

Nomenclatural novelties : Peter R. Johnston

Rhizodiscina macrospora P.R. Johnst., sp. nov.

IF 555255

Holotype PDD 49475

Ascomata 0.25–0.35 mm diam. when dry, sessile, superficial, often clustered into small groups, initially opening by several radiate cracks across the top of the ascoma, excipulum quite thick when mature, black receptacle and hymenium. Ascomata superficial with a well-developed weft of dark-walled hyphae between the ascoma and the host substrate. Ascomata in vertical section with wall up to 200 µm thick across base and up sides, comprising mostly globose cells 8–15 µm diam., walls slightly thickened, nongelatinous, mostly pale walled, but outermost 1–2 rows of cells with dark brown walls and encrusted with dark brown material, with a region of dark walled cells up to 100 µm thick in the central part of the base of the ascoma. Paraphyses 2–3 µm diam., more or less undifferentiated at apex, apex embedded in dark brown material. Asci cylindrical with rounded apex and quite thick-walled, coated across the apex with amyloid gel, 8-spored. Ascospores 21–26 × 5.5–6 (–7) µm, oblong-elliptic, more or less straight, tapering to narrow rounded ends, 1-septate, constricted slightly at central septum, wall brown, smooth.

Specimen examined: NEW ZEALAND, Northland, vic. Mangamuka Bridge, Omahuta State Forest, No. 3 Road, Waikoropupu River, -35.2331° 173.6344°, on decorticated wood, coll. G.J. Samuels (GJS 81-159), E. Horak, 15 May 1981 (holotype).

Notes: See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: macrospora, referring to the large ascospores.

Rhizodiscina purpurea P.R. Johnst., sp. nov.

IF 555256

Holotype PDD 49620

Ascomata 0.25–0.4 mm diam. when dry, sessile, superficial, cup-shaped, in tight groups, receptacle and hymenium black. Ascoma in vertical section with lower wall uniformly 40–60 µm thick across base of ascoma, lower part of wall comprising more or less globose cells 8–10 µm diam., loosely packed, with walls slightly thickened, mostly hyaline, near the margin of the apothecium, cells smaller, 4–6 µm diam., with walls brown, thickened, cells oriented at high angle to surface. Toward the centre of the ascoma there are purple crystals between some of the cells of the wall. Ascomata appear to be anchored to the host substrate with pale, thin-walled hyphae. Paraphyses 2–4 µm diam., more or less undifferentiated at apex, embedded in pale brown material, extending about 10 µm beyond asci. Asci 45–55 × 7–9 µm, more or less cylindrical, thick-walled at rounded apex, thick layer of amyloid gel covers the upper half of the ascus, 8-spored. Ascospores 8–12 × 2.5–3.5 µm, slightly constricted at the median septum, oblong elliptic, sometimes slightly curved, tapering more or less uniformly to both narrow rounded ends, walls smooth, pale brown.

Specimens examined: NEW ZEALAND, Coromandel, Kauaeranga Valley, -37.0811° 175.6520°, on decorticated wood, coll. G.J. Samuels (GJS 81-45), P.R. Johnston, J.M. Dingley, H. Thiers, 1 April 1981 (holotype); Auckland, Clevedon, Te Morehu Scenic Reserve, on decorticated wood, coll. G.J. Samuels (GJS 80-182), M.E. Lanigan, P.R. Johnston, M. Rattray, 4 Dec 1980 (PDD 49708).

Notes: Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: *purpureus* = purple, referring to the purple crystals amongst the cells near the central part of the base of the ascomatal wall.

Rhizodiscina rimosa P.R. Johnst., sp. nov.

