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COMPARATIVE STUDY OF TWO DIFFERENT CONCENTRATIONS OF KOH FOR ISOLATION OF DERMATOPHYTES ON DIRECT MICROSCOPSY

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Sir,

Mycotic infections, which depend on specific geographical and climatic areas, lifestyle, patient age, occupation, migration, sport activities, and drug therapy, are very common infections of skin, hair, and nails in many countries.[1,2] They are the fourth most common cause of health care problems affecting millions of people worldwide-especially in the pediatric group.[2] Superficial fungal infections have become a major cause of morbidity and mortality in clinically debilitated or immune compromised patients .[3]

Major etiological agents of dermatomycoses include dermatophytes and yeasts (Candida spp. and Malassezia spp.).[4] Diagnosis of superficial mycosis is often clinically established; however, laboratory confirmation is required for more difficult and atypical lesions and for type determination of causative fungi. Laboratory diagnostic procedures in dermatological mycology are based on direct microscopy and culture.

Potassium hydroxide (KOH) wet mount preparation used for direct microscopy is generally considered as conventional rapid test.[5]

Potassium hydroxide is a keratin digestion reagent that will dissolve proteins, lipids, and lyse epithelium. The fungus element will withstand the KOH solution (10%–30%), because it contains chitin and glycoproteins in the cell wall. KOH determines fungal elements between keratin cells quickly and irreversibly without staining particular specimens. This clearing agent provides a significant difference in brightness between fungal cells and the sample background and helps to improve quality of results.

A total 300 Samples were collected from clinically suspected cases of ringworm infection between January 2019 to June 2019, attending the outpatient department of Skin and V.D. at JNU medical college and hospital ,Jaipur.

Suspected lesions were cleaned with 70% alcohol to remove the dirt and contaminating bacteria. Samples were collected in sterile paper, folded, labeled and brought to the laboratory for further processing.

For direct microscopy the sample collected was screened for the presence of fungal elements by two methods:

(1) 10% Potassium hydroxide mount (KOH) and,

(2) 15% Potassium hydroxide mount(KOH) .

KOH Mount: A drop of 10% KOH and 15% KOH was kept on a clean, grease free glass slides separately. The sample from skin scrapings only (nail and hair samples were not included in this study) was placed in the KOH drop and slide passed through a

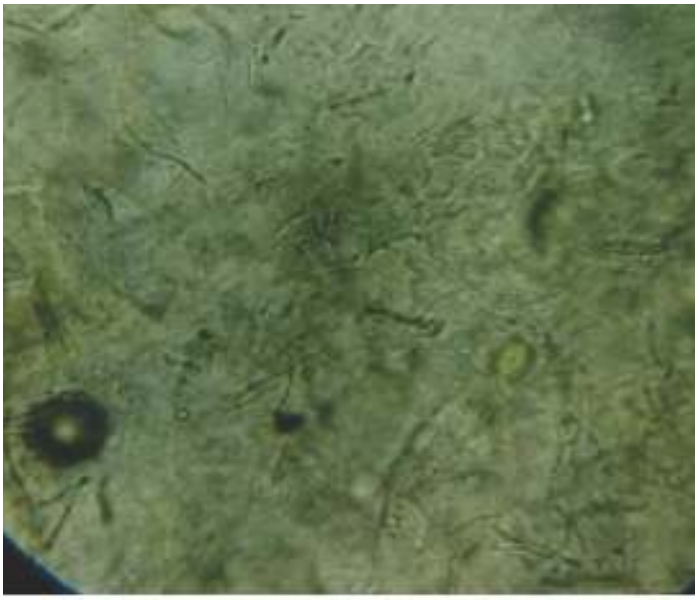

Figure 1: No fungal hyphae seen on 10 % KOH after 5 min.

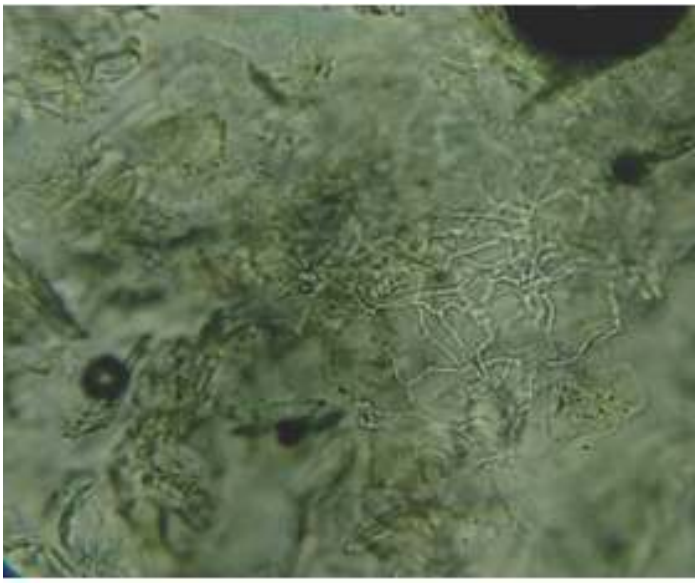

Figure 2: Fungal hyphae are visualised on 15 % KOH after 15 min.

burner flame to hasten keratolysis. When keratolysis softened the sample, a clean glass cover slip was kept on the sample and pressed, preventing formation of air bubbles.

The sample was kept in KOH for a variable duration ranging from 5 minutes to 15 minutes, depending upon the thickness of the scales and examined every 5 minutes. Each slide was thoroughly examined for the presence of filamentous, septate, branched hyphae with or without arthrospores crossing the margins of the squamous epithelial cells of the skin.

In total 300 clinically suspected cases, 240 cases were positivity for fungal hyphae. While comparative direct microscopic examination, it was observed that 15% KOH preparation produced rapid clearing of keratin and faster visualization of fungal hyphae as compared to 10 % KOH preparation (Figure 1,2). In 15% KOH fungal hyphae could be visualized in 5 minutes, while 10% KOH took 10 to 15 minutes for complete clearing of keratin (Table 1).

Time duration	No. of positive cases on 10% KOH	No. of positive cases on 15 % KOH
After 5 min.	---	150
After 15 min.	240	90
Total positive cases	240	240

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References

1. Faure-Cognet O, Fricker-Hidalgo H, Pelloux H, Leccia MT. Superficial fungal infections in a French teaching hospital in Grenoble area: retrospective study on 5470 samples from 2001 to 2011. Mycopathologia 2016;181:59–66.
2. Prakash R, Prashanth HV, Ragunatha S, Kapoor M, Anitha T, Krishnamurthy V. Comparative study of efficacy, rapidity of detection, and cost-effectiveness of potassium hydroxide, calcofluor white, and Chicago sky blue stains in the diagnosis of dermatophytoses. Int J Dermatol 2016;55:e172–175.
3. Kumar RS, Ganvir S, Hazarey V. Candida and calcofluor white: Study in precancer and cancer. J Oral Maxillofac Pathol 2009;13:2–8.
4. Babayani M, Salari S, Hashemi S, Almani PGN, Fattahi A. Onychomycosis due to dermatophytes species in Iran: Prevalence rates, causative agents, predisposing factors and diagnosis based on microscopic morphometric findings. J Mycol Med 2018;28:45–50.
5. Afshar P, Khodavaisy S, Kalhori S, Ghasemi M, Razavyoon T. Onychomycosis in north-East of iran. Iran J Microbiol 2014;6:98–103.