to a new investigation with biopsy for direct research and culture for fungi, being identified Prototricha Wielandii, by Mal-
di-Top, with sensitivity to imazalil and amphotericin B. PCR amplification of the genomic material obtained in the clinical isolate was performed with purification of its product, and sequencing showed genetic similarity of 97.46% with Prototricha Wielandii. The sequence obtained was deposited in GenBank under number MG409134. In the absence of therapeutic response to imazalil (400 mg/dl), and significant worsening of the lesion, with progression of a secondary infection caused by Staphylococcus hominis, treatment with Clindamycin (900 mg/dl for 10 days) and Levamisole Aminopterin B (4 mg/kg for 4 days) was performed. After suspension of Levamisole Aminopterin B, the lesion recurred in 15 days, and voriconam (200 mg q12h) was prescribed for 4 months, with complete regression of the lesions. Currently, he is free of injuries, having been followed up every 6 months.

Conclusion: Rare disease caused by chlorophillous algae may be surprising due to the severity and lack of response to antifungals that show sensitivity in vitro.

P109
Molecular identification of dermatophyte species from Eastern Assam, Northeast India
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Poster session I, September 21, 2022, 12:30 PM - 1:30 PM

Objectives: Dermatophytes infections occur worldwide both in as well as in developed countries. However, species of dermato phytes vary across countries. This study was done to know the various species of dermatophytes that are commonly associated with infection in this part of the country.

Methods: This study was done from 2020-2021. A total of 49 consecutive isolates of dermatophytes isolated from clinically suspected cases attending Assam Medical College and Hospital, a tertiary care hospital were subjected to molecular identification by using PCR and sequencing of the ITS region of the ribosomal RNA gene as well as using MALDI-TOF (VITEK MS). Samples from across range of lesions from skin, nail, and hair were collected and primary identification was done by culture and microscopy as well as conventional phenotypic tests. Culture was done in Sabouraud Dextrose agar, Sabouraud Dextrose agar with chloramphenicol and cycloheximide, and dermatophyte test medium which was followed by genetic confirmation by PCR of the ITS region and sequencing of PCR amplicons after already published protocols.

Results: The species isolated were T. rubrum (36.7%), T. interdigitale (32.6%), T. mentagrophytes complex (14.2%), T. tonsurans (8%), M. gypseum (6%), T. schoenleinii (2%). The cases were clinically found to be T. corporis (44.9%), T. manus (12.2%), T. pedis (12.2%), T. orei (10.2%), T. acuminata (8.1%), T. unguium (8.1%), and T. schoenleinii (4.3%).

Conclusion: T. rubrum, T. interdigitale, T. mentagrophytes, and T. tonsurans complex were the predominant species isolated.

P110
Potential inhibition of dermatophyte fungi by Australian native jerah honey
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Poster session I, September 21, 2022, 12:30 PM - 1:30 PM

Objectives: Honey has been used as a remedy for multiple ailments, and the antibacterial activity of many different floral honeys has been commonly explored. The capacity of honey to inhibit fungi is much less well understood. Here we investigate the inhibition of dermatophyte species by native Australian jerah honey.

Methods: Jerah honey was sourced from beekeepers and commercial suppliers. Artificial honey, made from glucose (22.3%), fructose (20.7%), and sucrose (1.4%), was used to control for osmolarity. Hydrogen peroxide production by honey was assessed using horseradish peroxidase (HRP)-based colorimetric tests. Dermatophytes included Microsporum ca-
sica, M. audouinii, Microsporum gypseum, Trichophyton rubrum, and T. tonsurans. Minimum inhibitory concentration (MIC) and minimum fungicidal concentrations (MFC) for honey were assessed using CLSI methods. Fluorescent and scanning electron microscopy were used to visualize the effect of honey on fungal conidia and hyphae.

Results: Jerah honey inhibited all of the dermatophyte species with MICs ranging from 1.5-5.3 mg/wt. and MFCs from 2.5-8mg/wt. No antifungal activity was seen with the artificial honey indicating this was not due to osmolarity. Microscopy revealed that in most isolates, the inhibition of conidia and caused hyphae to budge and collapse. While the inhibitory action of jerah honey was greatly reduced by the addition of catalase suggesting hydrogen peroxide production was responsible for inhibition and killing, microscopy revealed hyphae were still distorted suggesting there are agents within honey that augment antifungal activity. REDOX flow cytometry failed to detect internal oxidative stress within hyphae, indicating that damage likely occurs on the hyphal surface.

