Zygomycetes

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Introduction to Zygomycetes:

- The class zygomycetes derives its name from the thick-walled resting spores, the zygospores formed as a result of the complete fusion of the protoplasts of two equal or unequal gametangia. It comprises 450 species which are grouped under 70 genera.
- They all are terrestrial molds which show a wide range in their habit. Most of them are saprobes. Among these some are soil saprophytes and others coprophilous (growing on dung).

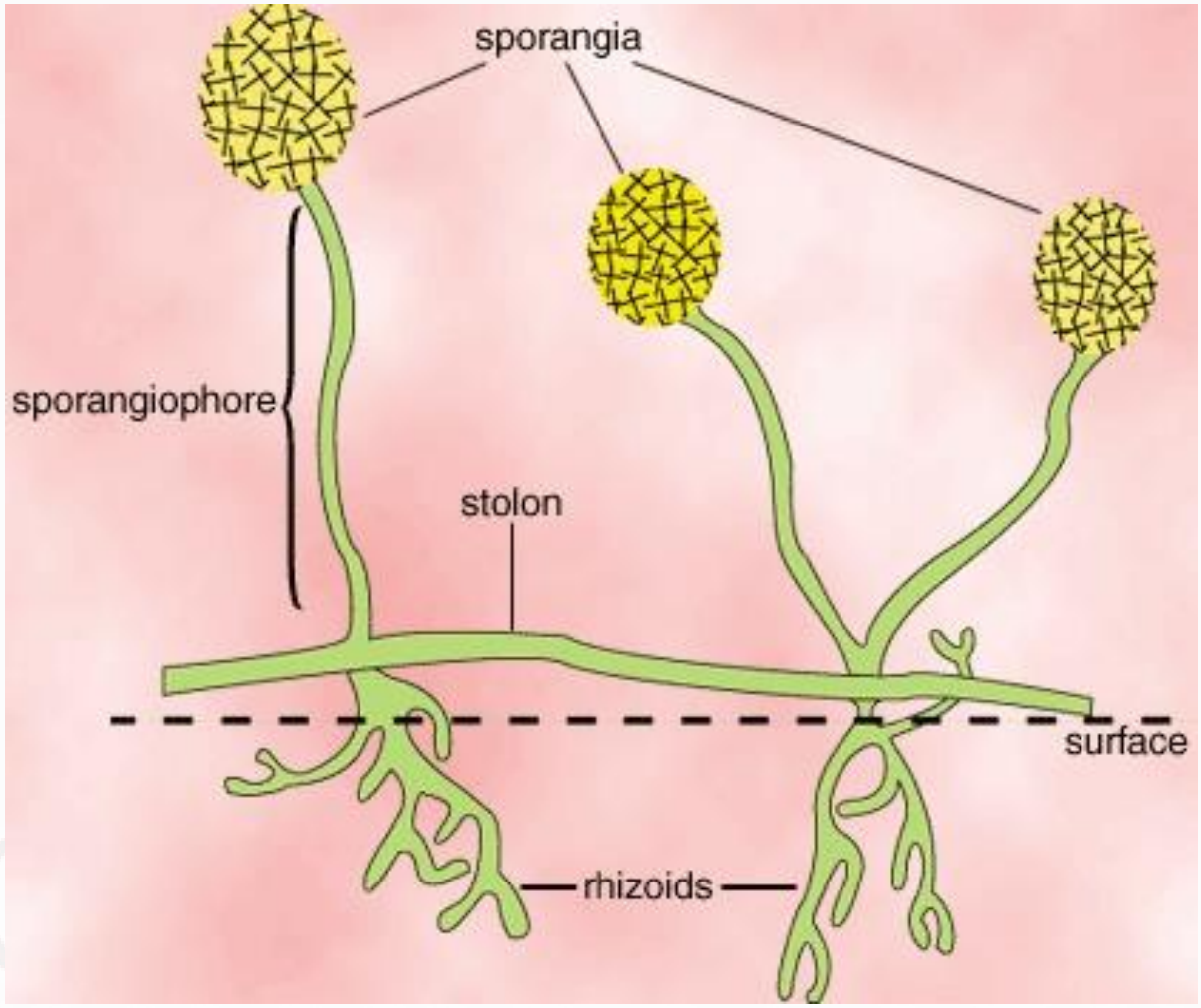
General characters

- It is class of terrestrial fungi which are mostly saprotrophic and rarely parasitic.
- Hyphal wall contains chitin.
- The mycelium is coenocytic.
- Motile cells are absent.
- Mitospores are non motile.
- Sexual reproduction occurs through gametangial copulation or copulation.

- The gametes are commonly multinucleate and are called coenogametes.
- Sexual reproduction produce zygospores.
- Zygospores is the site of meiosis and does not give rise to new mycelium directly.
- Eg :- rhizopus, mucor

Structure

- The mycelia of Zygomycota are divided into three types of hyphae.
- The rhizoids reach below the surface and function in food absorbtion.
- Above the surface, sporangiophores bear the spore-producing sporangia. Groups of rhizoids and sporangiophores are connected above the surface by stolons.
- Cell walls separating individual cells are absent in all but reproductive structures, allowing cytoplasm and even nuclei to move between cells.



