

Mycological Notes 39

Cystodermataceae sensu lato

Jerry Cooper, June 20th 2018

The genera included here are *Cystoderma*, *Squamanita*, *Cystodermella* and *Ripartitella*. All bear a superficial resemblance to each other but the latter two genera are currently not placed with any certainty at family level within the Agaricales (Baroni, Kropp, Evenson, & Wilhelm, 2014), whereas the Cystodermataceae is related to the Nidulariaceae (Matheny & ..., 2006). Also within the Cystodermataceae sensu stricto is the large mushroom *Phaeolepiota aurea* but NZ collections, so far, are misidentifications of *Gymnopilus junonius*. It should be noted the family names Cystodermataceae, and the prior Squamanitaceae, both appear to have nomenclatural issues.


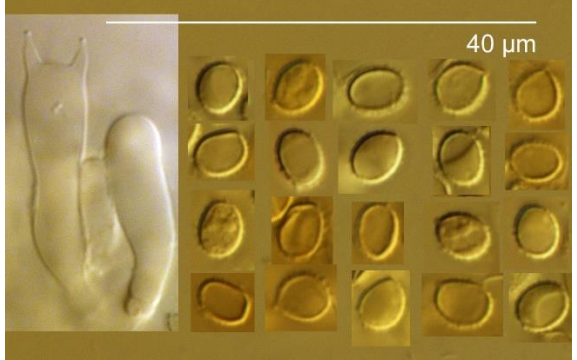
1	Spores amyloid (in NZ species)	4 <i>Cystoderma</i>
1'	Spores inamyloid	2
2	Stipe tuberous and cap densely squamulose, on soil, spores smooth, 9 x 6um	<i>Squamanita squarrulosa</i>
2'	Stipe not tuberous, spores smooth or not	3
3	Spores minutely spiny 5 x 4um. Frbs on rotting wood	<i>Ripartitella</i> sp. 'Totaranui'
3'	Spores smooth 4 x um. Frbs on soil.	<i>Cystodermella</i> sp. 'Rangitaiki'
4	Cap red to red/brown	5
4	Cap yellow to orange/brown	6
5	Cap with distinct reddish tints, on well-rotted wood, ring evanescent	<i>C.</i> sp. PDD107735
5'	Cap brown, robust, on soil, ring persistent, boot-like	<i>C.</i> sp. PDD72741
6	Subpellis with cuboid arthrospores, cap usually wrinkled, colours dull orange to brown, on soil or well-rotted wood. Spores 4 x 3um.	<i>C. clastotrichum</i>
6	Subpellis without arthrospores, cap nor wrinkled, colours bright, on soil, often alpine. Spores 6 x 4um.	<i>C. muscicola</i>

Ripartitella sp. 'Totaranui (PDD105703)'

The type species of the genus is *R. squamosidisca* based on material by Murill from Florida and characterised by small hyaline, inamyloid echinulate spores and growth usually on wood. It has been synonymised with *R. brasiliensis*, described from Brazil and reported widely across the tropics and subtropics. *Melanoleuca*-like barbed cystidia were noted by Singer in material he examined (Singer, 1946), and they have been reported subsequently by others (Baroni, Kropp, Evenson, & Wilhelm, 2014), whilst other descriptions, including the generic type studies of Horak, do not indicate their presence (Horak, 1968). It should be noted that Stevenson described the *Cystoderma*-like wine-coloured *Tricholomopsis vinosa* on wood (Stevenson, 1964) which Horak moved to *Melanoleuca* because of barbed pleurocystidia and weakly amyloid spores (Horak, 1971). My re-examination of the type confirms the presence of barbed cystidia, and the spores are only weakly amyloid, if at all. It is therefore very probable that Stevenson's species belongs in *Ripartitella* and not *Melanoleuca*.

