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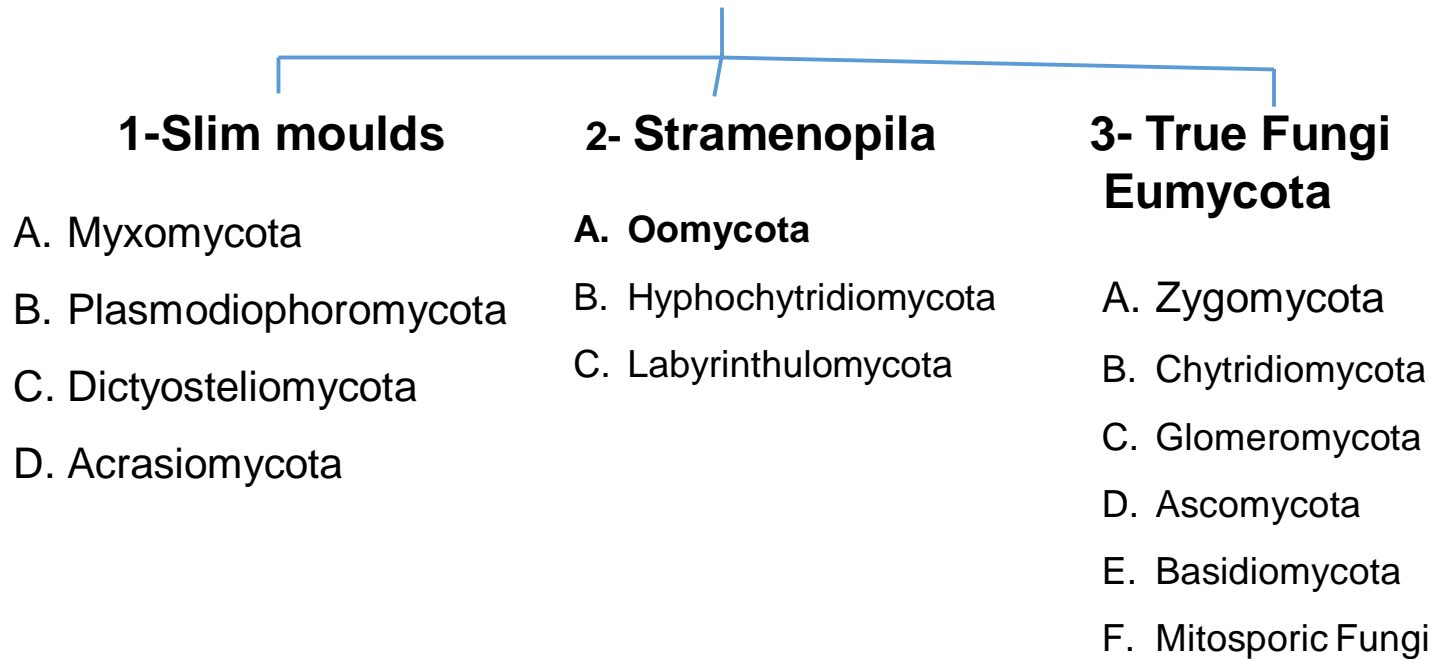
Fungal Classification

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Fungi can be divided into three kingdoms

Kingdoms of Fungus- like organisms



- **Kingdom:** Fungi - true fungi (Mycota)
- **Phylum:** Chytridiomycota
- **Phylum:** Zygomycota
- **Phylum:** Ascomycota
- **Phylum:** Basidiomycota
- **Form-Phylum:** Deuteromycota (Fungi Imperfecti)

- **Kingdom:** Stramenopila - “water molds” (Chromista)
- **Phylum:** Oomycota

- **Kingdom:** Mycetozoa - “slime molds”
 - Myxomycota—plasmodial slime molds

Myxomycota

- Myxomycetes--5 orders, 14 families, 62 genera, 888 species
- Characterized by **plasmodium**: Engulfs bacteria, fungal spores, small pieces of organic matter
- Characteristics
 - Streaming protoplasm.
 - Saprophytic and engulf bacteria, yeast, fungal spores.
 - Food reserve- glycogen.
 - Eukaryotic nucleus.
 - Gametes- 2 unequal, apical, whiplash.
 - No cell wall.
- Habitat- terrestrial.

Kingdom: Amoebozoa

Phylum: Mycetozoa

Class: Myxogastria

Order: Physarida

Family: Physaridae

Genus: Physarum

Species: *polycephalum*



A slime mold (*Physarum polycephalum*), showing a creeping mass of yellowish protoplasm called a

plasmodium.



