

Kingdom: Mycetozoa**Division 1: Gymnomycota**

General characteristics:

- 1- No cell wall
- 2- Swarm cells contain two unequal anterior whiplash flagella.
- 3- This division consists of two sub divisions:

a. Acrasiogymnomycotina**b. Plasmodiogymnomycotina:** consist of :**Class 1: Myxomycetes**

(Free-living plasmodium)

Division 2: Mastigomycota

This division consists of two sub divisions:

1. Haplomastigomycotina: consists of 3 classes:**Class 1: Plasmodiophoromycetes)**

Class2: Chytridiomycetes: The main characteristics of this class are:

- 1- Swarm cells contain one posterior whiplash flagellum.
- 2- No mycelium (in most individuals).

Class 3: Hypochytridiomycetes:

- 1- Swarm cells contain one anterior tinsel flagellum.
- 2- No mycelium (in most individuals)

2. Diplomastigomycotinae: consist of :**Class: Oomycetes:**

- 1- Mycelium is present but coenocytic.
- 2- Spore is motile with two flagella. One is whiplash and the second is tinsel.
- 3- Sexual reproduction— gametangial contact- resulting in the formation of Oospores.

Division 3: Amastigomycota

This division consists of 4 Subdivisions :

Subdivision1: Zygomycotinae**Class1:Trichomycetes****Class 2: Zygomycetes:**

- 1- Fungi with a septate mycelium.(coenocytic)
- 2- Asexual reproduction by aplanospores.
- 3- Sexual reproduction – gametangial copulation- resulting in the formation of zygospores.

Subdivision 2: Ascomycotinae**Class : Ascomycetes:**

- 1- Fungi with septate mycelium.
- 2- Producing ascospores in sac-like cells –asci- , usually eight ascospores.

Sdivision 3: Basidiomycotinae**Class : Basidiomycetes:**

- 1- Fungi with septate mycelium and forming -clamp connections- .
- 2-Basidium bearing usually four basidiospores.

Subdivision 4: Deutromycotinae**Form Class : Deutromycetes:**

- 1- Fungi with septate mycelium.
- 2- Usually producing conidia.
- 3- Sexual reproduction unknown.

Division 1: Gymnomycota**Class 1: Myxomycetes**

One founders of mycology considered the slime molds animals and called them – Mycotozoa-; because the vegetative phase is like-plasmodium. They have a free-living, a cellular, multinucleate somatic plasmodium. Produce flagellated swarm cells

inside a fructification-sporophore- that usually develops a –peridium- enclosing the spores

What is plasmodium?

It is a mass of protoplasm, de limited only by a thin plasma membrane and a gelatinous sheath. The plasmodium does not have a definite size or shape. The protoplast is fluid in some portions and gelatinous in others –veins- , the fluid portion of protoplast is usually in the form of an intricately branched network streaming through the gelatinous portion.

Types of reproductive organs (sporophores) in Myxomycetes:

1- Sporangium:

This sporangium either bearing on stalk or stalkless –sessile-, each sporangium has a peridium of its own. There may also a thin , cellophane-like base, the hypothallus, and there are spores and capilitium inside sporangium Fig: 10 Ex: *Physarum*.

2- Plasmodiocarp:

Is similar to a stalk less sporangium. In the formation of plasmodiocarp, the protoplasm concentrates around some of the main veins of the plasmodium and secreting a membrane around itself Ex: *Trichia*.

3- Aethalia:

A group of sporangia that have not separated into individual units. In some aethalia the wall of the individual sporangia are quite evident, in other they are difficult to see Ex: *Lycogala*.



Types of reproductive organs in Myxomycetes

Classification of Class 1; Myxomycetes:

The class myxomycetes classified into two subclasses according to the position of the spores in relation to the fruiting body.

Subclass 1: Ceratiomyxomycetidae

In this subclass spores born outside (no fruiting body)

Order: Ceratiomyxales

Genus: *Ceratiomyxa*

This genus called exospores, there is no sporangium, we can found them in root, leave, as white columns, under microscope we can see the spine bearing the spores.

Subclass 2: Myxogastromycetidae

In this subclass spores born inside sporangia (fruiting body) –Endospores-. This subclass classified into 4 orders according to:

- 1- The color of spores.
- 2- Presences or absence of capilitium.
- 3- Presence or absences of lime.

