

Glossary of Mycological Terms & Concepts

Absorptive Nutrition: the process in which the nutritional substrate (e.g., dead organism or other nonliving organic matter) is directly digested by a variety of enzymes that are excreted by the saprotroph. The enzymes convert the detritus into simpler molecules, which are then absorbed by the cells to feed the organism. ¹

Achlorophyllous: having no chlorophyll ²

Amoeba/Amoeboid: is a type of cell or unicellular organism which has the ability to alter its shape, primarily by extending and retracting pseudopods. ²

Aseptate (Coenocytic) Hyphae: hyphae which have no divisions/septa, and the cytoplasm, organelles and nuclei are able to stream freely throughout the hyphae. This type of mycelium is essentially a large, filamentous single-cell.

Cellulose: a complex carbohydrate, or polysaccharide, consisting of 3,000 or more glucose units. The basic structural component of plant cell walls, cellulose comprises about 33 percent of all vegetable matter and is the most abundant of all naturally occurring organic compounds. ¹

Carbon Cycle: is the biogeochemical cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, hydrosphere, and atmosphere of the Earth. ³

Chitin: a fibrous substance consisting of polysaccharides and forming the major constituent in the exoskeleton of arthropods and the cell walls of fungi. ⁴

Cryptic: a species which cannot be easily distinguished based on macroscopic features, or one which is not known to form macroscopic fruiting structures.

Cytoplasm: the semifluid substance of a cell that is external to the nuclear membrane and internal to the cellular membrane, sometimes described as the non-nuclear content of protoplasm. In eukaryotes (i.e., cells having a nucleus), the cytoplasm contains all of the organelles. ¹

Diploid: (of a cell or nucleus) containing two complete sets of chromosomes, one from each parent. ⁴

Ecology: the branch of biology that deals with the relations of organisms to one another and to their physical surroundings. ⁴

Endophyte: is an endosymbiont, often a bacterium or fungus, that lives within a plant for at least part of its life cycle without causing apparent disease. Endophytes are ubiquitous and have been found in all species of plants studied to date; however, most of the endophyte/plant relationships are not well understood. ³

Enzyme: are proteins that act as biological catalysts (biocatalysts). Catalysts accelerate chemical reactions. ³

Eukaryotes: are organisms whose cells have a nucleus enclosed within a nuclear envelope. ³

Flagellate: a cell or organism with one or more whip-like appendages called flagella. Generally used for motility.

Gills: see lamella

Glycosidic Bond: is a type of covalent bond that joins a carbohydrate (sugar) molecule to another group, which may or may not be another carbohydrate. ³

Haploid: (of a cell or nucleus) having a single set of unpaired chromosomes. ⁴

Hymenium: (in higher fungi) a surface consisting mainly of spore-bearing structures (asci or basidia). ⁴

Hypha: Each of the branching filaments that make up the mycelium of a fungus. ⁴

Lamella: the gill of a mushroom. This thin, plate-like surface is lined in hymenium, or the fertile, spore-producing cells.

Lignin: a complex organic polymer deposited in the cell walls of many plants, making them rigid and woody. ⁴

Microbiome: is the community of microorganisms that can usually be found living together in any given habitat. A more specific usage refers to the microbial community that symbiotically live within the tissues, surfaces and fluids of an individual organism. ⁴

Molecular Systematics: is the use of molecules to determine classification systems and relationships. ⁵

Monophyletic Group: the condition of being a clade—that is, a group of taxa composed only of a common ancestor (or more precisely an ancestral population) and all of its lineal descendants. ³

Morphology: the branch of biology that deals with the form of living organisms, and with relationships between their structures. the branch of biology that deals with the form of living organisms, and with relationships between their structures. ⁴

Mutualistic: symbiosis that is beneficial to both organisms involved. ⁴

Mycelium: is the vegetative part of a fungus or fungus-like bacterial colony, consisting of a mass of branching, thread-like hyphae. ³

Mycorrhizal Fungi: is a mutual symbiotic association between a fungus and a plant. The term mycorrhiza refers to the role of the fungus in the plant's rhizosphere, its root system. Mycorrhizae play important roles in plant nutrition, soil biology, and soil chemistry. ³

