

A contribution to the study of the cortinarioid mycoflora of New Zealand, V

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Abstract

Six new species: *Cortinarius ixomolynus*, *C. opaculus*, *C. rubrodactylus*, *C. verniciorum*, *C. viscincisus*, *C. waiporianus*, and one new variety: *C. saturniorum* var. *leiochrous* are described from New Zealand.

Key words: *Cortinarius*, Agaricales, New Zealand, mycorrhiza, *Nothofagus*.

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Introduction

This fifth instalment in a series on new *Cortinarius* (Pers.) Gray taxa from New Zealand deals with species that may be placed in the subgenera *Myxacium* (Fr.) Trog and *Telamonia* (Fr.) Trog (as morphologically defined in the sense of Brandrud *et al.* 1989–97). Species in these subgenera were partly considered in the previous instalments Soop (2001, 2002, 2005, 2013) and in Horak & Wood (1990), but have not otherwise been treated in publications aimed at the mycota of the country. Other related species were studied in Soop (1998), Orlovich & Oliver (2002), and Gasparini & Soop (2008). The infrageneric geotaxonomy of *Cortinarius*, and in particular the mentioned subgenera, was extensively discussed in Soop & Gasparini (2011).

All taxa described in the present study are assumed to form obligatory mycorrhiza with native trees (notably *Nothofagus* and *Leptospermum/Kunzea* spp.). One would therefore seek to identify them primarily in descriptions from the corresponding habitats in Australia and Patagonia (South America), these being the only regions where analogous studies have been undertaken (among these, notably Cleland & Harris 1948; Moser & Horak 1975; Bougher & Hilton 1989; Gasparini 2001a,b, 2007; Garnica *et al.* 2002).

Methods

In the descriptions measurements of the fruit-body pertain to adult specimens; these are the diameter of the pileus, the length of the stipe, and the diameter of the upper part of the stipe. Lamella colour pertains to immature individuals unless specified otherwise, the designation “L=” means the number of lamellae reaching the stipe, and “l=” the number of lamellulae between two lamellae. The universal and partial veils of the fruit-body are referred to as veil and cortina, respectively.

The alkaline reaction was made with a 25% NaOH solution. Fluorescence is reported under Macrochemical Reactions; the test consists of irradiating the context of a fresh fruit-body with UV light in an otherwise dark

room. Microscopic observations were made principally on material mounted in 5% ammoniacal solution, with or without congo red, and examined with an oil-immersion objective (1000 x). The term “marginal elements” refers to sterile cells that are found on the lamellar edge. The spore measurements are expressed as the mean value with one-sigma limits and, in parentheses, the observed maxima and minima. The ‘Q’ value is the length/width quotient; its average and standard deviation are reported. The ‘n’ value is the number of measurements.

Species mentioned for comparison under Comments were described from New Zealand unless otherwise specified. All holotype material has been deposited in the PDD herbarium, Auckland, New Zealand. If no herbarium accession number is given, the material is lodged in the author’s herbarium. Some of the material has been sequenced by the Botany Department of Dunedin University, New Zealand. The GenBank accession numbers and PDD herbarium numbers are given under Collections examined. Unless stated otherwise, collections were made by the author and the descriptor “KS” indicates the author’s collection number.

Taxonomy

1. *Cortinarius ixomolynus* Soop, sp. nov.

Fig. 1A, 2, MycoBank 564307.

Pileo 15–40 mm diam., obtuse conico, deinde conico vel expanso, glutinoso, parum hygrophano, iuveni sucinoluteo, demum pallidiore et obscure rufo-badio maculato, glabro, margine parum striato. Lamellis primo pallide griseis, subdistantibus. Stipite aequali, tenaci, viscido, albo, ad basem fulvo-fimbriato. Velo hyalino, gelatinoso, subcopioso; cortina exigua vel abest. Carne pallide luteoalba; odore debile instar lubricante, sapore amaro. Sporis ellipsoideis vel subamygdaloideis 6–7 × 3.5–4.5 µm, minute verrucosis. Reactionem ope NaOH vix ullam.

Typus: New Zealand. Nelson, Reefton, Murray Creek Track, under *Nothofagus* spp., 3rd May 2011, K. Soop



Fig 1. Fruit-bodies **A** *C. ixomolynus*, **B** *C. rubrodactylus*, **C** *C. opaculus*, **D** *C. waiporianus*, **E** *C. viscincisus* and **F** *C. verniciorum*.

KS-CO2027 (holotype here designated PDD 101854; isotype S F190000), GenBank JX648603 (ITS).

Pileus 15–40 mm diam., obtusely conical, later conical to expanded with a pointed umbo; glutinous, weakly hygrophanous; amber yellow when young, later paler and maculated by dark-red to umber, irregular spots, especially on the disk, glabrous; margin pale tan,

weakly or not striate. *Lamellae* white to pale grey when young, narrowly notched, rather distant ($L=28-42$, $l=2-3$), edge concolorous. *Stipe* 25–55 × 2–6 mm, viscid, cylindrical, tough; white, somewhat flavescent with sparse brownish fibrils on lower part. *Veil* gelatinous, hyaline, rather copious; cortina rudimentary white or absent. *Context* white to pale yellow, marbled golden yellow; exsiccata greyish yellow to pale brown.

