

Mycological Notes - 33

NZ species in *Mycenella*, *Hemimycena*, *Atheniella* and *Mycena* pp. (suborder Marasmiineae incertae sedis)

Jerry Cooper, December 3rd, 2016

These species all belong somewhere in the Agaricales suborder Marasmiineae, at least according to limited sequence data. Most of the New Zealand species included have been collected just once and so many more collections are needed before they can (should) be formally named. Please keep an eye open for them. Many are very small species spotted when you turn decaying wood over. If anybody recognises any of the unnamed species I'd be grateful for information. More details on morphology can be found for some species on the Landcare SCD webpages by searching for my collection identifiers (<http://scd.landcareresearch.co.nz/>)

In New Zealand the suborder Marasmiineae (probably) contains the following families and genera:

Marasmiineae

Cyphellaceae

Cheimonophyllum, *Cyphella*, *Baeospora/Pleurella*

Cyphellopsidaceae

Dendrothele, *Flagelloscypha*, *Lachnella*, *Merismodes*, *Nia*, *Peyronelina*

Marasmiaceae

Campanella, *Cellypha*, *Crinipellis*, *Chaetocalathus*, *Lactocollybia*, *Marasmius*, *Scorteus*, *Tetrapygos*

Mycenaceae

Cruentomycena, *Favolaschia*, *Fioloboletus*, *Heimiomyces*, *Mycena*, *Panellus*, *Prunulus*, *Resinomycena*, *Roridomyces*, *Scytinotis*, *Xeromphalina*

Omphalotaceae

Anthracophyllum, *Gymnopus*, *Lentinula*, *Marasmiellus*, *Mycetinis*, *Rhodocollybia*, *Setulipes*

Physalacriaceae

Anastrophella, *Armillaria*, *Cryptomarasmius*, *Cylindrobasidium*, *Cyptotrampa*, *Flammulina*, *Gloiocephala*, *Hymenopellis*, *Oudemansiela*, *Physalacria*

Porotheleaceae

Atheniella, *Calyptrella*, *Clitocybula*, *Delicatula*, *Gerronema*, *Henningsomyces*, *Hydopus*, *Megacollybia*, *Phloeomana*, *Rectipilus*

incertae sedis

Hemimycena, Mycenella, (+ Mycena pp, Omphalina wellingtonensis)

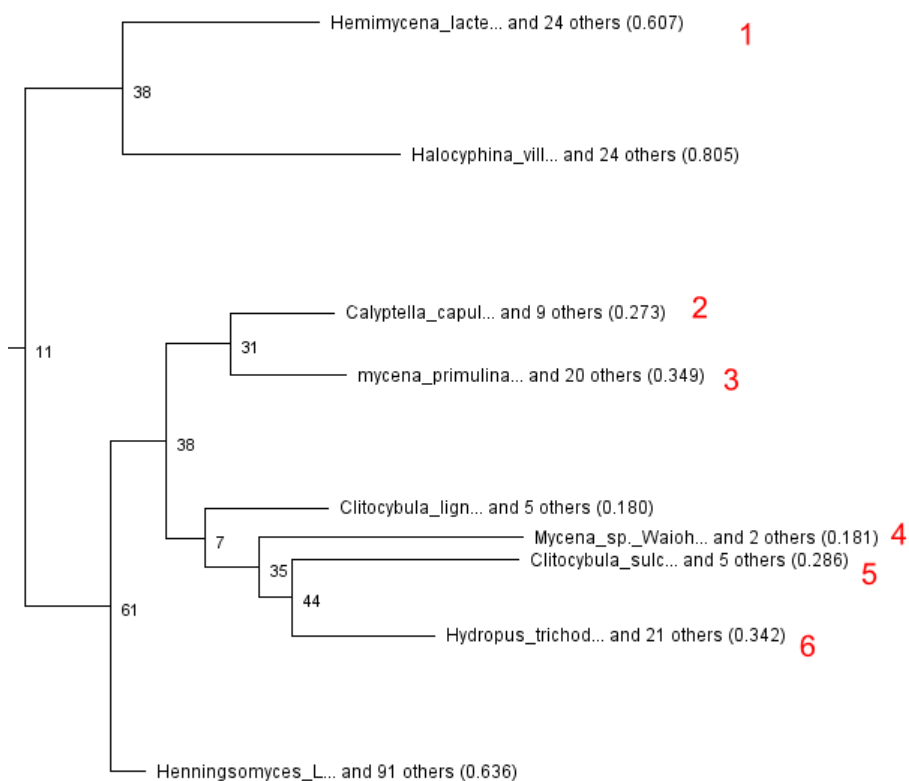
In the case of *Hemimycena* and *Mycenella* I'm not aware that current data in the literature allow us to place them at family level. In addition it is well known that *Mycena* contains a number of species that are not closely related to core *Mycena* (Type *M. galericulata*) and should be classified elsewhere. That process started with the recognition of genera like *Atheniella* and *Phloeomana*, but much remains to be resolved. This note contains a number of such species. I did not include these in a previous preliminary treatment of NZ *Mycena* (Mycological Notes 26). A more in-depth analysis may show that at least some of this group may fall within the Porotheleaceae (Mycological Notes 32). The phylogenetic analysis has been limited, and based on the individual loci of ITS and LSU and further work is required. The trees shown are very far from being definitive and I have taken some liberties with 'potential clades' that may turn out to be very wrong.

