host and are transmitted via direct contact. Infected skin or hair retained in clothing, combs, caps, socks and towels also serve as source reservoirs. They have adapted to humans as host and hence they elicit mild to non inflammatory host response.

Fungi reproduce both sexually and asexually, sometimes simultaneously. The sexual phase is termed the teleomorph and the asexual phase the anamorph; when both are present the growth is termed the holomorph. Thus, the dermatophyte *Trichophyton mentagrophytes* was originally described and named in the asexual phase in 1896.<sup>2</sup>

Since 1 January 2013, fungi are given only one name to cover both sexual and asexual phases. In the laboratory, sexual phases of the pathogens are rarely seen, as the majority of fungus are heterothallic, which means that sexual reproduction requires the presence of two or sometimes four different mating types.<sup>2</sup> Relatively few fungi can reproduce sexually by the mating of hyphae from a single mycelium, a condition termed homothallic.<sup>2</sup>

**1.2.PREDISPOSITION FACTORS:** Diabetes mellitus, Lymphomas, Immunocompromised state, Cushing's syndrome could produce severe, widespread or recalcitrant infection. But nowadays dermatophyte infections are common even in absence of any predisposing illness but just due to environmental factors and lack of personal hygiene. Dermatophytes can infect various parts of the human body. The clinical types of dermatophytoses according to site of infection are<sup>1</sup>:-

- **TINEA CAPITIS:** Dermatophyte infection of the scalp. Can be further divided into inflammatory (favus and kerion) and noninflammatory (black dot T.capitis and gray patch types)

- TINEA BARBAE (TINEA SYCOSIS / BARBER'S ITCH): Dermatophyte infection of the beard and moustache areas with invasion of coarse hair.
- TINEA FACIEI: Dermatophyte infection of the non beard areas of the face (face in woman and prepubertal boys)
- TINEA CORPORIS: Dermatophyte infection of the glabrous skin ( non hairy skin) with the exclusion of the palms, soles and groins
- TINEA MANUUM: Dermatophyte infection of the palmar skin with infection beginning under the rings
- TINEA CRURIS ( DHOBI'S ITCH / JOCK ITCH): Dermatophyte infection of the groins
- TINEA PEDIS (ATHLETE'S FOOT): Dermatophyte infection of the feet
- TINEA UNGUIUM: Dermatophyte infection of the nail plate
- TINEA INCOGNITO: Corticosteroid modified Tinea

### **1.3. INVESTIGATIONS TO CONFIRM A CASE OF DERMATOPHYTOSIS:**

There are two important investigations that can be done to confirm a clinically suspected case of Dermatophytosis. They are the Potassium Hydroxide mount (KOH) of skin scrapping, hair or nail clipping and culture in Sabouraud Dextrose Agar media. The direct demonstration of fungal elements is essential in establishing diagnosis by detecting the presence of the causative agent in the clinical material which is correlated with the suspected disease. If fungal culture is the "*Gold Standard*" in Medical Mycology then Direct demonstration of fungi by KOH in clinical specimen is the "*Gold Mine*" which should be performed meticulously by an expert person.<sup>10</sup>

**SAMPLE COLLECTION:** For skin, the area is first cleaned with 70% alcohol and then scrapped with a blunt scalpel across the inflamed margin of the lesion into apparently healthy tissue and the scrapping are collected in a clean white sterile white envelope. For nails, the affected nail is cleaned with 70% alcohol and specimen is collected by clipping from the distal border and scrapping across the affected area beneath the nail. For hair sample, the infected hair specimen is removed by plucking with a sterile forces along the base of the hair shaft around the follicle. Then the following procedures are done using the specimen collected.<sup>10</sup>

**POTASSIUM HYDROXIDE (KOH) MOUNT OF SKIN SCRAPPING OR INFECTED HAIR OR NAIL CLIPPINGS** : A potassium hydroxide mount of a skin scraping is a commonly performed procedure to demonstrate the evidence of fungal infection in skin, hairs and nails. Advantages include simplicity of procedure, reliability and rapid availability of results. The scales or the hair are then placed on a clean glass slide and 2-3 drops of 10%-20% KOH are added and is covered with a cover slip. The undersurface of the glass slide can be gently heated with a low lit flame and then observed under a microscope for hyphae. Care should be taken to avoid overheating that can cause crystallisation of the slide material.<sup>9</sup> KOH clears or digest the keratin and epithelial debris within 5- 20 minutes depending on the thickness. For nails, it requires longer duration of 24-48 hours and 40% KOH to dissolve the hard keratin of nails.