Stages in Life Cycle

- **Spores ($2n \rightarrow n$):**
- 4-20 μ m, Spiny pigmented, globose, uninucleate and **haploid**. Surface may range from almost smooth to reticulate. wall is composed primarily of **cellulose** and is only one of two stages where a cell wall is formed.

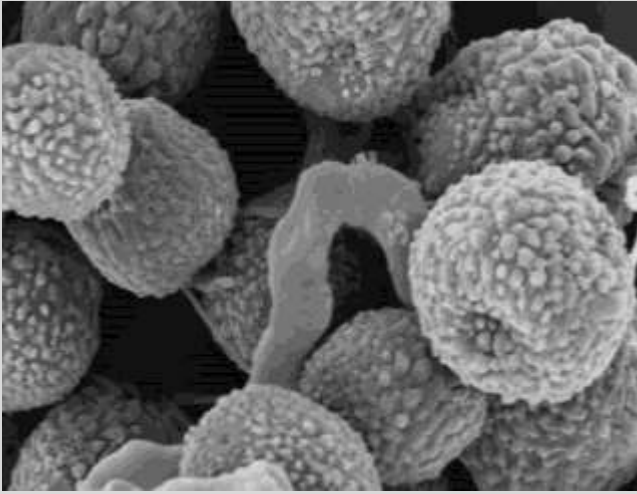
Myxamoebae (n)

Feed, divide, convert to **swarm cells**, function as gametes; form microcysts under adverse conditions.

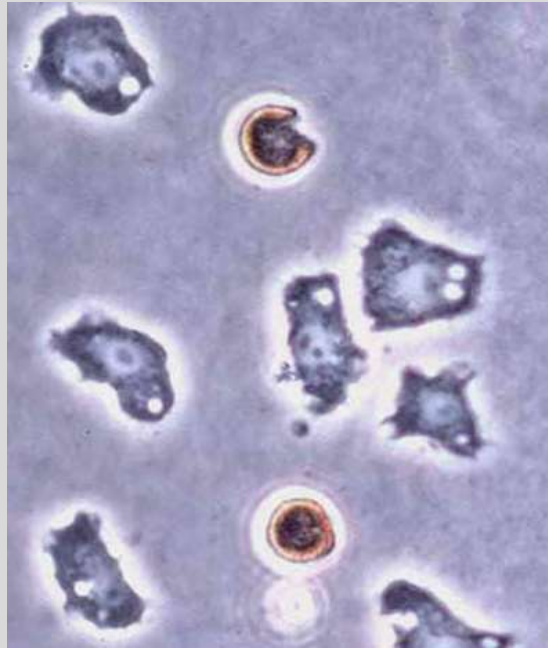
Swarm cells (n)

1-4 anterior **whiplash flagella**, amoeboid posterior; feed (**absorption and engulfment**), function as gametes.

Stages in Life Cycle



Spores



Swarm cell



Myxamoebae



Stages in Life Cycle

- **Zygote (2n)**
 - Formed by fusion of **myxamoebae** or **swarm cells**; enlarges through synchronous nuclear division.
- **Plasmodium (2n)**
 - Multinucleate, wall-less protoplasm.



Stages in Life Cycle

- **Sporophore (2n)**
 - Entire plasmodium is converted into **sporophore(s)**.
- **Sclerotium or macrocyst (2n)**
 - Resistant stage formed by **plasmodium**.

Sporangium of ***Physarum sp.***

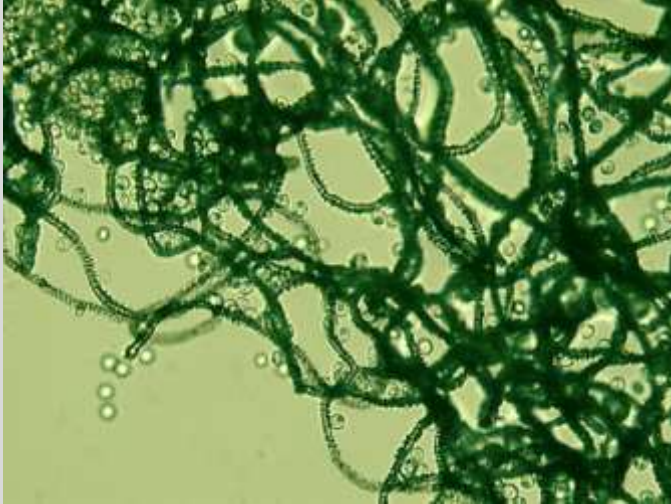


Types of plasmodia

- **Phaneroplasmodium**
 - **Colored**, with protoplasm forming veins with reversible streaming.
- **Aphanoplasmodium**
 - With a **network of fine, transparent threads** and **homogenous** protoplasm.
- **Protoplasmodium**
 - Microscopic, with **homogenous protoplasm**, giving rise to one sporophore

