

*Lactifluus albopicri*



Fungal Planet 1086 – 29 June 2020

***Lactifluus albopicri* T. Lebel & L. Tegart, sp. nov.**

**Etymology.** Named for the colour and hot taste of the basidiomata, also = white, picri- = hot.

**Classification** — *Russulaceae*, *Agaricales*, *Agaricomycetes*.

**Basidiomata** robust, lactarioid. **Pileus** 48–85(–120) mm diam, convex with decurved margin, planoconvex with depressed centre when mature; dry, smooth to very finely tomentose, white becoming very pale yellowish buff to pale honey cream with cream margin and slightly honey coloured centre; context solid, white becoming very pale cream coloured, no staining. **Lamellae** at first broadly adnate, then subdecurrent to decurrent, narrow (1.5 mm), close (c. 6–8 per cm) with some forking, and 2–3 rows lamellulae, concolourous with pileus or slightly paler. **Stipe** 20–50(–80) × 10–22(–30) mm, cylindrical or slightly tapered to base in older material, central, smooth, dry, whitish tinged with yellowish buff or hints of pale orange to pinkish buff; context firm, white, unchanging, dry, chalky. Basal mycelium white. **Latex** copious, white, unchanging, very hot and peppery. Spore deposit white. Phenol: rapidly wine red/pink; FeSO<sub>4</sub> – rapidly brown. **Spores** 6.2–7.65(–7.9) × 5.1–6.3 μm (n = 40, 7.22 ± 0.53 × 5.91 ± 0.39 μm), Q = 1.09–1.28, subglobose to broadly ellipsoid, hyaline, asymmetric; ornamentation and spore wall amyloid, up to 0.6–1 μm high, composed of isolated irregular warts that join together to variable degree in very fine lines to form a very partial reticulum, plage inamyloid. **Basidia** 29–40 × 5.5–11 μm, cylindrical to subclavate, 2–4-spored; sterigmata 3–5 μm long. **Pleuromacrocystidia** 25–60 × 5–9 μm, moderately common to abundant, cylindrical to fusiform. **Pleuropseudocystidia** 32–48 × 7–12 μm, cylindrical, moderately abundant, apices occasionally mucronate. **Cheilomacrocystidia** 30–55 × 4–10 μm, cylindrical to subclavate with capitate apices, scattered. **Hymenophoral trama** predominantly composed of hyaline hyphae 3–6 μm diam, interwoven with abundant sinuous lactifers up to 12 μm broad; subhymenium cellular, 2–3 tiers of parenchymatous cells, 8–14 × 5–11 μm. **Pileipellis** a hypohypothelium, 2-layered: subpellis up to 100 μm thick, composed of globose to subglobose cells 8–21(–32) μm diam; suprapellis 15–50 μm thick, composed of mostly upright thin-walled hyaline hyphae, 3–4(–5) μm diam, and abundant dermatocystidia 32–63 × 8–14 μm, cylindrical to clavate, with granular contents. **Pileus context** heteromerous, with abundant sinuous laticiferous hyphae, 6–11 μm diam.

**Habit, Habitat & Distribution** — Gregarious on soil amongst eucalypt leaf litter in wet sclerophyll forest. Widely distributed from cool temperate forest in southern Australia (Vic, Tas) with *Eucalyptus regnans* and *Nothofagus cunninghamii* dominant in canopy, scattered *Acacia dealbata* and *A. melanoxylon*, with ferny understorey of *Dicksonia antarctica*, *Blechnum watsii* and *Asplenium* sp., up to subtropical eucalypt and *Lophostemon* woodland in northern Australia (NT, QLD).

**Colour illustrations.** Cool temperate rainforest dominated with *Eucalyptus regnans* and *Nothofagus cunninghamii* with scattered *Acacia* spp. and understorey of *Dicksonia antarctica* (photo G. Lay). Northern habitat of subtropical *Lophostemon* woodland; basidiomata; section through hypohypothelium pileipellis; SEM of spores. Scale bars: 10 mm; 20 μm; 5 μm.

**Typus.** AUSTRALIA, Victoria, Yarra State Forest, Big Creek Road, Ada Tree Walk, 25 Mar. 2005, J.E. Tonkin 1203 (holotype MEL 2297391; ITS and LSU sequences GenBank MN598874 and MN598855, MycoBank MB832708).