IF 555257

Holotype PDD 45335

Ascomata 0.2–0.35 mm diam. when dry, sessile, superficial, cup-shaped, dark grey to black, receptacle darker than the hymenium, edge of the apothecium irregularly split and cracked. Dark brown anchoring hyphae across base of apothecium. Ascomata in vertical section with lower wall 20–60 µm thick across base of ascoma, narrower near ends of cup, comprising subglobose to angular cells 6–8 µm diam. becoming oriented at a high angle to the surface, cell walls dark brown, slightly thickened, outermost cells encrusted with dark brown material. Subhymenial tissue partly gelatinised. Paraphyses 2.5–3 µm diam., several septa near the rounded apex, sometimes sparingly branched near apex, extending about 10 µm beyond asci. Asci thick-walled at apex, surrounded by hymenial gel with faint amyloid reaction, 8-spored. Ascospores 11–15 × 4–5 µm, slightly constricted at the central septum, upper cell slightly wider than the lower, apex more narrowly rounded than base, wall slightly thickened, smooth, dark brown.

Specimens examined: NEW ZEALAND, Taupo, Tongariro National Park, Lake Rotopounamu, 5 min. Beach, -39.0233° 175.7337, on decorticated wood, coll. P.R. Johnston (D31), 22 Mar 1984 (holotype; ex-type culture ICMP 24333); Northland, vic. Mangamuka Bridge, Omahuta State Forest HQ, on *Podocarpus totara* bark, coll. G.J. Samuels (GJS 81-96), E. Horak, 9 May 1981 (PDD 49942); Gisborne, vic. Ruatahuna, Tarapounamu, west side of road, ridge towards Mangapae, on dead wood, coll. P.R. Johnston (D2028), B.C. Paulus, 3 Dec 2006 (PDD 91751; culture ICMP 24354).

Notes: See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: *rimosus* = cracked, referring to the small cracks and splits around the edge of the receptacle.

Sclerococcum constrictum P.R. Johnst., sp. nov.

IF 555258

Holotype PDD 49686

Ascomata 0.6–1.2 mm diam. when dry, cup-shaped, sessile, receptacle and hymenium black, erumpent from host tissue with stalk-like base extending down into host substrate. Ascoma in vertical section with wall near base up to 200 µm thick, comprising angular to globose cells 10–25 µm diam. with walls thin, hyaline, outermost layer of cells encrusted with pale brown material across outer wall. Margin of the apothecium partly separate from base by a notch, tissue at the margin of angular to short-cylindric cells 5–10 µm diam., oriented at high angle to surface of receptacle, wall thin, mostly hyaline, outermost cells encrusted with brown material. Cells in both the basal and marginal parts of the ascomatal wall red in Melzer's reagent. Paraphyses undifferentiated or slightly swollen at apex. Asci 55–65 × 7.5–8 µm, cylindric, wall thickened at apex, with dense layer of amyloid gel across apex, 8-spored. Ascospores 9.5–13 × 4–5 µm, constricted at the single median septum, tapering suddenly to narrow rounded ends, wall ornamented with fine, irregular striae, pale brown.

Specimen examined: NEW ZEALAND, Auckland, Waitakere Ranges, Huia, Parau Track, -36.9756° 174.5904°, on decorticated wood, coll. G.J. Samuels (GJS 80-140) & P.R. Johnston, 23 Oct 1980 (holotype).

Notes: See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: *constrictum* = constricted, refers to strong constriction at ascospore septum.

Sclerococcum punctisapidum P.R. Johnst., sp. nov.

IF 555259

Holotype PDD 49468

Ascomata 0.3–0.5 mm diam. when dry, cup-shaped with steep sides, sessile, erumpent from host tissue with stalk-like base extending down into host substrate, receptacle dark brown, hymenium black. Asexual conidia morphologically typical of *Sclerococcum* sometimes associated with ascomata. Ascomata in vertical section with wall near base up to 80 µm thick, comprising cylindrical cells 3–6 µm diam., oriented at high angle to receptacle surface. Cell walls mostly hyaline, slightly thickened, outermost cells thickly encrusted with dark yellow-brown material. Subhymenium of irregular, tangled cylindrical cells with pale brown walls. Paraphyses undifferentiated to barely swollen, embedded in dark brown material at apex. Asci 65–85 × 10 µm, cylindrical, wall thickened at rounded apex, amyloid gel forming a dense cap-like layer across the ascus apex, 8-spored. Ascospores 16–17 × 3.5–4.5 µm, slightly constricted at the single median septum, tapering to rounded ends, wall finely punctate, pale brown.