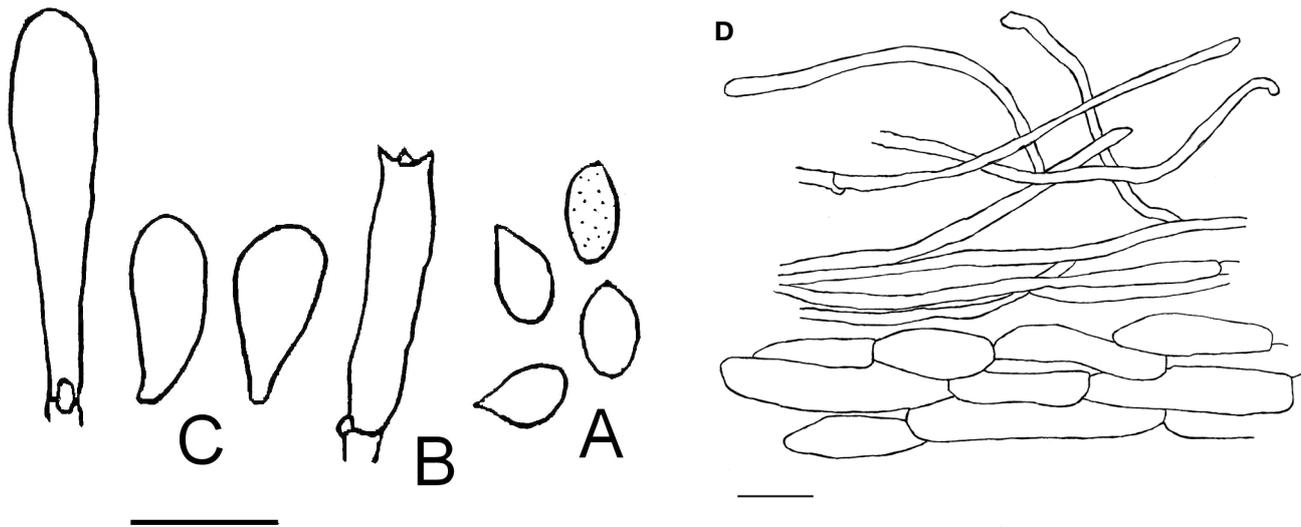


Fig 2. Microscopic details of *C. ixomolynus* **A** spores, **B** basidia, **C** sterile marginal elements, and **D** pileipellis, scale = 10 µm.

Macrochemical reactions NaOH weakly and slowly red on cutis, elsewhere trivial. **Odour** none or faint, like “lubricant”; **taste** distinctly bitter.

Spores small, $(5.7\text{--}6\text{--}6.4\text{--}7\text{--}7.3) \times (3.5\text{--}3.8\text{--}4.1\text{--}4.4\text{--}4.9)$ µm, $Q=1.59\pm 0.15$ ($n=27$), elliptic to subamygdaloid, almost smooth. **Marginal elements** crowded, clavate to vesiculose, many with a greyish yellow vacuolar pigment, $15\text{--}20 \times 5\text{--}7$ µm, mixed with a few longer elements $25\text{--}30 \times 6\text{--}7$ µm. **Basidia** $15\text{--}20 \times 4\text{--}5$ µm, 4-spored. Lamellar trama in part yellow-brown with darker pigment clumps. **Pileipellis** with a broad outer layer of sinuous gelified hyphae and a narrow lower layer of repent hyphae $1.5\text{--}3$ µm wide. **Hypocutis** of hyaline irregular elements, $15\text{--}35 \times 5\text{--}10$ µm. **Clamp connections** present.

Habitat: Gregarious, uncommon, associated with *Nothofagus*.

Other collections examined: New Zealand. Otago, Haast Pass, Cameron Track, 19th April 1999, KS-CO1026; idem 22nd April 2011, KS-CO2000 (PDD 101830, S F189989). Taupo, Te Iringa Track, 13th May 2011, KS-CO2044 (PDD 101869).

Etymology: From Greek $\xi\omega\delta\eta\sigma$ “sticky”, and $\mu\omicron\lambda\upsilon\omega\omega$ “maculate”, due to the aspect of the cutis.

Comments: This is a medium to small fungus, morphologically a member of subgenus *Myxacium*. It somewhat resembles *Cortinarius vitreopileatus* E. Horak and *C. lubricanescens* Soop, both found in the same habitat, but is easily separated by the brown-stained pileus, bitter taste, and significantly smaller spores. *C. pectocheilus* Soop may also display brownish stains but the pileus is considerably darker, and it exhibits the same differential characters as the other species mentioned. *C. xanthocolus* E. Horak & M.M. Moser

has a bitter taste, but also this species, described from *Nothofagus* habitat in Patagonia, has a darker pileus than *C. ixomolynus*, and the spores are longer.

2. *Cortinarius rubrodactylus* Soop, sp. nov.

Fig. 1B, 3, MycoBank 564308.

Pileo 30–85 mm diam., hemispherico, deinde convexo vel campanulato, sicco, haud hygrophano, saturate rubro-rufo interdum aerato-purpurato, minute squamuloso, margine subfibrilloso. **Lamellis** primo griseo-albis, subconfertis. **Stipite** aequali, versus basem saepe attenuato, albo at flavescente, rufo-cingulato. **Velo** ex rufo purpurato, subsparso. **Carne** alba leviter flavida; odore distincte cereo, sapore nullo. **Sporis** subglobosis $7\text{--}8.5 \times 5\text{--}6$ µm, moderate vel subminute verrucosis. **Reactionem supra cuticula** veloque ope NaOH obscure rubram praebet.