Key to the NZ taxa treated as Marasmiineae incertae sedis

| | | |
|-----|---|----------------------------------|
| 1 | Spores ornamented, inamyloid | 2 |
| 1' | Spores smooth, amyloid or not | 4 |
| 2 | Stem length < 1.5cm | <i>Mycenella minima</i> |
| 2' | Cap > 5cm | 3 |
| 3 | Cap reddish. Cheilos without projections. Gills with resinous globules. | <i>Mycenella maxima</i> ined. |
| 3' | Cap geyish. Cheilos with apical projections. | <i>Mycenella margaritospora</i> |
| 4 | Spores amyloid | 5 |
| 4' | Spores inamyloid | 8 |
| 5 | Smell mealy. Cheilocystidia cylindrical, appearing solid | <i>Mycena</i> 'Rangiwahia' |
| 5' | Smell of hypochlorite. Cheilocystidia not solid. | 6 |
| 6 | Cap reddish brown, radially fibrous. Cap with metuloid pilocystidia. Gills adnexed. | <i>Mycena</i> 'Kennedy' |
| 6' | Cap white. Gills decurrent. Cheilocystidia apically digitate | 7 |
| 7 | Stem > 6mm long | <i>Mycena</i> 'Waiohne' |
| 7' | Stem < 3mm long | <i>Mycena</i> 'Duffy Creek' |
| 8 | Cap yellowish green, pinkish red, or orange | 9 |
| 8' | Cap white | 12 |
| 9 | Cap yellowish green | <i>Mycena</i> JAC14243 |
| 9' | Cap pinkish red or orange | 10 |
| 10 | Stem white. Cap pink | <i>Atheniella adonis</i> |
| 10' | Stem orange | 11 |
| 11 | Cap orange, campanulate, striate at margin, < 6mm diam. | <i>Mycena acicula</i> |
| 11' | Cap pinkish red, hemispherical, not striate at margin, > 8mm diam. | <i>Omphalina wellingtonensis</i> |
| 12 | Cap without a stipe. Gills few. Smell mealy | <i>Atheniella</i> JAC10088 |
| 12' | Cap with a stipe | 13 |
| 13 | Cap inverted and hanging down | <i>Hemimycena reducta</i> |
| 13' | Cap not inverted | 14 |
| 14 | Stem eccentric | 15 |
| 14' | Stem central | 16 |
| 15 | Caulocystidia short, straight. Gills with resinous material | <i>Hemimycena</i> JAC10001 |
| 15' | Caulocystidia circinate. Gills without resinous material | <i>Hemimycena tortuosa</i> cf. |
| 16 | Without gills. Cap with long hairs (microscope) | <i>Hemimycena hirsuta</i> |