**Notes** — The overall diversity of *Lactifluus* in Australia is poorly known (May et al. 2004), perhaps in the order of 10–12 species, with only a few sections examined (i.e., *Gerardii*; Stubbe et al. 2012). The main characters used to distinguish species in *Lf.* sect. *Piperati* are the shape and ornamentation of the spores, the composition of the lamellar edge, the form of the cheilomacrocystidia and the hypohypothelium pileipellis that lacks thick-walled elements (Heilmann-Clausen et al. 1998, De Crop et al. 2014). The majority of other species in *Lactifluus* have pilei with thick-walled elements (Verbeke & Walley 2010). Two morphologically distinct species are recognised from Europe and an additional 10 or so Asian species remain to be morphologically documented and described (De Crop et al. 2014). Up until recently, no species of *Lf.* sect. *Piperati* were known to occur in South America, Africa or Australasia.

*Lactifluus albopicri* is a widespread species in eastern Australia, from Tasmania up to subtropical Queensland and into the Northern Territory, occurring in wetter forests in association with *Eucalyptus* and *Nothofagus*. *Lactifluus albopicri* resembles many of the known species from *Lf.* sect. *Piperati*, in the robust, pale coloured basidiomata, hot peppery latex, and spores with fine, low ornamentation. *Lactifluus albopicri* differs from another Australian species, *Lf. austropiperatus*, in the typically larger sporocarps, slightly darker yellowish to pale orange pileus and lamellae, larger and subglobose vs broadly ellipsoid spores with finer and lower ornamentation. *Lactifluus albopicri* sits in a well-supported clade with a single sequence from Thailand (GenBank KF220078), amongst other SE Asian clades.

**Supplementary material**

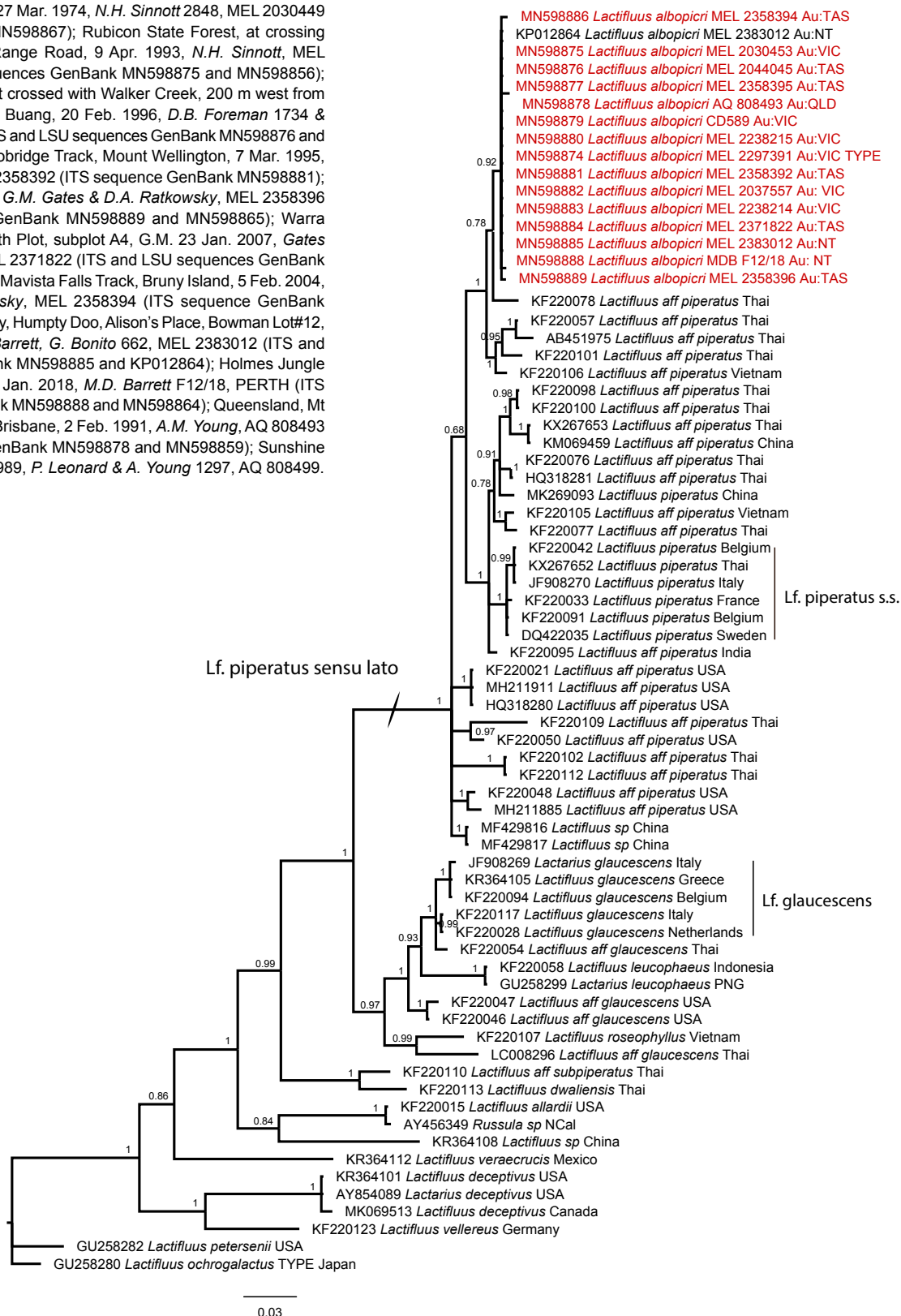
**FP1086-1** Additional materials examined.