Typus: New Zealand. Canterbury, Craigieburn, under *Nothofagus* spp., 8th May 2008, K. Soop KS-CO1794 (holotype here designated PDD 94045). GenBank JQ287694 (ITS).

Pileus 30–85 mm diam., rounded, later convex to campanulate, fleshy; dry to slightly waxy, not hygrophaneous; saturated mahogany red, sometimes with a copper or purple tinge; finely squamulose; margin long involute with sparse fibrils. **Lamellae** white to greyish-white when young, broadly notched, moderately crowded ($L=52$, $l=1\text{--}2$), rather thick; edge concolorous, sometimes ± serrulate. **Stipe** 20–70(100) × 7–20 mm, robust, cylindrical to tapering downwards, stiff; yellowish white to brown-yellow with multiple thin red-brown girdles; apex ± white. **Veil** purple-brown to red-brown, rather sparse; cortina white. **Context** white with a faint yellow tinge. **Macrochemical reactions** NaOH dark red on cutis and stipital veil, else trivial; fluorescence nil. **Odour** distinct like wax candles; **taste** nil.

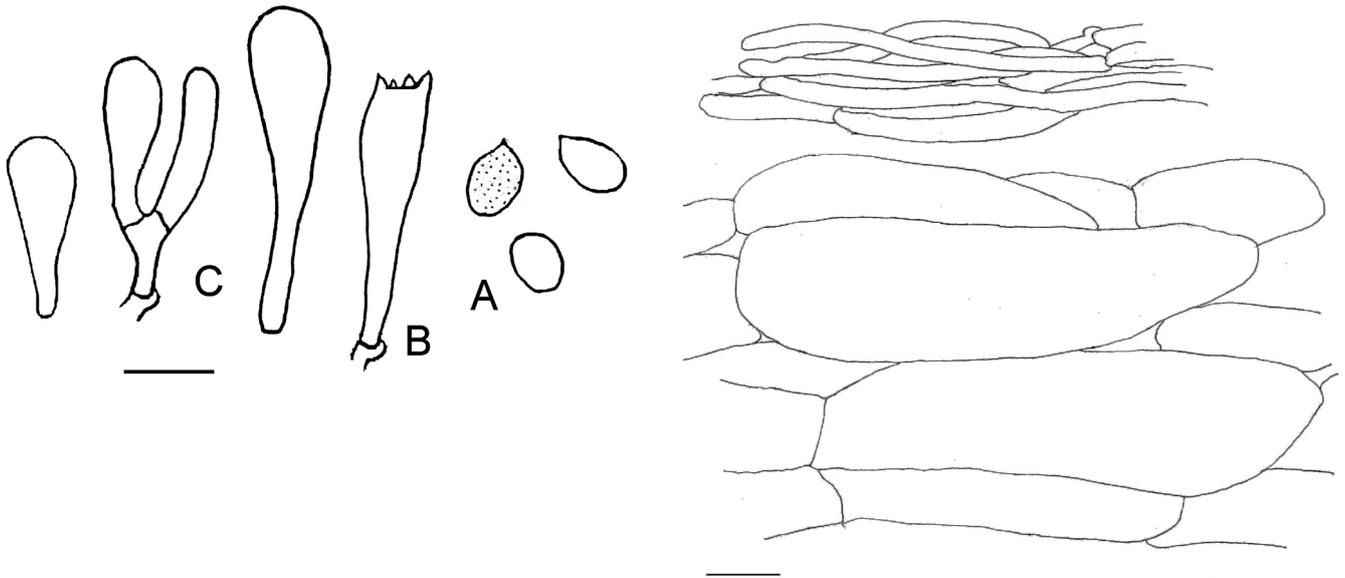


Fig 3. Microscopic details of *C. rubrodactylus* **A** spores, **B** basidia, **C** sterile marginal elements, and **D** pileipellis, scale = 10 μ m.

Spores (6.5–)7.2–7.8–8.3(–8.7) \times (4.9–)5.3–5.7–6(–6.2) μ m, $Q=1.37\pm 0.08$ ($n=28$), subglobose to ovoid, moderately to rather weakly verrucose. *Marginal elements* crowded, clavate, 25–35 \times 6–10 μ m, mixed with a few \pm filiform elements c. 30 \times 4–5 μ m. *Basidia* 25 \times 7–8 μ m, 4-spored with short, thick sterigmata. *Pileipellis* thin with a brown-yellow cytoplasmatic pigment, hyphae 4–7 μ m wide. *Hypocutis* of irregular elliptic elements, 25–70 \times 12–20 μ m. *Clamp connections* present.

Habitat: Gregarious, often fasciculate, rare, associated with *Nothofagus*.

Other collections examined: New Zealand. Canterbury, Craigieburn 5th May 2009, KS-CO1908 (PDD 97533, S F140317). Southland, Milford Road, Deer Flat, 27th April 2006, KS-CO1651 (PDD 88288), GenBank JQ287678 (ITS).

Etymology: From Latin *ruber*, “red”, and *dactylus* “date fruit”, referring to the pileal colour.