Specimens examined: NEW ZEALAND, Coromandel, vic. Thames, Kauaeranga Valley, -37.151047° 175.600913°, on *Rhopalostylis sapida* dead frond, coll. G.J. Samuels (GJS 83-270), R.H. Petersen, 1 May 1983 (holotype); Northland, vic. Mangamuka Bridge, Omahuta State Forest, between forest HQ & Kauri Reserve, on *Rhopalostylis sapida* dead frond, coll. G.J. Samuels (GJS 81-151), E. Horak, 14 May 1981 (PDD 49470); Coromandel, vic. Thames, Kauaeranga Valley, on *Rhopalostylis sapida* dead frond, coll. G.J. Samuels (GJS 80-135), W.B. Kendrick, April 2004 (PDD 49684).

Notes: See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: refers to *Rhopalostylis sapida* host substrate and punctate ascospore ornamentation.

Sclerococcum striatisapidum P.R. Johnst., sp. nov.

IF 555261

Holotype PDD 44266

Ascomata 0.25–0.5 mm diam. when dry, sessile, receptacle red-brown, hymenium black, erumpent from host tissue with stalk-like base extending down into host substrate. Ascoma in vertical section with wall near base up to 100 µm thick, comprising cylindrical cells 7–10 µm diam., oriented at high angle to receptacle surface, cell walls hyaline, slightly thickened, outermost cells encrusted with brown material. Ascomatal tissue becomes more disorganised at base of apothecium, where it extends down into the host substrate. Subhymenial tissue pale brown, comprising cylindrical, partly tangled hyphae. Hymenial elements coated in gel, amyloid in Lugol's iodine but no reaction with Meltzer's reagent. Paraphyses swollen, knob-like at apex, embedded in brown material. Asci 40–45 × 9–11 µm, cylindrical, wall thick at broadly rounded apex, 8-spored. Ascospores (7.5–) 10–15 × 3.5–5.5 µm, broad-elliptic, 1-septate, slightly constricted at the central septum, tapering to rounded ends, pale brown, walls finely striate.

Specimen examined: NEW ZEALAND, Auckland, Titirangi Beach Reserve, -36.9522° 174.6613°, on *Rhopalostylis sapida* dead frond, coll. G.J. Samuels (GJS 82-12), G.L. Hennebert, 27 Feb 1982 (holotype PDD 44266); Auckland, Waitakere Ranges, Cascades, -36.8904° 174.5027°, on dead frond *Rhopalostylis sapida*, coll. G.J. Samuels (GJS 80-46), W.B. Kendrick, 14 Mar 1980 (PDD 49645).

Notes: One of two species on *Rhopalostylis* fronds, the other species *S. punctisapidum* differs in having larger ascospores with punctate ornamentation. *S. striatisapidum* is unique amongst the

New Zealand species treated here in the amyloid reaction of the hymenial gel showing only with Lugol's iodine, not with Meltzer's reagent. See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: refers to *Rhopalostylis sapida* host substrate and striate ascospore ornamentation.

Sclerococcum striatum P.R. Johnst., sp. nov.

IF 555262

Holotype PDD 119538

Ascomata (0.6–) 0.8–1.3 mm diam. when dry, sessile, receptacle red-brown, hymenium black, erumpent from host tissue with stalk-like base extending down into host substrate. Ascomata in vertical section with wall near base up to 200 µm thick, comprising short-cylindric cells 8–10 µm diam., oriented at high angle to receptacle surface, with walls mostly hyaline, slightly thickened, outermost cells with walls encrusted with brown material. Yellow crystals amongst ascomatal wall tissue near margin of ascoma. Subhymenial cells cylindric, tangled, walls brown. Paraphyses swollen at apex, embedded in dark brown material. Asci 90–110 × 10–12 µm, cylindric, wall thickened at rounded apex, thin layer of amyloid gel around ascus apex, 8-spored. Ascospores (15–) 17–21 × (5.5–) 6–7 µm, slightly constricted at the single median septum, strongly striate, striae occasionally branched.