| | | |
|-----|---|-------------------------|
| 16' | With gills. Cap without long hairs | 17 |
| 17 | Gills decurrent | 18 |
| 17' | Gills not decurrent | 22 |
| 18 | Smell hypochlorite. Cheilos not apically digitate | Atheniella JAC10029 |
| 18' | No smell. Cheilos, if present, otherwise | 19 |
| 19 | 2-spored. | 20 |
| 19' | 4-spored | 21 |
| 20 | Spores > 10um. Cap without fimbriate edge | Hemimycena JAC9816 |
| 20' | Spores < 9um. Cap with fimbriate edge of cystidia like projections | Hemimycena JAC13965 |
| 21 | Spore Q > 1.7 | Hemimycena JAC9938 |
| 21' | Spore Q < 1.5 | Hemimycena JAC10773 |
| 22 | Cap > 7mm diam. | 23 |
| 22' | Cap < 5mm diam. | 25 |
| 23 | 4-spored. Spores > 9um long. Spore Q > 1.9 | Hemimycena JAC13873 |
| 23' | 2 or 4-spored. Spores < 8 um long and Q < 1.5 or spores > 8um and Q > 2 | 24 |
| 24 | 2 or 4 spored. Spores > 8um and Q > 2 | Hemimycena lactea |
| 24' | 2-spored. Spores < 8 um long and Q < 1.5 | Mycena olida |
| 25 | Caulocystidia circinate | Hemimycena tortuosa cf. |
| 25' | Caulocystiia anter-like | Hemimycena JAC13045 |

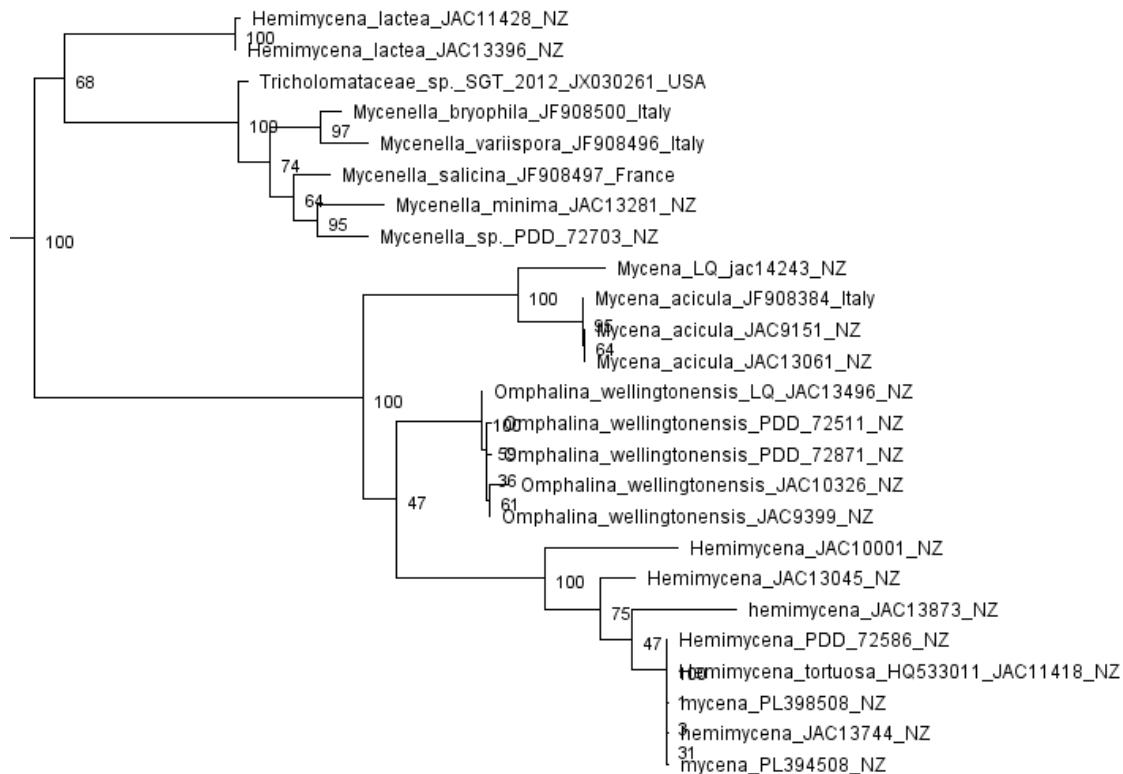
ITS ML tree with potential clade numbers treated