Comments: A large and fleshy fungus, recognised by its mahogany-red pileus, contrasting against the white lamellae when young. It recalls *Cortinarius armiae* Soop (2013), which presents coloured lamellae and a pileus with redder and brighter hues. *C. rubrodactylus* is difficult to place in a traditional subgenus and a molecular analysis (S. Garnica, pers. comm.) indicates that the species occupies a rather isolated position, whereas *C. armiae* nests in the Heterocliti clade (cf. Garnica *et al.* 2005). *Cortinarius australimonius* M.M. Moser & E. Horak in this clade, described from *Nothofagus* habitat in Patagonia, is also rather similar. It differs, however, from the present species by a more copious veil, a weak alkaline reaction, and lageniform cheilocystidia.

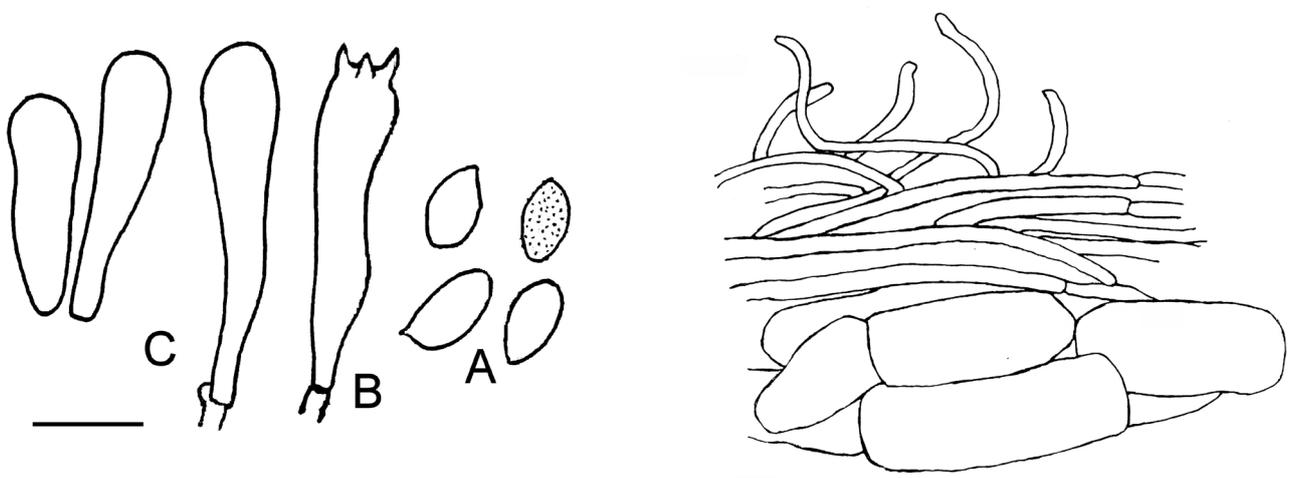


Fig 4. Microscopic details of *C. opaculus* **A** spores, **B** basidia, **C** sterile marginal elements, and **D** pileipellis, scale = 10 μ m.

3. *Cortinarius opaculus* Soop, sp. nov.

Fig. 1C, 4, MycoBank 564309.

Pileo 10–30 mm diam., obtuse conico, deinde conico vel expanso, viscido, hygrophano, umbrino vel spadiceo, glabro vel minute innato-fibrilloso, margine pallidior, primo minute albofibrilloso, substriato. *Lamellis* primo pallide argillosis, subconfertis. *Stipite* aequali, albovestito, sordescente. *Velo* albo, valde sparso. *Carne* dilute griseobrunnea; odore debile raphanico, sapore nullo. *Sporis* ellipsoideis 8.5–10 × 5–6 μm, moderate vel subminute verrucosis. *Reactionem* ope NaOH nullam.

Typus: New Zealand. Canterbury, Hawdon Valley, under *Nothofagus* spp., 20th April 2011, K. Soop KS-CO1998 (holotype here designated PDD 101828, isotype S F189987), GenBank JX648602 (ITS).

Pileus 10–30 mm diam., obtusely conical, later conical to expanded with a shallow umbo; viscid, hygrophanous; dark brown to warmly date brown, glabrous to finely innate fibrillose; margin paler, young with a thin white down, ± striate. *Lamellae* pale brown-grey with a paler edge when young, broadly notched, moderately crowded (L=36, l=2). *Stipe* 30–55 × 3–6 mm, dry, cylindrical; with a thin white coating that absorbs to pale brown. *Veil* white, very sparse; *cortina* white. *Context* pale grey-brown. *Macrochemical reactions* NaOH trivial. *Odour* faint, ± raphanoid or like cocoa powder; *taste* nil.

Sporis (7.9–)8.3–9.2–10.1(–10.9) × (4.9–)5.1–5.4–5.7(–6) μm, Q=1.70±0.17 (n=29), elliptic, moderately to rather weakly verrucose. *Marginal elements* crowded, often fasciculate, clavate, 25–35 × 6–10 μm. *Basidia* 25–35 × 7–8 μm, 4-spored. *Pileipellis* with an outer layer of sinuous gelified hyphae, 2–3 μm wide and a narrow lower layer, with hyphae 4–5 μm wide. *Hypocutis* with rectangular pale yellow elements, 35–70 × 17–25 μm. *Clamp connections* present.

Habitat: Gregarious, sometimes fasciculate, rare, associated with *Nothofagus*.

Other collections examined: New Zealand. Canterbury, Hawdon Valley, 23rd April 1997, KS-CO825 (PDD 67183).

