

FUNGI

7/22/87, rvsd 9 August 1993, 10 August 1994, 3/12/97, 3/11/98, 7 Mar 01, 10Mar06, 7Mar11
 TFC, 2nd Ed, p302-338, Boyd, 2nd, pp 844-851, Campbell, 2nd, p. 589-, Black, 2nd, 300-307, Campbell 5th, 574-587, Campbell 6th: 616-631, Campbell's 7th: 608-623
 Sadava 8th: 650-668

FUNGI: (653) **hyphae**, **mycelium** (thallus [green shoot] = body of fungus) imbedded in decaying organic matter,

Saprophytic [rotten, a plant]: **nutrition by absorption** of nutrients released by decomposition caused by secreted hydrolytic enzymes

Cell walls composed of **chitin**, polymer: β 1,4 N acetyl glucoseamine
conidia [dust] (666): asexual spores. Some fungi are dimorphic: filamentous at RT, yeast-like at 37°C

Yeast reproduce asexually by budding, sexually by haploid, dikaryotic, then diploid phases.

PHYLA:

[oomycota no longer considered fungi]

OOMYCOTA: p 600 (water molds)

Produces flagellated asexual spores, gametes: **eggs and motile sperm**

examples: water molds, potato blight, downy mildew of grapes and sugar beets, ich on tropical fish.

ZYGOMYCOTA: p 660 (Bread molds) (only 600 species) = conjugation fungi

gametangia of opposite mating types join, form zygosporangium, meiosis, then sporangium: *Rhizopus nigricans*, black bread mold (can be opportunistic pathogen)

ASCOMYCOTA: p 661 (Sac fungi) (30,000 species) one "sex" produces ascogonium, the other and antheridium, they fuse, dikaryotic hyphae form ascocarps (fruit cups of cup fungi), produces ascus through **meiosis, then mitosis producing 8 spores**.

Morels (666), **Ergot** *Claviceps purpurea*. Dec 1691, Salem MA 8 girls "bewitched," 19 executed after witch trials, Dutch Elm Disease, *Neurospora*, *Penicillium notatum*, *P. camemberti*, *P. roquefortii*, Chestnut blight, probably yeast *Aspergillus* (aflatoxin), *Candida*, *Trichophyton* (athlete's foot), *Histoplasma*.

BASIDIOMYCOTA: p 661 (club fungi) 25,000 species The True Mushrooms:

opposite mating types form heterokaryon of, fertilization occurs in basidia, meiosis then produces four spores.

Notable Genera: *Amanita* (667), *Coprinus*, *Agaricus*
Cryptococcus causes opportunistic infections in AIDS pts

DEUTEROMYCOTA: 25,000 species

so-called imperfect fungi, (second or 'other' fungi)

FUNGAL DISEASES: Mycoses:

(often treat with nystatin)

systemic usually only in immunosuppressed patients

subcutaneous (can spread to lymph vessels),

superficial (feed on keratinized tissue)

especially:

dermatomycosis superficial mycosis prevalent in tropics (Often *Trichophyton* sp.) (keratinase imp.)

Tinea (ringworm) (tinea = moth larva, worm):

T. capitis, **T. cruris** (groin), **T. pedis**

Non-prescription: tolnaftate, undecylenic acid

Zn undecylenate (a salt of the acid)

opportunistic mycoses, debilitated, immunosuppressed

Candidiasis: *C. albicans*: thrush, vulvovaginal "yeast inf."

Histoplasmosis: *Histoplasma capsulatum* (more than 75% in Ohio Valley have been infected)
 Usually minor respiratory disease