The collection figured below was originally identified as a reddish *Lentinula*, understandably, but it has finely echinulate spores. There have been several subsequent sequenced collections and none

have barbed pleurocystidia so the equivalence with *Melanoleuca vinosa* cannot be established, but they are otherwise very similar. As noted above the presence/absence of these cystidia varies amongst collections of other species in the genus so it does seem likely that *R. sp. 'Totaranui'* is the same as *Melanoleuca vinosa*, but further evidence is required. The species has a clamped cutis with brown extra-cellular pigment and spore length=4.4–5.3 μ m (μ =4.9, σ =0.23), width=3.5–4.2 μ m (μ =3.8, σ =0.19), Q=1.1–1.5 μ m (μ =1.31, σ =0.09), n=20

<i>Ripartitella sp. 'Totaranui'</i>	
	
JAC13451=PDD 105703	Pileipellis section (Melzers)
	
Basidia and spores (Melzers)	

Cystodermella sp. 'Rangitaiki (PDD96273)'

This has the superficial appearance of an *Echinoderma*-lepioitoid species.

JAC12023=PDD96273: Cap dark olivaceous grey in NH₄OH. Taste mealy. Spores very weakly dextrinoid?, 4-spored, length=4.0–4.4 μ m (μ =4.3, σ =0.1), width=2.4–3.0 μ m (μ =2.8, σ =0.2), Q=1.4–1.8 μ m (μ =1.6, σ =0.1), n=10 no cheilocystidia. Cap cells dark brown, chains of ellipsoid cells, clamped. = ZT1107?

JAC14642=PDD106521: [WMD] These small mushrooms have a spiky cap surface and pale creamy-yellow gills which are attached to the stipe. The stipe is very fibrous below the ring area and much less so above this zone. The cap size of these mushrooms was about 2 cm in diameter by 2 cm in height. Growing on the ground under totara.

<https://inaturalist.nz/observations/6805470>

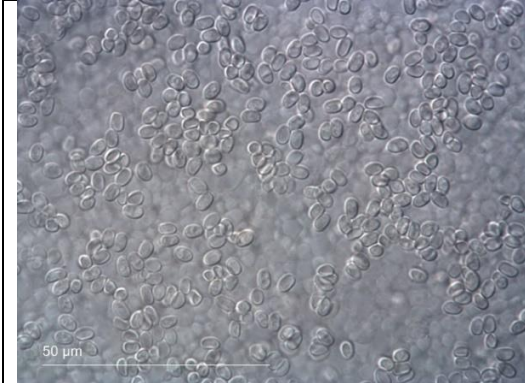
Cystodermella sp. 'Rangitaiki'



JAC12023=PDD96273



JAC12023=PDD96273



JAC12023=PDD96273



JAC12023=PDD96273 *Pileipellis*



JAC14642=PDD 106521 (©Wanda Daley)



JAC14642=PDD 106521 (©Wanda Daley)

Squamanita squarrulosa

Squamanita species are globally rare and display a unique form of fungal parasitism. The cap and upper stipe is that of the *Squamanita* parasite whilst the lower stem is that of the host mushroom

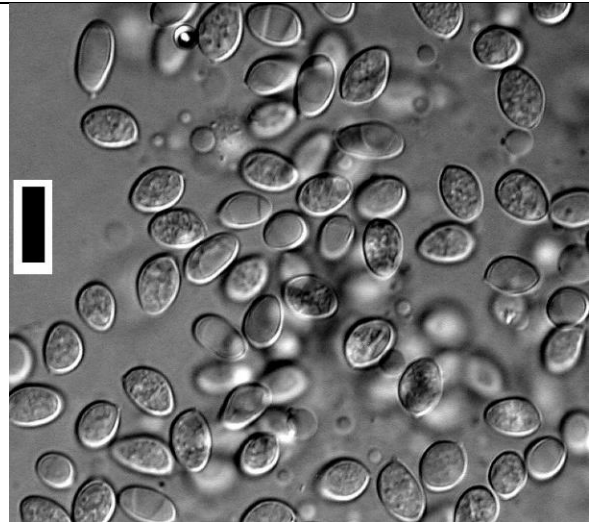
being parasitized. From a phylogenetic perspective species of *Squamanita* are related to *Cystoderma* but ITS alone provides no hints about that affinity and multi-gene analysis is required (Matheny & ..., 2015). Interestingly the most common hosts for *Squamanita* are *Cystoderma* species, although other and quite unrelated hosts are also reported. The New Zealand species has been seen/collected rarely and our only photographed collection was in poor shape. An attempt to get sequence data from the base and top parts of PDD80810 gave the same result.

Squamanita squarrulosa



JAC 9377=PDD80810

JAC 9377=PDD80810 (©G. Monk)



Spores 9 x 6um

Cystoderma sp. PDD107735



Cystoderma sp. PDD72741

Egon Horak mentioned he was aware of at least 4 species of *Cystoderma* in New Zealand, of which this is one.