Etymology: From Latin *opacus* “obscure” with reference to the pileal hue, and to *Hydrocybe opaca* (see below).

Comments: The viscid cutis places this species morphologically in subsection *Myxotelamonia* M.M. Moser & E. Horak of the subgenus *Telamonia*. *Cortinarius opaculus* is recognised by the warm, saturated brown colour of the pileus which contrasts with the white stipe. It recalls a miniature *C. paraonui* Soop, which, however, is dry and has brick-coloured lamellae. It is possible that *Hydrocybe opaca*, described informally in an unpublished key (Horak, undated) may be the same species. *Cortinarius hydrocephalus* M.M. Moser, described from *Nothofagus* habitat in Patagonia, is similar but more robust and exhibits rusty-brown lamellae. Another similar species, *C. austropallescens* Grgurinovic (1997) described from Australia, is smaller than *C. opaculus* and produces differentiated cheilocystidia.

4. *Cortinarius waiporianus* Soop, sp. nov.

Fig. 1D, 5, MycoBank 564310.

Pileo 10–35 mm diam., acuteconico, deinde conico vel expanso, sicco, hygrophano, aurantiobrunneo ad discum obscuriore, innato-fibrilloso, margine pallidior, striato. *Lamellis* primo aurantiobrunneis vel rufis, subdistantibus. *Stipite* aequali, albovestito, sordescente. *Velo* albo, sparso. *Carne* dilute ochracea, pallide rufo-marmorata; odore saporeque nullis. *Sporis* ex ellipsoideis amygdaloideis 8.5–10 × 5–6 μm, moderate verrucosis. *Reactionem* ope NaOH vix ullam.

Typus: New Zealand. Southland, Milford Road, Lake Mistletoe Track, under *Leptospermum scoparium*,

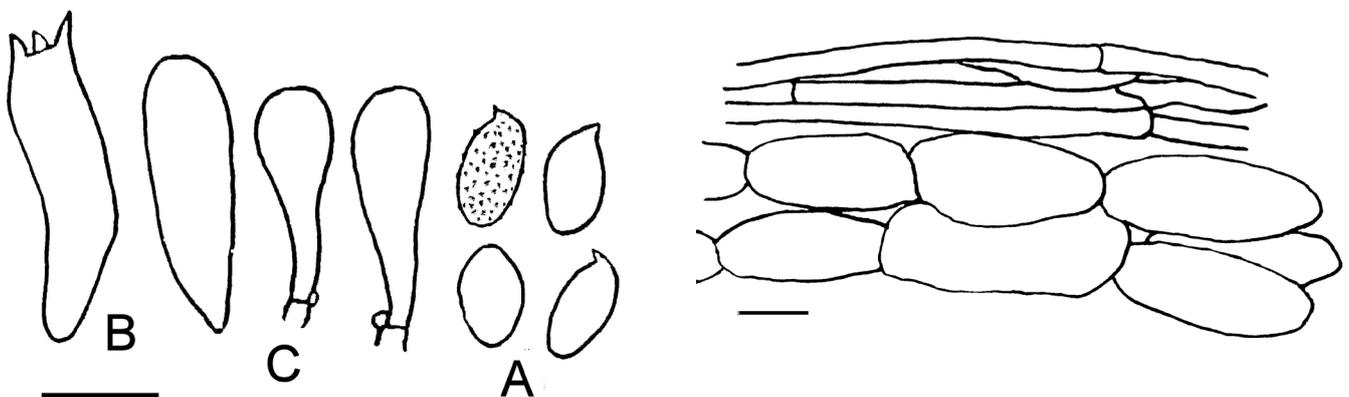


Fig 5. Microscopic details of *C. waiporianus* A spores, B basidia, C sterile marginal elements, and D pileipellis, scale = 10 μm.

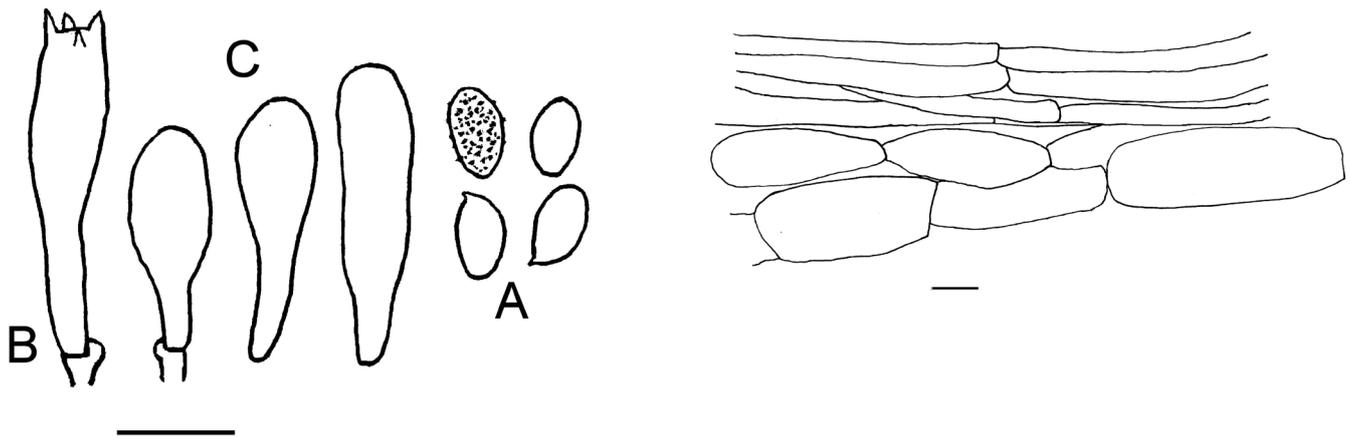


Fig 6. Microscopic details of *C. viscincisus* **A** spores, **B** basidia, **C** sterile marginal elements, and **D** pileipellis, scale = 10 µm.

