

Mycological Notes 35

New Zealand Marasmiaceae




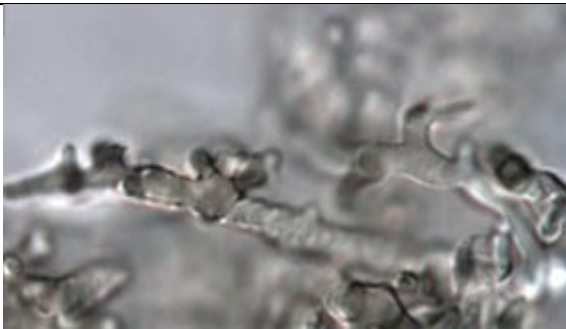
Jerry Cooper, 14th Dec. 2016

The following genera are placed within the family Marasmiaceae: *Campanella*, *Cellypha*, *Crinipellis*, *Chaetocalathus*, *Lactocollybia*, *Marasmius*, *Scorteus*, *Tetrapygos*

Like other notes these are preliminary and assembled mainly for my own benefit. There are a number of described species of *Marasmius* I have not encountered, and I'm still uncertain about the common *M. pusio/croceus* group.

The treatment here covers a number of genera/species we know are positioned in the family by sequence data from the published literature, and from unpublished sequences of NZ material (except maybe *Lactocollybia*). It also includes a number of species where the current genus implies placement in other families but the sequence data supports placement in the Marasmiaceae. Most importantly it excludes species of *Marasmius* that we know are better placed in other families, such as the Physalacriaceae and Omphalotaceae.

A number of micro-characters are essential to identification within the group (and the Physalacriaceae)

	
Vertical section through the pileipellis (cap) showing a hymeniderm structure – having the appearance of a hymenium (<i>Gloiocephala xanthocephala</i>)	Rotalis ornamented hymeniderm cap cells of <i>Cryptomarasmius exustoides</i>
	
Siccus (i.e. with setae) ornamented ' broom ' cap cells of <i>Marasmius elegans</i>	Rameales (antler-like) cap hyphae of <i>Campanella tristis</i>

Key to main groups

1	With long, thick-walled, dextrinoid cap hairs	2
1'	Cap without dextrinoid cap hairs	3
2	With a stipe	Crinipellis
2'	Stipe absent. Usually on <i>Vitex lucens</i>	<i>Chaetocalathus cocciformis</i>
3	Spores tetrahedral. Stem short, lateral. Frbs becoming grey/green	<i>Tetrapyrgos olivaceonigra</i>
3'	Spores not angular	4
4	Pileipellis hymeniderm	5
4'	Pileipellis not hymeniderm	7
5	Hymeniderm cells smooth. Cap > 2cm diam. Stem fleshy.	<i>Scorteus oreades</i>
5'	Hymeniderm ornamented	6
6	Hymeniderm cells with a few bumpy outgrowth	<i>Marasmius otagensis</i>
6'	Hymeniderm cells with setae (siccus). Stem wiry	<i>Marasmius sensu stricto</i>
7	Frb marasmiod. Cap not pure white	<i>Marasmius sensu lato</i>
7'	Frb either marasmiod and cap white, or frb otherwise	8
8	Stem central to eccentric. With gills or gill-like folds	9
8'	Stem absent. No gills.	<i>Cellypha goldbachii</i>
9	Growing at base of dune grasses	<i>Marasmiellus mesosporus</i>
9'	Habitat otherwise	10
10	Gill tissue with oleiferous hyphae. Stem fleshy.	<i>Lactocollybia 'Waitangi'</i>
10'	Gill tissue without oleiferous hyphae. Stem absent or marasmiod	11
11	Cap viscid, on living trees, roots etc. <i>Oudemansiella</i> -like	<i>Campanella 'pureora'</i>
11'	Cap dry	12
12	On dead flax (<i>Phormium</i>). <i>Marasmius</i> -like.	<i>Marasmiellus bonii</i>
12	Other deadwood, twigs. <i>Marasmiellus</i> -like	13
13	Stipe base with cushion (socle). Remaining white.	<i>Marasmiellus candidus</i>
13'	Stipe base insiticious. Becoming grey/green	<i>Campanella tristis</i>

Campanella/Tetrapyrgos/Cellypha clade

One of the main clades includes *Campanella* and *Tetrapyrgos*. *Campanella* species are generally recognisable with a cyphelloid form and poorly formed gills. However the sequence data says the clade includes the *Oudemansiella*-like *Campanella 'pureora'* on living trees (which is also present in Tasmania), the truly cyphelloid *Cellypha goldbachii* (which provides the earliest name if generic re-assignment is considered), *Marasmiellus candidus* and the *Gloiocephala*-like *M. bonii*.

