

Struktur

Fisiologi

Peranan

fungi



by Achmad Arifiyanto

3 domains

Bacteria

Spirochetes
Gram-positives
Proteobacteria
Cyanobacteria
Planctomyces
Bacteroides
Cytophaga
Thermotoga
Aquifex

Archaea

Chloroflexi
Methanosarcina
Methanobacterium
Methanococcus
Thermococcus celer
Thermoproteus
Pyrodicticum
Haloarchaea

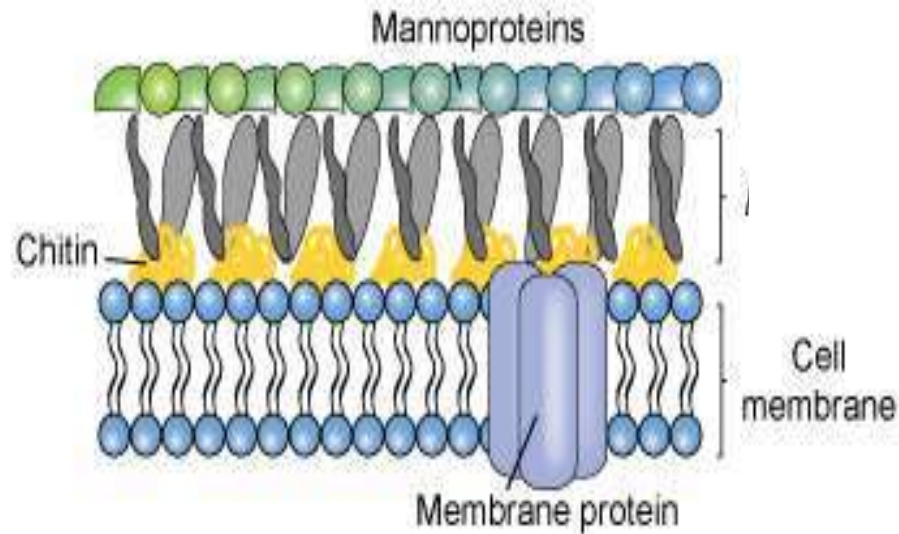
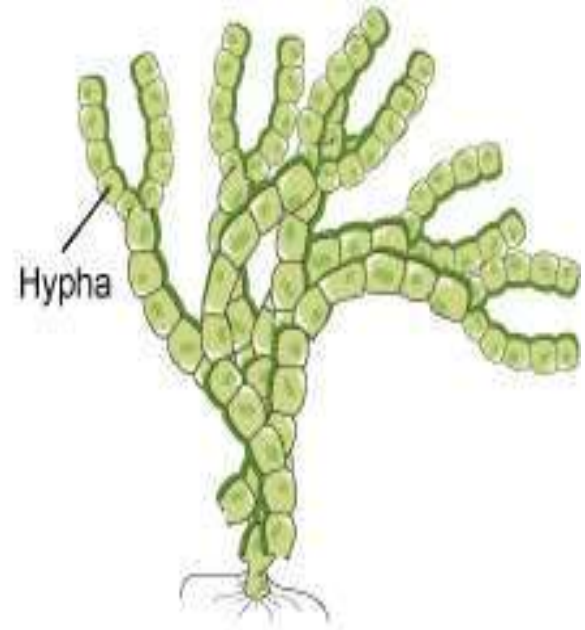
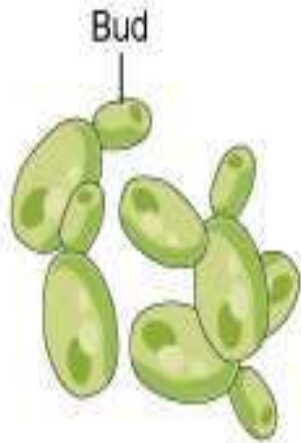
Eukaryota

Entamoebae
Slime molds
Animals
Fungi
Plants
Ciliates
Flagellates
Trichomonads
Microsporidia
Diplomonads



Cendawan; kapang;
khamir; ragi; jamur

mold vs yeast



Yeasts



Candida

Cryptococcus

Rhodotorula

Molds



Aspergillus

Zygomycetes

Scedosporidium

Cladosporidium

Ulocladium

Fusarium

Paecilomyces

Dimorphic



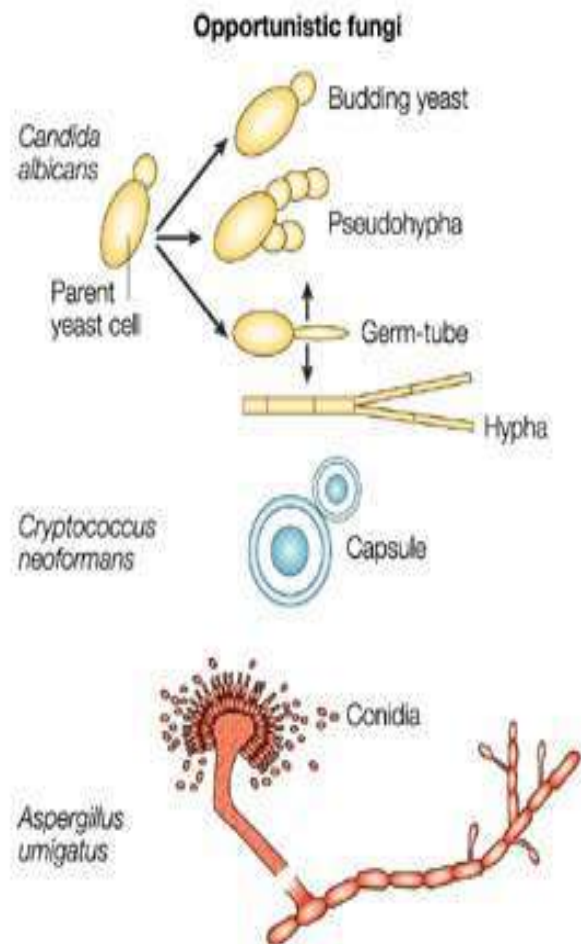
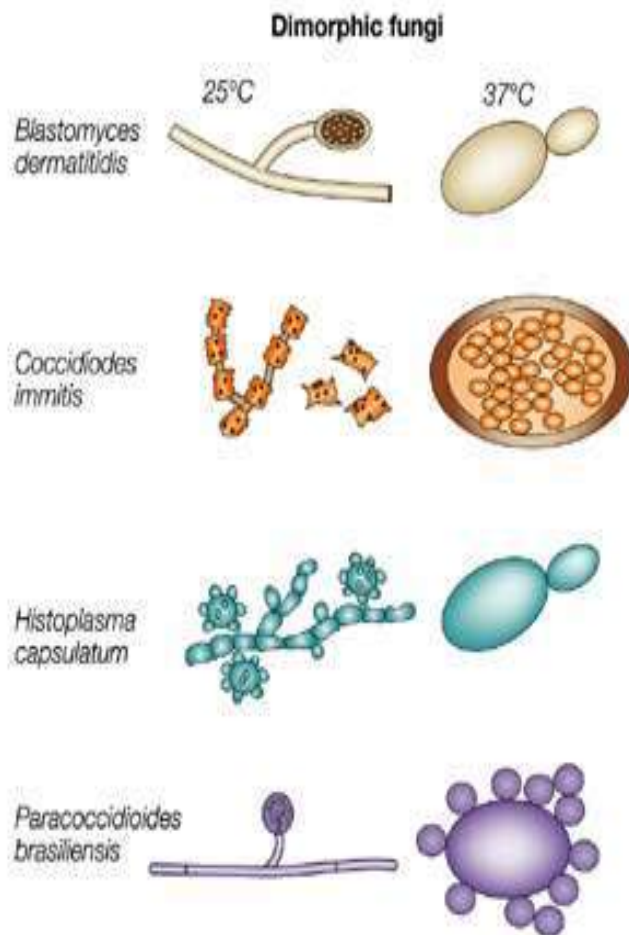
Coccidioides