Please note the very poor support between these clades, so we can't really be sure where they sit based on these data. The support within the numbered clades is generally higher. The final *Henningsomyces* clade contains members of the Porothleaceae.








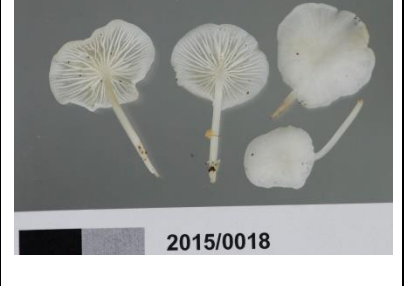


Clade 1: *Mycenella*, *Mycena acicula*, *Hemimycena* ss group

Plus *Mycenella margaritospora* (no images/sequences)

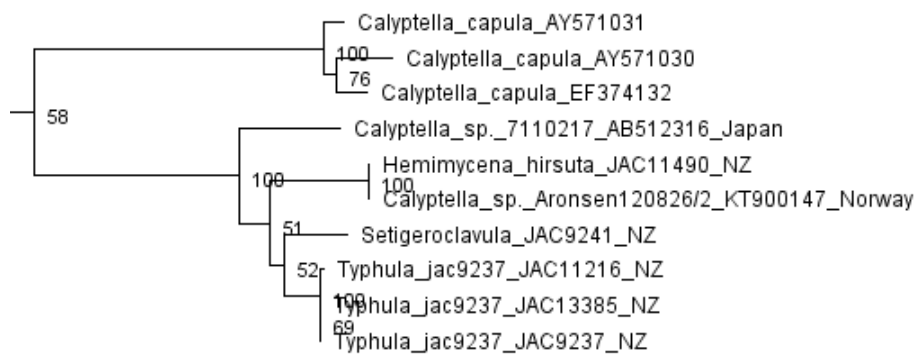


This potential clade contains all sequenced material labelled *Mycenella*, which is distinguished by spores with large bumps. *Omphalina wellingtonensis* is a Stevenson species. The colour can vary quite widely but it is generally bright orange with the appearance of *Marasmius croceus*, except the micro-morphology is very different. Both *O. wellingtonensis* and the greenish *Mycena* JAC14243 are very similar to *Mycena acicula* microscopically, with densely packed fusiform cheilocystidia. *Hemimycena lactea* has LSU sequences that agree with other GenBank deposits. *Hemimycena tortuosa* is perhaps best tagged cf. and may not correspond to the northern hemisphere concept (and the same goes for NZ material labelled *H. cephalotrichum*). Unfortunately not many northern hemisphere species have been sequenced to date.