Brunneocorticium and *Neocampanella* of other countries also belong here.

Marasmiellus is very polyphyletic with species placed in several families but the type belongs in the Omphalotaceae.

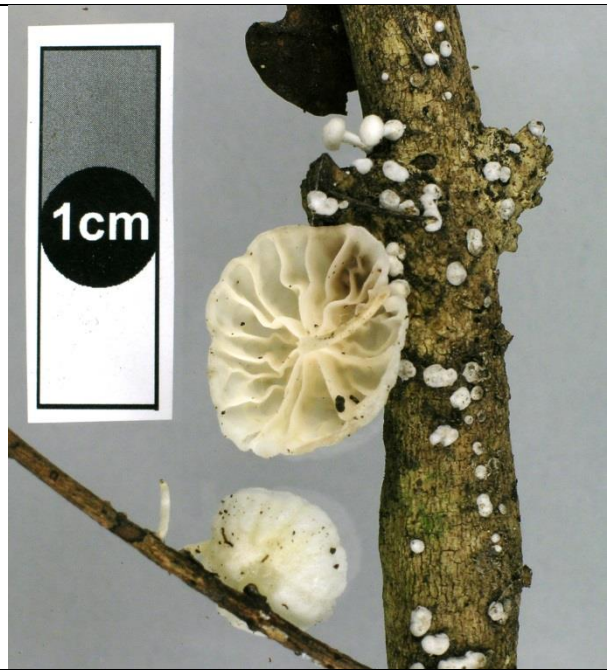
C. fimbriata was described from a garden and is either a poorly known introduction or the very common *C. tristis*, which is variable and not always staining glaucous. Existing records of *C. fimbriata* require review. *Tetrapyrgos subdendroides* was described from North America but has been

recorded from Australia (including as the synonym *Campanella subdendroides*) and one collection from New Zealand. Sequence data suggests two species with this name. I will stick with the name *Tetrapyrgos olivaceonigra* for New Zealand collections because they become glaucous with age, a feature not present for *T. subdendroides*.

	
<p>Campanella sp. 'Pureora' PDD 96255=JAC12001</p>	<p>Campanella sp. 'Pureora' PDD 96255=JAC12001</p>
	
	<p>Marasmiellus bonii PDD 86847=JAC 9735</p>
	
<p><i>Tetrapyrgos olivaceonigra</i> PDD 87486=JAC 10398. Scale = 5mm</p>	<p><i>Cellypha goldbachii</i> PDD 96498=JAC 12401</p>