**CULTURE IN MODIFIED SABOURAUD DEXTROSE AGAR (SDA) MEDIUM:** SDA is the most commonly used isolation medium for dermatophytes and it serves as the medium on which most

morphologic descriptions are based. Elimination of contaminant moulds, yeast and bacteria is achieved by the addition of Cycloheximide and chloramphenicol (+/- gentamicin) to the medium making highly selective for the isolation of dermatophytes. The development of colonies can take 5-7 days in case of *Epidermophyton* and upto 4 weeks for *Trichophyton verrucosum*. Cultures are incubated at room temperatures (20-25 degrees centigrade) for atleast 4 weeks before being finalised as labeled as no growth.<sup>11</sup>

After proper growth has been achieved in a duration of 4 weeks or more, with a sterile iron probe a small sample is collected from the colonies and a LPCB (Lactophenol Cotton Blue) mount is prepared and then observed under a microscope for the morphological features of dermatophytes.

1.4. The different types of fungi have different morphological pattern. The description of genera essentially follow the classification scheme of Emmons on the basis of the conidial morphology and formation of conidia and are updated following the discovery of new species. The genera and their description are as follows:<sup>15</sup>

- **Epidermophyton spp.:** Macroconidia are broadly clavate with typically smooth, thin to moderately thick walls and have 1-9 septa, 20- 60 by 4-13 micrometer in size. Microconidia are usually abundant and borne singly or in clusters. while Microconidia are absent. This genus has only 2 known species to date and *E.floccosum* is the only pathogenic type.<sup>15</sup>
- **Microsporium spp.:** Macroconidia are characterised by the presence of rough walls which may be asperulate, echinulate or verrucose. Originally, the macroconidia were described by Emmons as spindle shaped fusiform but the discovery of new species extended the range from obovate/ egg shaped as in *M.nanum* and cylindrofusiform as in *M.vanbreuseghemii*.<sup>15</sup> The macroconidia may have thin, moderately thick to thick walls and 1-15 septa with size ranging from 6-160 by 6-25 micrometer. Microconidia are sessile or stalked and clavate, usually arranged singly along the hyphae or in racemes as in *M.racemosa*, a rare pathogen.
- **Trichophyton spp.:** Macroconidia when present have smooth usually thin walls and 1-12 septa. They are borne singly or in clusters and may be elongated and pencil shaped, clavate, fusiform or cylindrical. They range in size from 8-86 by 4-14 micrometer.<sup>15</sup> Microconidia are more abundant than macroconidia. They may be globose, pyriform or clavate, sessile or stalked and are borne singly along the sides of the hyphae or in grape like clusters.<sup>15</sup>

## 2. Materials and Methods

The study was carried out in the Out Patient Department of Dermatology, Venereology & Leprosy (DVL OPD) and Department of Microbiology in one of the Tertiary care centre at Sangli between the time period of 2016 to 2018. The study comprises of patients attending the DVL OPD who were clinically suspected for Dermatophytoses. Both the sexes aged between 1 and 60 years were included in this study. Those who have taken treatment like steroid or any form of anti-fungal medication anytime in the last 2 months were excluded in this study.

STUDY DESIGN: Observational study

**STUDY PERIOD:** Data collection -December 2016 to December 2017, Data analysis - January 2018 to June 2018

**STUDY AREA (Place):** Department of Dermatology Venereology & Leprosy OPD and Department of Microbiology, Tertiary care Hospital, Sangli.

**STUDY SUBJECTS:** Patients with clinical symptoms of dermatophyte infection were included in the study.

**INCLUSION CRITERIA:** All Dermatophyte infected cases.

**EXCLUSION CRITERIA:** Cases who have taken treatment 2 months prior, for dermatophytic infection either in the form of topicals/oral antifungals and steroid preparations.

**SAMPLE SIZE:** All the dermatophyte infected cases attending DVL OPD during study period and who fit in to our inclusion and exclusion criteria were included in the study.

**SAMPLING TECHNIQUE:** Purposive sampling

**STUDY TOOLS:** 1) A well designed protocol.

2) Direct microscopy in 10% to 40% KOH preparation of scrapings on a glass slide with cover slip.

3) Sabouraud dextrose agar (SDA)

4) Incubator

**ETHICAL CONSIDERATIONS:** Study was started after the Institutional Ethical Committee( IEC) clearance. The study protocol was reviewed by The Institutional Ethical Committee and permitted by it, IEC no. is BVDUMC &H/Sangli/IEC/Dissertation 2016-17/172. Written informed consent was obtained from the patients or their relative. Confidentiality was strictly maintained.

