Kingdom: *Fungi*

Fungi are rich and diverse groups of organisms on earth. The kingdom includes some of the most important organisms because of their important roles in human life, such as their beneficial and harmful effects on forests, their use in the pharmacology industry, and the mass production of cultivated fungi in the food industry, as well as their vital role in biodegradation. They include symbionts of plants, animals, or other fungi and also parasites. They have long been used as a direct source of human food, in the form of mushrooms and truffles; as a leavening agent for bread; and in the fermentation of various food products, such as wine, beer, and soy sauce.

Fungi have been used for the production of antibiotics since 1940. Recently, various enzymes produced by fungi are used industrially and in detergents. They are also used as biological pesticides to control weeds, plant diseases, and insect pests. Many species produce bioactive compounds called mycotoxins, such as alkaloids and polyketides, that are toxic to animals including humans. Approximately 100 000 species of fungi have been described; however, some estimates of total numbers suggest that 1.5 million species may exist.

Fungi show a great diversity in morphology and habitat. They obtain their nutrients by absorption. Their cell walls are mostly made up of carbohydrate chitin, while the cell wall in plants is made of cellulose. The carbohydrates are stored in fungi as glycogen. Nutrition in fungi is by absorbing nutrients from the organic material in which they live. Fungi digest their food before it passes through the cell wall into the hyphae. The hyphae secrete enzymes and acids that break down the organic material into simple compounds. The kingdom fungi reproduce by means of spores Reproduction in fungi is both by sexual and asexual means. The sexual state is referred to as teleomorph, asexual state is referred to as anamorph.

The kingdom has a worldwide distribution, and they grow in a wide range of habitats such as deserts or areas with high salt concentrations or ionizing radiation as well as in deep-

sea sediments. Some can survive the intense UV and cosmic radiation encountered during space travel. Most grow in terrestrial environments, though several species live partly or solely in aquatic habitats, such as the chytrid fungus.

Kingdom fungi is classified into four divisions (*Chytridiomycota, Zygomycota, Ascomycota* and *Basidiomycota*).

Division: *Chytridiomycota*

Chytridiomycota, also known as chytrids, is a division of zoosporic organisms in the kingdom Fungi. Members of the division occur mainly in aquatic or moist habitats where they live as parasites on plants, insects, or amphibians, while others are saprobes. Like other fungi, chytrids have chitin in their cell walls, but one group of chytrids has both cellulose and chitin in the cell wall. Most chytrids are unicellular; a few form multicellular organisms and hyphae, which have no septa between cells (coenocytic). They produce gametes and diploid zoospores that swim with the help of a single flagellum. About 750 described chytrid speciesare currently exist.

Sexual reproduction of most *Chytridiomycota* members is not known. Asexual reproduction occurs through the release of zoospores derived through mitosis. Sexual reproduction is common among members of the *Monoblepharidomycetes*. They practice a version of oogamy: the male is motile and the female is stationary. This is the first occurrence of oogamy in kingdom Fungi.

Systematics of Chytridiomycota

Class: *Blastocladiomycetes*

Order: *Blastocladiales*

Fam: *Blastocladiaceae*

Genus: *Allomyces*

Genus: *Blastocladia*

Genus: *Microallomyces*

Genus: *Septocladia*

Genus: *Sphaerocladia*

Family: *Coelomomycetaceae*

Genus: *Coelomomyces*

Class: *Chytridiomycetes*

Order: *Chytridiales*

Class: *Monoblepharidomycetes*

Order: *Monoblepharidales*

Family: *Monoblepharidaceae*

Genus: *Diblepharis*

Genus: *Monoblephariopsis*

Genus: *Monoblepharis*

Class: *Olpidiomycetes*

Order: *Olpidiales*

Fam: *Olpidiaceae*

Genus: *Olpidium*

Class: *Rhizophydiomycetes*

Order: *Rhizophydiales*

Fam: *Rhizophydiaceae*

Genus: *Rhizophydium*

Class: *Synchytriomycetes*

Ordo: *Synchytriales*

Family: *Synchytriaceae*

Genus: *Synchytrium*

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