Marasmiellus candidus PDD 86983=JAC 9874



Marasmiellus candidus PDD 86983=JAC 9874



Campanella tristis PDD 87053=JAC 9950



Campanella tristis PDD 80597=JAC 9038

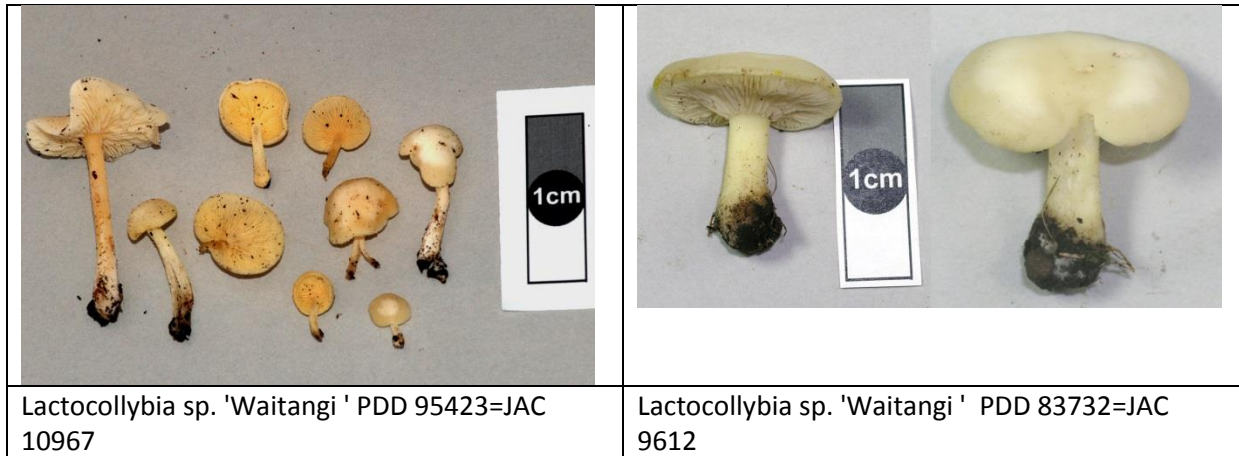
Crinipellis/Chaetocalathus

1	With stem < 4cm long.	2
1'	Stem > 5 cm long. In natural forest/bush. Usually on leaves/twigs of Beilschmedia tawa	Crinipellis procera
2	Associated with grass stems in modified habitats. Spores > 9um long. Cheilocystidia not broom cells	Crinipellis scabella
2'	Associated with litter in indigenous habitats. Spores < 9um. Cheilocystidia broom cells	Crinipellis filiformis

	
<p>Crinipellis filiformis PDD 87476=JAC 10388, Scale 2mm</p>	<p>Crinipellis procera PDD 106066=JAC 13862</p>
	
<p>Crinipellis scabella PDD 96440=JAC 12345</p>	<p>Chaetocalathus cocciformis PDD 96790=JAC 12666</p>

Lactocollybia 'waitangi'

This species appears to be a good *Lactocollybia*, and possesses gloeocystidia. It has a sequence close to *L. epia*, the type species of the genus. The position within Marasmiaceae is unconfirmed.



Marasmiellus mesosporus

This has been collected just once growing on *Ammophila* in sand dunes. It is yet another misplaced *Marasmiellus* species. Its phylogenetic position implies a relationship *Chaetocalathus* and *Moniliophthora*, the parasite of tree crops, including Cocoa.

Marasmius/Scorteus

Marasmius is being contracted as phylogenetic data show that several subgenera belong in other families, such as *Cryptomarasmius* in the Physalacriaceae. Here I have separated the main group of *Marasmius* sensu stricto and *Marasmius* sensu lato. The latter includes several (all?) species that will eventually be placed in other genera in other families. *Marasmius otagensis* has an unusual pileipellis and position uncertain. *M. rosulatus* and *M. pallenticeps* may turn out to be not *Marasmius* sensu stricto when fresh material is collected and sequenced. Sequence data imply *M. gelatinosipes*, *M. JAC10396* and *M. kanukaneus* belong in the Omphalotaceae and not *Marasmius* or even Marasmiaceae. We also know a number of marasmioid fungi are now placed in the Physalacraceae and some will no doubt turn up in the Omphalotaceae.

Collections identified as *M. masonii* require checking they possess cheilocystidia and aren't dried up *M. gelatinosipes*, an exceedingly common species, or *M. JAC10396* with long spores. NZ material as *M. pusio* (or at least my own concept of that species in NZ) are probably not the same as the US original.

M. atrocastaneus and *M. elegans* have very differently coloured caps and yet the ITS sequences are nearly identical. *M. JAC12814* is paler capped than either, but also closely related.

M. croceus with very long cap setulae seems to be also present in Brazil where it recently described as *M. longisetosus* which would become a later synonym if they are the same species.

Marasmius rotula (the type species of the genus) has been recorded from New Zealand but the collections require confirmation.

The common, introduced *Marasmius oreades* has been recently separated into the genus *Scorteus* but without supporting data. It remains to be seen if this name sticks. It's possible it would result in

many new genera being required to describe other clades still currently within *Marasmius* sensu lato.