**2.1.STUDY PROCEDURE:** Patients clinically suspected with dermatophytosis were examined & classified into different clinical types depending on the sites involved. The lesions were cleaned with spirit swab and skin scraping were collected from the advancing edge of the scaly lesions on the skin with the help of the blunt end of scalpel or the edge of a glass slide, basal root portion of the infected hair were collected by plucking the hair with sterile forceps and nail clippings were taken with the help of a sterile nail clipper along with subungual debris. The collected samples were divided into two portions. First portion were mounted for microscopy using 10-20 % Potassium Hydroxide (KOH) on

a clean glass slide & cover slip and then screened for the presence of fungal hyphae under direct microscopy. The results of KOH mounts were recorded on the day itself, except for nail clippings that takes 24 hours for reporting. The second portions of the sample were send to Microbiology Department for culture in Sabouraud Dextrose Agar Slopes. Cultures were incubated for 4 -6 weeks at 25 degrees centigrade and checked twice a week for the presence of fungal growth and the fungal morphology by performing a Lactophenol Cotton Blue (LPCB) mount at Microbiology Department. The presence of fungal species were sorted out with the help of Microbiology Specialists in relation with the clinical types, age group, gender and their prevalence accordingly. The results were recorded to study the correlation and importance of KOH mount study & Culture in diagnosing a case of dermatophytosis.

**3. Results and discussion**The total number of patients in this study was 130. Out of 130, 52 (40%) were males and 78 (60%) were females. There was female predominance in this study

**Table 1:** Age and Gender-Wise Distribution of Superficial Dermatophytoses

Age in years	Male	Female	Total	%
0-10	1	6	7	5.4
11-20	13	4	17	13.1
21--30	15	23	38	29.2
31—40	10	21	31	23.8
41—50	5	19	24	18.5
51—60	3	3	6	4.6
61—70	3	1	4	
3.1				
71—100	2	1	3	2.3
<b>Total</b>	<b>52</b>	<b>78</b>	<b>130</b>	<b>10</b>

**Table 1** shows the age and gender-wise distribution of patients. There were 7 patients in the age group of 0-10 out of which 6 were female and only 1 male. In the age group of 11-20 we had more males than females with 13 males and 4 females. The age group 21-30 had the maximum patients of 38 with female preponderance of 23 females to 15 males.

**Table 2:** Distribution of the various Morphological Types of Dermatophytosis

<b>Morphological types of lesions</b>	<b>number of patients</b>
<b>Annular plaques</b>	<b>64</b>
<b>Polycyclic plaques</b>	<b>4</b>
<b>Mixed annular and polycyclic plaques</b>	<b>45</b>
<b>Polycyclic plaques with satellite lesions</b>	<b>1</b>
<b>Arcuate plaques</b>	<b>9</b>
<b>Circinate plaques</b>	<b>1</b>
<b>Nail discoloration with subungual hyperkeratosis</b>	<b>6</b>
<b>Total</b>	<b>130</b>

**Table 2** shows that out of the 130 cases of dermatophytosis, 64 patients presented with annular plaques, 4 patients with only polycyclic plaques, 45 cases had both annular with polycyclic lesion and 1 patient had polycyclic plaque with satellite lesions. 9 patients had arcuate lesions, only 1 patient had circinate plaque type of skin lesion and 9 patients had nail discoloration with subungual hyperkeratosis.

**Table 3:** Gender wise distribution according to the body parts involved with Dermatophyte infection

<b>BODY PARTS INVOLVED</b>	<b>MALES</b>	<b>FEMALES</b>	<b>TOTAL</b>
<b>SCALP</b>	2	1	3
<b>FACE</b>	5	3	8
<b>NECK</b>	4	0	4
<b>SHOULDER</b>	1	2	3
<b>TRUNK</b>	1	2	3
<b>WAIST</b>	9	11	20
<b>CHEST</b>	1	0	1
<b>BREAST</b>	0	1	1
<b>INFRAMAMARY AREA</b>	0	1	1
<b>BACK</b>	1	4	5
<b>ABDOMEN</b>	2	6	8
<b>HANDS &amp; WRIST</b>	7	4	11
<b>ELBOW</b>	1	0	1
<b>NAILS</b>	0	6	6
<b>AXILLA</b>	0	3	3
<b>LEGS &amp; FOOT</b>	4	4	8
<b>THIGHS</b>	0	9	9
<b>GROINS</b>	5	6	12
<b>GLUTEAL REGION</b>	9	11	20
<b>PUBIC AREA</b>	0	1	1
<b>TOTAL</b>			130

This table shows the male & female pattern of distribution of dermatophytosis according to the different body parts. In this study, the most common areas involved both in females and males are gluteal region and waist. Out of the 20 cases with waist involvement, 11 were females and 9 were males and out of the 20 cases with lesions at the gluteal region, females were 11 in number while males were 9. Other parts commonly involved are thighs, abdomen and groins in females and hands, groins, face and neck in males in the present study. Female patient having waist as the most commonest site of infection can be attributed to the fact that they wear tight fitting sarees around the area in India.

