



Medical laboratory techniques

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Lab 5

Dermatophytes

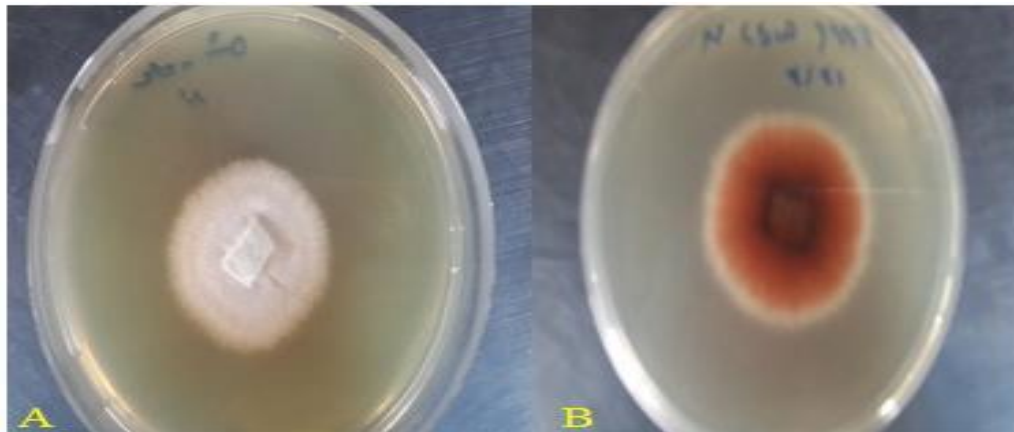
Dermatophytes are filamentous fungi that cause infections of the skin, hair and nails obtaining nutrients from keratinized material. The organisms colonize the keratin tissues causing inflammation.

Trichophyton Microsporum and Epidermophyton. Cause infections of the skin, hair and nails. Some of these skin infections are known as ringworm or tinea.

Trichophyton: infections on skin, hair and nails : ***Trichophyton rubrum***

Macroscopic examination:

The colony of *T.rubrum* are white color. The surface texture are cottony. The reverse pigment of colony is usually red, although some isolates appear more yellowish.



Colony morphology of *Trichophyton rubrum* on SDA

Microscopic examination:

The **macroconidia** are rarely found in most isolates except granular isolate that elongated are similar pencil shape, end rounded, contain 2-10 cells while the **microconidia** are clavate shape, thin layer is made up along the mycelium.



Microsporum: infections on skin and hair : ***Microsporum gypseum***

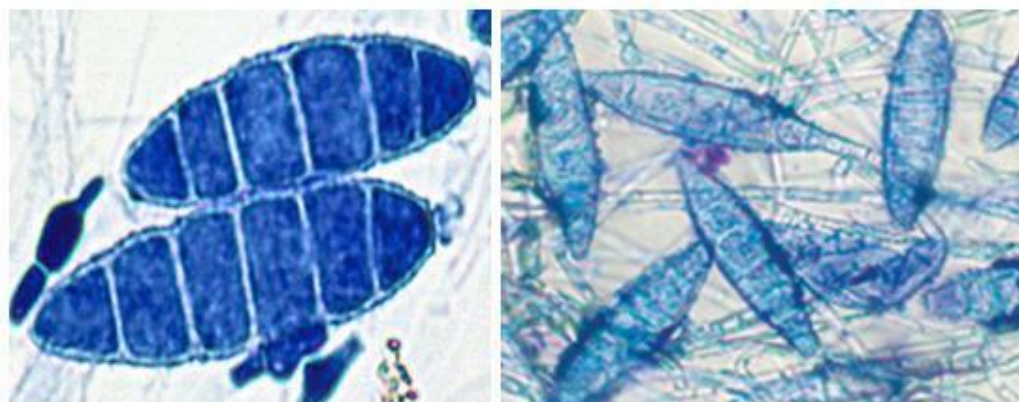
***Macroscopic examination:**

The colonies of *M. gypseum* are described as cottony they grow rapidly with a color range of white to buff, with a **reverse** that can range from pink, to red, to yellow .The cottony appearance of the colony is due to the abundant production of macroconidia on the older mycelium.



Microscopic examination:

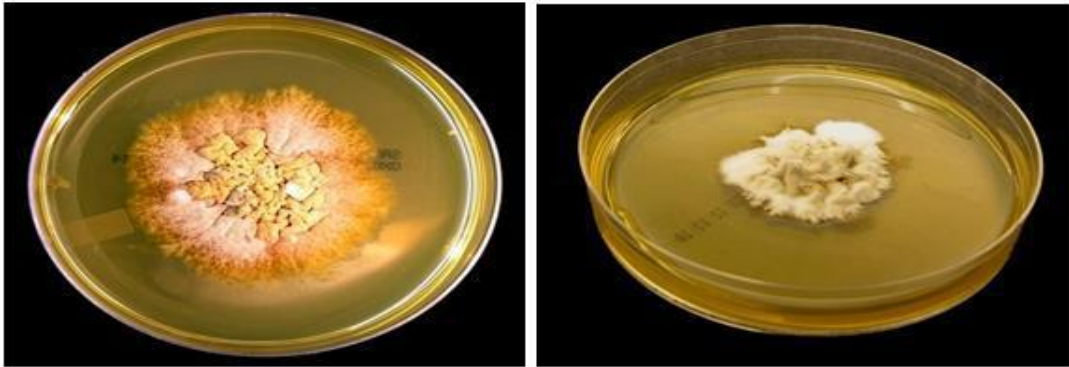
Has septate hyphae Macroconidia have a range that can occur as short pedicels terminal, solitary, spindle shaped, large, thick walled, that are smooth or roughened, borne directly on hyphae or on short branches .have 6cell .



