



## Medical laboratory techniques

Assist lect: Shahad A.alrahman + Jaafar Hamid +Zahraa abdalameer + Sarah Hashim

### Lab 2



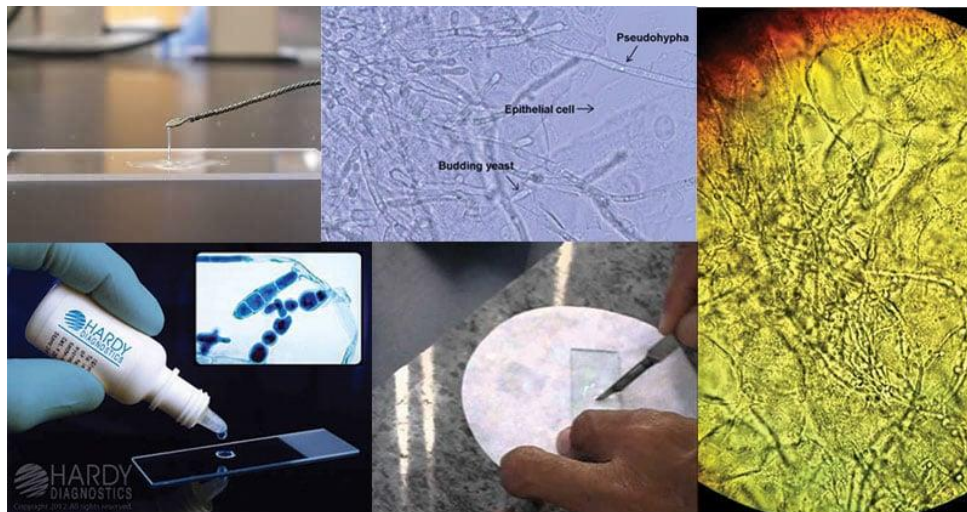
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## Direct Examination for fungi

Direct examination of specimens provides a presumptive diagnosis. The main methods for direct examination are

- Direct wet mount
- KOH/calcofluor mounts
- India Ink
- Lactophenol cotton blue mounts
- Gram stain
- and the Acid-Fast stain.

These stains are used for direct examination of fungi (**yeast, molds, and dimorphic fungi**) and members of the actinomycete (*Mycobacterium* and *Streptomyces*).





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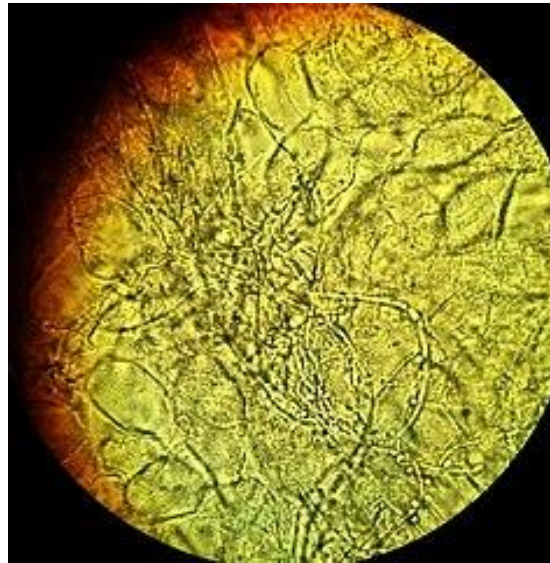
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### 1. Wet Mount

The wet mount procedure is mainly performed to observe the motility of organisms. It consists of a drop of cells in a solvent placed on a slide and observed under 10x and 40x magnification. The saline wet mount and iodine wet mount are best suited for examining organisms in stool, while KOH is used to examine skin cells and hair for fungi.



Vaginal wet mount of an opportunistic pathogenic yeast

### 2. The KOH examination

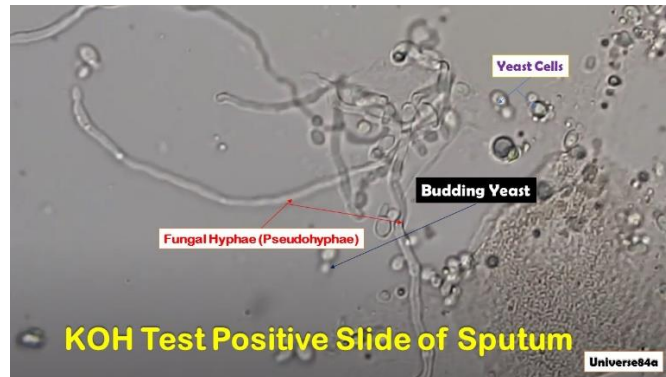
KOH examination is generally used as a screening method to diagnose superficial fungal infections because it is relatively convenient, quick, and inexpensive. Through a KOH examination, superficial fungal infections are easily diagnosed under the microscope by their long branch-like structures known as hyphae.



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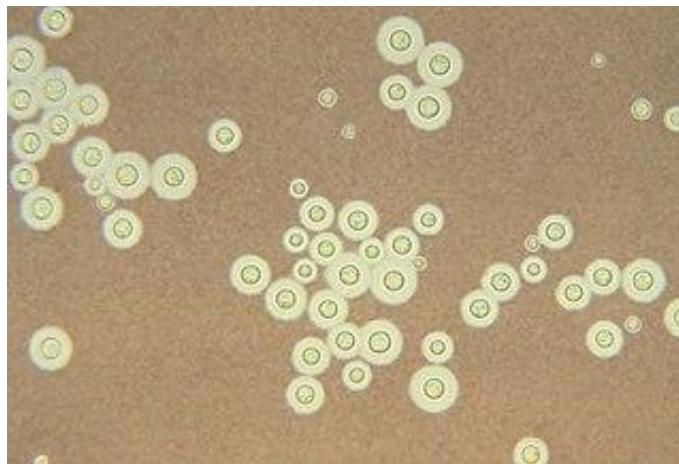
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To perform a KOH examination of the skin and nails, scales are collected by scraping the involved area with a special blade. Scraped scales are then placed on a glass slide, prepared with 10% KOH, and capped with a cover glass.

### 3. India Ink

India ink can be used in specimens suspected to include fungal and bacterial species. The dark background caused by the staining procedure highlights yeast cells and the capsules of microbes by creating a halo-like effect. It is also very useful in examining samples suspected of having *Cryptococcus* as it can distinguish between the cells of *Cryptococcus* and white blood cells.



Fungal pathogenic cells of *Cryptococcus* exposed to the India Ink technique



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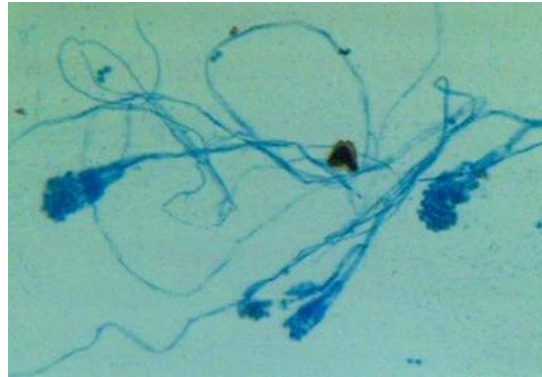
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### 4. Lactophenol Cotton blue

Lactophenol blue is most commonly used in staining **fungal**



*Penicillium* stained with Lactophenol blue