

Superficial mycosis, tinea types and dematiaceous (Black Fungi)

Definition and General Characteristics of Cutaneous Mycoses

Fungal Disease that effects the skin, hair and nails, they are generally restricted the keratinized tissue. They cause inflammatory response.

Dermatophytes:

Etiological fungi are called (Dermatophytes) “They are Keratinophilic fungi”

There are 3 genera:

- Microsporum
- Trichophyton
- Epidermophyton
- Dermatophyton infection are celled Tinea (= Ringworm)



Dermatophytes are categorized into three types according to sources of infection:

- 1- Geophilic Dermatophytes
- 2- Zoophilic Dermatophytes
- 3- Anthropophilic Dermatophytes

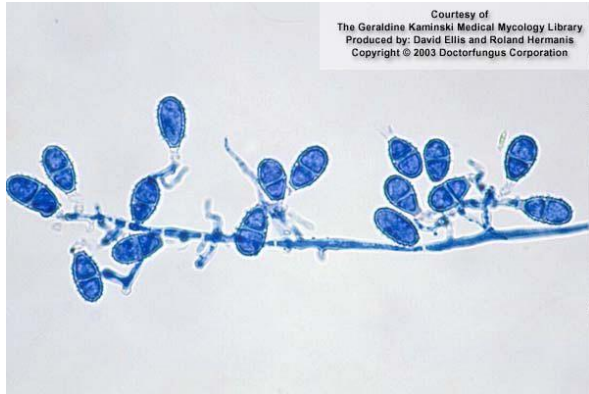
- **Geophilic Dermatophytes**

These types of dermatophytes inhabit soil where they decompose keratinaceous debris of dead animals:

- 1- ***Microsporum gypseum*:**



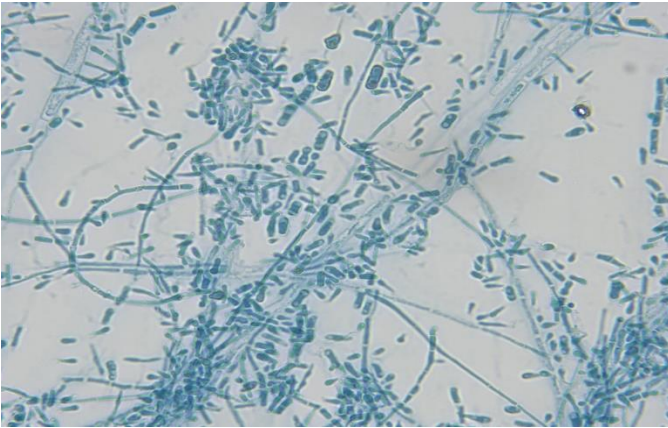
2- *Microsporum nanum*



- Zoophilic Dermatophytes**



1- *Trichophyton equinum*

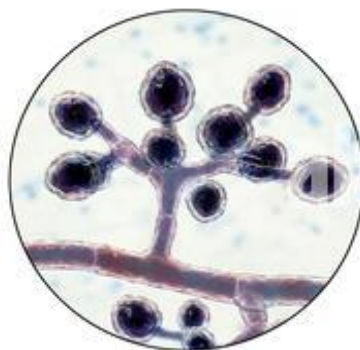


2- *Microsporium canis*



3- *Trichophyton mentagrophytes*

Trichophyton mentagrophytes



**Microconidia on
branched conidiophores**



Macroconidium

- **Anthropophilic Dermatophytes**

Primarily parasitic to man. Man as exclusive host for maintenance and dissemination of species

1- *Trichophyton rubrum*



2- *Trichophyton schoenleinii*



- 3- *Trichophyton tonsurans*
- 4- *Trichophyton mentagrophytes* var *interdigitale*
- 5- *Microsporum audouinii*
- 6- *Epiidermophyton floccosum*

Clinical manifestations of Dermatophytes:

A. Skin invasion= Ringworm

B. Hair invasion

- Facial type (Inside, with oil deposits and air)
- Ectothrix type (outside, the hyphae are accumulated around their hair shaft)
- Endothrix type (inside)

Tinea capitis scalp, eye brow, eyelashes

Tinea corporis Rings with scaly centers

Tinea favosa Cup shaped crusts

Tinea imbricate concentric rings caused by *T. concentricum*

Tinea barbae Bearded area of face and neck

Tinea cruris Jock itch, moist groin area

Tinea pedis, Athlete's foot Toe webs, soles and nails

Tinea manuum, Interdigitate areas and palmar surfaces

Tinea unguium (Onychomycosis) Invasion of nail plate Thickened, discolored and brittle nails.

- **Laboratory Diagnosis of Dermatophytes:**

A- Skin Scarping + infected hair



KOH

B- Potassium hydroxide (KOH): dissolved keratin and free hyphae from the cell.

C- Calcofluor white (CFW) stains chitin at the cell wall.

Need fluorescent microscopy. Improve the sensitivity and specificity of diagnosis.

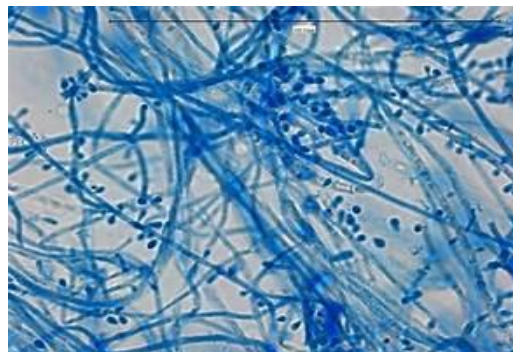
- **Culture:** SDA or SDA with chloramphenicol and cycloheximide (mycosel agar) at room temperature at least 2 weeks identification:

- **Microscopic characteristics:** - Gross color and texture

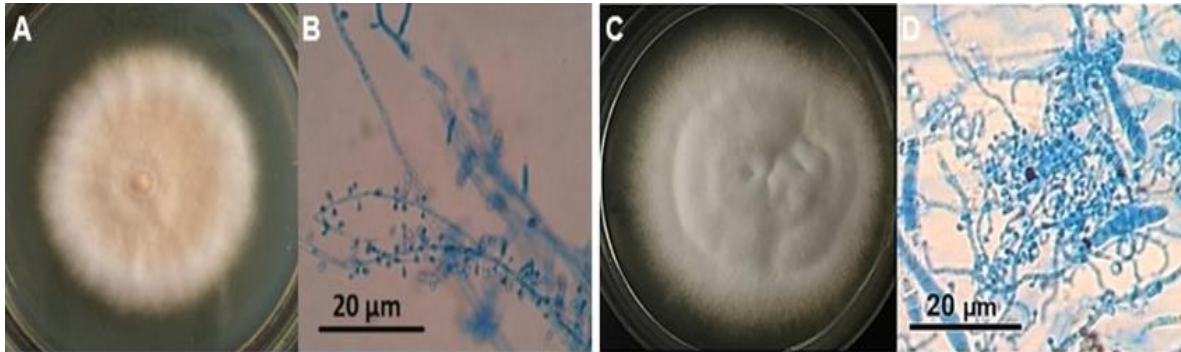
Trichophyton rubrum:

White, cottony colony, Wine red pigment on reverse side.

- Pencil-shape macroconidia



- Microconidia (Club-shape, tear drops)



Trichophyton mentagrophytes

Flat, White to cream color, powdery to granular surface



- Cigar-shaped macroconidia
- Microconidia present
- Coiled or spiral hyphae



Microsporum gypseum

Light brown, powdery colony.

Spindle-shaped macroconidia, Microconidia present



Epidermophyton floccosum

- Fluffy colony
- Club-shape macroconidia
- Microconidia absent