**FP1086-2** Bayesian (MrBayes v. 3.2.6) 50 % majority-rule consensus tree of the ITS-nrDNA for a selection of *Lactifluus* species. Thickened lines indicate PP support > 0.95.

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### FP1086-1 Additional materials examined.

*Additional materials examined.* AUSTRALIA, Victoria, Marysville, Lady Talbot Drive, Myrtle Loop, The Beeches, 4 Apr. 2002, *J.E. Tonkin* 916, MEL 2238215 (ITS and LSU sequences GenBank MN598880 and MN598860); Marysville, Lady Talbot Drive, Myrtle Loop, The Beeches, 4 Apr. 2002, *J.E. Tonkin* 915, MEL 2238214 (ITS and LSU sequences GenBank MN598883 and MN598862); Whitehouse Creek, Lady Talbot Drive, Myrtle Loop Walking Track, 15 Apr. 1997, *T.W. May* 1381, MEL 2037557 (ITS and LSU sequences GenBank MN598882 and MN598861); 12 km E of Marysville, Lake Mountain, by track 50 m SE of summit, 27 Mar. 1974, *N.H. Sinnott* 2848, MEL 2030449 (LSU sequence GenBank MN598867); Rubicon State Forest, at crossing of Storm Creek and Blue Range Road, 9 Apr. 1993, *N.H. Sinnott*, MEL 2030453 (ITS and LSU sequences GenBank MN598875 and MN598856); On Ben Cairn Road, where it crossed with Walker Creek, 200 m west from road to summit of Mt Donna Buang, 20 Feb. 1996, *D.B. Foreman* 1734 & *H. Dobson*, MEL 2044045 (ITS and LSU sequences GenBank MN598876 and MN598857); Tasmania, Shoobridge Track, Mount Wellington, 7 Mar. 1995, *D.A. Ratkowsky* 1519, MEL 2358392 (ITS sequence GenBank MN598881); Waterfall Bay, 22 Jan. 2002, *G.M. Gates & D.A. Ratkowsky*, MEL 2358396 (ITS and LSU sequences GenBank MN598889 and MN598865); Warra LTER, Bird Track, Old Growth Plot, subplot A4, G.M. 23 Jan. 2007, *Gates & D.A. Ratkowsky* 2608, MEL 2371822 (ITS and LSU sequences GenBank MN598884 and MN598863); Mavista Falls Track, Bruny Island, 5 Feb. 2004, *G.M. Gates & D.A. Ratkowsky*, MEL 2358394 (ITS sequence GenBank MN598886); Northern Territory, Humpty Doo, Alison's Place, Bowman Lot#12, 22 Oct. 2014, *T. Lebel, M. Barrett, G. Bonito* 662, MEL 2383012 (ITS and ITS-LSU sequences GenBank MN598885 and KP012864); Holmes Jungle Nature Reserve, Darwin, 13 Jan. 2018, *M.D. Barrett* F12/18, PERTH (ITS and LSU sequences GenBank MN598888 and MN598864); Queensland, Mt Glorious west north-west of Brisbane, 2 Feb. 1991, *A.M. Young*, AQ 808493 (ITS and LSU sequences GenBank MN598878 and MN598859); Sunshine Coast, Peachester, 5 Mar. 1989, *P. Leonard & A. Young* 1297, AQ 808499.



FP1086-2 Bayesian (MrBayes v. 3.2.6) 50% majority-rule consensus tree of the ITS-nrDNA for a selection of *Lactifluus* species. Thickened lines indicate PP support > 0.95.