Cochlearomyces eucalypti
**Cochlearomycetaceae** Crous, fam. nov.

Classification — *Cochlearomycetaceae, Helotiales, Leotiomycetes.*

*Mycelium* immersed, dark brown, branched, septate. *Coelomycetous conidiomata* infundibuliform to nidulariaceous, superficial, separate, dark brown to black, sessile; basal wall several cells thick, of dark brown *textura angularis* cells thick, of dark brown periclinal wall one cell thick, of vertically elongated thick-walled, brown *textura prismaticata*. *Conidiophores* 1–2-septate, hyaline, sparingly branched, restricted to the base of the conidioma. *Hyphomycetous conidiomata* solitary, erect, dark brown, appearing as upside-down teaspools; synnemata dark brown, smooth, base lobate, with rhizoids; basal cells dark brown, verruculose, subglobose; synnematal stalk consisting of 6–20 hyphal elements, with ellipsoid conidiogenous region; hyphal elements continuing above conidiogenous region, mostly aggregated, but at times separating into two stalks, ends subobtuse. *Conidiophores* aggregated in ellipsoid brown conidiogenous zone, arising from roughened inner cells, becoming hyaline, smooth, subcylindrical, branched, septate. *Conidigenous cells* terminal and intercalary, doliiform to subcylindrical to lageniform, phialidic. *Conidia* solitary, asperate, hyaline, smooth, cylindrical, straight with obtuse ends. **Type genus.** *Cochlearomyces*. MycoBank MB823461.

Notes — *Cochlearomycetaceae* includes *Cochlearomyces* and the genus *Satchmopsis*, which is based on *S. brasiliensis* (holotype Brazil Minas Gerais, Vígoça, on leaf of *Eucalyptus paniculata*, 18 Dec. 1973, C.S. Hodges; holotype IMI 181534c. Epitype designated here, **C.**, on Eucalyptus leaf litter, Feb. 2004, M.J. Wingfield, CBS H-18048, MBT379399; cultures ex-epitype CPC 10972–10974; see Crous et al. 2006).

**Cochlearomyces** Crous, gen. nov.

Etymology. Name refers to the conidiophores that appear as inverted spoons.

*Synnemata* solitary, at times in small clusters, erect, dark brown, somewhat flexuous, appearing as inverted spoons under the dissecting microscope; synnemata dark brown, smooth, base lobate, with rhizoids; basal cells dark brown, verruculose, subglobose; synnematal stalk consisting of 6–20 hyphal elements, with ellipsoid conidiogenous region; hyphal elements continuing above conidiogenous region, mostly aggregated, but at times separating into two stalks, ends subobtuse. *Conidiophores* aggregated in ellipsoid brown conidiogenous zone, arising from roughened inner cells, becoming hyaline, smooth, subcylindrical, branched, septate. *Conidigenous cells* terminal and intercalary, doliiform to subcylindrical, phialidic. *Conidia* solitary, asperate, hyaline, smooth, cylindrical, straight with obtuse ends. **Type species.** *Cochlearomyces eucalypti* Crous. MycoBank MB823365.

**Cochlearomyces eucalypti** Crous, sp. nov.

Etymology. Name refers to *Eucalyptus*, the host genus from which this fungus was collected.

*Synnemata* solitary, at times in small clusters, erect, dark brown, somewhat flexuous, appearing as inverted spoons under the dissecting microscope; synnemata dark brown, smooth, base lobate, 20–40 μm diam, with rhizoids; basal cells dark brown, verruculose, subglobose, 5–7 μm diam, giving rise to dark brown hyphae, 4–5 μm diam, verruculose, septate; in culture these hyphae become hyaline, but encased in a mucoid sheath; synnematal stalk consisting of 6–20 hyphal elements, stalk 10–15 μm diam at base, 200–300 μm long, with ellipsoid conidiogenous region 120–150 μm from base, 50–80 μm diam, with roughened brown, thick-walled obtuse cells (3–5 μm) forming a lobate margin; hyphal elements continuing above conidiogenous region, 50–100 μm long, mostly aggregated, but at times separating into two stalks, ends subobtuse, 2 μm diam. *Conidiophores* aggregated in ellipsoid brown conidiogenous zone, arising from roughened inner cells, becoming hyaline, smooth, subcylindrical, branched, 1–3-septate, 12–20 × 2.5–3.5 μm. *Conidigenous cells* terminal and intercalary, doliiform to subcylindrical, tapering to phialidic apex with periclinal thickening, 5–7 × 2–3 μm. *Conidia* solitary, asperate, hyaline, smooth, cylindrical, straight with obtuse ends, (10–)12–13(–15) × 1.5(–2) μm in vivo, 8–10 × 2 μm in vitro, with 1–2 small guttules.

*Colour illustrations.* Silvan Reservoir Park; conidiophores (scale bars = 80 μm), conidiogenous cells and conidia (scale bars = 10 μm).

Culture characteristics — Colonies white on SNA, creamy on OA, with sienna inner region due to sporulation, reaching 30 mm diam after 1 mo at 25 °C; aerial mycelium absent, margins smooth, even.

**Type.** Australia, Victoria, Melbourne, Dandenong Ranges, Silvan Reservoir Park, leaf litter of *Eucalyptus obliqua* (Myrtaceae), 1 Dec. 2016, P.W. Crous (CBS H-23076, cultures ex-type CPC 33951 = CBS 142022, ITS and LSU sequences GenBank MG386025 and MG386081, MycoBank MB823366).

Notes — Among the genera of hyphomycetes presently known (Seifert et al. 2011), *Cochlearomyces* is unique in having erect, brown synnemata that form a shield, bearing phialides that give rise to aseptate, cylindrical conidia. *Cochlearomyces* clusters close to, but is morphologically quite distinct from, *Claussenomyces* and *Satchmopsis*, two genera with turbinate sporocarps (Crous et al. 2006, Medardi 2007).

Based on a megablaster search using the ITS sequence, the closest matches in NCBI's GenBank nucleotide database were *Holwaya mucida* (GenBank DQ257357; Identities = 504/545 (92 %), 7 gaps (1 %)), *Patinella hyalophaea* (GenBank KT876978; Identities 503/548 (92 %), 12 gaps (2 %)) and *Flagellospora curvula* (GenBank KC834045; Identities 500/548 (91 %), 8 gaps (1 %)). The highest similarities using the LSU sequence were *Claussenomyces prasinulus* (GenBank KX090815; Identities 821/849 (97 %), 4 gaps (0 %)), *Satchmopsis brasiliensis* (GenBank DQ195789; Identities 833/868 (96 %), 4 gaps (0 %)) and *Crinula californica* (GenBank AY544680; Identities 855/895 (96 %), 8 gaps (0 %)).