Methods: This was a hospital-based prospective study conducted in the isolates obtained from clinically suspected cases of dermatophytosis in the patients. Skin, nail, 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 81.8% (219/270) cases, with T. mentagrophytes being isolated in 65% (143/219) isolates, followed by T. rubrum in 31.5% (69/219) isolates. In NMR study we were able to discern T. mentagrophytes strain (T. mentagrophytes ATCC39953) and T. rubrum ATCC26318) and representative clinical isolates of both the species. Over 24 metabolites were identified in T. rubrum and 23 metabolites in T. mentagrophyte amongst which 22 metabolites were common to both fungi, however, 4- hydroxyproline and 'acetate' 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 determinations of antifungal susceptibility by using metabolic endpoints, further, large-scale study will be helpful in the regard.

Conclusion: T. mentagrophytes was the predominant dermatophytic species in the study. Among the number of dermatophytes identified in T. rubrum and T. mentagrophytes '4-hydroxyproline' and 'acetate' 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 determinations of antifungal susceptibility by using metabolic endpoints, further, large-scale study will be helpful in the regard.

P102
Role of biofilm production in recalcitrant lesions

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

Objective: To determine the role of biofilm production in dermatophyte isolates from tissue infections of recalcitrant skin lesions of study patients.

Methods: An observational study conducted in UCMS and GTB Hospital, Delhi, in clinically diagnosed and mycologically confirmed cases of recalcitrant tissue infection 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 30% potassium hydroxide (KOH) for direct microscopic examination followed by culture on Sabouraud Dextrose Agar (SDA) and subjected to antifungal susceptibility testing (Candida, Cryptococcus, Cyathomyces). The fungal growth was then subjected to PCR (Lactohydrolase blue) test. The isolates were allowed to form in-vitro biofilms on polyethylene microplates. Quantification of biofilm biomass was done using crystal violet staining and measuring the optical density (OD) at 700 nm and classified as non-adherent-producer, weak producers, and strong biofilm producers.

Results: Time course and area were the most common clinical types of dermatophytes. The T. mentagrophytes-camp was the most common dermatophyte isolated from the clinical specimens. Majority (88.48%) of isolates formed strong (OD > 40 ODx) biofilms.

Conclusion: Biofilm production has an increased incidence in the recalcitrant and recalcitrant dermatophytes of skin.

The predominance of T. mentagrophytes-camp as observed in our study highlights the importance of the pathogen in causation of recurrent and chronic and recalcitrant dermatophytes in India.

High rate of in-vitro strong biofilm formers by the isolates indicates that these organisms might be forming biofilms in-vivo leading to chronicity and poor response to therapy.

P104
In vitro interaction of Malassezia and commensal Staphylococcus species

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Objective: Malassezia is the most abundant fungal skin commensal organism, representing 50%–60% of total fungal present on the skin. It has been associated with many skin disorders such as pityrosporum versicolor (PV) and seborrhoeic dermatitis (SDM). The role of Malassezia in disease manifestation is not discarded. It is important to understand its interaction with bacterial flora such as Staphylococcus epidermidis and S. capitis in vitro. We have studied the interaction of Malassezia and Staphylococcus in vitro.

Methods: Malassezia restricta and S. capitis were selected because they are more frequently isolated as skin pathogens. Malassezia restricta was grown in yeast broth medium, while Staphyloacus aureus was grown in TSB broth. The cells were resuspended to a concentration of 10^5 CFU/ml. The percentage of viable cell was assessed by Fluorescence activated cell sorting (FACS). The cell suspensions were then co-cultured at different time points and evaluated for the viability and interaction of the two species.

Results: The interaction of the two species resulted in a decrease in the viability of both species, indicating a possible competition for nutrients and space. The results also showed a decrease in the expression of virulence factors by both species, suggesting a potential role for Malassezia in regulating the growth of Staphylococcus.

Conclusion: Malassezia restricta and S. capitis are interacting with each other in a manner that may be beneficial to the host. Further studies are needed to understand the molecular mechanisms underlying this interaction.