Cystoderma clastotrichum



JAC13247=PDD 105503



PDD 72815



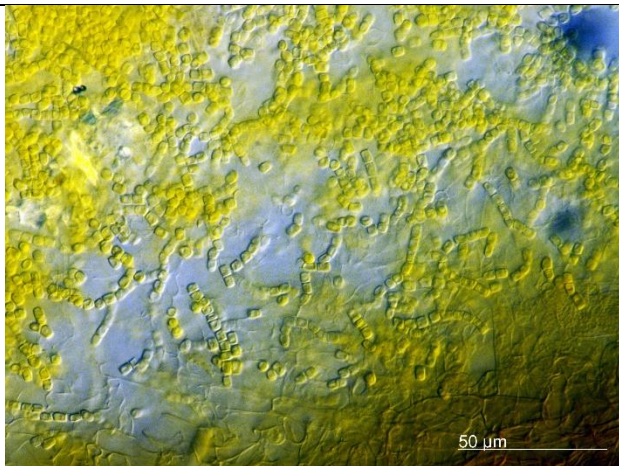
PDD 83705



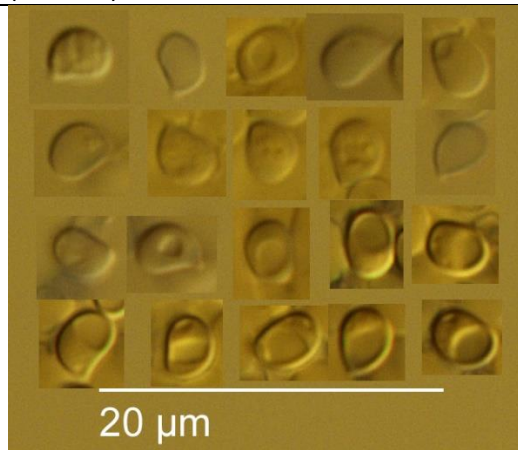
PDD 83705. Arthrospores



JAC14057=PDD 106230



JAC14057=PDD 106230 Pileipellis section (melzers)