1	Gills forming a collar around the stem (sometimes difficult to confirm due to small size of frbs)	2
1'	Gills not forming a collar	3
2	Cap 0.2-0.5mm, on Carex (Gahnia). No rhizomorphs	Marasmius rosulatus
2'	Cap 1.5 – 3mm diam. Frbs arising from black rhizomorphs	Marasmius pallenticeps
3	Cap with a rameales structure (Marasmius sensu lato)	8
3'	Cap siccus structure (Marasmius sensu stricto)	4
4	Cap dark brown	Marasmius atrocastaneus
4'	Cap not dark brown	5
5	Cap tan coloured, to 2cm diam. (Gymnopus-like)	Marasmius JAC12814
5'	Cap apricot coloured	6
6	Stem thin, black. Spores > 12um long	Marasmius JAC13464
6	Stem thicker, not black, spores smaller	7
7	Spores > 11um and cap setulae <10um. Cap to 4cm	Marasmius elegans
7'	Cap smaller. Spores < 11um	8
8	Cap setulae > 11um (-30um). Cap 8-30 mm. Spores 7.5-9 x 3-3.5	Marasmius croceus
8'	Cap setulae < 10um. Cap 4-10mm	Marasmius pusio sensu NZ
9	Stem pruinose (at least towards apex)	10
9'	Stem glabrous (mainly Omphalotaceae, not Marasmiaceae)	11
10	Pileus 2-4 mm diam. Growing podocarp leaves	Marasmius podocarpicola
10	Pileus 5-35 mm diam. On other substrates	Marasmius rimuphilus
11	Stem orange/yellow.	12
11'	Stem black/brown	13
12	Cap 7-35mm. Without rhizomorphs	Marasmius bellus
12'	Cap 2-6mm. With yellow rhizomorphs	Marasmius aurantiobasalis
13	Stem with gelatinous covering when wet. Cheilocystia absent	'Marasmius' gelatinosipes
13'	Stem without gelatinous covering. With cheilocystidia.	14
14	Spores > 7um long. On twigs. Stipe short relative to cap.	'Marasmius' JAC10396
14'	Spores < 6um	15
15	Spores 4-5 um long. No rhizomorphs. On beech leaves	Marasmius masonii
15'	Spores 2.5-3.5. Often with rhizomorphs. Many hosts.	'Marasmius' kanukaneus



Marasmius atrocastaneus PDD 80809=JAC 9376



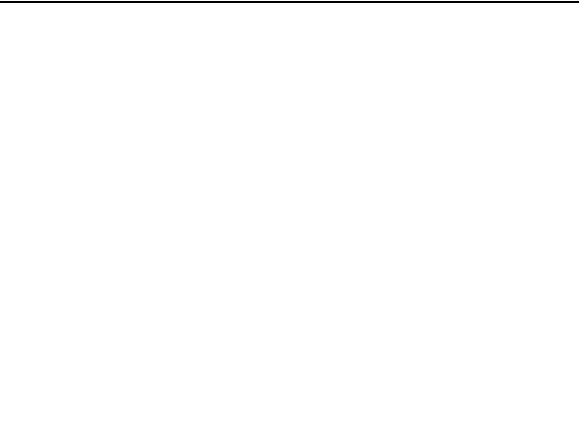
Marasmius JAC12814 PDD 96918



Marasmius JAC13464 PDD 105715



Marasmius elegans PDD 105509=JAC 13253






Marasmius croceus PDD 96384=JAC 11295



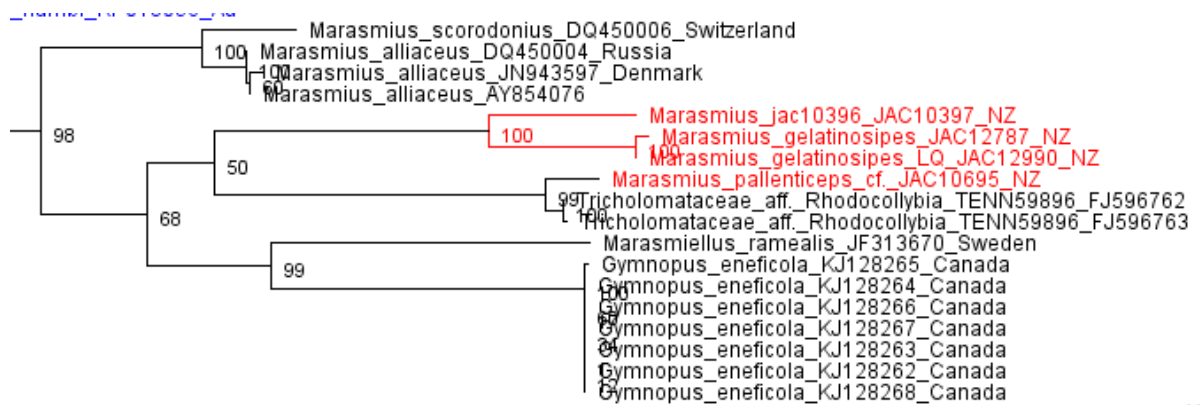
Marasmius gelatinosipes PDD 87088=JAC 9988.
Scale 5mm

