
Phaeococcomyces eucalypti

Fungal Planet 133 – 20 December 2012

Phaeococcomyces eucalypti Crous & R.G. Shivas, *sp. nov.*

Etymology. Named after the host genus from which it was isolated, *Eucalyptus*.

Colonies lacking mycelium but consisting of a globular mass of chlamydospore-like cells; cells aseptate, brown (hyaline when young), 4–8 µm diam, verruculose, covered in mucus, globose, thick-walled, remaining attached to one another through younger end cells at colony margin, which detach during slide preparation; ellipsoid to globose, hyaline, thick-walled, covered in mucus, finely verruculose, 3–5 × 2.5–5 µm. Colonies dense, with cells remaining attached on malt extract agar (MEA), potato-dextrose agar (PDA) and synthetic nutrient-poor agar (SNA), but on oatmeal agar (OA) colonies form profuse amounts of mucous and appear looser with cells forming smaller clusters, and many conidia separate from one another; conidia also darker brown, and have a thicker wall and are more verruculose than on other media.

Culture characteristics — (in the dark, 25 °C after 3 wk): Colonies erumpent, spreading, surface folded, lacking aerial mycelium, and margins with lobate, irregular margins, reaching 25 mm diam. On MEA, PDA and OA, iron-grey, slimy.

Typus. Australia, Queensland, Anderson Park Botanic Garden, Townsville, S19°17'28.5" E146°47'13.5", on leaf litter of *Eucalyptus* sp., together with ascomata of *Thyriopsis sphaerospora,* 5 Aug. 2009, *P.W. Crous*, holotype CBS H-21091, cultures ex-type CPC 17606 = CBS 132526, ITS sequence GenBank KC005769, LSU sequence GenBank KC005791, MycoBank MB801769.

Colour illustrations. Giant *Eucalyptus* tree in Anderson Park Botanic Garden, Townsville; colonies on PDA; colony sporulating in culture, forming brown melanised cells, and small, ellipsoid, hyaline conidia. Scale bars = 10 µm.

Notes — *Phaeococcomyces eucalypti* was isolated while trying to culture *Thyriopsis sphaerospora*, a foliar leaf pathogen of eucalypts that is known from South Africa, South America (Brazil, Chile) (Park et al. 2000) and Australia. Ascospores of *T. sphaerospora* germinate (on MEA and PDA), but die soon afterwards, which is probably due to its biotrophic growth habit. Colonies of *Phaeococcomyces eucalypti* started growing from an ascoma with a portion of host tissue that was plated onto malt extract agar. The logical inference that *P. eucalypti* represents the yeast phase of *T. sphaerospora*, is highly unlikely, as *T. sphaerospora* appears to be an obligate pathogen, with ascomata occurring on green, healthy leaf tissue. *Phaeococcomyces eucalypti* clusters among unidentified species of *Dothideomycetes* (rock fungi), and is allied to *P. nigricans*, although it has smaller conidia (de Hoog 1977).

Based on a megablast search of NCBIs GenBank nucleotide database, only more distant hits were obtained using the ITS sequence, e.g. with *Umbilicaria rigida* (GenBank AF096212; Identities = 457/533 (86 %), Gaps = 35/533 (7 %)), *Endoconidioma populi* (GenBank AY604526; Identities = 454/537 (85 %), Gaps = 33/537 (6 %)) and *Phaeococcomyces nigricans* (GenBank AY843154; Identities = 432/509 (85 %), Gaps = 18/509 (4 %)). Closest hits using the LSU sequence had highest similarity to '*Dothideomycetes* sp. TRN 452' (GenBank GU323985; Identities = 805/812 (99 %), Gaps = 0/812 (0 %)), '*Dothideomycetes* sp. TRN 456' (GenBank GU323986; Identities = 788/812 (97 %), Gaps = 0/812 (0 %)) and *Phaeococcomyces nigricans* (GenBank AF050278; Identities = 830/860 (97 %), Gaps = 2/860 (0 %)).

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