



Morphology

Within the fungus kingdom, macrofungi are a group that form visible, often coloured, cup- or cap-like structures (scientifically known as ‘fruiting bodies’ or ‘sporophores’) that emerge from the soil. These fruiting bodies are where the spores are formed. The spores are small, usually single-celled, reproductive structures able to tolerate unfavourable growing conditions (e.g. drought). Below the fruiting bodies, each fungus has a mass of hyphae, the typical branching thread-like filaments produced by most fungi. The mycelium is made up of the mass of these hyphae and is responsible for its growth. In the case of soil macrofungi, a large portion of the mycelium is hidden since it grows belowground. When environmental conditions become favourable, the fungus develops the fruiting body and spores that, once released, disperse through the air, or are carried by insects or water.

Taxonomy

Macrofungi, are classified into two main phyla: Ascomycota and Basidiomycota. The Ascomycota, the largest group of macrofungi with more than 64 000 described species, are usually characterised by a cup-like or disc-like fruiting body (technically known as ascoma), where spores are formed within a typical structure, named the ‘ascus’. The Basidiomycota (more than 31 000 described species) mostly have a fruiting body (called basidioma) with an umbrella shaped cap (known as pileus) borne on a stalk (known as a stipe) where the spores are produced. Other phyla that include soil fungi are Glomeromycota, Zygomycota, Chytridiomycota and Blastocladiomycota

Microhabitat

Macrofungi are found in most terrestrial habitats, from woodlands to grasslands, but they are probably most diverse in forests. They need the right climatic conditions to form fruiting bodies; in particular, moisture to allow their spores to develop. Depending on their functions, they can be defined as saprotrophic, parasitic or mycorrhizal. The saprotrophic species play a key role in the degradation of decaying organic matter (i.e. soil, leaf litter and dead wood). The parasitic fungi are responsible for several diseases in plants, animals (mostly invertebrates) and other fungi. The mycorrhizal fungi form symbioses with plant roots, a mutualistic association that is beneficial to both partners. More next time/

Fungi: edible, poisonous, bioluminescent and giant

- There are several edible Basidiomycota and Ascomycota. Mushrooms, such as *Boletus edulis* and truffles which are consumed in many countries.
- Some Basidiomycota produce deadly toxins, such as amatoxin produced by *Amanita phalloides*. Thirty grammes of this fungus may kill a person; others, such as *Ganoderma lucidum*, are considered medicinal fungi.
- Some Basidiomycota (e.g. species belonging to the genus *Mycena*) are bioluminescent.
- In Hainan Island (southern China) a giant specimen of *Fomitiporia ellipsoidea* (belonging to the group of bracket fungi, also included in Basidiomycota) was found to be 20 years old with an estimated volume of 409 000 - 525 000 cm³ and a weight of 400 - 500 kg. This represents the largest fungal fruiting body (both in volume and in weight) ever found.

Farming Secrets says: Together with bacteria, fungal hyphae constitute the largest portion of the microbial biomass of soil.