

Zygomycota

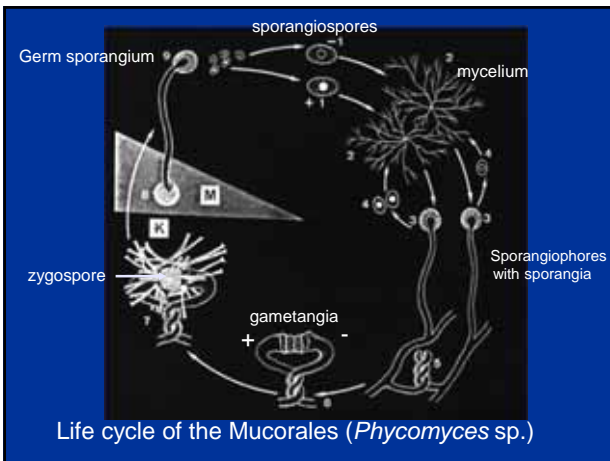
Zygomycetes

Zygomycetes

- mostly fast-growing fungi
- common as saprophytes in wet environments like food, plants, dung
- spoilage organisms in fruit, food and beverages
- important as fermentation agent for food
- used extensively in the biotechnology for enzymes

Zygomycota: Zygomycetes

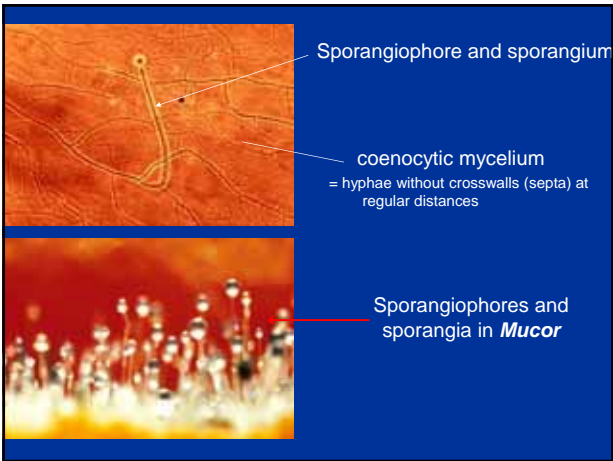
- Most species grow at normal room temperature
- some are psychrophilic
- species of *Absidia*, *Rhizopus*, *Rhizomucor* are often thermotolerant or thermophilic
- thermotolerant and thermophilic species are known as pathogenic or can be potentially pathogenic

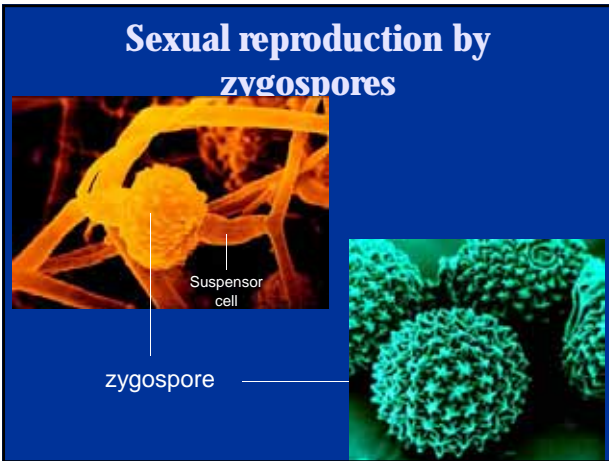


Zygomycota: Zygomycetes

- o typical coenocytic mycelium
- o sexual form = zygospores
- o asexual form sporangiospores

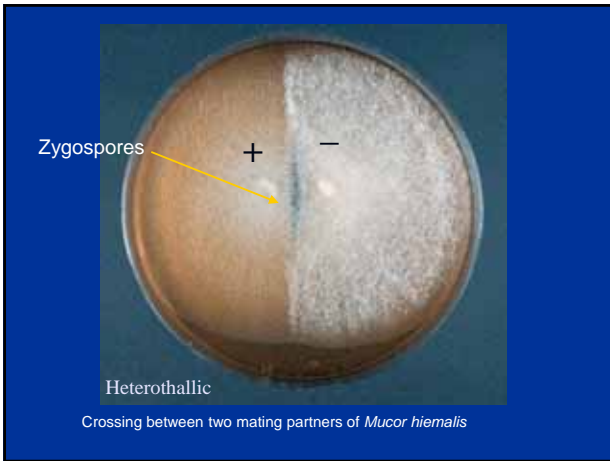






Zygospores

- mostly thick-walled spores with ornamented walls and sometimes with hyphal covering
- the function is like a resting spore
- zygospores are (mostly) absent in cultures and only found in **homothallic** isolates
- for **heterothallic** species crossing (matings) should be performed