Marasmius jac10396 PDD 87485

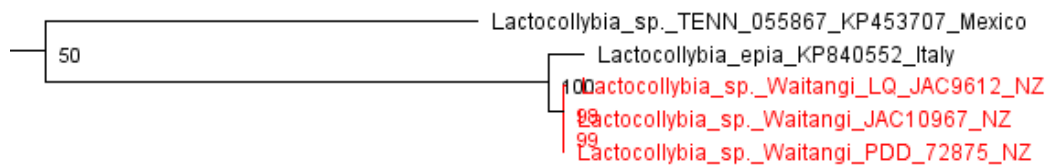
	
<p>Marasmius kanukaneus PDD 95452=JAC 10998</p>	<p>Marasmius otagensis PDD 86872=JAC 9761</p>
	
<p>Scortechium oreades PDD 96839=JAC 12734</p>	

Phylogenies

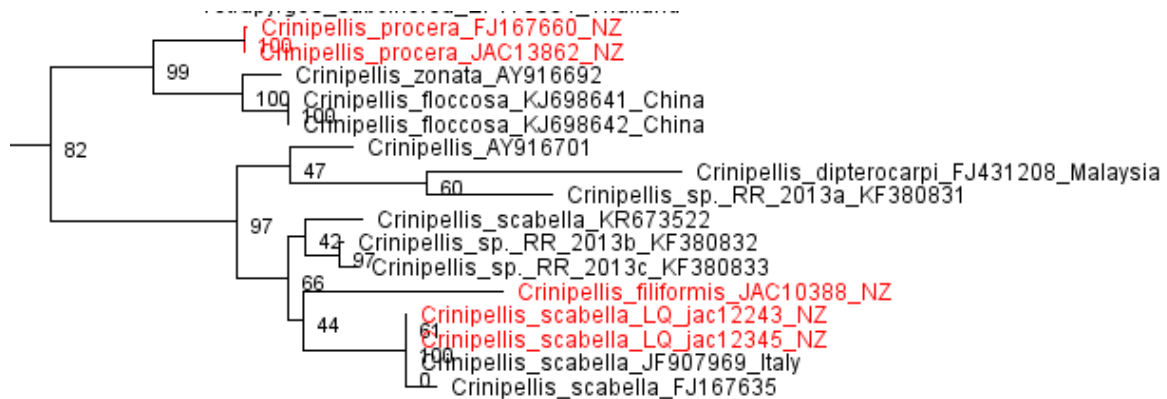
Marasmius sensu lato – within Omphalotaceae



