

# **EVOLUTION TREND IN HIGHER FUNGI**

# Higher Fungi

- **Mycelium septate, highly branched, uninucleated**
- **Asexual reproduction take place by conidia, chlamydospores etc.**
- **Sexual reproduction result in the formation of fruiting body like ascus or basidium**

# **EVALUATION WITHIN THE FUNGAL GROUPS**

**Bessey (1942,1950) savile (1968) and cain (1972) summarized their own ideas, as well as those of other, about fungal evolution.**

- ❖ Evolution of ascomycota from a red algal ancestor has been proposed on several occasion**
- ❖ Acomycota and Basidiomycota are restricted to a monophyletic lineage with a close relationship to animal through a choano flagellate like ancestor**

# TYPES OF HIGHER FUNGI

➤ **Ascomycotina**

➤ **Basidiomycotina**

➤ **Deutromycotina**

# Habit and Vegetative structures

- Gradual transition from aquatic to terrestrial species
- Terrestrial species completely lack motile cells
- Tendency for increase septation in hyphae
- Tendency of mycelium to come together and intertwine completely to form tissue characters of compact bodies like stroma, sclerotium, ascocarp, basidiocarp

# Reproduction of higher fungi

## □ ASEXUAL REPRODUCTION

- **Sporangio spore** - These single spore are formed with in sac called sporangium at the end of hyphae (sporangiosphore) motile or non motile.
- **Conidio spore** – Small single celled structure called microcondia, large multicelled called macrocondia, formed on tip of hyphae
- **Oidia** – Single cell spore are formed by disjoining of hypal cells
- **Chlamydo spore** -They formed form cell of vegetative hypha
- **Blasto spore**-These spore formed by budding
- **Organization of definite asexual fruiting bodies called acervuli, sporodochia, pycnidia, synnemata**

## □SEXUAL REPRODUCTION

- **Development of sex organs called antheridia, oogonia or ascogonia**
- **Progressive reduction in sex organs, dikaryotization by nuclei of two adjacent cells come together**
- **Gametic copulation-Fusion of naked gamete one or both , which are motile**
- **Gamete gametangial copulation-Two gametangia come into contact into but donot fuse;the male nucleous through a fertilization tube enters into female gametangia**
- **Gametangial copulation-Two gametangia or their protoplasm fuse and give to zygote that develop into restive plasm.**
- **Spermatocopulation-Fusion of somatic of vegetative cell**
- **Spermatization-Union of special male stru. Called spermatium with female receptive stru. The spermatium empties its contact into the latter during plasmogamy**

# Progressive complexity in fruit bodies

- Primitive *Yeast* – Ascocarp produced in typical vegetative diploid cells
- *Taphrina* – Naked asci on the surface of the host
- *Aspergillus*, *Penicilium* – Primitive type of ascocarp called clestothecium
- Perithecium to Apothecium
- Advanced fruit bodies differentiated into stalk like stipe and cup like pileus called mushroom
- Significance of diplo phase reduced.
- It is transitory in Ascomycetes represented only by young ascus with diploid nucleus.



**HYPHA**

- septate                   A-1
- aseptate                 G-1
- pseudohypha           H-1

**SPORES, ASEXUAL**

- macroconidium         A-2, B-2  
                              C-2, N-2
- microconidium         D-2, P-2
- chlamydospore         E-2
- arthrospore            F-2
- blastospore            I-2
- sporangiospore        J-2

**SPORES, SEXUAL**

- ascospore               K-3
- basidiospore           L-3
- zygospore               M-3

**CONIDIOPHORE**

- simple                    N-4
- complex                 O-4, P-4
- acrotheca               Q-4
- cladosporium           R-4
- phialophora            S-4

**SPORANGIOPHORE**

includes:

- sporangium             J-5
- columella               J-6
- hypha-stalk            J-7