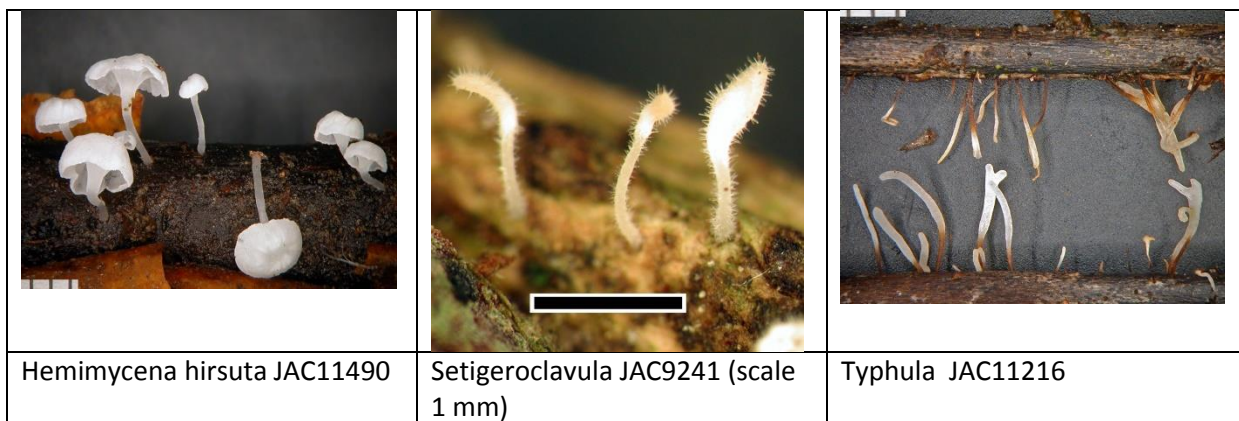
| | | |
|--|---|--|
| | | |
| <p><i>Mycenella maxima</i> PDD 27239</p> | <p><i>Mycenella minima</i> PDD 105533</p> | <p><i>Mycena</i> JAC14243 (W. Daley)</p> |

| | | |
|---|--|---|
|  |  |  |
| <p><i>Mycena acicula</i> JAC9151 (Scale 2mm)</p> | <p><i>Omphalina wellingtonensis</i></p> | <p><i>Omphalina wellingtonensis</i> JAC10326 (scale 5mm)</p> |
|  |  |  |
| <p><i>Hemimycena lactea</i> JAC11428</p> | <p><i>Hemimycena lactea</i> JAC13396</p> | <p><i>Hemimycena</i> JAC10001 (scale 2mm)</p> |
|  |  |  |
| <p><i>Hemimycena</i> JAC13045</p> | <p><i>Hemimycena</i> JAC13873</p> | <p><i>Hemimycena tortuosa</i> cf JAC11418</p> |
|  | | |
| <p><i>Hemimycena tortuosa</i> cf. JAC13744</p> | | |