29th April 2009, K. Soop KS-CO1892 (holotype here designated PDD 97519, isotype S F140306), GenBank JX648595 (ITS).

Pileus 10–35 mm diam., narrowly conical, later conical to expanded with a small umbo; dry, hygrophanus, orange-brown with a darker disk, innate-fibrillose, young more red-brown with a white frost; margin paler, striate. *Lamellae* orange-brown to red-brown when young, free, rather distant ($L=26-30$, $l=1-2$), edge and sometimes the face paler. *Stipe* 40–75 × 2–4 mm, cylindrical, slender; with a thin white coating that absorbs to brownish, base with white tufts. *Veil* white, sparse; cortina white. *Context* pale tan, marbled pale red-brown; exsiccata yellow-brown with orange lamellae. *Odour* and *taste* nil. *Macrochemical reactions* NaOH inconsistently brown-red on cutis and context.

Spores (8.2–)8.6–9.4–10(–10.6) × 5–5.3–5.6(–6) µm, $Q=1.77\pm 0.09$ ($n=27$), elliptic to subamygdaloid or subcylindrical, moderately verrucose. *Marginal elements* numerous, clavate, some subcapitate, 20–25 × 7–10 µm, hyaline, a few differentiated, 30–40 × 10 µm. *Basidia* 20–25 × 7–8 µm, 4-spored. *Pileipellis* thin with hyaline hyphae 3–5 µm wide. *Hypocutis* of hyaline oblong ± rectangular elements, 20–35 × 8–12 µm, mixed with larger elements (c. 40 × 20 µm). *Clamp connections* present.

Habitat: Gregarious, uncommon, associated with *Leptospermum* and *Kunzea*.

Other collections examined: New Zealand. Otago, Dunedin, Waipori Falls, 12th May 2008, KS-CO1800 (PDD 94048, S F93245). Auckland, Albany, Northwood, 11th May 2011, KS-CO2041 (PDD 101867, S F190007).

Etymology: Named after Waipori Falls (see above).

Comments: A small fungus with a vivid pileus colour, found in myrtaceous forests. The species may belong to section *Obtusi*, which is characterised by small,

brownish fruit-bodies and differentiated cheilocystidia. It is not included in the *C. saturniorum* complex (see below), which is composed of fungi with paler, more pastel-like hues. However, *Cortinarius waiporianus* somewhat recalls *C. viscincisus* in this group, which is viscid and produces smaller spores.

The *C. saturniorum* complex

The following three taxa, together with *Cortinarius paraoniti* Soop (2010) and *C. saturniorum* Soop (2001), form a complex of similar *Cortinari* that are extremely difficult to separate morphologically. They are all small, telamonioid fungi with a light ochraceous or tan pileus and a pale stipe, more or less viscid in moist weather. The pileus is smooth and in many cases evenly pastel coloured, evoking a piece of plastic. The alkaline reaction is more or less trivial.

5. *Cortinarius viscincisus* Soop, sp. nov.

Fig. 1E, 6, MycoBank 564311.

Pileo 10–35 mm diam., obtuse conico, deinde convexo vel expanso, viscido, hygrophano, uniforme ochraceo-pallido vel rufo-pallido, glabro, margine tenuiter albofibrilloso, parum vel haud striato. *Lamellis* primo griseis vel pallide cinnamomeis, subconfertis. *Stipite* aequali, dilute cinnamomeo, albo-cingulato. *Velo* albo, sparso. *Carne* dilute cinnamomea; odore saporeque subnullis. *Sporis* ellipsoideis 7–9 × 4.7–5.7 µm, moderate vel subgrosse verrucosis. *Reactionem* ope NaOH nullam.

Typus: New Zealand. Taupo, Cascade Hut Track, under *Nothofagus* spp., 5th May 2009, K. Soop KS-CO1919 (holotype here designated PDD 97544, isotype S F140325), GenBank JX648596 (ITS).

Pileus 10–35 mm diam., obtusely conical, later convex to plane without umbo; viscid, hygrophanus, pastel yellow-brown to evenly pale red-brown, glabrous to very finely innate fibrillose; margin with a thin white frost, weakly or not striate. *Lamellae* greyish to pale