Conclusion: Jerah honey is a non-toxic agent that may have utility in the treatment of superficial fungal infections caused by dermatophyte fungal species.

P112
Nuclear magnetic resonance-based identification of metabolites in dermatophytes
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Poster session I, September 21, 2022, 12:30 PM - 1:30 PM

Objectives: Nuclear magnetic resonance (NMR) spectroscopy provides a holistic snapshot of the metabolome of an organism. There is a dearth of studies till date that had exploited NMR metabolic platform to study dermatophytes, despite its potential for rapid identification and subsequent application of the knowledge in performing faster antifungal susceptibility of dermatophytes. Here we attempted to study the frequency of various species of dermatophytes in clinically suspected cases of dermatophytosis and perform NMR-based identification of metabolites in the culture suspension extracts of T. mentagrophytes and T. rubrum.

Methods: This was a hospital-based prospective study conducted in the isolates obtained from clinically suspected cases of Dermatophytosis in the patient. Skin, nails, and hair samples of patients suspected with superficial fungal infections were processed for dermatophytes using conventional microbiological methods. NMR-based identification of metabolites was carried out in cell extracts prepared from the culture suspensions of T. mentagrophytes and T. rubrum obtained during the study from a subset of the clinical isolates from the samples.

Results: Dermatophytes were isolated in 81.88% (219/269) cases, with T. mentagrophytes being isolated in 65% (154/239) of isolates, followed by T. rubrum in 31.5% (88/281) isolates. In NMR study was done in the standard ATCC strain T. mentagrophytes ATCC 90133 and T. rubrum ATCC 20918 and representative clinical isolates of both the species. Overall, 24 metabolites were identified in T. rubrum and 25 metabolites in T. mentagrophytes amongst which 22 metabolites were common to both fungi, however, 6-hydroxypropyl and `acetic` was found specific to T. rubrum, and `allantoin` was found specific to T. mentagrophytes. These specific metabolites could be useful for early identification of these dermatophytes as well early determination of antifungal susceptibility by using metabolic elucitators, further large-scale study will be helpful in this regard.

Conclusion: T. mentagrophytes was the predominant dermatophytic species in the study. Amongst the number of metabolites detected in T. rubrum and T. mentagrophytes, 4-hydroxypropyl and `acetic` was found specific to T. rubrum, and `allantoin` was found specific to T. mentagrophytes. These specific metabolites could be useful for early identification of these dermatophytes as well early determination of antifungal susceptibility by using metabolic elucitators, further large-scale study will be helpful in this regard.

P102
Role of biofilm production in recalcitrant tumors
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Poster session I, September 21, 2022, 12:30 PM - 1:30 PM

Objectives: To determine the role of biofilm production in dermatophytes from isolates of recalcitrant skin lesions of study patients.

Methods: An observational study conducted in UCMS and GBT Hospital, Delhi, for clinically diagnosed and mycologically confirmed cases of recalcitrant tinea infections of glabrous skin to analyze the role of biofilm production in dermatophytes. After taking written informed consent from the study population sample collection (skin scraping) was done. The scraping was then inoculated in 35% potassium hydroxide (KOH) for direct microscopic examination followed by culture on Sabouraud Dextrose agar medium with antibiotics (Amoxicillin, Gentamicin, Cycloheximide). The fungal growth was then subjected to PCR using (Lactophenol cotton blue). The isolates were allowed to form in-vitro biofilms on polystyrene microtiter plates. Quantification of biofilm biomass was done using crystal violet staining and measuring the optical density (OD) at 570 nm and classified as non-adherent/producer, weak moderate, and strong biofilm producers. Results: Time course and cure were the most common clinical types of dermatophytes. T. mentagrophytes-complex was the most common dermatophyte isolated from the clinical specimens. Majority (58.84%) of isolates formed strong (OD > 4.0 ODx) biofilms. High rate of in-vitro strong biofilm formation by the isolates indicates that these organisms might be forming biofilms in-vivo leading to chronicity and poor response to therapy.
A dermocscopic finding of Tinea capitis caused by *Microsporum canis*

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**Objectives:** Tinea capitis is a relatively common disease, and the mycological examination is the gold standard for diagnosis. However, the probability of false negatives on the KOH test is up to 40%, and culture examination takes a long time for diagnosis. The characteristic pattern of dermatomycosis not only aids in diagnosis, but also enables early treatment.

