

FUNGUS LIKE PROTISTS

Main groups of Fungus-like protists are given below:

1. Division: Protomycota (True fungus like protists)
2. Division: Gymnomycota (Slime molds)
3. Division: Oomycota (Water molds)

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1. Plasmodial slime molds

Plasmodial slime molds also known as true slime molds belong to the group Gymnomycota.

Habitat: The colonies of slime molds found growing on damp soil, rotting logs, decaying organic matter on bark and woods. The colonies are of various colors i.e. yellow, orange or red.

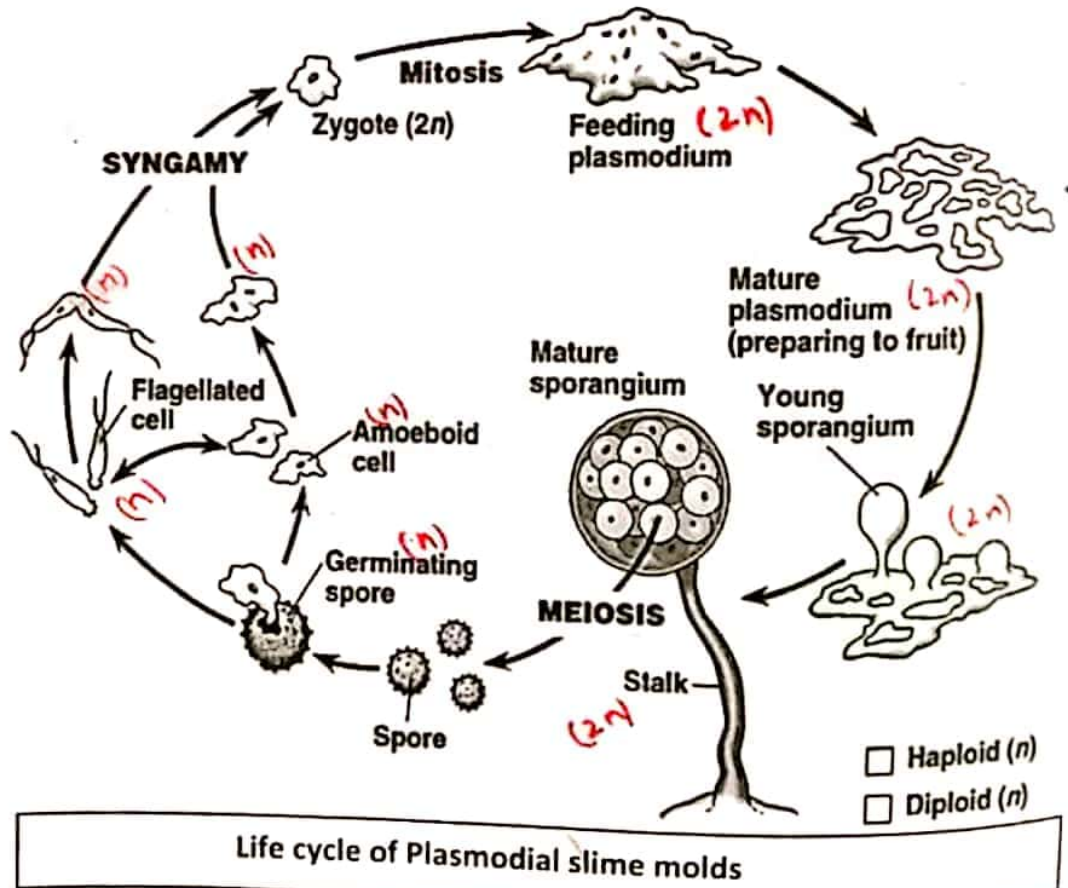
Forms: Slime mold occurs in various forms. The most common forms on Turf (i.e. Grass, Lawn) resemble small purple or black ball attached to blade of grass in the form of creamy-white, yellow- orange- purple or gray jelly-like mass.

Life cycle of plasmodial slime molds

The vegetative phase is diploid, amoeboid mass called a plasmodium which grows in size but does not become multicellular and remains a single mass of cytoplasm surrounded by plasma membrane.

The cytoplasm in plasmodium streams back and forth which help in distributing nutrients and oxygen. The plasmodium extends pseudopodia and move slowly, in moist soil, rotting logs engulfing and digesting food particles, bacteria and yeasts by phagocytosis.

When moisture & food supply diminish the plasmodium becomes stationary and develops fruiting bodies which may be either simple rounded masses with stalk. At this stage the appearance and behavior of the organism are fungus like.



2. Division: Oomycota (water molds)

Habitat: As the common name "water molds" indicates, most of the members are aquatic and produce white mass on the body of aquatic organisms. However, some live in the soil and some are parasites of flowering plants.

Mode of nutrition: Members of Oomycota are either parasites or saprophytes.

Distinguishing characters of Oomycota

- i. They possess zoospores which bear two unequal length flagella (tinsel, whiplash flagella), one pointed forward and the other backward.
- ii. Oomycota differ from Fungi because the cell wall is made up of cellulose whereas in Fungi the cell wall is composed of Chitin.
- iii. Although Oomycota members have evolved from plastid bearing ancestors, yet they do not possess plastids and do not photosynthesis.

