MYCOLOGY PART – 3

2. MASTIGOMYCOTA

- They are commonly known as zoosporic fungi.
- The cell wall is made up of chitin and cellulose.
- They are mostly aquatic while another group are primarily terrestrial, although the organisms still form motile zoospores when open water is available.
- Three types of zoospores are common in this group. These are: (a) Laterally biflagellate, (b) Posteriorly uniflagellate, and (c) Anteriorly uniflagellate type having "9 + 2" arrangement of component fibrils.
- Most of them are filamentous and have coenocytic mycelium. However, unicellular form are present.
- Some genera show the pseudosepta (false cross wall) formation.
- Rhizoids are present in some of unicellular forms.
- Saprophytes or parasites.
- Due to presence of haustoria in a majority of Mastigomycotina, the mode of nutrition is typically absorptive.
- Sexual reproduction takes place by gametic copulation, gametangial copulation and gametangial contact.
- Oospores formation are common in almost all Mastigomycotina.

Eg., *Pythium, Albugo, Phythophora* etc...

REPRODUCTION

- Vegetative reproduction
- Asexual reproduction
- Sexual reproduction

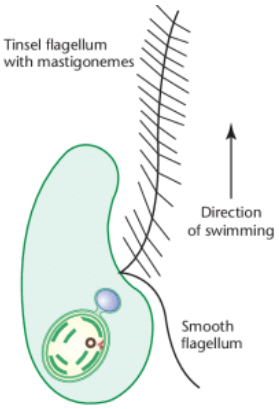
Vegetative reproduction

1. **Fragmentation-** The vegetative mycelium or hyphae break into several fragments and these fragments have the capability to grow into new mycelium under favorable conditions.
2. **Clamadospores-** Hyphal tips are mostly swollen and they get separated by a septum and then germinate to form mycelium.

Asexual reproduction

Through Zoospores-

- The difference is by type of flagellum, the position of the flagellum, and a number of flagellum attached.
- uniflagellate posterior type or uniflagellate tinsel type or biflagellated.
  - Single Anterior flagellum- Tinsel type
  - Single Posterior flagellum – Whiplash type
  - Biflagellated zoospore (Reniform or kidney-shaped) – Anterior Tinsel type and posterior whiplash-type



Sexual reproduction

1. Gametic Copulation or Planogametic copulation
   - the fusion of two naked gametes
2. Gametangium Copulation–
   - The conjugation between the gametangia that leads to protoplasm fusion and ultimately nucleus forming spores.

3. Gametangial contact–

➢ The conjugation tube is formed between the gametangia and the transfer of nucleus tales place leading to meiosis and formation of spores that form new hyphae.

CLASSIFICATION OF MASTIGOMYCOTA

- Ainsworth (1973) classified the subdivision Mastigomycotina into three classes:

SI NO	CLASS	FEATURES
1.	Chytridiomycetes	• They produces posteriorly uniflagellate zoospores Chytridiomycetous fungi occur as saprobes on plants and animal remains in water while other members occur as parasites on algae and aquatic animals.
2.	Hyphochytriomycetes	• Zoospores are anteriorly uniflagellate. • The hyphochytridiomycetes are those aquatic fungi whose thallus is holocarpic or eucarpic, monocentric or polycentric and their vegetative system is rhizoidal or hypha-like with intercalary swellings
3.	Oomycetes:	• The Oomycetes contain 74 genera and 580 species, • which are mostly aquatic, though some are terrestrial and live as parasites or saprophytes. • Includes classic “water molds” in the Order Saprolegniales and the “downy mildews” in the Order Peronosporales.

ECONOMIC IMPORTANCE

- *Chytrids* cause wart disease of potato, wart diseases in roots of crucifers, crown wart of alfalfa, a brown spot of maize,
- *Oomycetes* are responsible for late blight of potato, downy mildew, damping-off, fruit rot(*Pythium species*), footrot (Pythium species), white rust (*Albugo*),
- Few have been reported as biocontrol agents.
- Hypochytrids form an important group in marine or freshwater biodiversity.