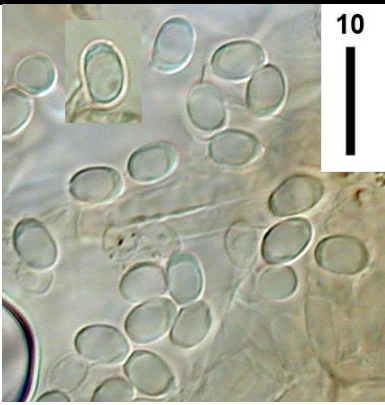

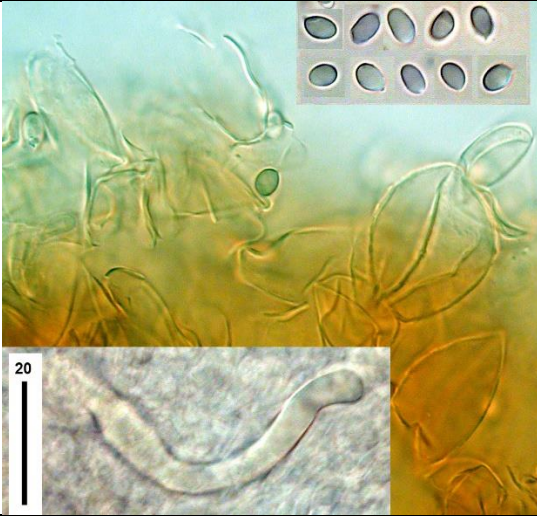

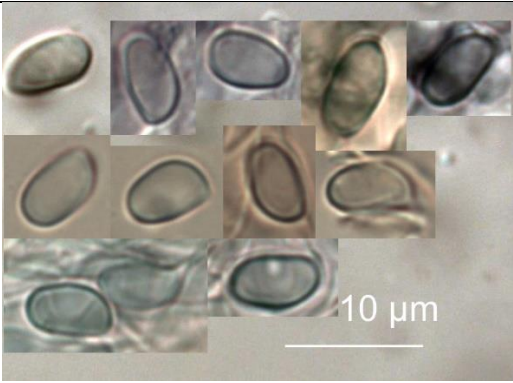


JAC14057=PDD 106230 arthrospores

Spores (Melzers) 3.8 x 2.7

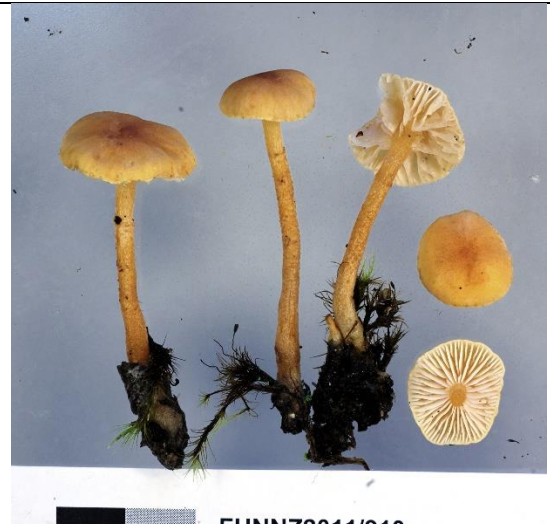
Cystoderma muscicola

Originally described from Australia and easily distinguished from *C. clastotrichum* by the absence of arthrospores and the spores significantly larger. In New Zealand it appears to have a predominantly alpine distribution. It is closely related to *C. andinum* from Ecuador also with relatively large spores but redder in colour.

<i>Cystoderma muscicola</i>	
 <p>JAC 9966 FUNNZ: 2006/1489</p>	 <p>10</p>
PDD 87069	PDD 87069 5 x 3.3
 <p>1cm</p>	 <p>20</p>
PDD 87138	PDD 87138
	 <p>10 μm</p>
PDD 96285	PDD 96285 6.4 x 3.6