**Table 4:** Correlation of KOH mount results with Culture results

TEST RESULTS	NO. OF PATIENTS	Percentages
KOH positivity and culture positivity	92	70.76
KOH negativity and culture positivity	7	5.38
KOH positivity and culture negativity	15	11.53
KOH negativity and Culture negativity	16	12.30
TOTAL	130	100

The Table 4 shows that maximum cases of 92 patients with Dermatophytosis had both KOH mount test and culture positivity. 16 cases had both culture and KOH Negativity inspite of having clinical presentation of dermatophytosis. 15 cases had KOH positivity but the culture reports suggested of no fungal growth and 7 cases had KOH negativity but the culture reports suggested of fungal growth.

**Table 5:** Fungal Species isolated in relation to clinical types of Dermatophytosis

Isolates	T.corporis	T.cruris	T.pedis	T.capitis	T.facii/t.barbae	T.manuum	Onychomycosis	Total
Trichophyton rubrum	0	5	1	0	0	2	0	8
Trichophyton mentagrophytes	36	22	1	0	6	4	0	69
Trichophyton tonsurans	3	0	0	0	0	0	0	3
Microsporum species	2	1	0	0	0	0	0	3
Candida species	1	0	1	0	0	0	0	2
Penicillium	1	0	0	0	0	0	0	1
Aspergillus	8	1	1	1	0	1	1	13
TOTAL	51	29	4	1	6	7	1	99

Table-5 shows that 51 patients had Tinea corporis, with the commonest isolate in culture being *Trichophyton mentagrophytes* in 36 patients and *Trichophyton tonsurans* in 3 patients & *Microsporum* species in 2 patients. 29 patients had Tinea cruris with the common isolate being *Trichophyton mentagrophytes* in 22 patients followed by *Trichophyton rubrum* in 5 patients and *Microsporum* species in one patient. Out of the four patients with Tinea pedis one patient had growth of *Trichophyton mentagrophytes*. Six cases of Tinea barbae/faciei had all growths of *Trichophyton mentagrophytes* in the culture. In 7 cases of Tinea manuum, 4 patients had growth of *T.mentagrophytes* and 2 patients had growth of *T.rubrum*. Non-dermatophytes/moulds like *Candida*, *Penicillium* & *Aspergillus* were isolated in 16 cases. *Candida* was isolated in one case each of *T.corporis* and *T.pedis*. *Penicillium* growth was detected in one case of *T.corporis*. *Aspergillus* growth was seen in 8 cases of *T.corporis* and one case each of *T.cruris*, *T.pedis*, *T.capitis*, *T.manuum* and Onychomycosis. The growth of *Penicillium* may be attributed to contamination from the atmosphere or during handling of the samples as it is one of the most common contaminants that occur in laboratories.

**Table 6 (A):** Comparison between the results of KOH mount preparation & growth pattern in Culture

10% KOH	Culture		Total
	Growth	No growth	
POSITIVE	92	15	107
	92.93%	48.40%	82.30%
NEGATIVE	7	16	23
	7.10%	51.61%	17.70%
Total	99	31	130
	100.00%	100.00%	100.00%

Table 6 (A) shows that out of the 107 KOH positive cases, 92.93 % showed growth while 48.40% showed no growth. Out of the 23 KOH negative cases, 7.10% showed growth and 51.60 % showed no growth. Therefore, KOH positive cases showed more growth in culture as compared to the KOH negative cases which showed no growth in culture. There is statistically highly significant association between Fungal culture and 10% KOH. This indicates that KOH mount preparation can be considered as a good screening test for Dermatophytosis.

**Table 6 (B):** Statistical values after analysis of the findings of the present study

Statistic	Value
Sensitivity	92.93%
Specificity	51.61%
Positive Predictive Value	85.98% (*)
Negative Predictive Value	69.57 % (*)
Accuracy	83.08% (*)

Table 6 (B) shows that in the present study, the Sensitivity of KOH preparation is 92.93% which means that it has identified 92.93% cases of Dermatophyte infection correctly out of the total 130

clinically suspected cases. Specificity of KOH preparation in the study is 51.61%. It could identify 16 patients with no evidence of Dermatophyte infection in the study.