Histoplasma

Blastomycosis

Paracoccidioides

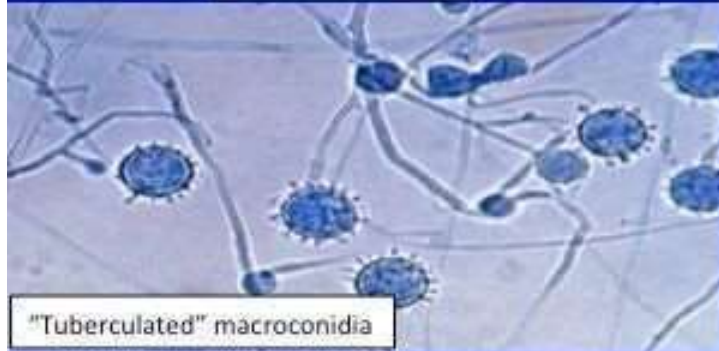
Sporothrix



Mold – 30°C

Dimorphic fungi - I

Yeast – 37°C



"Tuberculated" macroconidia

Histoplasma



Intracellular yeast

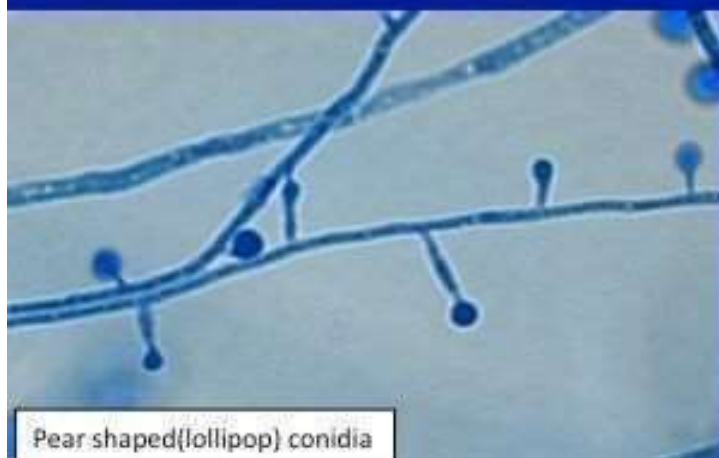


Alternating arthroconidia

Coccidioides

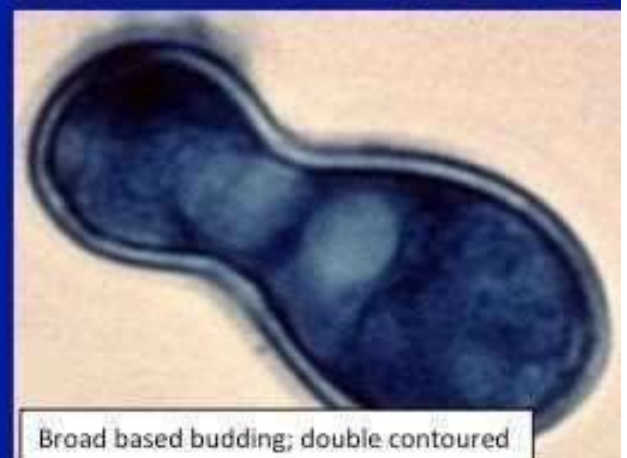


Spherule- **NO** yeast form