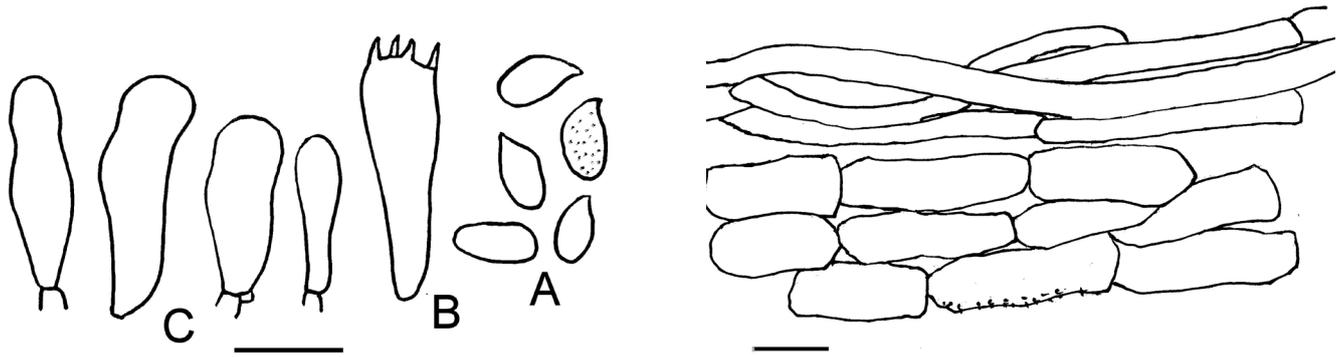


Fig 7. Microscopic details of *C. verniciorum* **A** spores, **B** basidia, **C** sterile marginal elements, and **D** pileipellis, scale = 10 µm.

cinnamon when young, edge concolorous, broadly notched to free, moderately crowded (L=38–46, l=1–2). *Stipe* 10–70 × 3–5 mm, cylindrical, dry; pale brown with a white absorbing coating and thin white bands. *Veil* white, sparse; *cortina* white. *Context* pale brown, sometimes with a grey to greenish blue tinge in stipe-base. *Macrochemical reactions* NaOH nil. *Odour* nil or faintly like “lubricant”; *taste* nil.

Spores (6.8–)7.2–7.9–8.6(–9.3) × (4.6–)4.8–5.1–5.5(–6) µm, Q=1.54±0.14 (n=28), elliptic, moderately to fairly coarsely verrucose. *Marginal elements* crowded, clavate to vesiculose, 15–25 × 4–7 µm, hyaline. *Basidia* 25–30 × 7–8 µm, 4-spored. *Pileipellis* thin with hyaline hyphae, 4–7 µm wide. *Hypocutis* of hyaline oblong rectangular elements, 35–50 × 11–17 µm. *Clamp connections* present.

Habitat: Gregarious, uncommon, associated with *Nothofagus*, possibly also with *Leptospermum*.

Other collections examined: New Zealand. Southland, Milford Road, Totara Rest Area, 4th May 2001, KS-CO1209 (PDD 73141). Canterbury, Lewis Pass, Boyle River, 12th May 2006, KS-CO1696. Canterbury, Arthurs Pass, Waimakariri River Track, 9th May 2008, KS-CO1795 (PDD 94046, S F93243).

Etymology: From Latin *viscosus* “viscid”, and *C. incisus* Fr., a similar small, brown, boreal species.

Comments: A small brown and white fungus with an even pastel colour. It resembles *Cortinarius paraoniti* Soop, but the pileus is distinctly viscid and the spores are significantly larger. *C. cinereobrunneus* M.M. Moser, described from *Nothofagus* habitat in Patagonia, differs by more grey-brown hues with a bluish tinge.

6. *Cortinarius saturniorum* var. *leiochrous* Soop, var. nov.

Fig. 8 MycoBank 564312.

A typo differt cuticula pallidior, subviscosa, atque carpophoro sine color violaceo.

Typus: New Zealand. Canterbury, Lewis Pass, Boyle River, 6th May 2011, under *Nothofagus* spp., 27th April 2009, K. Soop KS-CO2036 (holotype here designated PDD 101862, isotype S F190004), GenBank JX648594 (ITS).

Pileus 15–40 mm diam., obtusely conical, later conical to convex with a shallow umbo; viscid, hygrophanous; evenly pale yellow-brown to pastel greyish tan; glabrous to very finely innate fibrillose; margin with a thin white rim, weakly or not striate. *Lamellae* pale cinnamon to almost white when young, edge concolorous, narrowly

Key to the *C. saturniorum* complex:

- 1 Spores >8 µm long, cutis viscid.....5. *C. viscincisus*
- 1* Most spores shorter, cutis viscid or dry.....2.
- 2 Pileus colour vivid with an orange tinge, with myrtaceous host.....7. *C. verniciorum*
- 2* Pileus light red-brown to dull tan, with *Nothofagus*.....3.
- 3 Pileus typically greyish yellow, viscid.....6. *C. saturniorum* var. *leiochrous*
- 3* Pileus typically light red-brown, dry or slightly viscid.....4.
- 4 Pileus dry, often with a violet flush in stipe and/or context*C. saturniorum* var. *saturniorum*
- 4* Pileus slightly viscid, fruit-body without a violet flush*C. paraoniti*

notched to adnate, fairly distant ($L=28\text{--}38$, $l=2$). *Stipe* 20–70 × 3–6 mm, cylindrical, tough, sometimes flattened, ± dilated at base; silky from a white coating that absorbs to pale brown, and with white, sometimes thin, girdles. *Veil* white, sparse to fairly copious; *cortina* white. *Context* tenacious, pale cinnamon, darker in lower stipe; *exsiccata* yellow-brown. *Macrochemical reactions* NaOH trivial. *Odour* and *taste* raphanoid to faintly acid.

Microscopic characters as the type. *Spores* elliptic, sometimes slightly angular, 6.7–8 × 4.2–5 µm, rather weakly verrucose. *Marginal elements* crowded, often fasciculate, clavate, 20–25 × 6–7 µm.