Asexual development in Zygomycetes

- Multi-spored sporangium
- Few-spored and mono-spored sporangium (sporangiole)
- Merosporangium

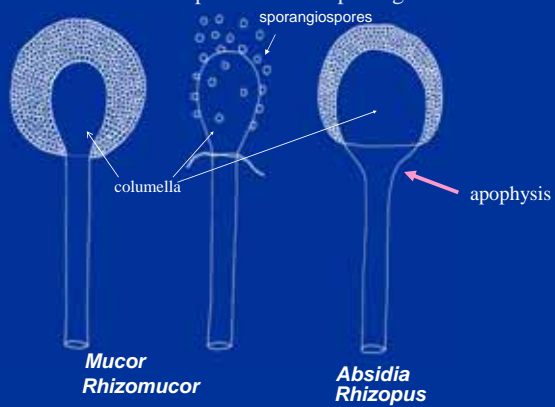
sporangia

- Characteristics for identification

Asexual reproduction in sporangia

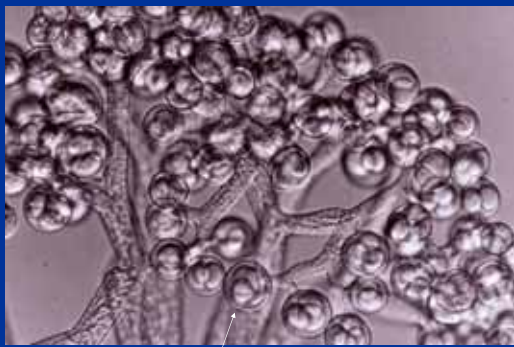


Asexual reproduction in sporangia



Asexual reproduction in sporangia

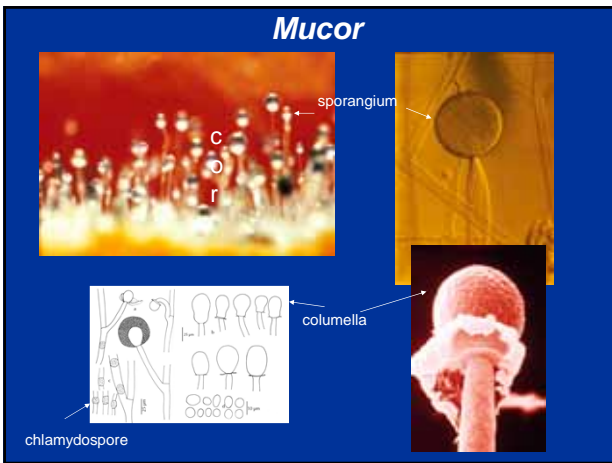


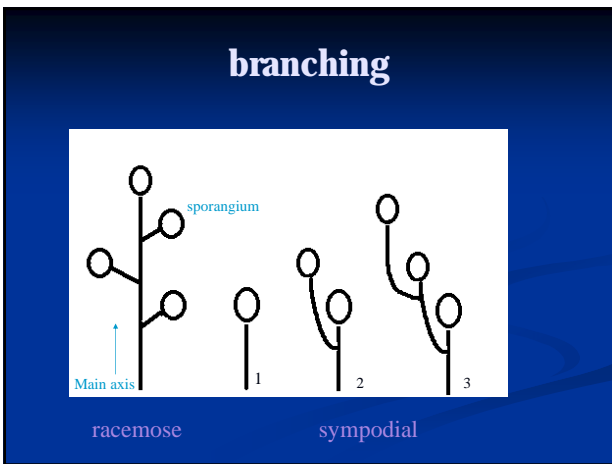


Sporangioles: one or few spored sporangia

Mucor

- ca. 50 species, cosmopolitan
- Sporangiophores branched or unbranched (racemose, sympodial)
- Sporangium with columella
- No apophysis