Order1: Liceales:

- Spores in mass are pallid or brightly colored.
- The capilitium and columella are lacking.

- Pseudocapillitium is often present.

- Ex:- *Lycogala*

Order 2: Trichiales

- Sporangium is large, stalked or sessile.

- Columella is lacking.

- Sporangium contains spores and capillitium.

- Ex: *Arcyria*.

Order 3: Stemonitales:

- Spores are dark or black in color.

- Columella is presence.

- Lime is absences.

- Ex: *Stemonitis*.

Order 4: Physarales

- The same characteristics of order Stemonitales except lime is presence.

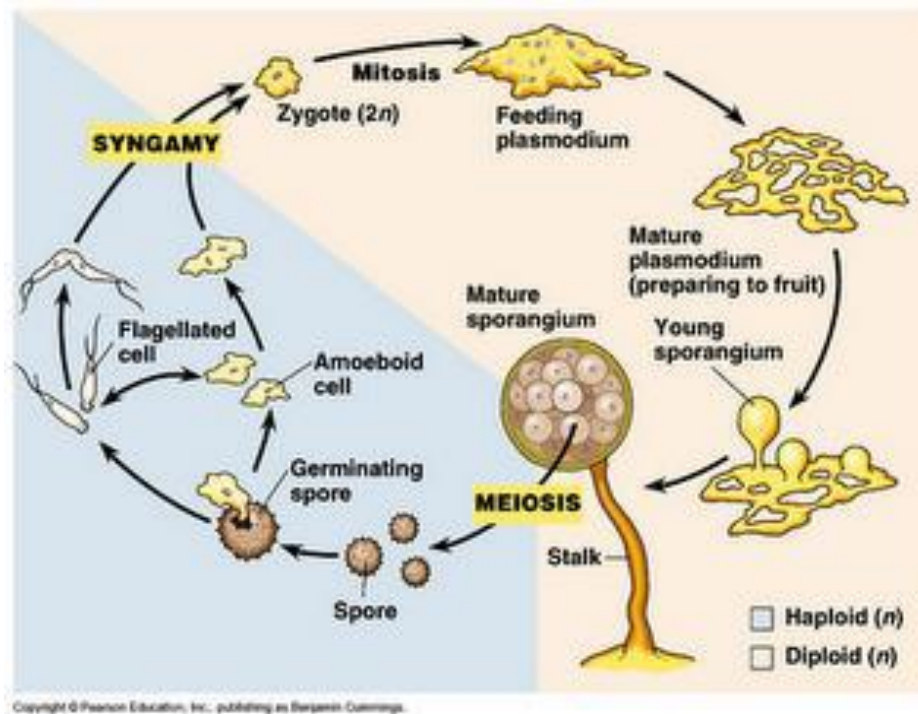
- Ex: *Physarum*

Life cycle of a typical Myxomycetes:

The sequence of events in the life history of the endosporous species is usually as follows:

The spores germinate under favorable conditions and release one to four rarely more myxamoebae or flagellate cells- swarm cells- that feed an bacteria.* Myxamoebae divide repeatedly until a considerable population has been formed, and then copulate in pairs.* In the presence of free water, myxamoebae may develop flagella and converted into swarm cells.*If so, they eventually lose their flagella forming myxamoebae.* The two forms- myxamoebae and swarm cells are thus interconvertible, with the presence of water favoring the flagellate form and drier

conditions inducing the amoeboid form.* Swarm cells as such do not divide, whereas myxamoebae do so regularly.-Both stages are typically uninucleate and haploid-.* After copulation, karyogamy occurs with formation of zygote.* The resulting zygotes are either flagellate at first, later becoming amoeboid, or amoeboid from the start depending on the nature of the gametes.*Growth of the zygote is accompanied by a series of mitotic nuclear divisions resulting in a multinucleate plasmodium with diploid nuclei.* The plasmodium grows by nuclear division and enlarge.* At maturity , the plasmodium thickens and converts itself into one or more sporophore.* Its protoplasm then cleaves into numerous spores.* Meiosis now take place in young spores .



Life cycle of a typical Myxomycetes