Specimens examined: NEW ZEALAND, Bay of Plenty, vic. Ruatahuna, Tarapounamu, east of road, -38.617° 176.872°, on fallen wood, coll. P.R. Johnston (D1879), B.C. Paulus, 8 Oct 2004 (holotype; ex-type culture ICMP 24346), GenBank OL709434; Northland, Waipoua State Forest, Kauri Rikker Track, along Waipoua River, coll. G.J. Samuels (GJS 82-227) et al., 31 May 1982 (PDD 44409); Northland, vic. Mangamuka Bridge, Omahuta State Forest, HQ, on decorticated wood, coll. G.J. Samuels (GJS 81-136), E. Horak, 12 May 1981 (PDD 49971); Northland, Omahuta Forest, Pukekohe Stream Tr., on *Freycinetia* sp. dead stem, coll. P.R. Johnston (D821), 14 Apr 1992 (PDD 78348, culture ICMP 24338), GenBank OL709433. Auckland, Piha, Cowan Track, on decorticated wood, coll. G.J. Samuels (GJS 83-135), A.Y. Rossman, 4 Jun 1983 (PDD 46317); Auckland, Waitakere Ranges, Cowan Track, on decorticated wood, coll. G.J. Samuels (GJS 83-35) et al., 27 Apr 1983 (PDD 46844); Auckland, Wellsford, Waiwhiu Valley, on decorticated wood, coll. G.J. Samuels (GJS 81-162) et al., 6 Jun 1981 (PDD 49479); Auckland, Waitakere Ranges, Cascade Track, on decorticated wood, coll. G.J. Samuels (GJS 81-369), P.R. Johnston (PDD 49536); *ibid.*, coll. G.J. Samuels (GJS 81-26), P.R. Johnston (PDD 49607); Auckland, Waitakere Ranges, Huia, Parau Track, on decorticated wood, coll. G.J. Samuels (GJS 80-146), P.R. Johnston, 23 Oct 1980 (PDD 49691); Auckland, Clevedon, Te Morehu Scenic Reserve, on decorticated wood, coll. G.J. Samuels (GJS 80-179) et al., 24 Dec 1980 (PDD 49705). Gisborne, Te Urewera, Tarapounamu, on decaying wood, coll. P.R. Johnston, 9 Jun 2004 (PDD 81379); Gisborne, Te Urewera, just before Te Waiiti, on decaying wood, coll. P.R. Johnston, 14 Oct 2003 (PDD 81744); *ibid.*, coll. B. Paulus (BCP 759), P.R. Johnston, 10 Oct 2004 (PDD 87820). Westland, Westland National Park, Fox Glacier, Lake Matheson, on decorticated wood, coll. G.J. Samuels (GJS 83-236) et al., 7 Apr 1983 (PDD 46437).

Notes: *S. striatum* is macroscopically distinctive, with a reddish receptacle when dry. The ascomatal wall tissue contains copious yellow crystals near the margin of the ascoma; these crystals dissolving in KOH. The amyloid gelatinous cap is less well developed than for most of the other New Zealand species. See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: refers to the strongly-developed striate ornamentation on the ascospore wall.

Sclerococcum tardum P.R. Johnst., sp. nov.

IF 555263

Holotype PDD 91756

Ascomata 0.5–1 mm diam. when dry, sessile, erumpent from host tissue with stalk-like base extending down into host substrate, receptacle and hymenium black. Conidia of the what could be the asexual state present on host surface adjacent to the apothecia, comprising globose, thick-walled cells 5–7 µm diam., aggregated into small clumps or short chains. Ascomata in vertical section with wall up to 100 µm across base, narrower to the margin, comprising short-cylindric to angular cells 6–10 µm diam., oriented at high angle to receptacle surface, walls slightly thickened, mostly encrusted with brown material. Near centre of ascoma, stalk-like tissue comprising cylindric cells 3–5 µm diam., with walls thin, hyaline. Paraphyses septate near apex, apical cells swollen, embedded in dark brown material. Asci 65–90 × 12–15 µm, cylindric, wall thick at broadly rounded apex, amyloid gel forming a cap-like layer across ascus apex, 8-spored. Ascospores 14.5–17 × 5–6 µm, tapering to rounded ends, slightly constricted at the single median septum (septum forms late in ascospore development), wall finely rugose.