Habitat: Gregarious, common, associated with *Nothofagus*.

Other collections examined: New Zealand. Southland, Tuatapere, Lake Hauroko Track, 26th April 2003, KS-CO1321 (PDD 77474). Southland, Manapouri, Borland Lodge Track, 30th April 2009, KS-CO1896 (PDD 97523, S F140309), idem 26th April 2006, KS-CO1636.

Etymology: From Greek λειος “smooth” and χρωμα “colour”, due to the aspect of the pileal surface.

Comments: This variety exhibits a pale greyish-yellow pileus of a remarkably even pastel finish, reminding of plastic, usually with a viscid surface. The type variety of *Cortinarius saturniorum* Soop presents a dry pileus with warmer colours, and often displays a violet tint on the stipe base and in the context. Variety *leiochrous* resembles *C. viscincisus*, described above, which differs by markedly longer spores. Moreover, in dry weather it is almost impossible to separate var. *leiochrous* from *C. paraoniti* Soop, without recourse to sequence data. A genetic analysis (S. Garnica, pers. comm.) places them in widely separate clades, while the two varieties of *C. saturniorum* are close but distinct.

7. *Cortinarius verniciorum* Soop, sp. nov.

Fig. 1F, 7, MycoBank 564313.

Pileo 15–40 mm diam., obtuse conico, deinde expanso, viscido, parum vel haud hygrophano, uniforme armenico-ochraceo, ad discum potius aurantiore, glabro vel minute innato-fibrilloso, margine tenuiter albofibrilloso, vix striato. *Lamellis* primo albis vel argillaceis, subconfertis. *Stipite* ex subclavato aequali, albovestito, sordescente. *Velo* albo, valde sparso. *Carne* dilute ochracea, fulvo-marmorata; *odore* debile raphanico; *sapore* debile, deinde subacerbo. *Sporis* elongate ellipsoideis vel amygdaloideis 5.5–7 × 3–4 µm, pauce verrucosis. *Reactionem supra cuticula* ope NaOH spadiceam.

Typus: New Zealand. Southland, Milford Road, Te Anau Downs, under *Leptospermum scoparium*, 25th April 2008, K. Soop KS-CO1752 (holotype here designated



Fig 8. Fruit-bodies *C. saturniorum* var. *leiochrous*.

PDD 94010, isotype S F93212), GenBank JQ287679 (ITS).

Pileus 15–40 mm diam., obtusely conical, later expanded with an often decurved margin, viscid, weakly or not hygrophanous, warmly and evenly apricot to yellow-brown with a more orange disk, glabrous to finely innate fibrillose, often with a lacquered finish, young with thin, white fringes, margin with a white rim, weakly striate when old. *Lamellae* white to pale grey-brown when young, narrowly notched, rather crowded ($L=56$, $l=2\text{--}3$), edge concolorous. *Stipe* 25–45 × 4–7 mm, cylindrical to slightly clavate, dry, with a whitish coating that absorbs to pale grey-brown. *Veil* white, very sparse; *cortina* rudimentary or absent. *Context* pale tan, marbled yellow-brown. *Macrochemical reactions*: NaOH saturated brown on cutis, else more or less trivial. *Odour* faintly raphanoid; *taste* faint with a distinctly acerbic after-taste.

Spores small, (5–)5.6–6.2–7(–7.3) × (2.7–)3–3.4–3.8 µm, $Q=1.84\pm 0.19$ ($n=34$), oblong elliptic to subamygdaloid, weakly verrucose. *Marginal elements* crowded, clavate, sometimes weakly capitate or fusoid, 12–20 × 4–6 µm, hyaline. *Basidia* c. 20 × 6–7 µm, 4-spored. *Pileipellis* with a an outer, thick, gelified layer of hyaline, sinuous hyphae, 2–2.5 µm wide, ends inflated (4–6 µm wide) over a very thin layer of hyaline hyphae 4–6 µm wide. *Hypocutis* of irregular elements, 15–25 × 6–8 µm, hyphae in lower strata with a vacuolar yellow-brown, encrusting pigment. *Clamp connections* scarce.

Habitat: Gregarious, uncommon, associated with *Leptospermum scoparium*.

Other collections examined: New Zealand. Southland, Milford Road, Te Anau Downs, 26th April 2008, KS-CO1757 (PDD 94014, S F93215), GenBank JQ287681 (ITS). Nelson, St Arnaud Lodge, 3rd May 2008, KS-CO1774.

Etymology: From Latin *vernicium*, “varnish”, due to the remarkable sheen of the pileus and to its resemblance to *C. vernicifer*.

Comments: The viscid cutis places this species morphologically in subsection *Myxotelamonia*, where it is characterised by its remarkably evenly apricot to mahogany coloured pileus, often shimmering as if varnished. Also noteworthy are the small spores. The quite similar *Cortinarius vernicifer* Soop, rare in the same habitat, differs from *C. verniciorum* mainly by a dry pileus and rounded spores. Also *C. thaumastus* Soop is similar, but it produces larger spores, a stronger alkaline reaction, and grows with *Nothofagus*. *Cortinarius ocellatus* M.M. Moser & E. Horak, described from *Nothofagus* habitat in Patagonia (Moser & Horak 1975), is somewhat similar while being less vividly coloured and having larger spores.

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