

Cadophora antarctica



Fungal Planet 627 – 20 December 2017

Cadophora antarctica Rodr.-Andrade, Stchigel, Mac Cormack & Cano, *sp. nov.*

Etymology. Named after the locality where it was collected, Antarctica.

Classification — *Incertae sedis*, *Helotiales*, *Leotiomyces*, *Pezizomycotina*.

Mycelium composed of hyaline to olivaceous brown, smooth to verrucous, thin- to thick-walled, septate, anastomosing hyphae, 2–4 µm wide. *Conidiophores* mostly reduced to a short chain of ramoconidia on a scar, laterally or terminally disposed on a recurved or compressed coiled hyphae, rarely well-developed, simple, stalked, erect or decumbent, up to 200 µm long, up to 4 µm broad. *Ramoconidia* holoblastic, 0(–1)-septate, brown to dark brown, sometimes inequilaterally coloured, with one side darker than the opposite, in longitudinal chains of up to six, smooth- and thick-walled, lemon-shaped, flask-shaped, clavate or nearly cylindrical, 5–13 × 2–4 µm, with one basal and up to four apical scars. *Conidia* holoblastic, aseptate, brown to dark brown, inequilaterally coloured, with one side darker than the other, disposed in long, simple or ramified chains, with up to four small-sized scars, smooth- and thick-walled, mostly broadly lens-shaped but inequilateral due to one side being more flattened than the other, 4–5 × 3–4 µm.

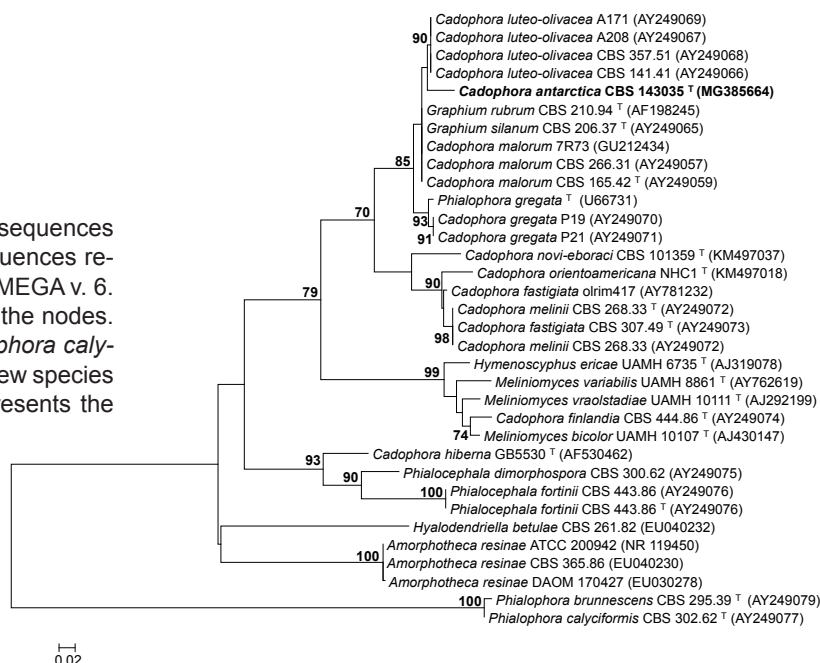
Culture characteristics — Colonies on MEA after 3 wk at 15 °C reaching 52–54 mm diam, velvety, zonate, successively pale grey (1D1), dark brown (6F4), medium grey (1E1), dark grey (1F1), pale grey (1B1) and greyish brown (5E3) from the centre towards the edge; exudates absent; diffusible pigment absent; sporulation abundant; reverse successively greyish orange (5B3), greyish brown (5E2), grey (7E1) and orange white (5A2) from the centre towards the edge. *Colonies* on OA after 3 wk of incubation at 15 °C 44–45 mm diam, flat, floccose at the

centre, greyish brown (6D3) at the centre and brownish orange (5C4) at the edge; exudates absent; diffusible pigment absent; sporulation sparse; reverse greyish brown (6D3) at the centre and pale grey (1D1) at the edge. Minimum temperature of growth, 5 °C; optimum temperature of growth, 15 °C; maximum temperature of growth, 25 °C.

Typus. ANTARCTICA, South Shetland archipelago, King George Island, near to Carlini's Argentinean scientific base, from a diesel-contaminated soil sample, 11 Jan. 2011, A.M. Stchigel (holotype CBS H-23211, cultures ex-type CBS 143035 = FMR 16056; ITS and LSU sequences GenBank MG385664 and MG385663, MycoBank MB822232).

Notes — *Cadophora antarctica*, recovered from a soil sample contaminated with diesel in King George Island (Antarctica), displays the typical features of a psychrotrophic organism: it has an optimal temperature of growth at 15 °C and is not able to grow above 25 °C. *Cadophora antarctica* differs from all previously known species of the genus (Gramaje et al. 2011, Travadon et al. 2014), displaying holoblastic conidiogenesis, forming conidiophores morphologically similar to cladosporium-like taxa. Based on a megablast search of NCBI's GenBank nucleotide database, the closest hit using the ITS sequence is with the ex-type strain of *Cadophora luteo-olivacea* (CBS 141.41, GenBank AY249066; Identities = 493/513 (97 %), Gaps 2/513 (0 %)); and using the LSU sequence it is with the same strain of *Cadophora luteo-olivacea* (GenBank AY249081; Identities = 533/541 (98 %), no gaps). Our ITS phylogenetic tree corroborated the placement of our isolate as a new species of the genus *Cadophora*, phylogenetically closely related to *Cadophora luteo-olivacea*.

Maximum likelihood tree obtained from the DNA sequences dataset from the ITS region of our isolate and sequences retrieved from GenBank. The tree was built by using MEGA v. 6. Bootstrap support values ≥ 70 % are presented at the nodes. *Phialophora brunnescens* CBS 295.39 and *Phialophora calyciformis* CBS 302.62 were used as outgroup. The new species proposed in this study is indicated in **bold**. † represents the ex-type strains.



Colour illustrations. Typical landscape of King George Island (South Shetland archipelago, Antarctica); colonies growing on different culture media (OA, PDA and MEA at 15 °C, and MEA at 5 °C; top picture); conidiophores and conidia. Scale bars = 10 µm.

Ernesto Rodríguez-Andrade, Alberto M. Stchigel, José F. Cano-Lira & Josep Guarro, Mycology Unit, Medical School and IISPV, Universitat Rovira i Virgili (URV), Sant Llorenç 21, 43201 Reus, Tarragona, Spain;
 e-mail: dc.ernesto.roan@outlook.com, albertomiguel.stchigel@urv.cat, jose.cano@urv.cat & josep.guarro@urv.cat
 Walter P. Mac Cormack, Departamento de Microbiología Ambiental y Ecofisiología, Instituto Antártico Argentino, Buenos Aires, Argentina;
 e-mail: wmac@ffyb.uba.ar