

Fungi and Green, Brown and Red Algae

Kingdom Fungi

Fungi are

- Eukaryotic , multi-cellular and usually haploid.
- Heterotrophic They are mainly saprotrophic or decomposers. Some are parasites.
- Fungal cell wall is made of chitin.
- Fungal body is filamentous, each filament is called hypha. Meshwork of filaments or hyphae is called mycelium.
- Fungi can not ingest their food as the animals do. They form a hyphal network through the substrate, secrete digestive enzymes, which break down the substrate and then get nutrients by absorption.
- They reproduce both sexually and asexually by spores.
 - In case of unicellular fungi like yeast, asexual reproduction is by budding.
 - When fungi reproduce sexually, distinctive structures form. Based on the type of these structures, fungi are classified into different phyla.

	Phylum Zygomycota 'Zygo fungi'	Phylum Ascomycota 'Sac fungi'	Phylum Basidiomycota 'Club fungi'	Phylum Deuteromycota 'Imperfect fungi'
Sexual spores as a result of sexual reproduction	Zygospores	Ascospores	Basidiospores	-----
e.g.	<i>Rhizopus</i>	<i>Peziza</i> yeast	<i>Coprinus</i> mushroom	<i>Penicillium</i>

Fungi belonging to phyla Ascomycota and Basidiomycota produce large, compact, highly organized structure called fruiting body. E.g. mushroom, morel etc. These fruiting bodies contain spore producing hyphae.

Fungi belonging to Phylum Deuteromycota do not have sexual reproductive cycle. *Penicillium* reproduces asexually forming conidiospores.

Lichen is a **symbiotic** association of fungus and an alga where both members benefit from each other. Lichen occurs in three different forms.

Crustose lichen- forms a thin crust **Foliose** lichen-leaves like

Fruticose lichen-shrub like, appear as tiny miniature forests

Red, Brown and Green Algae - ('reproduction of algae' topic we will not discuss)

Kingdom Plantae-

All organisms belonging to this kingdom are autotrophic, mostly multi-cellular, reproduce sexually and asexually, cell wall is made of cellulose and show alternation of generation. Like other plants algae are autotrophic but are confined to freshwater or marine habitats. Algae are classified on the bases of photosynthetic pigments present in their chloroplasts.

	Phylum Chlorophyta 'Green algae'	Phylum Phaeophyta 'Brown algae'	Phylum Rhodophyta 'Red algae'
e.g.	<i>Spirogyra</i> <i>Volvox</i>	e.g. <i>Macrocystis</i> <i>Laminaria, Fucus</i>	e.g. <i>Polysiphonia</i> <i>Corallina</i>

Kingdom Fungi- Do not use the live culture to prepare slide except yeast.
This list is not final. This is to be used only as a reference.

Assignment-2 Phylum Zygomycota (zygote fungi) see page 102, 103 for pictures

- Prepared slide of gametes and zygospores of *Rhizopus*
- Also prepared slide of sporangia of *Rhizopus*

Assignment-3 Phylum Ascomycota (sac fungi) see page 104 for pictures

- Live yeast culture is available. Make a wet mount and observe at 400X. Locate the cells that are forming buds.
- Prepared slide of *Peziza cup* (l.s.). Observe the asci and ascospores.

Assignment-4 Phylum Basidiomycota (club fungi) see page 106 for pictures

- Examine the prepared slide of mushroom gill (*Coprinus*).

Assignment-5 Phylum Deuteromycota (imperfect fungi)

- Prepared slide/wet mount slide of conidiospores in *Penicillium*

Assignment-6 (Lichens)

- Prepared slide of lichen (c.s.).

Kingdom Plantae

Assignment-2 Phylum Chlorophyta (green algae)

- Prepared slide of *Volvox*. (skip *Pandorina*)
- Prepared slide of *Spirogyra*.