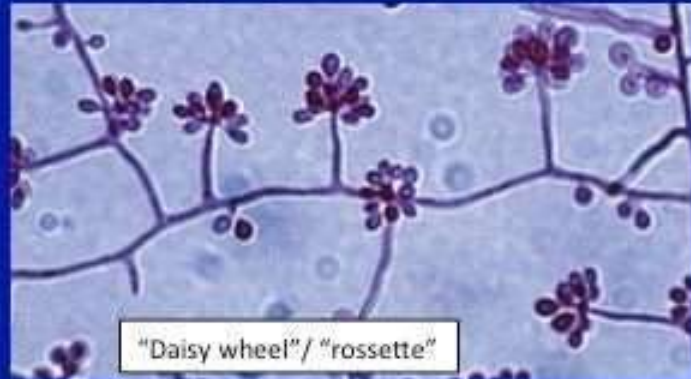
Pear shaped(lollipop) conidia

Blastomyces



Broad based budding; double contoured

Mold – 30°C



Dimorphic fungi - II

Sporothrix

Yeast – 37°C



Nonspecific

Paracoccidioidomycosis

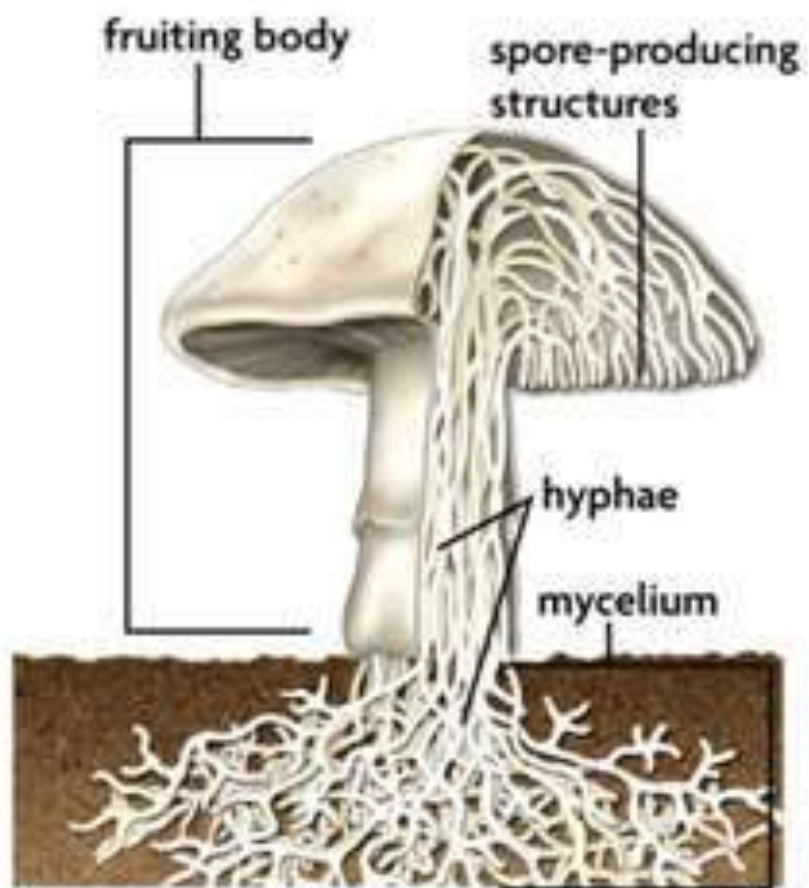


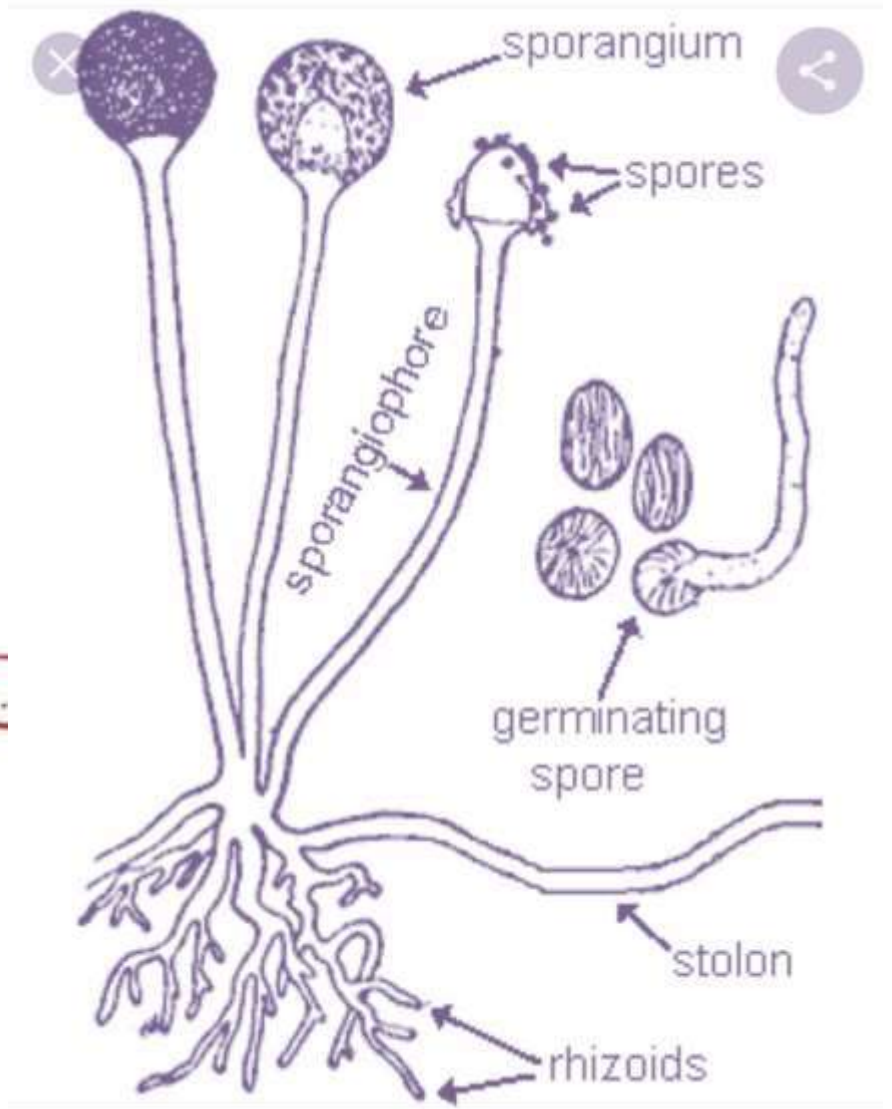
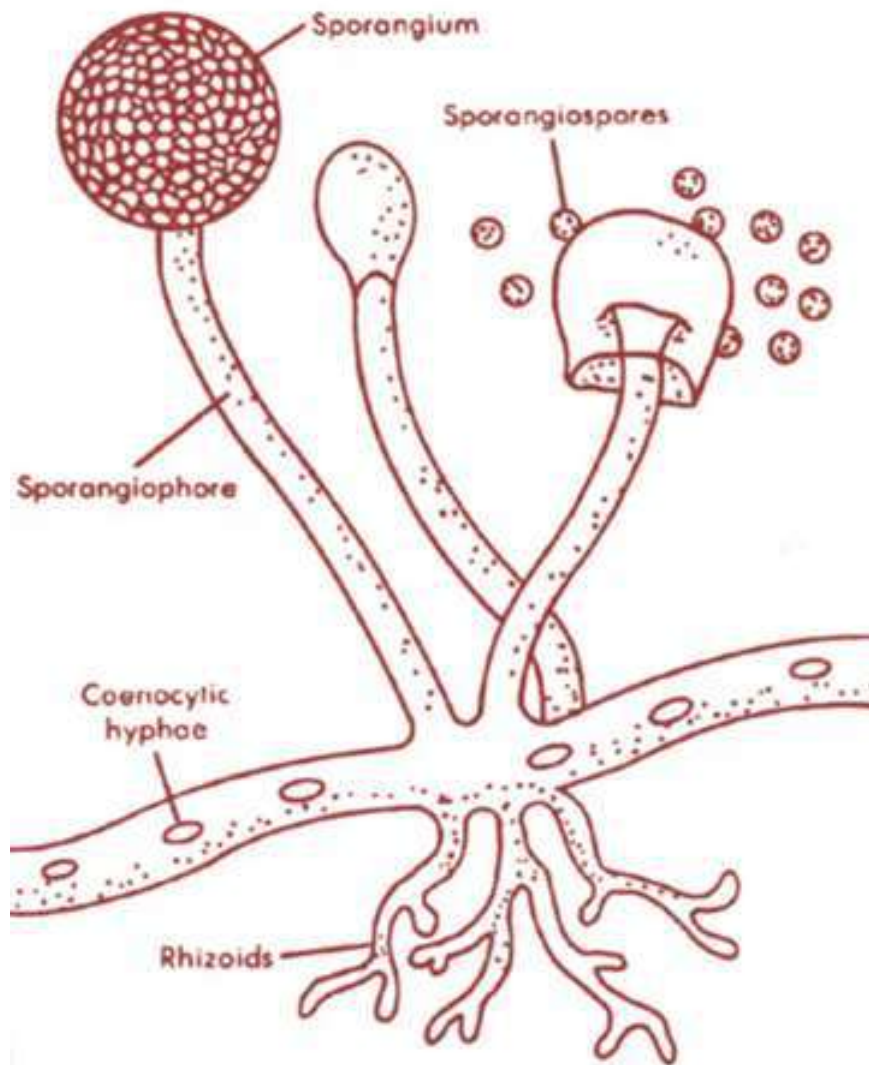
Penicillium Marneffeii