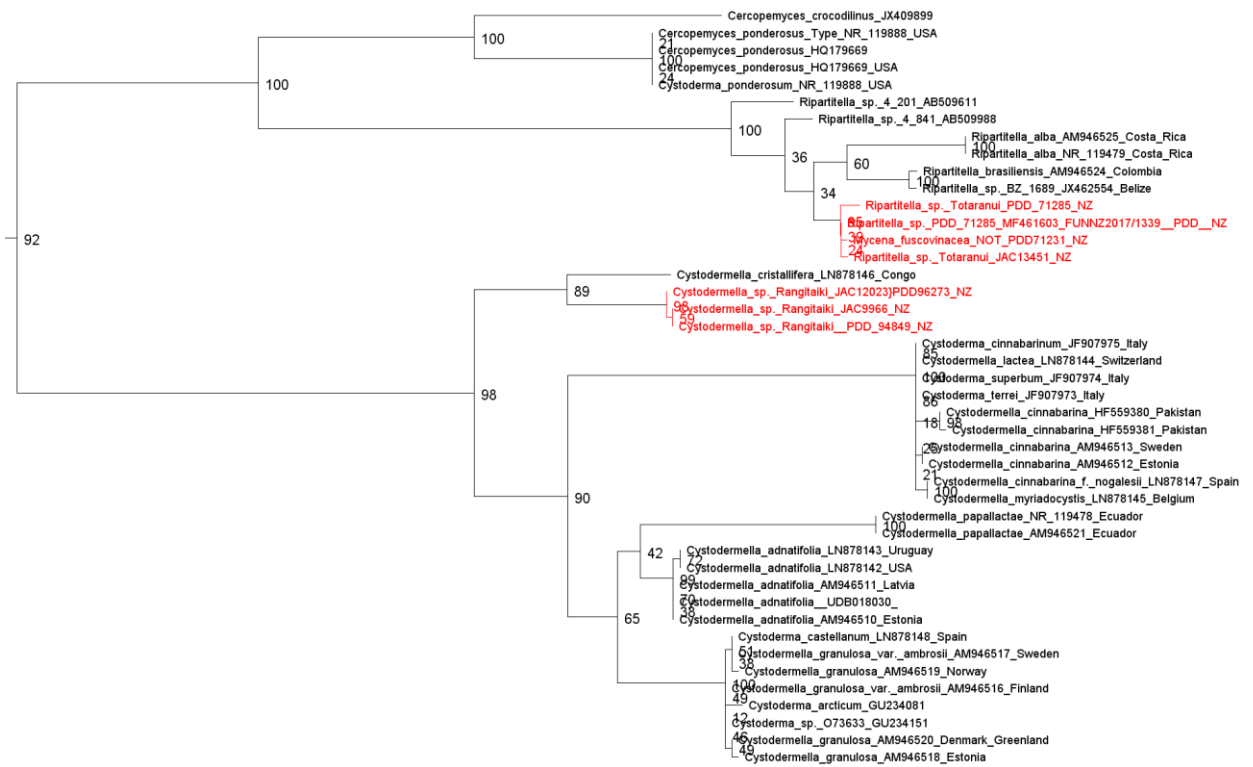
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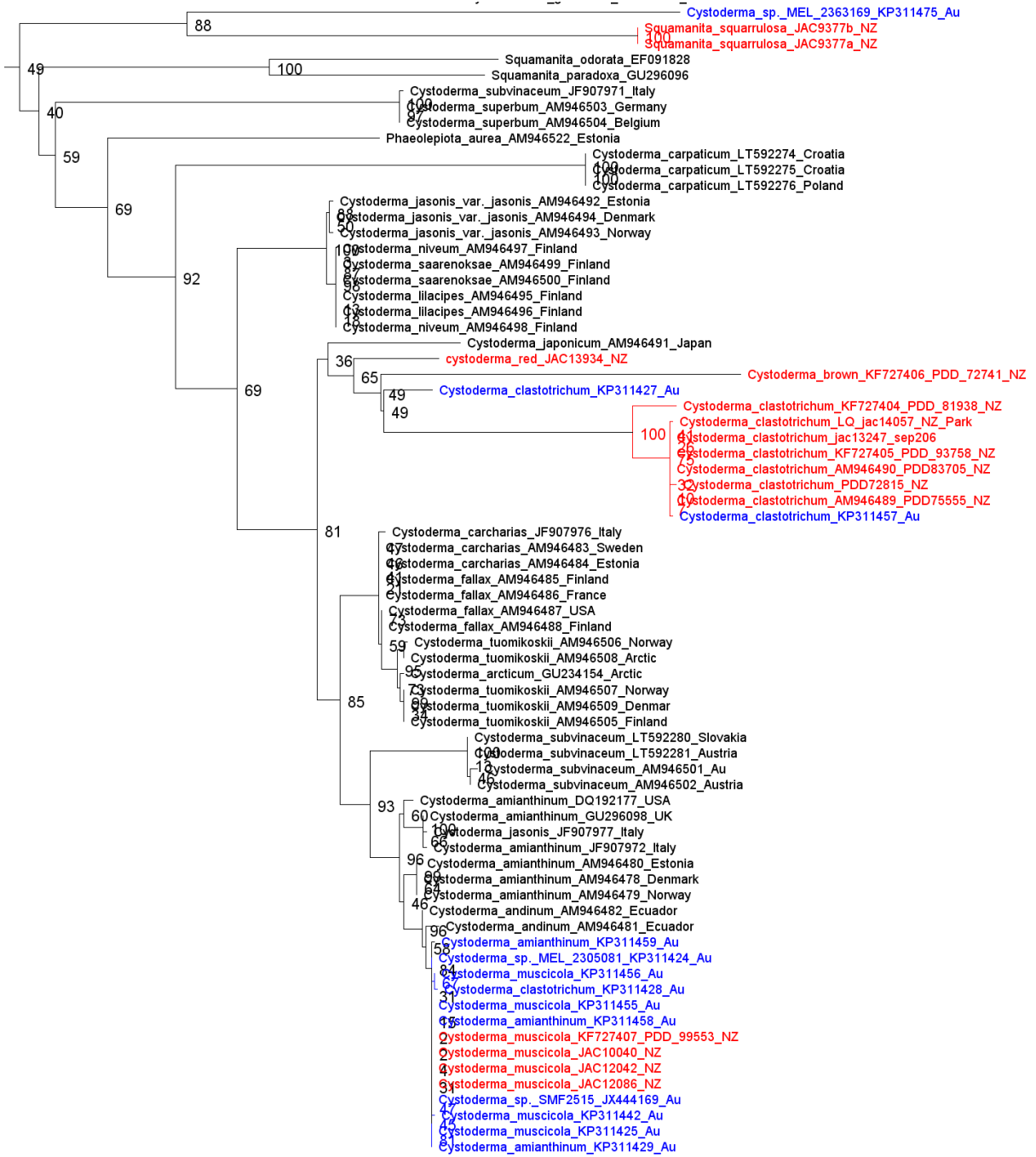