Specimens examined: NEW ZEALAND, Gisborne, vic. Ruatahuna, Tarapounamu, near top of ridge above Te Waiiti, -38.6234° 176.9784°, on decorticated wood, coll. P.R. Johnston (D2036), B.C. Paulus, 4 Dec 2006 (holotype; ex-type culture ICMP 24355), GenBank OL709435; Mid Canterbury, Mt Hutt, on *Nothofagus solandri* fallen wood, coll. J.A. Cooper (JAC13187), 2 Feb 2014 (PDD 105454), GenBank MK432753.

Notes: Distinctively, the ascospores of *S. tardum* form a septum later in ascospore maturation than other species (e.g. *S. striatum*). See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: *tardum* = late, refers to delayed development of ascospore septum.

Sclerococcum tortum P.R. Johnst., sp. nov.

IF 555264

Holotype PDD 91758

Ascomata 0.3–0.8 mm diam. when dry, sessile, erumpent from host tissue with stalk-like base extending down into host substrate, receptacle and hymenium black. Ascomata in vertical section with wall up to 60 µm across base, narrower to the margin, comprising cylindric cells 5–10 µm diam., oriented at high angle to receptacle surface, walls slightly thickened, mostly hyaline, outermost 1–2 rows of cells pale brown, outermost wall thickly encrusted with brown material. Near centre of ascoma, stalk-like tissue comprising cylindric cells 3–5 µm diam. cells, with walls hyaline, thickened. Paraphyses septate near apex, apical cell swollen, encrusted with brown material. Asci 55–60 × 10–12 µm, cylindric, wall thick but otherwise undifferentiated at apex, thick cap of amyloid gel coating the ascus apex, 8-spored. Ascospores (13–) 15–18 × 3.5–4.5 µm, slightly constricted at the single median septum, tapering suddenly to narrow rounded ends, wall ornamented with fine, irregular longitudinal striae, pale brown.

Specimens examined: NEW ZEALAND, Gisborne, vic. Ruatahuna, Tarapounamu, west side of road, ridge towards Mangapae, -38.623680° 176.868126°, on dead wood, coll. P.R. Johnston (D2025), B.C. Paulus. 3 Dec 2006 (holotype; ex-type culture ICMP 24353), GenBank OL709432; Auckland, Clevedon, Te Morehu Scenic Reserve, on decorticated wood, coll. G.J. Samuels et al. (GJS 80-183), 4 Dec 1980 (PDD 49709). Coromandel, Kuaeranga Valley, on decort. wood, coll. G.J. Samuels et al. (GJS 81-42), 1 April 1981 (PDD 49618). *ibid*, coll. G.J. Samuels (GJS 80-133) & W.B. Kendrick, April

1980 (PDD 60508). Gisborne, Lake Waikaremoana, Ngamoko Track, on *Beilschmiedia tawa* dead wood, coll. G.J. Samuels et al. (GJS 83-174), 30 May 1983 (PDD 46351). Wellington, Lower Hutt, Kelson, on decayed decorticated wood, coll. D.P. Mahoney, 24 Sept 2021 (PDD 117259).

Notes: Morphologically *Sclerococcum tortum* is similar to published descriptions of *S. stygium* (e.g. Hosoya 2005, as *Dactylospora stygia*) although with slightly narrower ascospores. The ITS sequence of *S. tortum* is only an 87% match to GenBank accessions identified as *S. stygium*. See Manaaki Whenua – Landcare Research Datastore page <https://doi.org/10.7931/f9fj-y472> for a key to the species treated here, phylogeny, images, and additional notes.

Etymology: *tortum* = twisted, braided, refers to the arrangement of the striate ornamentation on the spore walls, irregularly twisted and branched along the long axis of the spore, recalling the braided river beds of southern Aotearoa.