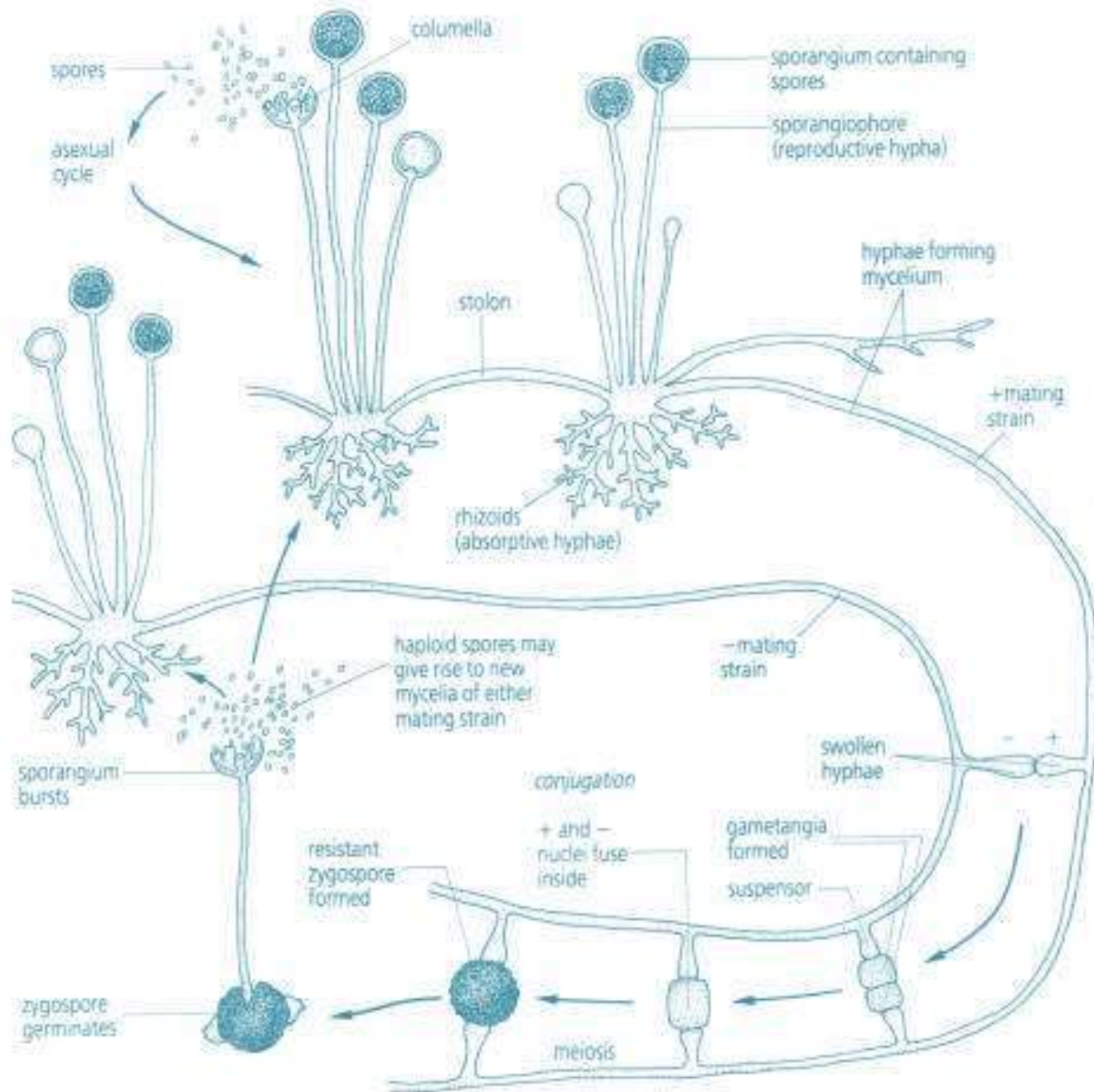


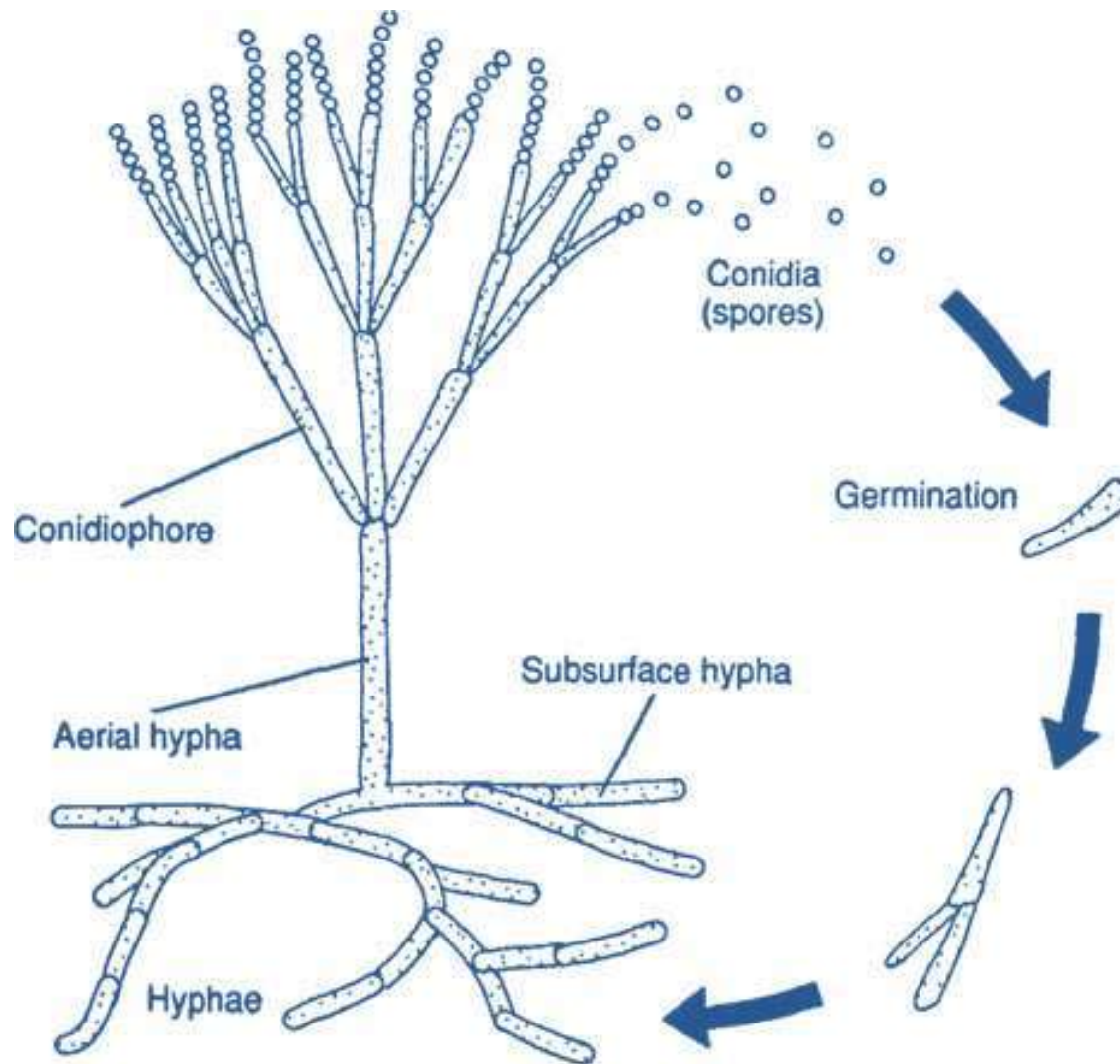
Fungi Structure

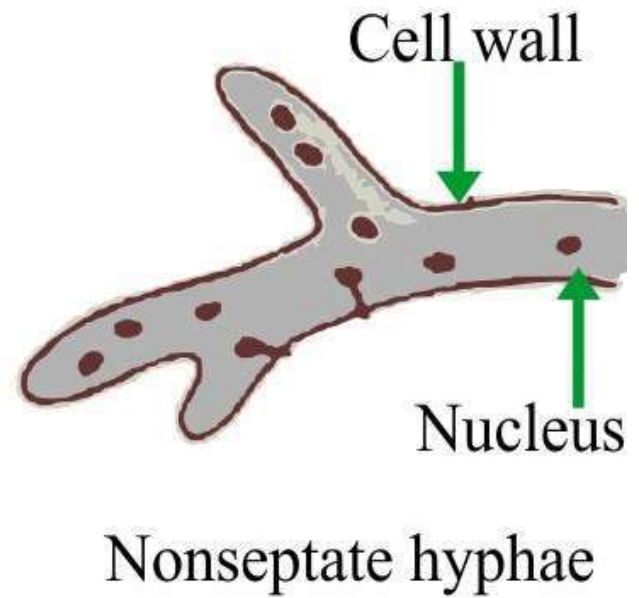
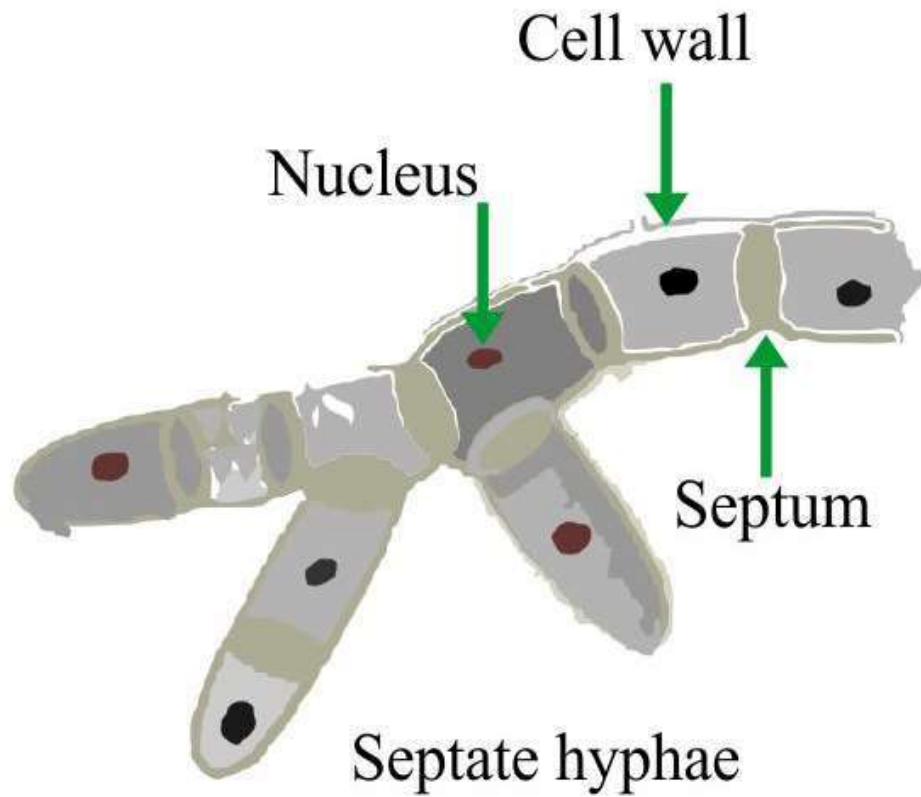
- What grows underground?
 - Hyphae: thin strands of cells that make up the fungus body
 - Hyphae branch into a larger mass (mycelium)
- What grows above ground?
 - Fruiting body: reproductive structure creates spores