**Methods:** We evaluated six patients who were diagnosed with tinea capitis through clinical and dermoscopic findings. The images of the lesions were taken with a digital camera (Nikon, HB-42) and photographed with dermoscopy (Deravita Porto 2 Pro) from the patients. The pictures were obtained by taking multiple focal points with dermoscopy. The concom, coilocites, Mercerode-like, zig-zag, and bent hairs were observed in the main findings.

**Results:** The dermoscopic findings were compared with various findings in each of the patients. Upon dermoscopy, the most common findings were the coilocute hair (64%) and the bent hair (46%). The comma hair (35%) and the proximal white shaft hair (35%) were less frequently observed and a zigzag hair and Mercerode-like hair were not seen in six patients. In the photograph taken with a camera, findings consistent to be dermatomycoses such as comma-like or comma hair were not observed.

**Conclusion:** It is important for dermatologists to consider that abnormal findings in dermoscopy can play an important role in diagnosing Tinea capitis. And it will help in early treatment and prevent the progression of complications. Here in, we report specific dermoscopic findings which can narrow down the differential diagnosis.

**Reference(s):**

2. AIRS KP, Kupur, Rauri, India
3. PGEmer, Chandigarh, India

**P107**

Spectrum of Dermatophytes infections and drug susceptibility pattern of Dermatophytes in patients visiting to tertiary hospital in Chhattisgarh state of India

Andrea Eshetu, Padma De, Pratibha Sharma, Satyaki Ganguly, Namrata Chhatra, MR Shivaprakash

**Poster session 1, September 21, 2022, 12:10 PM - 1:30 PM**

**Objectives:** 1. To isolate and identify various species of Dermatophytes from clinical specimens 2. To perform and analyze the antifungal susceptibility testing of isolated Dermatophytes for commonly used antifungal agents; terbinafine and itraconazole.

**Methods:** A prospective study was conducted from December 2019 to October 2021. Clinical specimens (skin, hair, and nail) from suspected cases of dermatomycoses were received and processed in the Department of Microbiology. All the samples were subjected to microscopic examination and culture by standard techniques. Their clinico-demographic profile was obtained. Specimens were processed for KOH and fungal culture. Dermatophytes were identified by studying macroscopic and microscopic characteristics of the isolates. The concomitant-phenotypic dermatophytes isolates were processed for antifungal susceptibility testing for terbinafine and itraconazole by Microbroth dilution testing following the CLSI-M-38A2 guidelines.

**Results:** Total 248 patients with nail predominance (68%) were tested in the above-mentioned study period. Prevalence of study population belonged to rural area. Maximum numbers of cases were from the age group 21-30 years. Majority of patients belong to poor socioeconomic status. Out of 248 samples, 178 (72%) had a positive KOH mount amongst which 72% had positive culture results. Amongst 2,689% were skin scraping, 37% were nail, and 3.4% hair samples were processed. Out of culture-positive samples 85% were Dermatophytes. The most clinical forms of dermatophytes were combination of both Tinea capitis and T. corporis (31%) followed by T. cruris (22%), and T. corporis (17%) for which skin scraping was processed. The most common isolate was Trichophyton mentagrophytes (37%), followed by T. mentagrophytes (25%), and T. verrucosum. Onychomycosis was diagnosed in 17% of patients of which 99% were positives by KOH-49% were culture positives 11.3% isolates from nails were Dermatophytes.

Antifungal susceptibility testing was done by Microbroth dilution method and analyzed the range. The MIC range of major isolates, i.e., T. rubrum showed MIC ranges against terbinafine 0.014-4 μg/ml and itraconazole 0.03-2 μg/ml. Trichophyton mentagrophytes for terbinafine 0.124-2 μg/ml and for itraconazole 0.12-2 μg/ml. Four isolates of T. rubrum had higher MIC values for terbinafine and two isolates had higher MIC for itraconazole. One isolate of T. mentagrophytes had higher MIC values of terbinafine, and one another isolate had higher MIC for terbinafine.

**Conclusion:** This study highlights the change in pattern of resistant organisms of dermatophytes. The present study showed the predominance of T. rubrum. More extensive studies are needed to evaluate the cut-off range of antifungal susceptibility testing of dermatophytes with clinical follow-up to see the response of respective antifungals and to guide the therapy.