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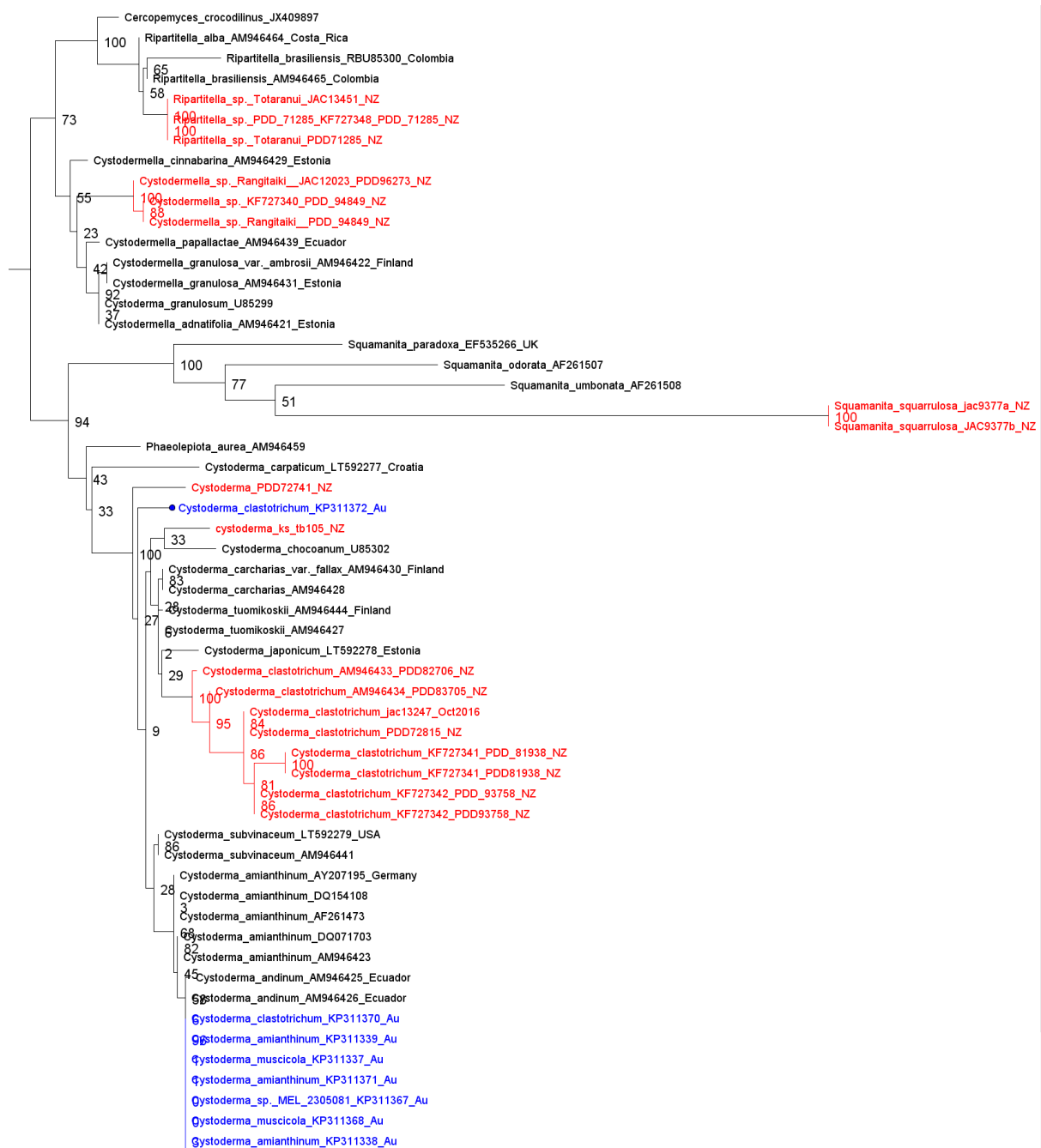
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ITS





LSU



Acknowledgements

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References

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