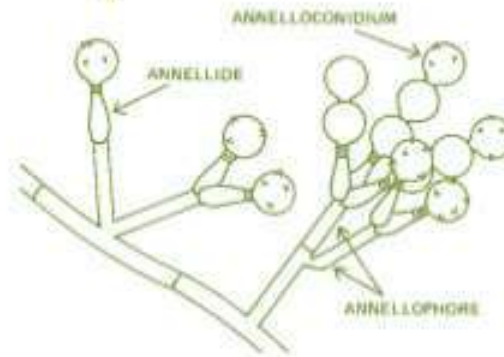




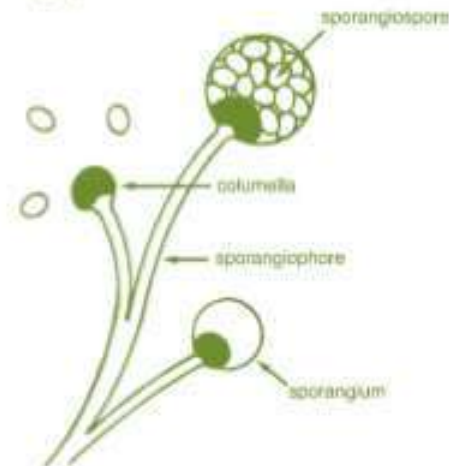


Asexual Reproduction

- Anneloconidia
- Anellide

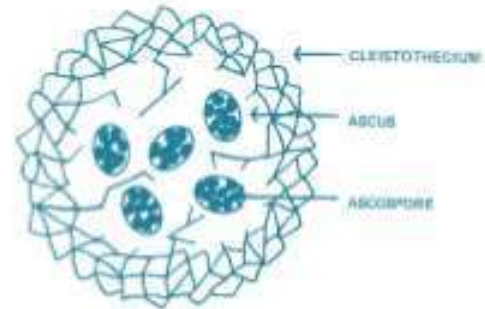


- Sporangiospores
- Sporangium
- Sporangiphore



Sexual Reproduction

- Ascospores
 - Ascus
 - Ascocarp



- Basidiospores
- Zygosporangium

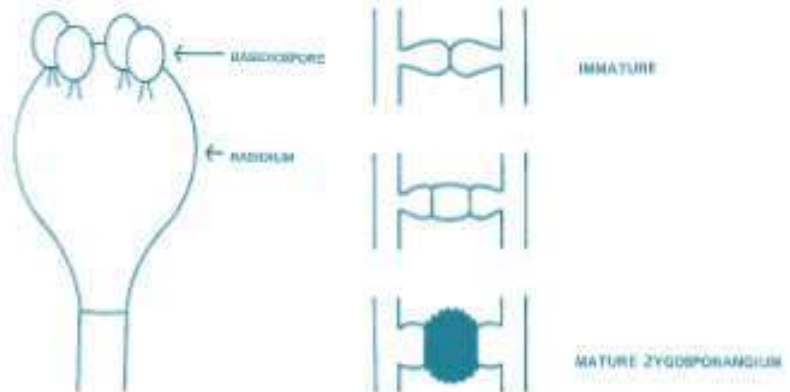
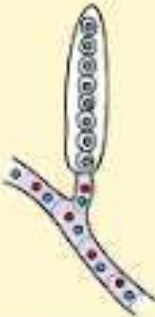
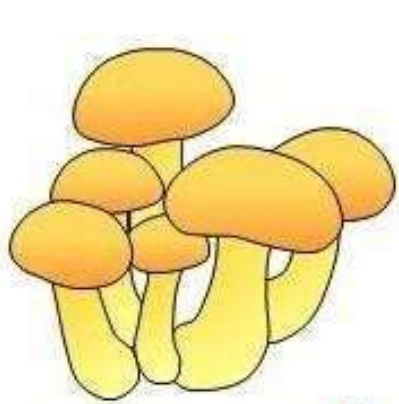


Table 31.1 Review of Fungal Phyla

Phylum	Key Reproductive Feature
Chytridiomycota (chytrids)	Motile spores with flagella
	
Zygomycota (zygote fungi)	Resistant zygosporangium as sexual stage
	
Ascomycota (sac fungi)	Sexual spores borne internally in sacs called asci
	
Basidiomycota (club fungi)	Sexual spores borne externally on club-shaped structures called basidia
	



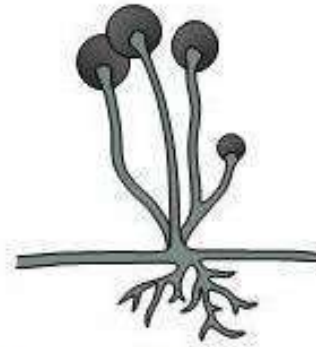
Basidiomycota^{**}
(club fungi)



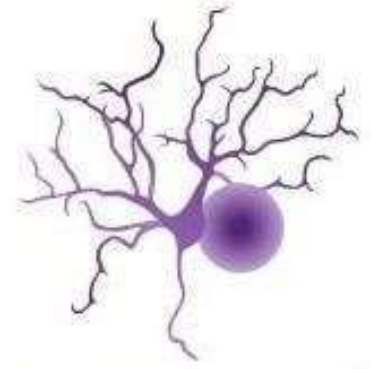
Ascomycota^{**}
(sac fungi)