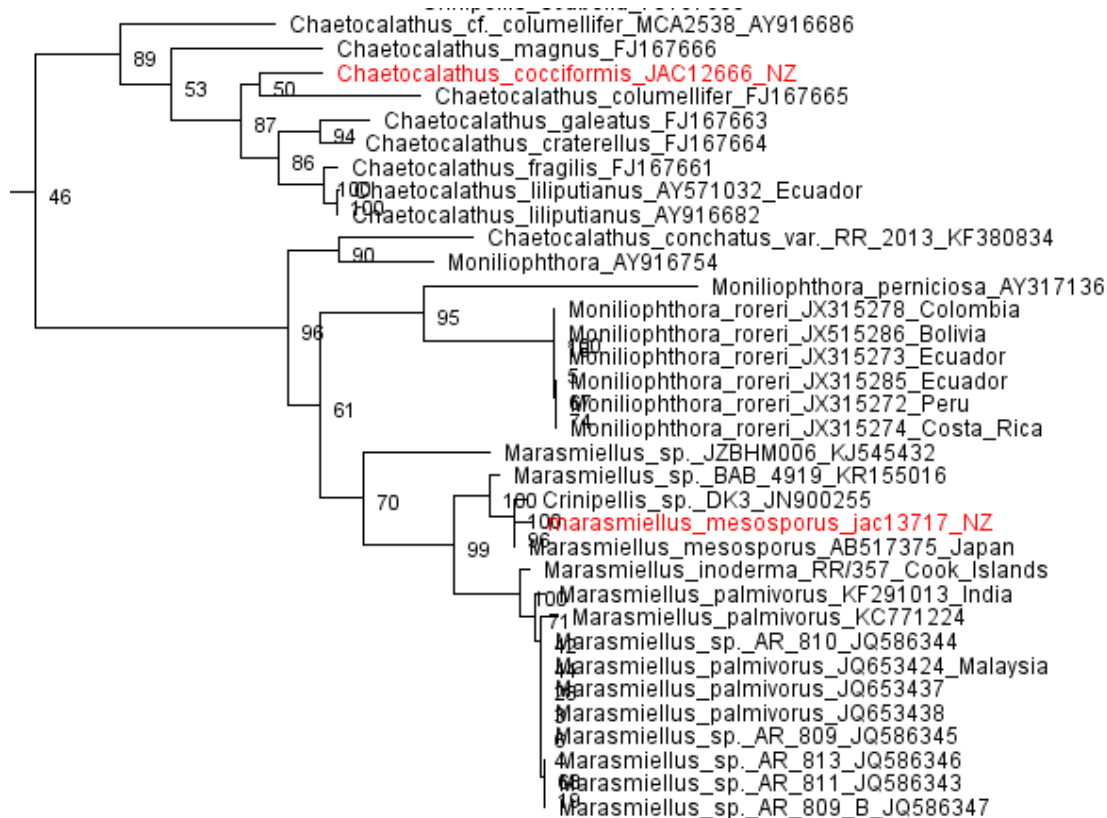
Lactocollybia – position uncertain



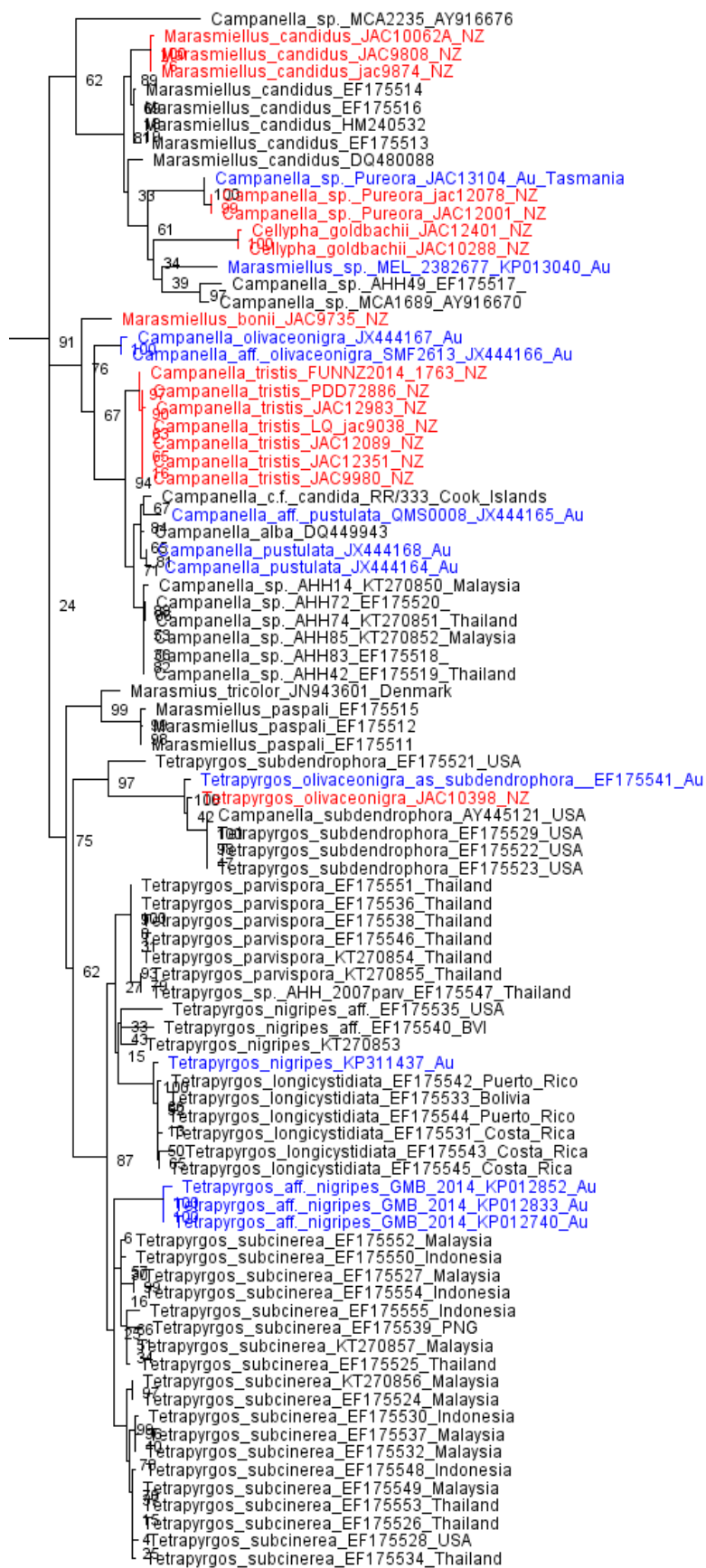
Crinipellis



Chaetocalathus/Moniliophthora



Campanella clade



Marasmius - remainder

