

## Oomycota

Oomycota, "fungi" at the base of the stramenopiles.

Non-fungal characters, cellulose, DAP lysine synthesis, 2N thallus, storage polysaccharide like the kelps, mitochondrial differences.

Fungal behavior, hyphae, symbiotic parasites, some saprobes. No mutualists.

Small Phylum, < 1% of described fungi, ~ 580 sp.

Habitats: aquatic, in wet soil with zoospores, or terrestrial inside of plants.

Phylogeny of Oomycota, Saprolegniales and Peronosporales.

Saprolegniales (mostly saprobes but some symbiont-parasites of animals)

### Life Cycle

Clonal reproduction by sporangia and zoosporic mitospores.

*Saprolegnia*, primary and secondary zoosporic mitospores

*Achlya*, released primary cysts, secondary zoosporic mitospores.

*Thraustotheca* and *Dictyuchus*, *in situ* primary cysts, secondary zoosporic mitospores

Sexual, recombining reproduction.

*Achlya*, female and male, gametes produced by meiosis.

Pheromones, sterols, oogoniol and antheridiol

Growth of antheridial hyphae to oogonia.

Diversity of antheridial location and oogonial form.

Peronosporales (Overwhelmingly symbionts parasitic on plants)

*Phytophthora infestans* on potato from Latin America to Ireland and beyond.

*Phytophthora ramonrum* on *Lithocarpus* and 15 other trees in California.

*Plasmopara viticola* on grape (Obligate symbiont).

*Peronospora* on tobacco and *Arabidopsis* (Obligate symbiont).

*Pythium*, saprobe and symbiont, parasitic on plants as well as horses and humans.

Albugo, the refined symbiont, parasitic on Brassicaceae.