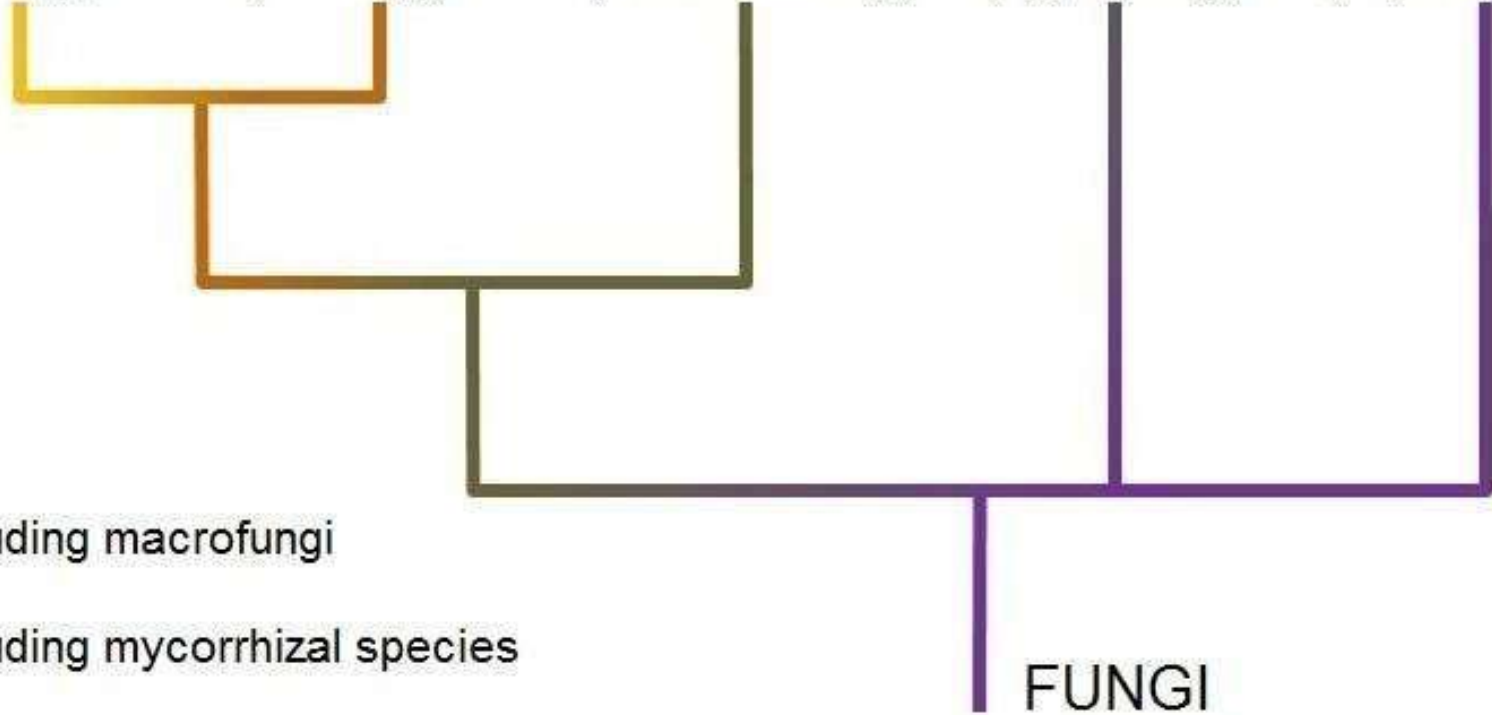
Glomeromycota^{*}
(arbuscular fungi)



Zygomycota^{*}
(zygote fungi)



Chytridiomycota
(chytrids)



* Including macrofungi

* Including mycorrhizal species

Larger (macroscopic) fungus

Subterranean fungi
(truffles)



Above-ground fungi

Basidiomycetes

Ascomycetes
(cup & flask
fungi)

Gasteromycetes:
puffball, bird nest,
stinkhorn, etc.

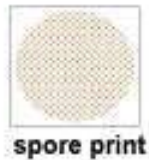
Polypore, crust &
Jelly fungi (on wood)

Coral, tooth &
club fungi, etc.

Mushroom like fungi

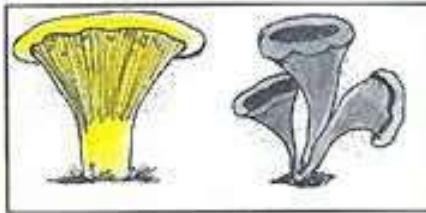
Mushrooms with tubes
(boletes)

Mushrooms with gills



Different Shapes of Fungi & where the spores are formed

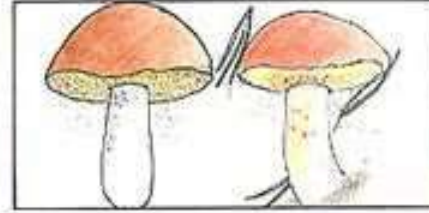
CHANTERELLES



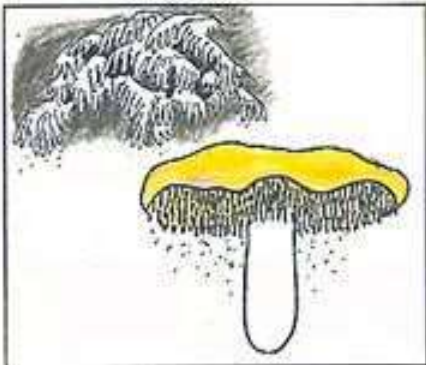
GILLED FUNGI



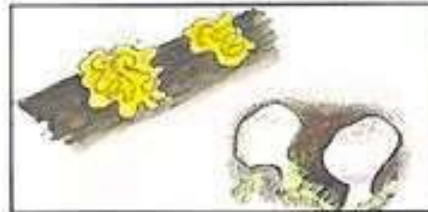
FUNGI WITH PORES



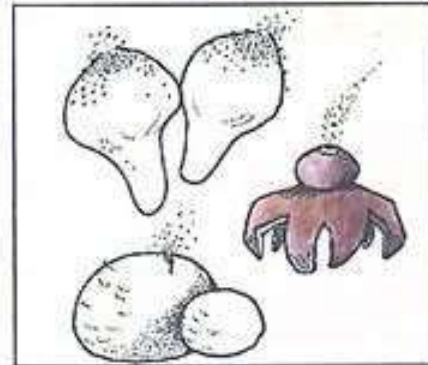
FUNGI WITH TEETH



JELLY FUNGI



PUFFBALLS



Infectious



Mycosis and candidiasis



Tinea faciei

Itchy spots on the cheeks
Edges of the spots may be raised
Spots may include bumps, blisters or scabs



Tinea barbae

Crusting and swelling on the facial hair area
Facial hair is easily pulled out



Tinea corporis

Red, scaly and itchy patches on the torso, body and legs
Patches are more prominent in body folds
Kerion may develop



Tinea Unguium

White or yellow streaks on the toe/fingernails
Crumbly nail that may lift up easily
Flaky white patches on top of the nail plate
In severe cases, the nail may be damaged



Tinea incognito

Any ringworm-affected area may develop this
Bruised and broken blood vessels
Rashes may become raised and scaly
Skin is more pustular and irritable

Tinea Capitis



Round, itchy and scaly spots
Dry scaling similar to dandruff
Bald spots due to hair loss
Kerion (a pus-filled lump)
Favus (more severe form of tinea capitis)

Tinea manuum



Blistering rashes with a sticky fluid may appear in crops on your hand
The edges of the spots may be raised
Skin discoloration

