

Lasiosphaeria similisorbina



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***Lasiosphaeria similisorbina* A.N. Mill., T.J. Atk. & Huhndorf, sp. nov.**

Etymology. The specific epithet refers to the resemblance of this taxon to *L. sorbina*.

Classification — *Lasiosphaeriaceae*, *Sordariales*, *Sordariomycetes*.

Ascomata ampulliform to ovoid, papillate, 400–500 µm diam, 500–600 µm high, numerous, scattered to gregarious, superficial; young ascomata tomentose, white, tomentum becoming tightly appressed, crust-like and cream to waxy and brownish grey with age, occasionally areolate, finally tomentum wearing away and ascomata becoming black and glabrous; neck conical, glabrous, black. *Ascomatal wall* of *textura angularis* in surface view, in longitudinal section 3-layered, 36–90 µm thick, inner layer pseudoparenchymatous, 7–24 µm thick, composed of 4–6 layers of elongate, flattened, hyaline to pale brown cells, middle layer pseudoparenchymatous, 12–34 µm thick, composed of 5–8 layers of polygonal to angular, pale brown cells, outer layer prosenchymatous, 17–32 µm thick, composed of several to few layers of hyphae depending on age of ascomata, hyphae 1–3 µm wide, hyaline to pale brown, septate, thin-walled. *Ascomatal apex* with periphyses. *Centrum* with yellow pigments that quickly diffuse in water. *Paraphyses* filiform, 2–5 µm wide, longer than asci, hyaline, numerous, septate, unbranched, persistent. *Asci* cylindrical, 160–230 × 14–20 µm, stipitate, stipe 27–80(–120) × 4–5.5 µm, numerous, unitunicate, thin-walled, apex truncate; ring narrow, shallow, refractive; subapical globule typically absent, with 8, bi- to triseriate ascospores. *Ascospores* short cylindrical, ends rounded, 32–45(–50) × 5–7.5(–10) µm (39.5 ± 4 × 6 ± 0.5), allantoid to occasionally geniculate, usually aseptate, becoming up to 7-septate with age, hyaline to yellowish, occasionally containing globose, refractive oil droplets, appendages absent, occasionally producing phialides directly from the ascospores.

Culture characteristics — Colonies (of holotype and paratypes) moderately slow-growing on all media, covering the WA, CMA and PDA plates in 28 d, silky and hyaline on WA and CMA, felty and white (5A1–5A2) on PDA; margin even, appressed, hyaline on all media; reverse same as the mat. *Asexual morph*: Hyphae largely undifferentiated, 1–4 µm wide, thin-walled, hyaline. *Conidiogenous cells* phialides, abundantly produced from hyphae as single terminal phialides on WA and CMA, not seen on PDA, delimited by a basal septum, monopodial, cylindrical to lageniform, 8–15 × 1.5–5 µm at widest part, hyaline; collarette absent. *Conidia* pyriform to obclavate, truncate at base, 2.5–5.5 × 2–3 µm, hyaline.

Habitat & Distribution — Decorticated, well-decayed wood of *Freycinetia*, *Fuchsia*, *Nothofagus* and *Podocarpus* in mixed native forest. Known only from the North and South Islands of New Zealand.

Colour illustrations. Background photo of typical subtropical forest in the North Island of New Zealand; ascomata; longitudinal section through ascoma, longitudinal section through ascomal wall; ascus; ascus apex; ascospore, and phialides. Photos: Andrew Miller. Scale bars: 500 µm (ascomata), 100 µm (ascomal sections), 10 µm (all others).

Typus. NEW ZEALAND, North Island, Gisborne, Urewera National Park, Lake Waikaremoana, vic. of motor camp, Ngamoko Track, on decorticated wood, 30 May 1983, G.J. Samuels, P.R. Johnston, T. Matsushime & A.Y. Rossman, AR 1884 (holotype at BPI, isotype at ILLS, culture ex-type AR 1884-1 (isolate died before deposition), ITS-LSU GenBank sequence MF806376, MycoBank MB822647).

