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

Of the "lower" life forms we are considering in this series, the fungi stand out as unique:

In contrast to nearly all the plants we are familiar with, fungi lack chlorophyll, and therefore the ability to produce their own food from sunlight via photosynthesis. (Two plants that we know, which are without chlorophyll, are Hyacinth Orchids and Cinnamon Bells.) Some fungi, however, may use melanin to extract energy from nuclear radiation!

The main body of the organism is made up of microscopic threads or filaments (*hyphae*) that search through the soil for dead organic material, or some living organic host. Only the reproductive structure protrudes. This is equivalent to a tree growing underground and only poking its flowers up.

The image shows a hypha of Downy Mildew growing within leaf tissue. The long structure is the hypha, and the little spheres are called *haustoria*, which penetrate plant cells and extract nutrients.

The number of fungi species is vast, estimated to be 250,000 in Australia alone, and 1,500,000 worldwide. This compares to about 22,000 native vascular plants in Australia.

We are familiar with the life form of the higher plants – usually a trunk, branches, leaves and flowers with petals, stamens etc. However, different groups of fungi are very different from each other.

Fungi are hugely important to the growth of more than 80% of higher plants. Many orchids require fungi to germinate their seeds, and many other plants, including most Eucalypts, have fungal partners in their roots, providing nutrients for the host plant, and receiving sugars in return, with often, four or five species of fungi per plant species. Some insects, also, have symbiotic relationships with fungi.

Reproduction is complex, involving extra stages, plus sexual and asexual mechanisms. Some have more than two sexes. Suffice to say that fungi do not have flowers and seeds, but many have spores instead. Spores are exceedingly small – one puffball for example can produce as many as 15,000,000,000,000! Unlike seeds, fungi spores have no energy reserves, so most do not survive (on average, only 1 of the above number).

There are also many microscopic and biochemical differences from plants and animals, which are beyond the scope of this article.

Fungi are therefore in their own kingdom – we should not just speak of plants and animals, but plants, animals & fungi. Fungi are actually closer to animals than they are to plants.

Stilton cheese veined with
Penicillium roqueforti

Grasshoppers killed by
Beauveria bassiana

Reference: http://en.wikipedia.org/wiki/Fungus
Images from Wikipedia/Fungus