Tinea cruris

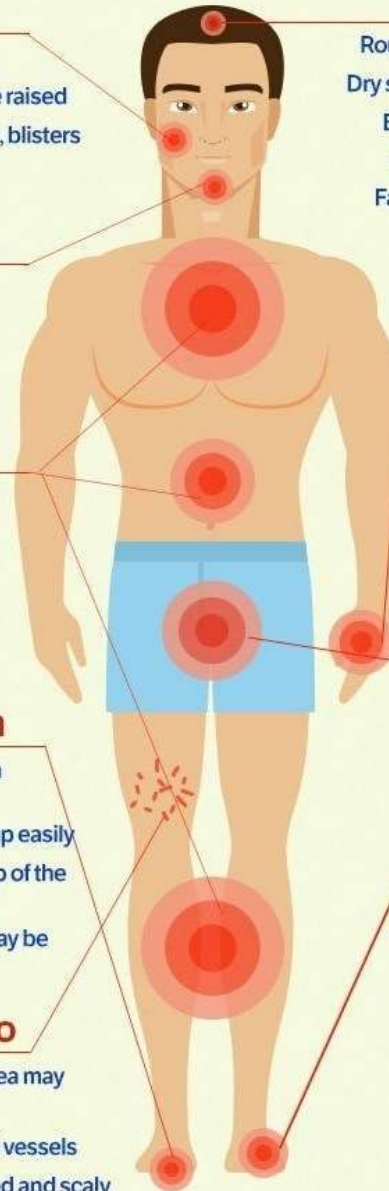


Itchy reddish-brown rashes on the groin
The spots may reach to your buttocks

Tinea pedis

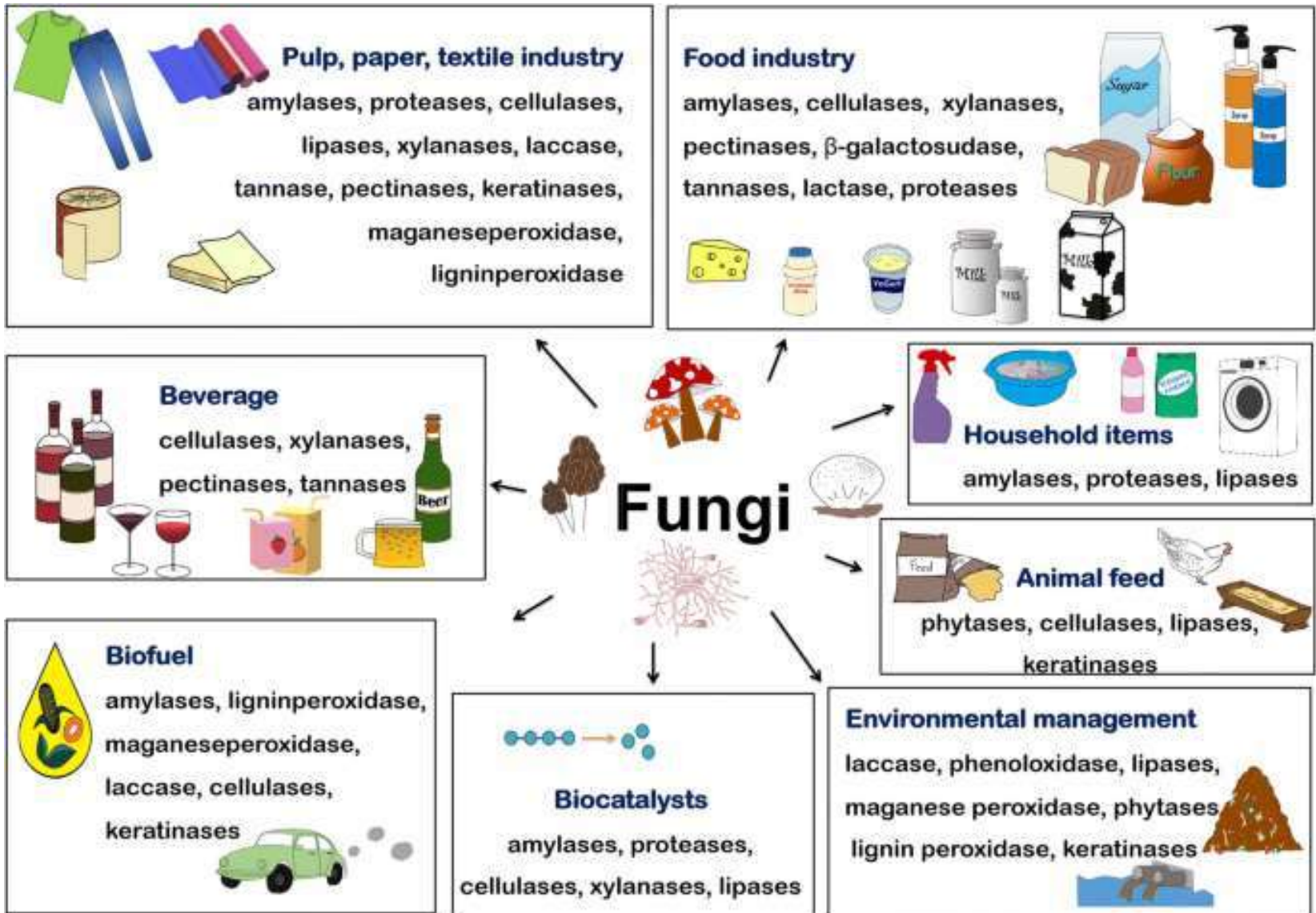


Round, dry patches on top of the foot
Clusters of blisters on the side of the foot
Moist, peeling and irritable skin between the toes
The entire sole, heel and sides of the foot may become dry but not inflamed



Malassezia sp

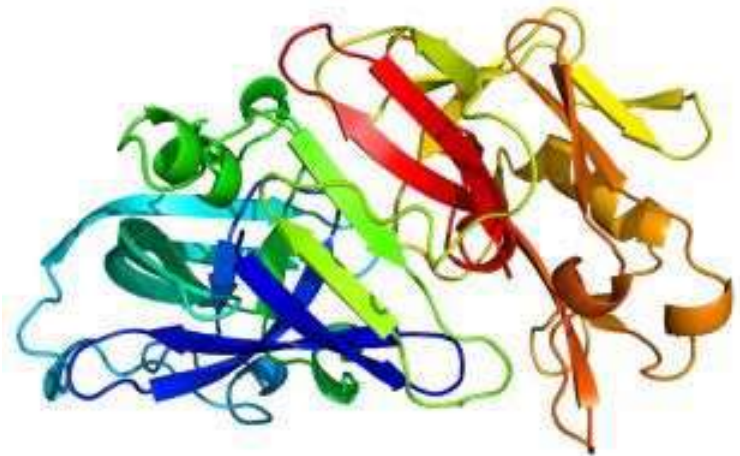
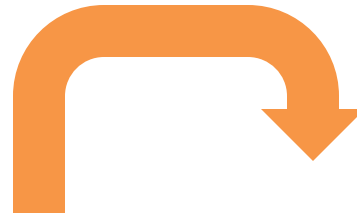




Western



Enzyme



Nusantara heritage





Burkholderia galdii



Rhizopus sp

Bongkre acid + toxoflavin