Sporophores/

Mass of spores formed inside peridium, spores intermingled with:



Capillitium

threadlike, often ornamented



Pseudocapillitium

Threads, bristles, membrane or platelike network



Elaters

Threadlike, ornamented, not connected at ends

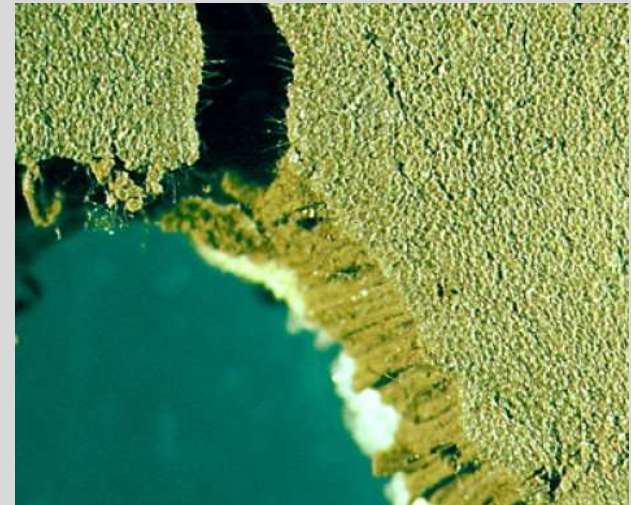
Sporocarp—stalked or sessile



– **Aethalium**: Large, cushion-shaped sporophore, one per plasmodium.



– **Pseudoaethalium**: Cluster of sporophores grouped tightly together.

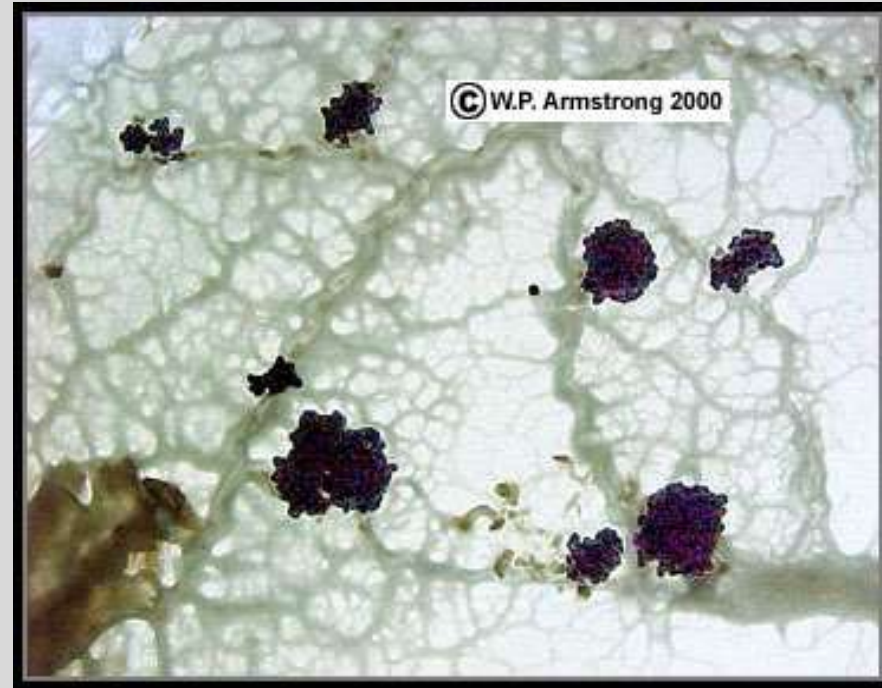


– **Plasmodiocarp**: Sporophore developing along veins of phaneroplasmodium; takes on reticulate shape of veins.





The yellowish plasmodia of these slime molds (*Physarum polycephalum*) have crawled out of their Petridishes.



The plasmodium of this *Physarum polycephalum* has produced dark "fruiting bodies" (fructifications) that contain spores. Note the traces of the former plasmodium in the background