

Fig. 1.10: Colony morphology of *Malassezia furfur* grown on modified Dixon agar (MDA) at 37°C for 10 days.

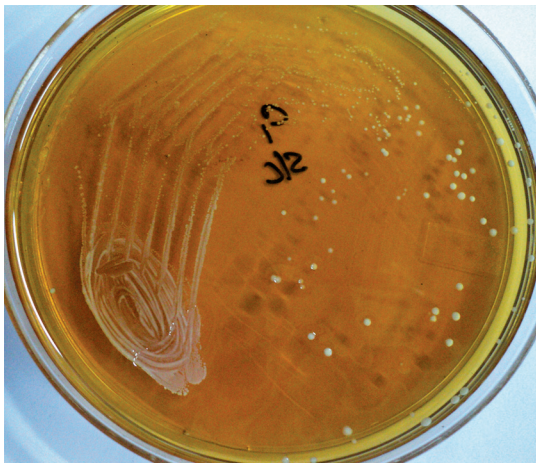


Fig. 1.11: Colonies of *Malassezia* species grown on modified Dixon agar (MDA) with olive oil overlay. White to cream colour pasty, yeast like colonies appeared after 5 days of incubation at 30°C (subculture).

colonies consist of yeast cells with a rare elongation to form hyphal elements. The size of the cells varies from 3 to 3.5 μ m in diameter in some strains while others may measure 4 to 7 μ m (Figs 1.13–1.15). The cells reproduce by unipolar budding and the manner of budding is phialidic, several buds are produced in sequence from the same site on the mother cells. In culture at 37°C yeast cells



Fig. 1.12: *Malassezia pachydermatis* grown on Sabouraud's dextrose agar with chloramphenicol (SDCA) without an oil overlay. Colonies are white to creamy, dry in texture.

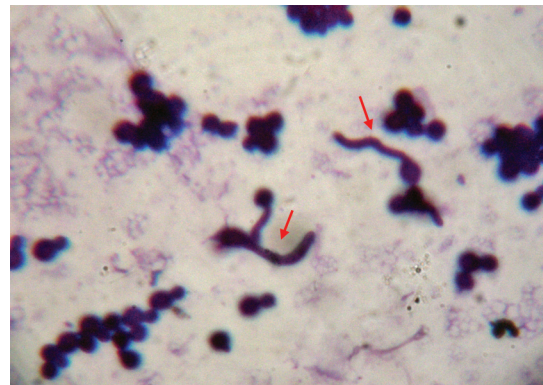


Fig. 1.13: Yeast cells (2 to 8 μ m) of *Malassezia furfur* grown on modified Dixon agar at 37°C for 10 days. Rare elongation of yeast cells to form hyphal elements (2 to 3 μ m) are also noticed (red arrow) [Gram stained smear $\times 1000$].

appear globose at first and are seen to be reduced phialides (Fig. 1.15). **Multiple budding does not occur**, but the cells are often found in clusters because of incomplete detachment.

Some strains are regularly more hyphal in nature, and there is speculation that these strains may be more likely to produce pityriasis versicolor in susceptible patients.

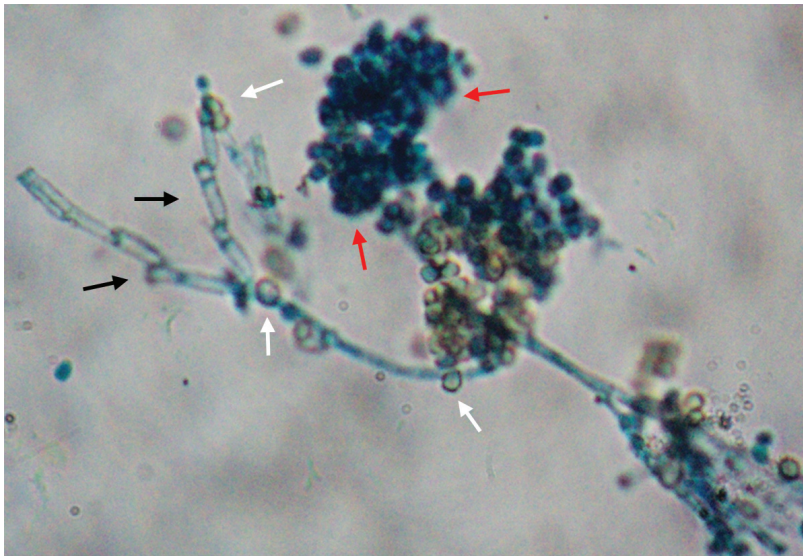


Fig. 1.28: *Piedraia hortae*. Thick-walled, highly septated hyphae (black arrow) that have many chlamydospore-like swollen intercalary cells (white arrow). Locules containing asci and ascospores (red arrow) may be found in the thicker part of the colony (LPCB mount $\times 600$).