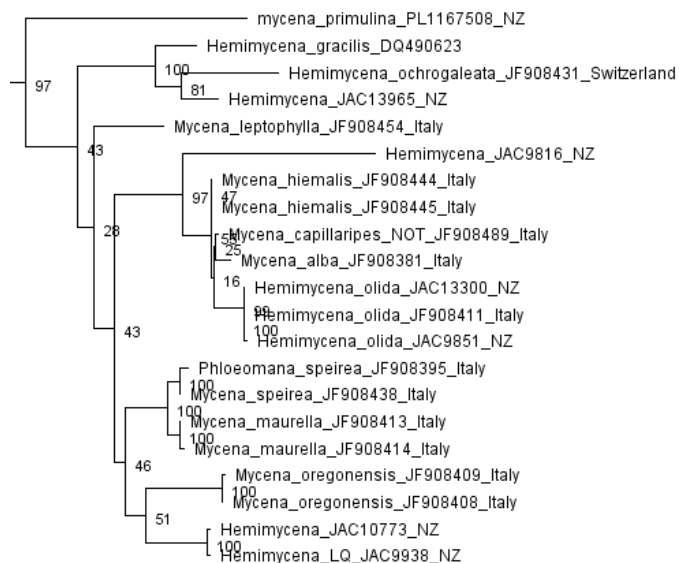
Clade 2: Calyptella group



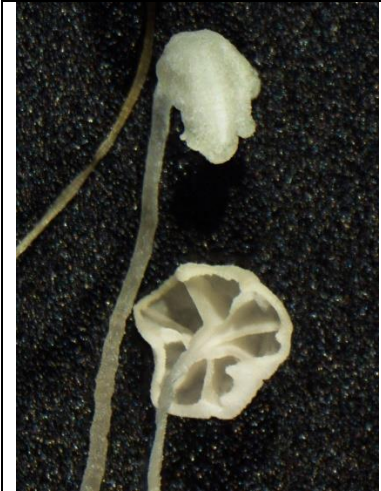

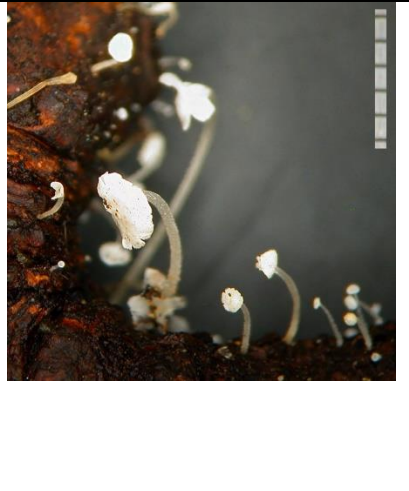


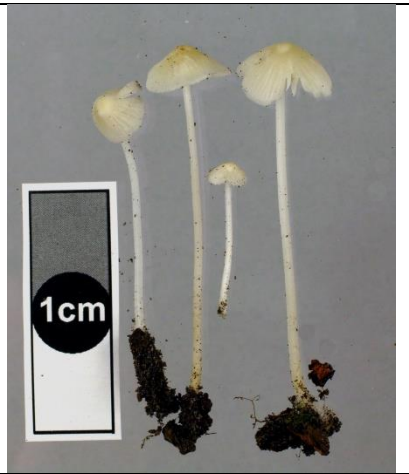
This is an odd assembly of agaricoid, cyphelloid and club species. *Calyptella capula* is not known in NZ. The NZ species *Calyptella totara* is related to *Anthracophyllum* in the Omphalotaceae, and the same is probably true of *C. hebe*. Material labelled *H. hirsuta* may be incorrectly identified, but it would appear to represent a stipitate *Calyptella*. *Setigeroclavula* is a monotypic genus by Ron Petersen based on NZ material (*S. ascendens*). It has a distinct micro-morphology shared by the species shown here. It appears to be related to a common and undescribed typical 'Typhula' species, but the majority of *Typhula* sequences in GenBank are phylogenetically unrelated.



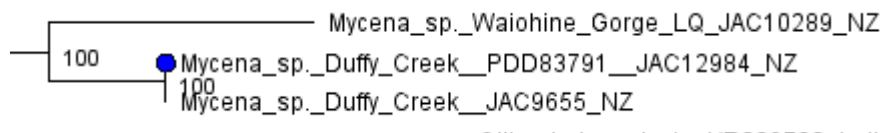
Clade 3: Phloeomana, Hemimycena olida group




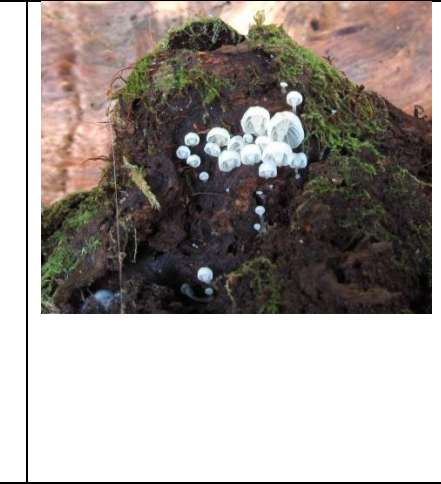

Note this group doesn't have much internal support but other analyses place *Phloeomana* with Porotheleaceae. *Mycena primulina* ss Leonard, PL1167508 sits here. However currently we have three candidates for the Stevenson species, all phylogenetically unrelated but all with macro and micro similarities to the type (which has been examined). Unfortunately I don't have an image for this version.

| | | |
|---|---|---|
|  |  |  |
| <p>Hemimycena JAC13965</p> | <p>Hemimycena JAC9816 (scale 2mm)</p> | <p>Hemimycena JAC10773</p> |
|  |  |  |
| <p>Hemimycena JAC9938 (scale 2mm)</p> | <p>Mycena olida JAC13300</p> | <p>Mycena olida JAC9851</p> |