Epidermophyton: infections on skin and nails: *Epidermophyton floccosum*

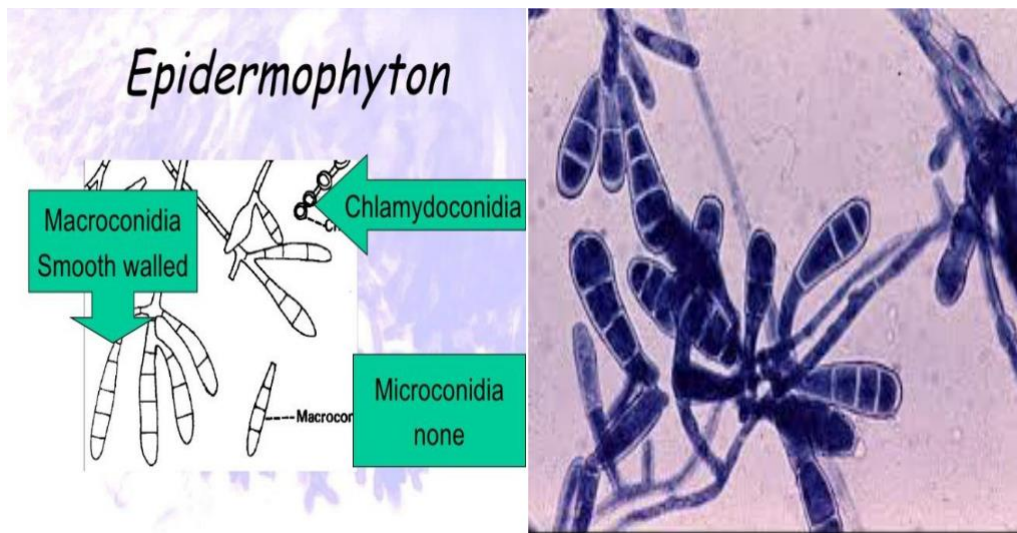
Macroscopic examination:

Colony growth is slow. The surface texture powdery, with a yellow to tan surface color .The reverse pigment chamois to brown.



Microscopic examination:

Macroconidia are club shaped, with thin smooth walls and can be solitary or grouped in clusters with 2-3 cells. Chlamydoconidia are often produced in large numbers. **Microconidia** are absent.



***Epidermophyton floccosum* (Macroconidia)**

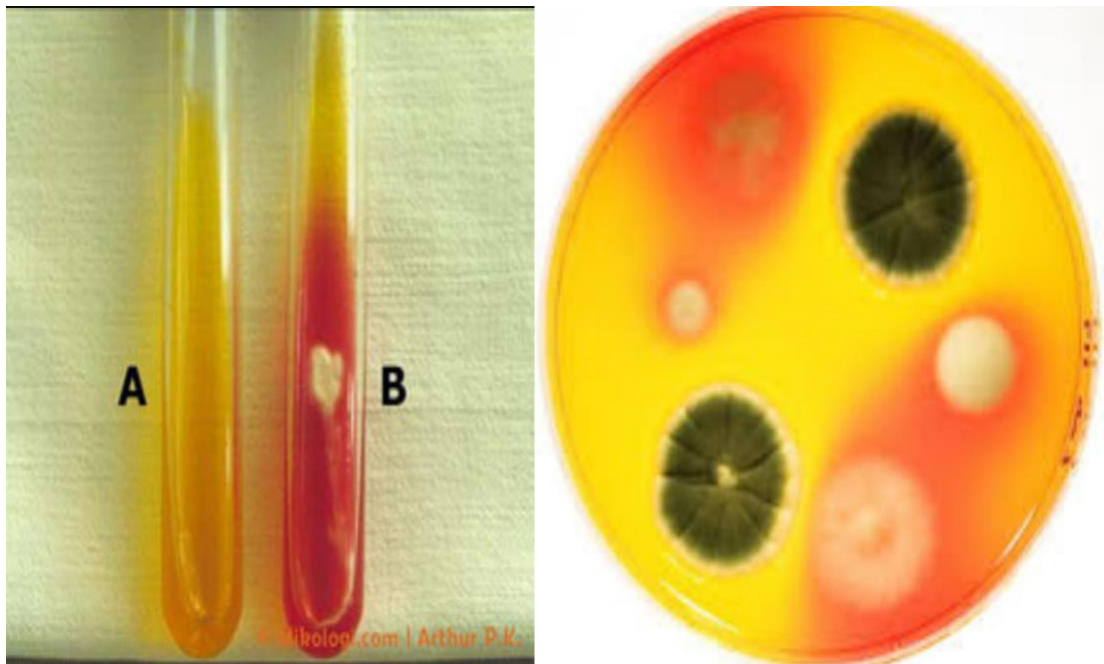
Diagnosis of Dermatophytes test

A special agar called **Dermatophyte Test Medium (DTM)** to grow and identify dermatophytes. Without having to look at the colony, the hyphae, can identify the dermatophyte by a simple color test.

1-The specimen (scraping from skin, nail, or hair) is embedded in the DTM culture medium.

2-It is incubated at room temperature for 10 to 14 days.

3- If the **fungus is a dermatophyte**, the medium will turn **bright red**. If the fungus is not a dermatophyte, **no color change will be noted**.



A- **Negative result** (Yellow color).

B- **Positive result** (bright red color).

Types of dermatophytes infections:



1- Tinea pedis



2- Tinea capitis



3- Tinea body



4- Tinea facialis



5- Tinea unguium