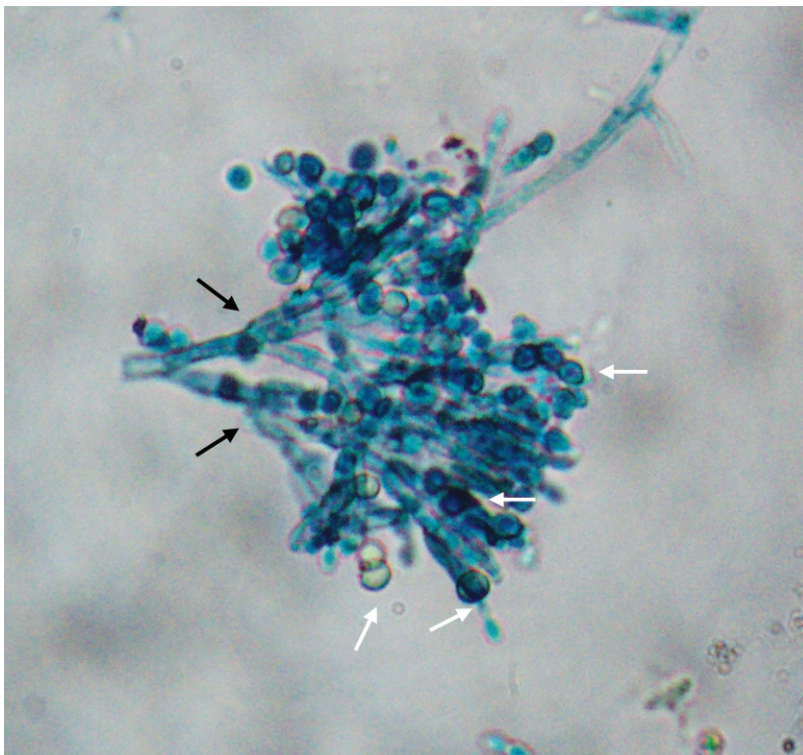


Fig. 1.29: Thick-walled, highly septated hyphae (black arrow) which have chlamydospore-like swollen intercalary cells (white arrow) are characteristic features in *Piedraia hortae*. (LPCB mount $\times 600$).



Fig. 1.42: Tinea corporis on right lateral aspect of abdomen. Lesions are raised and erythematous caused by *Trichophyton mentagrophytes* var *quinckeanum*.



Fig. 1.43: Tinea corporis. Granulomatous reactions around hair follicles resembling Majocchi's granuloma.

The most universally encountered species is probably *T. rubrum*, followed in frequency by *T. mentagrophytes*.

An outbreak of tinea capitis in children owing to *M. canis* and *M. audouinii* will manifest itself in an associated adult population as tinea corporis.

Tinea Cruris

Tinea cruris is a dermatophyte infection of the groin, perineum and perianal region which is acute or chronic and generally severely pruritic. The lesion is characteristically sharply demarcated, with a raised, erythematous margin and thin dry epidermal scaling (Fig. 1.44).



Fig. 1.44: Tinea cruris. Serpiginous lesion on thigh and scrotum.



Fig. 1.45: Tinea cruris. Serpiginous lesion of the left thigh in contact with scrotum. The lesion looks similar to eczema marginatum. The infection is due to *T. rubrum*.

T. rubrum appears to be the predominant species throughout the world. Among other dermatophytes *E. floccosum* and *T. mentagrophytes* are also important. *Trichophyton mentagrophytes* is associated with the more pustular type of tinea cruris.

Tinea Unguium

Tinea unguium is an invasion of the nail plates by a dermatophyte. The term onychomycosis refers to an infection of the nails caused by nondermatophytic fungi and yeasts.



Fig. 1.71: Dermatophyte in nail. *Trichophyton soudanense*. Chains of arthroconidia are seen (KOH mount $\times 400$).

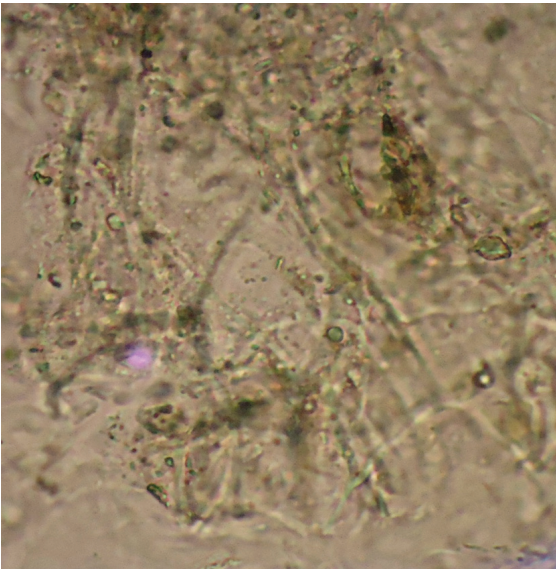


Fig. 1.72: Entangled mass of hyphae are noticed in skin scrapings (KOH mount $\times 400$).

Fibres of cotton or other fabrics and the network of material from host tissue including cholesterol crystals should not be mistaken as hyphae (Fig. 1.74).

Under a high power microscope, fungal hyphae can be differentiated from such debris by their:



Fig. 1.73: KOH preparation of nail sample of a 4-year-old male child suffering from tinea unguium involving almost all fingernails. Chains of arthroconidia (black arrow) and hyphae with regular septation are noticed. *Trichophyton mentagrophytes* (nodular variant) was the causative agent isolated from the lesions [$\times 400$].

- Manner of septation,
- Uniform thickness of walls
- Branching of hyphae

Epidermal scales from tinea corporis can be processed similarly, except that it is not necessary the superficial material before obtaining the scales. In case of tinea unguium, the upper portion of the infected nail is scraped away before obtaining specimens from deeper layer of nails. A scalpel can be used to scrape off deeper layers of nail and collect them on slide for the KOH preparation.

Key to Direct Examination of Hair

Wood's lamp

1. Bright yellow green: *Microsporum audouinii*, *Microsporum canis*, *Microsporum ferrugineum*.
2. Dull bluish white: *Trichophyton schoenleinii*.
3. No fluorescence: All other dermatophytes.

KOH mount

1. Ectothrix hairs (Fig. 1.30).
 - Small spores, 2 to 3 μm (in diameter), in mosaic masses on the outside of hair shaft: *M. audouinii*, *M. canis*, *M. ferrugineum*.
 - Small spores, 3 to 5 μm , forming sheath or in isolated chains on the surface of hair shaft: *Trichophyton mentagrophytes*, *M. praecox* (rare).