Example: *Phytophthora infestans*

Disease: *Phytophthora* causes late blight of potatoes. *Phytophthora* had caused famine in Ireland (1845-1847) because the staple food of Irish people was potatoes. During the famine 400,000 people died due to hunger and many of them migrated to other European countries.

Climatic Conditions: *Phytophthora* spread in damp, cool and windy weather like wild fire.

Mycelium: The Mycelium is branched, aseptate, hyaline (transparent) and grow inter cellularly. It gets nourishment from host cells (Potato) by penetrating knob like structure known as haustoria into the host tissues. The haustoria are more frequent in Potato tubers.

Reproduction: *Phytophthora* reproduce both asexually and sexually.

Asexual Reproduction

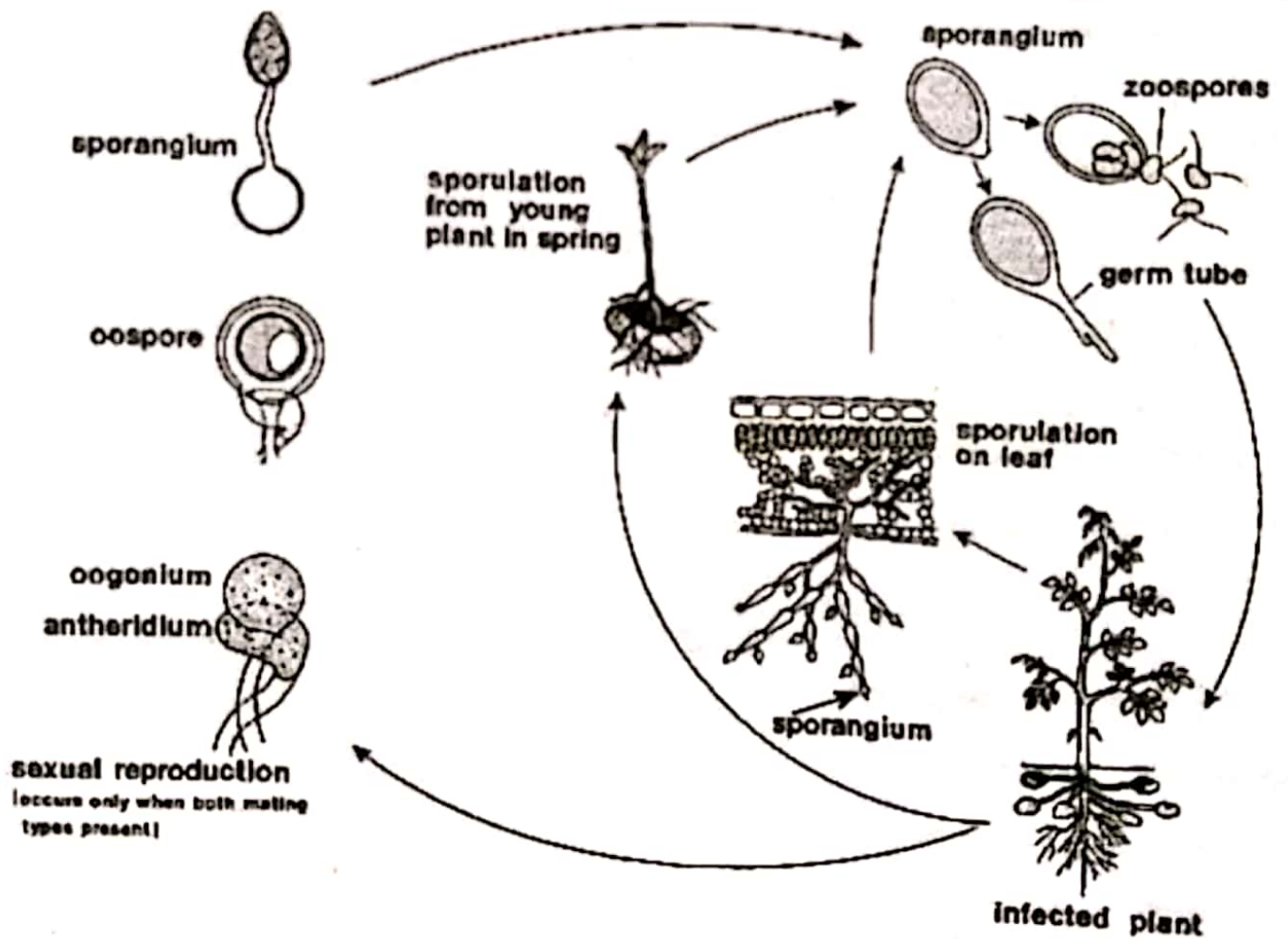
The aerial branch or sporangiophore bear hyaline (transparent) lemon shaped sporangia. On maturation, each sporangium produces biflagellated zoospores. After swimming for few minutes, they lose their flagella and develop into a germ tube which penetrates host tissues.

Sexual Reproduction: Sexual reproduction is oogamous.

Oogamous: When male gamete is small and motile fuse with large and non-motile gamete, such reproduction is known as Oogamous). In sexual reproduction the male structure called antheridium fuses with the female structure known as oogonium. Male and female nuclei (gametes) fuse with each other forming oospore (zygote). Then meiosis takes place in diploid Oospore and develops into sporangiophore which bears sporangia.

Sporangium produces biflagellated zoospores, after liberating from sporangium zoospores germinate into a haploid mycelium.

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Life cycle of *Phytophthora infestans*