

## FUNGI GROUPS – DO YOU KNOW THE DIFFERENCE? ...Neil Tucker

Fungi are currently divided into 7 phyla.

Nearly all the fungi with which we are familiar are in phylum **Basidiomycota**, covered on page 7.

The other phyla are:

- The **Microsporidia** are spore-forming, unicellular parasites. They are restricted to animal hosts. Most infect insects, but they are also responsible for common diseases of crustaceans and fish. Several species, most of which are opportunistic, also infect humans.
- The **Chytridiomycota** are the most primitive of the fungi, and are mostly saprobic (degrading chitin and keratin). Some species are unicellular. As with other fungi, the cell wall in chytrids is composed of chitin (a fibrous substance forming the major constituent in the cell walls of fungi.), whereas plant cell walls are cellulose. Many chytrids are aquatic, mostly in fresh water. There are approximately 1,000 species, in 127 genera. *Batrachochytrium dendrobatidis* has been suggested as a principal cause for the world wide decline in frog numbers.
- **Blastocladiomycota** are zoosporic (capable of swimming by means of a flagellum) fungi found in soil and fresh water habitats, and are mostly detritivores, subsisting on decaying organic matter. Three of the five families within Blastocladiomycota exclusively contain pathogens. These infect species such as water bears, plankton, nematodes, various aquatic and semi-aquatic plants, and mosquito larvae.
- **Neocallimastigomycota** (where do they get these names?) are anaerobic fungi, found mainly within the stomachs of ruminants, but with possible distributions elsewhere. It has only one family.
- **Glomeromycota**, with approximately 200 described species, form symbiotic relationships with the roots of land plants, although some may be able to lead an independent existence. They are widely distributed in soils around the world and can also be found in wetlands, including salt-marshes, and associated with epiphytic plants (a plant that grows on another plant but is not parasitic).



An ascus with 8 spores

- The **Ascomycota** are commonly known as the Sac Fungi. In ascomycetes, the spores are produced in microscopic sacs called asci (singular: ascus), which are often elongated in shape, thereby giving the spores a resemblance to peas in a pod. This group is of particular relevance to humans as sources for important compounds, but also as pathogens of humans and plants. Familiar examples of sac fungi include morels, truffles, brewer's yeast and baker's yeast, Dead Man's Fingers, and cup fungi. Cup or disk fungi are either flat disks or shallow cups on soil, dung or wood. They vary from less than a millimetre to several centimetres in diameter, and appear in colours such as black, white, orange, aqua, brown, and yellow. Some are on short stalks while others are stalkless and the edges and undersides may be smooth or hairy. The fungal symbionts in the majority of lichens belong to the Ascomycota. There are many plant-pathogens, including ergot and powdery mildew.

Source: Wikipedia & others



A Morel, drawn by the late Mary White



Cup fungi



Underwoodia, from under the Moonahs at Point Addis

## Fungi groups – Basidiomycota

**Basidiomycota**, together with the Ascomycota, comprise the “higher fungi”. They are filamentous fungi, composed of hyphae (branching filaments) – except for those forming yeasts. In basidiomycetes, the spores (usually four) are produced from the tips of microscopic organs called basidia (singular: basidium). These encompass nearly all the fungi we see in the bush, and exhibit a great range of forms.

All the specimens shown below have been collected locally.



“Mushrooms” usually have a stem and a cap, with gills underneath. Sometimes the stem is absent or very short and off-centre, making it look like a bracket fungus.



Boletes, which are fleshy, may, at first, look like ordinary mushrooms, but have pores, rather than gills, on the underside of the cap.



Coral fungi, found usually on soil, but sometimes on rotting wood, may be simple fleshy clubs, or intricately branched, coral-like forms, variously coloured.



Earthstars look like puffballs on star-like bases.



Puffballs are just bags of spores. Each has a hole in the top to let the spores out.



Earthballs are also bags of spores. The bag splits open or breaks up completely.



Stinkhorns come in various shapes. The unforgettable feature, common to all stinkhorns, is that they smell of faeces or rotting meat when they first appear



Birds-nest fungi are small, steep-sided cups, up to 15 mm across, which contain small blackish globules, giving the appearance of eggs in a nest.



Jelly-fungi look like gelatinous blobs on rotting wood. They are generally quite rubbery in consistency, robust, and include white, yellow and brown species.



Bracket fungi grow on dead or living wood and are all of tough consistency, with spore-releasing pores on their undersides.



Toothed jelly is small, and gelatinous, with soft “spines” underneath.



Byssomerulius forms sheets underneath dead branches. It has pores over the whole surface.

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