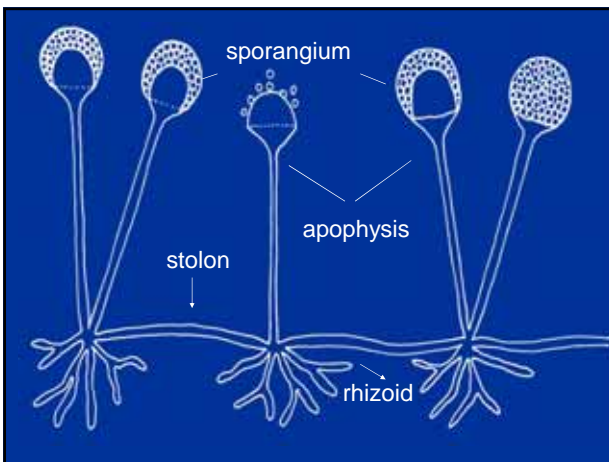


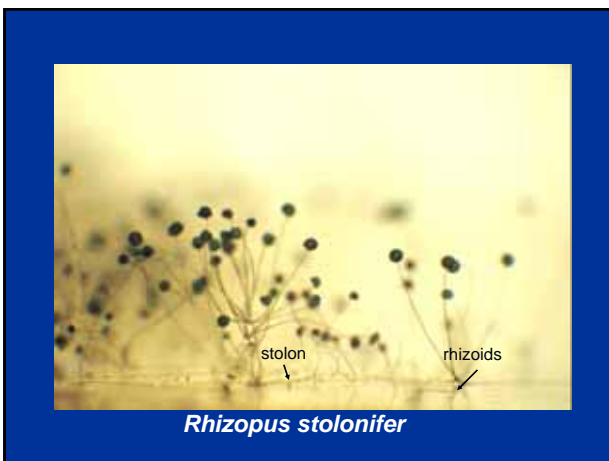
Absidia

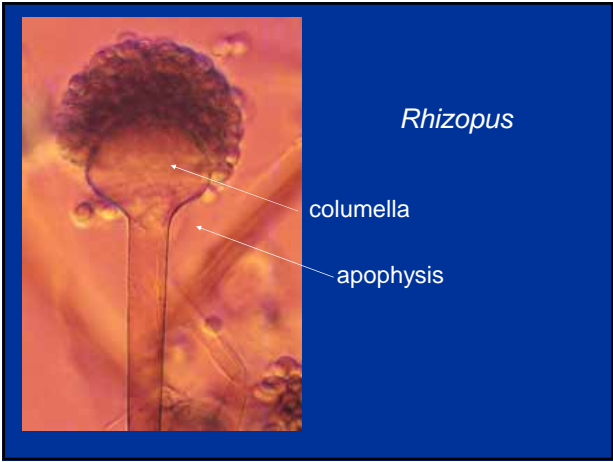
- ca. 20 species, widespread, mostly soil-borne
- Sporangiphores branched
- Sporangium with columella and apophysis
- Occurrence: soil, grains, hay, fruits, indoor etc.
- Some species can be pathogenic for humans and animals

Rhizopus

- Ca. 10 common species, widespread
- Sporangiohores unbranched, pigmented, solitary or in groups
- Rhizoids opposite sporangiohores
- Stolons (e.g. *Rhizopus stolonifer*)
- Sporangia with apophysis and columella

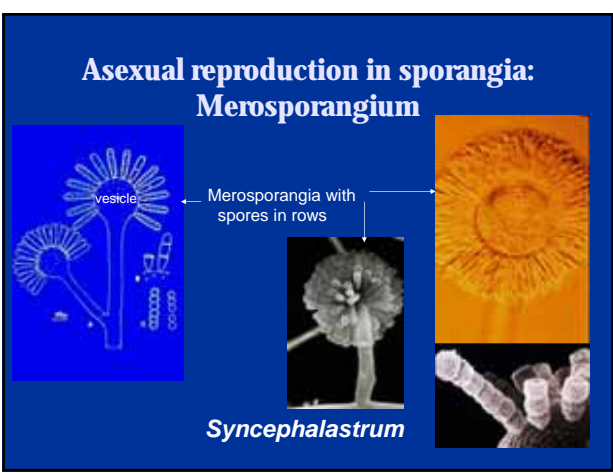






Syncyphalastrum

- 2 species, widespread with a preference for tropical and subtropical regions
- Merosporangium and merospores
- Occurring in soil, hay, dung, food and feed



Genera of Zygomycetes

- Mucor
- Rhizopus
- Absidia
- Syncephalastrum
- Rhizomucor

Table 16: Overview of selected characters of the Zygomycetes in wood

Species	Reaction to lignin	Reaction to cellulose	Reaction to hemicellulose	Reaction to pectin	Reaction to lignin	Reaction to cellulose	Reaction to hemicellulose	Reaction to pectin	Additional characters
<i>Mucor</i>	+	+	+	+	+	+	+	+	Spore-bearing
<i>Rhizopus</i>	+	+	+	+	+	+	+	+	Spore-bearing
<i>Absidia</i>	+	+	+	+	+	+	+	+	Spore-bearing
<i>Syncephalastrum</i>	+	+	+	+	+	+	+	+	Spore-bearing
<i>Rhizomucor</i>	+	+	+	+	+	+	+	+	Spore-bearing