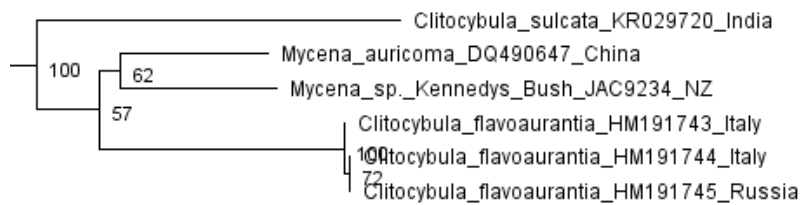
Clade 4: NZ only group





These two species have a strong smell of hypochlorite

| | | |
|---|--|---|
|  |  |  |
| <p>Mycena sp. 'Waiohine Gorge (PDD87377)' JAC10289</p> | <p>Mycena sp. 'Duffy Creek (PDD83791)' JAC12984</p> | <p>Mycena sp. 'Duffy Creek (PDD83791)' JAC9655 (scale 1mm)</p> |

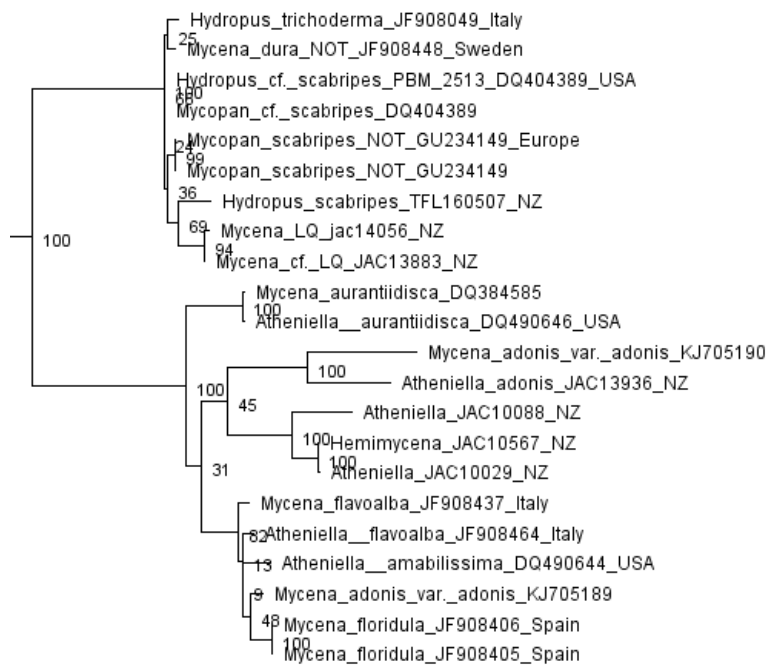
Clade 5: auricoma groups



The NZ species is known from just a single location. The micromorphology is highly distinctive and it has a clear affinity with *Mycena auricoma* and *Clitocybula flavoaurantia* and neither genus is appropriate.

| | |
|---|--|
|  |  |
| <p>Mycena sp. 'Kennedy's Bush (PDD80686)' JAC9234</p> | <p>Mycena sp. 'Kennedy's Bush (PDD80686)' JAC10275</p> |

Clade 6: Atheniella and NOT Mycopan group



Atheniella is considered to sit within the Porotheleaceae. Although the support is relatively low the tree does suggest we have some white *Atheniella* species, including one that is cyphelloid. As I mentioned in Mycological Notes 32 I am not 100% convinced the sequences here labelled *Hydropus* (*Mycopan*) *scabripes* are that species. '*Mycena rangiwahia*' is certainly related to whatever it is. LSU data for this species suggests it is very close to *Gerronema viridilucens* and so the NZ species might be bioluminescent. *Gerronema* it certainly is not

| | | |
|---|---|---|
|  |  |  |
| Mycena sp. 'Rangiwhia (PDD 106087)' JAC14056 | Mycena sp. 'Rangiwhia (PDD 106087)' JAC13883 | Atheniella adonis JAC13936 |
|  |  |  |
| Atheniella JAC10088 (scale 2mm) | Atheniella JAC10029 JAC10567 | Atheniella JAC10029 (scale = 2mm) |

Unplaced group

These two have yet to be re-found/sequenced.

Hemimycena cephalotricha

Hemimycena Reducta

