

## **WHAT CORTINARIUS IS THAT?**

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**What is the genus like?** This very large genus is characterised by having rusty rough spores, only growing in soil and forming mycorrhizal relationships with flowering plants.

**The size of the genus.** The genus has about 2000 good species world-wide. There are about 500 found in Europe, while there are about forty-seven reported species from Australia. It is probable that Australia has about the same size flora as Europe. Because they form mycorrhizal relationships with our local flora, they will probably be almost all different from those found elsewhere

**Collecting.** For producing a good collection, usually at least three fruit-bodies should be collected, showing the various stages of growth, and preferably with a good colour photo. Care will need to be taken to look for the colour of the young lamellae, presence of any blue colours anywhere in the fruit-body, and the presence of any viscosity anywhere on the cap or lamellae. (Note that viscosity seems much reduced in our collections, and only *Myxacium* will regularly display this feature; otherwise *Phlegmacium* will need to be recognised by the general habit).

### **Diagnostic features.**

**Habit.** The general shape and stature, particularly the stipe (swollen, clavate, rooting, etc.), the characters of the veil, if present, viscid cap or stipe (under Australian conditions, this is often much reduced), an accurate description of the various colours of the various parts.

**Spores.** The spores are very characteristic, and normally a good guide to species. The size and shape of the spores are quite distinctive (globose to subglobose, ovoid, elongate and often almond-shaped – amygdaliform) and with surface ornamentation which may be coarse or fine and individual ornamentation may be low or high and blunt and pointed.

**Cystidia.** Marginal cystidia are mostly absent, except in a few groups, but very small, mostly rather insignificant marginal cells may be present and sometimes may be used to separate species.

**Chemical characters.** Sometimes some of the pigments will change colour when KOH solution is applied either to the surface of the cap or to the flesh inside.

**DNA.** The use of DNA sequencing is increasing and provides valuable information about relationships, however samples from various parts of the genome are often needed to untangle some complexes

**Large Groups.** Within the genus, several large groups can be recognised - usually fairly readily. They are as follows - *Phlegmacium*, *Myxacium*, *Telamonia*, *Dermocybe*, *Cortinarius*.

**Small Groups.** Within that framework, a series of smaller 'pigeon holes' can be used to group similar species on the basis of some of the following:

Presence of blue colours in cap and/or lamella - in some cases the lamellae remain very pale for quite a long time;

Shape of the stalk - equal, inflated, clavate, radiating;

Persisting velar remains and the colour - sometimes membranous~

Degree of fleshiness - short and stocky or thin and fairly fragile;

Kinds of colours - some show olivaceous hues in cap and/or lamellae; others show various brilliant red colours in various parts of the fruit-body.

**Examples.** Some slides were shown which illustrated the great diversity of the genus.

**Literature.** A preliminary identification can be made using some of the following books

For Australian species-

Bougher, N. R. & Syme, K. *Fungi of Southern Australia*. 1998. University of Western Australia Press. 391 pp.

Fuhrer, B.- *A Field Guide to Australian Fungi*. 2005. Blooming Books. 360pp.

McCann, I. R. - *Australian Fungi Illustrated*. 2003. Macdonald Publications. 128pp.

Grgurinovic, C. A. - *Larger Fungi of South Australia*. 1997. Botanic Gardens and Flora and Fauna of South Australia Handbooks Committee. (Examination in detail of Cleland material, with microscopic details but with limited colour illustrations)

An introduction to the species of the genus from Europe can be found in –

Breitenbach, J and Kranzlin, F. - *Fungi of Switzerland*. Vol 5. *Cortinariaceae*. 33 8pp.

More help can be found in –

Moser M. and Horak E - *Cortinarius* and related genera in South America (in German, but with keys in English and 35 colour plates). 628pp. 1975.

May, T. W. & Wood, A. E. - *Catalogue and Bibliography of Australian Macrofungi*. 1. Basidiomycota p.p. *Fungi of Australia* 2A. 348pp. 1997. Australian Biological Resources Study. (This is a catalogue of records, where European species are recorded, they should be interpreted as meaning 'this collection looked like this species').

Horak, E. & Wood, A. E. - *Cortinarius* in Australia 1. subgen. *Myxacium* and subgen. *Paramyxacium*. *Sydowia* 42:88-168. 1990. (This covers many species from these subgenera, with full microscopic details, and also, many New Zealand species.)