

Exosporium livistonae



Fungal Planet 98 – 6 December 2011

***Exosporium livistonae* Crous & Summerell, sp. nov.**

Exosporii tiliae simile, sed conidiis minoribus, (45–)60–70(–80) × (7–)8(–10) μm, discernitur.

Etymology. Named after the host genus from which it was collected, *Livistona*.

Leaf spots subcircular, 5–10 mm diam, pale brown with dark brown border, but also covering the leaf surface as prominent leaf tip dieback, with epiphyllous sporulation. *Conidiomata* fasciculate, forming a prominent brown stroma of *textura globulosa*, giving rise to fascicles of 2–80 conidiophores that are loosely aggregated, cylindrical, unbranched, straight to flexuous, olivaceous brown, finely verruculose throughout, basal cell somewhat swollen, up to 10 μm diam, walls 0.5 μm thick, 5–12-euseptate, 100–200 × 4–6 μm. *Conidiogenous cells* terminal and lateral, finely verruculose, olivaceous brown, integrated, proliferating sympodially, 15–70 × 4–6 μm; loci prominent, extending up to 1 μm diam, thickened, darkened, circular, 3–4 μm diam, with central pore, 0.5 μm diam. *Conidia* solitary, uniformly olivaceous brown and finely verruculose, 5-distoseptate, wall 2–3 μm thick; widest at second septum from base, septa with visible pore, tapering to subobtusely rounded apex; basal cell truncate, tapered towards hilum, thickened, darkened, 3–3.5 μm diam, somewhat protruding from conidial body, (45–)60–70(–80) × (7–)8(–10) μm.

Culture characteristics — (in the dark, 25 °C, after 2 wk): Colonies after 2 wk on all media reaching 30 mm diam, with sparse aerial mycelium and feathery, lobate margins. On malt extract agar surface folded, erumpent, pale mouse-grey to olivaceous grey. On oatmeal agar olivaceous grey, and on potato-dextrose agar olivaceous grey with reddish pigment diffusing into the agar.

Typus. AUSTRALIA, Northern Territory, Litchfield National Park, on leaves of *Livistona benthamii* (*Arecaceae*), 25 Apr. 2011, P.W. Crous & B.A. Summerell, holotype CBS H-20763, cultures ex-type CPC 19357 = CBS 131313, ITS sequence GenBank JQ044427 and LSU sequence GenBank JQ044446, MycoBank MB560702.

Notes — *Exosporium* is characterised by having a stroma that gives rise to fasciculate conidiophores with sympodial proliferation, and darkened scars, each with a visible central pore. Conidia are brown, distoseptate, and have a truncate, somewhat darkened base (Ellis 1971, Seifert et al. 2011). The genus is based on *E. tiliae* (from *Tilia* in Germany) (Ellis 1961). A strain lodged in CBS as *E. tiliae* (CBS 484.77, CBS H-713, Québec, Canada) clustered in *Pleosporales*, and was shown to be a *Corynespora* species in the *C. olivacea* complex occurring on *Tilia*. *Corynespora olivacea* is commonly confused with *E. tiliae*, but is distinct by having short, 0–2-septate conidiophores with a single apical pore (Ellis 1960).

Exosporium livistonae is the first species of *Exosporium* described from *Livistona* (Taylor & Hyde 2003), given the fact that *Exosporium palmivorum* is not a member of *Exosporium* s.str. A megablast search of the NCBI's GenBank nucleotide sequence database using the ITS sequence of *E. livistonae* retrieves as closest hits *Mycosphaerella brassicicola* (*Capnodiales, Mycosphaerellaceae*; GenBank EU167607; Identities = 457/528 (87 %), Gaps = 30/528 (6 %)) and *Pseudocercospora ocimicola* (*Capnodiales, Mycosphaerellaceae*; GenBank GU214678; Identities = 461/533 (86 %), Gaps = 35/533 (7 %)), amongst others. A megablast search of the NCBI's GenBank nucleotide sequence database using the LSU sequence of *E. livistonae* retrieves as closest hits *Mycosphaerella marksii* (*Capnodiales, Mycosphaerellaceae*; GenBank GU214447; Identities = 896/933 (96 %), Gaps = 6/933 (1 %)), *Mycosphaerella dearnessii* (*Capnodiales, Mycosphaerellaceae*; GenBank GU214663; Identities = 897/935 (96 %), Gaps = 6/935 (1 %)) and *Mycosphaerella elaeocarp* (*Capnodiales, Mycosphaerellaceae*; GenBank EU040212; Identities = 876/914 (96 %), Gaps = 8/914 (1 %)), amongst others. However, nucleotide sequences representing *Exosporium stylobatum* (strain CBS 160.30; ITS sequence GenBank JQ044428, LSU sequence GenBank JQ044447) and *Corynespora olivacea* (as *Exosporium tiliae*) (strain CBS 484.77; ITS sequence GenBank JQ044429, LSU sequence GenBank JQ044448) blasted with genera in *Pleosporales* and predominantly those belonging to *Massarinaceae* (see phylogenetic tree). No taxa resembling *Exosporium* in morphology have thus far been reported from *Mycosphaerellaceae* (Crous 2009), and thus this taxon appears to represent a novel genus.

Colour illustrations. *Livistona benthamii* in Litchfield National Park; fascicle of conidiophores; conidiophores giving rise to conidia (note base and scars at apex); conidia. Scale bar = 10 μm.

Pedro W. Crous & Johannes Z. Groenewald, CBS-KNAW Fungal Biodiversity Centre, P.O. Box 85167, 3508 AD Utrecht, The Netherlands; e-mail: p.crous@cbs.knaw.nl & e.groenewald@cbs.knaw.nl
Brett A. Summerell, Royal Botanic Gardens and Domain Trust, Mrs. Macquaries Road, Sydney, NSW 2000, Australia; e-mail: Brett.Summerell@rbgsyd.nsw.gov.au