Niche (Ecological): is the match of a species to a specific environmental condition. It describes how an organism or population responds to the distribution of resources and competitors (for example, by growing when resources are abundant, and when predators, parasites and pathogens are scarce) and how it in turn alters those same factors (for example, limiting access to resources by other organisms, acting as a food source for predators and a consumer of prey). ³

Nuclei: In cell biology, the nucleus (pl. *nuclei*; from Latin *nucleus* or *nuculeus*, meaning *kernel* or *seed*) is a membrane-bound organelle found in eukaryotic cells. The cell nucleus contains all of the cell's genome, except for the small amount of mitochondrial DNA and, in plant cells, plastid DNA. ³

Opisthokonta: (from Ancient Greek *ὀπίσθιος* (*opísthios*) 'rear, posterior', and *κοντός* (*kontós*) 'pole, i.e. flagellum') are a broad group of eukaryotes, including both the animal and fungus kingdoms. ³

Organography: is the scientific description of the structure and function of the organs of living things. ³

Parasitism: is a close relationship between species, where one organism, the parasite, lives on or inside another organism, the host, causing it some harm, and is adapted structurally to this way of life. ³

Pathogen: a bacterium, virus, or other microorganism that can cause disease. ⁴

Phagotrophic: Feeding by engulfing a food cell or particle and ingesting it in a phagocytic vacuole, in the manner of some flagellates. ³

Phylogenetics: is a part of systematics that addresses the inference of the evolutionary history and relationships among or within groups of organisms (e.g. species, or more inclusive taxa). These relationships are hypothesized by phylogenetic inference methods that evaluate observed heritable traits, such as DNA sequences, protein amino acid sequences, or morphology, often under a specified model of evolution of these traits. The result of such an analysis is a **phylogeny** (also known as a phylogenetic tree)—a diagrammatic hypothesis of relationships that reflects the evolutionary history of a group of organisms. ³

Pileus: the cap of the mushroom, generally held aloft by a stem or stipe, and enshrouds the hymenium.

Polyphyletic Group: group or assemblage is a set of organisms, or other evolving elements, that have been grouped together based on characteristics that do not imply that they share a common ancestor that is not also the common ancestor of many other taxa (of course, if "life" is monophyletic, then any set of organisms shares a common ancestor at some point back in the root of the tree). ³

Saprotrophs: also called saprophyte or saprobe, are organisms that feed on nonliving organic matter known as detritus at a microscopic level. ¹

Septal Pore: a central hole in the septa of hyphae which allows cytoplasm and small organelles to flow free between cells, while larger organelles such as the nuclei are confined to the individual cells. In the higher fungi (e.g. Basidiomycota) the septa is encased by a relatively complicated organelle called the Dolipore septum which is composed of extensions of endoplasmic reticulum.

Septate Hyphae: fungal hyphae which have septa, or divisions, which confine certain larger organelles to individual septations.

Sister Kingdom: two separate taxonomic Kingdoms which share a strong phylogenetic affinity towards one another, implying a relatively recent common ancestor.

Stipe: the stem portion of a mushroom. This sterile structure generally aids in elevating the fertile, spore-producing portion of the mushroom, helping spores to catch air currents and spread further.

Substrate: anything which the mushroom can digest and use for energy while it grows.
(biochemistry) the substrate is the material which an enzyme acts upon

Superkingdom: the taxonomic ranking above Kingdom that is thus, more broad and inclusive than the kingdom level. E.g. Opisthokonta is a Superkingdom which encompasses the Kingdom Fungi and Animalia into a single taxon.

Somatic Structure: The lifestage at which a fungus lives, grows, and develops, gathering nutrients and energy.³

Stipe/Stem: the stem supporting the cap of a fungus.²

Taxonomy: the branch of science concerned with classification, especially of organisms; systematics.⁴

Zoospores: a spore of certain algae, fungi, and protozoans, capable of swimming by means of a flagellum.⁴

Sources

1-<https://www.britannica.com/>

2-<https://www.merriam-webster.com/>

3-<https://en.wikipedia.org/>

4-Oxford Language <https://languages.oup.com/>

5-<https://www.encyclopedia.com/>