Division: *Zygomycota*

Zygomycota members are characterized by primitive coenocytic hyphae. More than 1050 *Zygomycota* species currently exist. They are mostly terrestrial in habitat, living in soil or on decaying plant or animal material. Some are parasites of plants, insects, and small animals, while others form symbiotic relationships with plants.

Members of the division possess the ability to reproduce both sexually and asexually. Asexual spores include chlamydoconidia, conidia, and sporangiospores contained in sporangia borne on simple or branched sporangiophores. Sexual reproduction is isogamous producing a thick-walled sexual resting spore called a zygospore.

Systematics of Zygomycota

Two classes are recognized in this division; the *Trichomycetes* and *Zygomycetes*.

Class: *Zygomycetes*

Characteristics of the class are the same as those of the division. The class contains 6 orders, 29 families, 120 genera, approximately 800 species.

Order: *Endogonales*

The order includes only one family, four genera and 27 species. Its members are distinguished by their production of small sporocarps that are eaten by rodents and distributed by their feces.

Order: *Entomophthorales*

Most members of the order are pathogens of insects. A few attack nematodes, mites, and tardigrades, and some are saprotrophs.

Genus: *Entomophthora*

Members of the genus are parasitic on flies and other two-winged insects.

Order: *Kickxellales*

The order contains single family and eight genera.

Order: *Mucorales*

Mucorales, also known as pin molds, is the largest order of the class *Zygomycetes*. The order includes 13 families, 56 genera, 300 species. Most of its members are saprotrophic and grow on organic substrates. Some species are parasites or pathogens of animals, plants, and fungi. A few species cause human and animal disease zygomycosis, as well as allergic reactions.

Genus: *Mucor*

Genus Mucor includes approximately 40 species. Most members have widespread occurrence and economic importance.

Genus: *Rhizopus*

Members of the genus are multicellular and they are common saprophytic fungi on plants and specialized parasites on animals. They are found on a wide variety of organic substrates such as fruits and vegetables, syrups, leather, bread, peanuts, and tobacco.

Some *Rhizopus* members are commonly used in industrial processes. *R. oryzae* is useful for the production of lactic acid and cortisone, for alcoholic fermentation, *R. stolonifer* is used to produce fumaric acid, lactic acid, and cortisone, and *R. delemar* produces fumaric acid and biotin. Some *Rhizopus* species such as *R. oligosporus* and *R. oryzae* are important in some foods and traditional alcoholic beverages.

Order: *Zoopagales*

The order includes 5 families, 22 genera, and 190 species Most members are parasites or predators of microscopic animals such as amoebae. They also prey on rotifers. The order

includes 5 genera (*Acaulopage, Bdellospora, Cystopage, Lecythispora, Stylopage, Zoopage* and *Zoophagus*).

Class: *Trichomycetes*

The class contains 4 orders, 7 families, 52 genera, about 210 species. Its members grow in the guts of arthropods living in aquatic habitats. They are generally viewed as commensals, having little effect on the host, but in stressful environments, they might confer an advantage to colonized hosts; in some cases, they act as pathogens Most Trichomycetes colonize freshwater and marine arthropods, but some colonize terrestrial arthropods.

Order: *Harpellales*

Members of the order are obligate, symbiotic fungi that colonize the digestive tracts of ods, including black flies. Thalli of the order are either unbranched or branched, producing basipetal series of trichospores. Zygospores are biconical.

Genus: *Herpella*

The genus includes five species which grow in *Diptera*.

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