Additional material examined. NEW ZEALAND, North Island, Gisborne, Urewera National Park, Lake Waikaremoana, vic. of motor camp, Ngamoko Track, on decorticated wood, 30 May 1983, G.J. Samuels, P.R. Johnston, T. Matsushime & A.Y. Rossman, AR 1885 (BPI); Tongariro National Park, Erua Scarp, on 5 cm branch of decorticated, well-decayed wood in mixed podocarp-broadleaf forest, 6 Apr. 2005, A. Bell, TJA786; Rangitikei, Rangiwhia Reserve, Ruahine Forest Park, -39.8095, 176.1289, 21 May 2015, A. Bell, Herb. no. 1245 = PDD 110487 = ILLS 81090, isolates ANM Acc#874-1, -2, -3, -4, -5 (all isolates died in culture before deposition), ITS-LSU GenBank sequence MF806374; near Wellington, Rimutaka Forest Park, on log of *Freycinetia banksii*, -41.3518S, 174.9228E, 20 Jan. 2013, A.N. Miller, J.A. Miller, A. Bell & D.P. Mahoney, Herb. no. 1200 = PDD 103345 = ILLS 81088, isolates ANM Acc#617-1, -2, -3, -4, -5, -6, -7 (all isolates died in culture before deposition), ITS-LSU GenBank sequence MF806375 (as *L. sorbina* in Bell & Mahoney 2016); South Island, South Canterbury, Peel Forest, Kaihikatea Walk, on decorticated, well-decayed wood in *Podocarpus dacrydioides* forest with mixed other natives and some pasture, 26 May 2002, T.J. Atkinson, TJA144; Southland, Hokanui State Forest, on undetermined wood, 22 Apr. 1985, G.J. Samuels, P.K. Buchanan & L.M. Kohn, PDD 47762, cultures GJS 85-105 = CBS 124344 (as *L. ovina*; neither specimen nor CBS culture examined in this study), ITS sequence GenBank MF806377 kindly provided by P. Crous for use in this study; near Dunedin, Woodside Glen, on decorticated wood of 5 cm branch of *Fuchsia excorticata*, late 2005, N. Hesom-Williams, TJA212; Woodside Glen, near Outram, Otago, on wood of unidentified tree, -45.8501S, 170.1648E, 15 May 2008, A. Bell, D.P. Mahoney, Herb. no. 1044 = PDD 94223 = ILLS 81089, ITS-LSU GenBank sequence MF806373; North Canterbury, Oxford, Oxford Forest, near Eyre Stream, on bark of 4 cm branch of *Nothofagus?*, 24 Oct. 2005, Jerry Cooper, TJA907. See Appendices 2 and 3 in Atkinson (2006) for additional specimens examined.

Notes — *Lasiosphaeria similisorbina* possesses the typical characters known for the genus: tomentose ascomata containing yellow centrum pigments (Miller & Huhndorf 2004a, b). This species can be distinguished by its whitish ascomata, lack of a distinct ascal subapical globule, and short cylindrical ascospores that lack appendages. It has ascomata resembling *L. ovina*, but asci and ascospores similar to *L. sorbina*. *Lasiosphaeria ovina* has a distinct ascal subapical globule and ascospores with appendages, whereas *L. sorbina* has ascomata with greyish, pinkish or orange tomentum. Small (~2 µm diam) subapical globules are occasionally observed in water mounts of fresh material (e.g., TJA786), but these disappear in Shear's Mounting Media (Atkinson 2006). However, two collections from Leith Saddle, Dunedin (TJA927, TJA931) and one from Nelson (PDD 36624), have subapical globules that remain visible in Shear's Mounting Media. As none of these three collections have been sequenced, it is possible they represent a different taxon. *Lasiosphaeria similisorbina* is only known from New Zealand, whereas *L. ovina* and *L. sorbina* are widespread throughout north temperate regions. Whether *L. ovina* and *L. sorbina* truly exist in New Zealand awaits confirmation via molecular sequencing. See MycoBank for supplementary information.

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