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Reproduction

- Like all fungi, zygomycota can undergo both asexual and sexual reproduction.
- Asexual reproduction in Zygomycota is similar to that in other types of fungi, while sexual reproduction bears some similarity to that in Ascomycota.

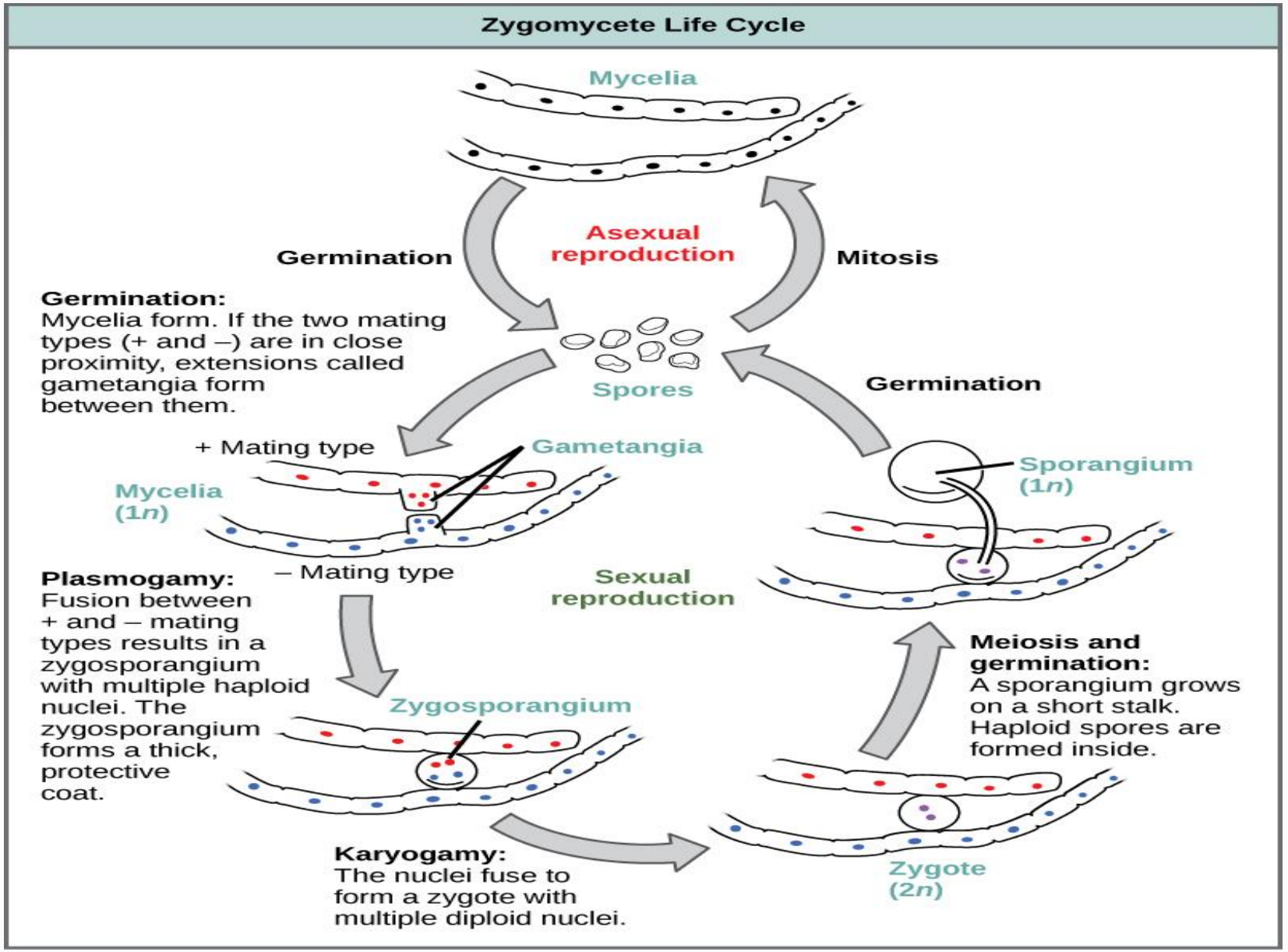
Asexual Reproduction

- Asexual reproduction in Zygomycota varies greatly among orders and species.
- Spores may be formed by the separation and thickening of hyphal cells.
- They may also be produced in specialized organs, whose structure is also widely varied.

Sexual reproduction

- Like Ascomycota, some Zygomycota have two mating types, though individual species may only have one mating type.
- When hyphae from opposite mating types meet, they produce structures called progametangia that are dense and multinucleate.
- Cell walls form to separate the tips of the progametangia into gametangia, which continue to be attached to the mating hyphae by the remaining suspensors.

- Plasmogamy then occurs between the two gametangia to form a zygote.
- Karyogamy takes place within the zygote.
- The cell walls of the zygote are thin at first, but later thicken into a zygospore.
- Germination begins when the diploid nucleus undergoes meiosis and a sporangium develops at the end of a germ tube.
- Spores are produced within the sporangium.



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- Moore D, Robson GD, Anthony P, Trinci J (2011). 21st Century Guidebook to Fungi, Cambridge University Press, UK.
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THANK YOU