The Positive Predictive Value is 85.98% that means that amongst the 107 patients with KOH positivity, the probability of having Dermatophytosis is 85.98%. The Negative Predictive Value is 69.57% which means that out of the 23 patients with KOH negative results, 69.57% patients probably do not have Dermatophytosis.

The accuracy of a test is the ability to differentiate the patient and healthy cases correctly. It is calculated by dividing the sum total of True positive and True negative by the sum total of True positive, True negative, False positive and False negative. The value of Accuracy in the present study is 88.08%. So, we can conclude that KOH Test has correctly identified many of the cases with Dermatophytosis and it is a good screening test.

This study was conducted in a tertiary care hospital on OPD basis with the help of Microbiology Department. The total number of patients included in this study was 130 with males to female ratio of 2:3. Highest incidence of dermatophytosis was observed in the age group of 21–30 years and in females. This may be due to greater physical activity at and increased sweating during this age group favouring the growth of dermatophytes.

#### Photographs:

**Fig1:** Tinea corporis (annular plaque on axilla)



**Fig 2:** Tinea corporis



**Fig 3:** Tinea corporis ( Hyperpigmented polycyclic plaques involving the Trunk)



**Fig.4:** Tinea cruris (polycyclic plaque Involving the gluteal region)



**Fig 5:** Tinea corporis ( Annular plaques Involving the thighs )



**Fig 6.** Tinea corporis (large plaque with satellite lesions at lower back)



**Fig 7.** Tinea cruris involving the gluteal region



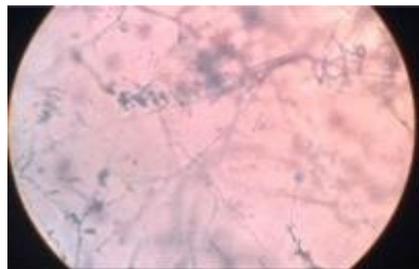
**Fig 8.** Tinea unguium (yellowish discolouration and hyperkeratotic nail)



**Fig 9:** Microscopic view of *Microsporum gypsum* with numerous macroconidia



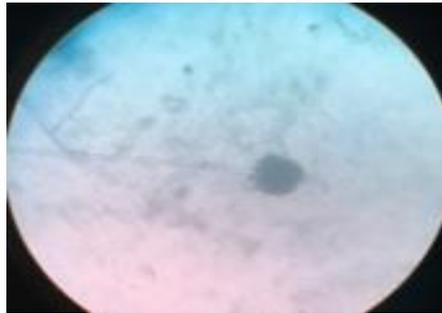
**Fig 10:** Microscopic view of *Trichophyton mentagrophytes* with spiral hyphae and microconidia



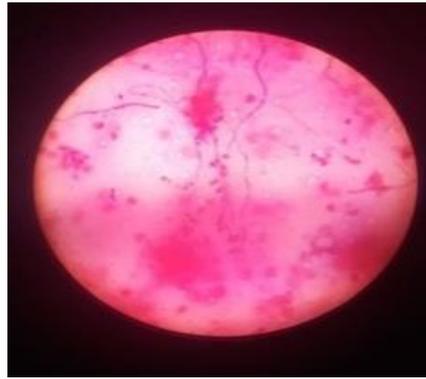
**Fig 11:** Microscopic view of *Trichophyton tonsurans*



**Fig 12:** Microscopic view of *Aspergillus*



**Fig 13:** Microscopic view of *Candida albicans*



#### **4. CONCLUSION**

Dermatophyte infections are very common in hot humid climate and tropical places like Sangli.

Females are more commonly affected with Dermatophyte infection in the waistline maybe due to their Indian style of wearing clothes.

Males have Dermatophyte infection mostly in the groin and buttocks maybe due to excessive sweating and use to damp inner wears.

The young and middle aged population is more commonly infected with Dermatophytes with the commonest causative fungi being *Trichophyton mentagrophytes*.

10% Potassium Hydroxide (KOH) mount preparation of the skin scrapping is an easy inexpensive test that plays a very important role in diagnosing a case of Dermatophytosis and helps us rule out other diseases like Psoriasis, Eczema and Mycosis fungoides that mimics Dermatophytoses.

Culture of the skin scrapping in Sabouraud agar media helps us understand the pathology and the growth pattern of the various dermatophyte. It reconfirms the diagnosis of Dermatophytoses that was made clinically and was confirmed by 10% KOH moun.t

KOH mount is a fast, inexpensive, good and a reliable screening test for Dermatophytosis and so treatment for the patient can be started after KOH mount results are positive even before Culture reports.

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