
Custingophora blanchettei

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Custingophora blanchettei Marinc., Z.W. de Beer, M.J. Wingf., C.A. Perez, *sp. nov*.

Etymology. Named for Prof. Robert A. Blanchette, recognising his important contributions to the study of wood inhabiting fungi.

Conidiophores abundant on MEA, macronematous, mononematous, upright, mostly intercalary, single or infrequently in small groups, arising from rhizoid foot cells, 67–310 µm tall. *Stipes* straight, single, mostly unbranched or rarely branched by successive growing from the inflated apex measuring 32–250 µm in length, gradually tapering towards the top and becoming inflated at the extreme apex on which a cluster of 10–15 phialides are borne, becoming sinuous at the upper 1/3 to 1/2, evenly pigmented or becoming paler towards the apex when young, smooth, 2–19-septated, 55–297 µm tall, 4.5–8 µm wide at the base, 3.5–6 µm wide at the apex. *Conidiogenous cells* monophialidic, monoverticilliate, cylindrical to obovoid, aseptate, pigmented, with distinct collarettes, 10.5–18.5 µm long, 3–4.5 µm wide. *Conidia* hyaline, oblong, aseptate, straight or curved, one end often truncated or tapered, (8.5–)10–10.5(–12.5) × (2.5–)3(–3.5) µm, produced in slimy droplets. *Ascomata* abundant, mostly superficial or bases partly imbedded in host tissue; *bases* subglobose, 96–179 × 79–148 µm, black to dark brown, peridium of *textura angularis*; *ostiolar necks* straight or slightly curved, dark brown becoming paler at the tip, without distinct ostiolar hyphae, 294–544 µm long, 24–38 µm wide at the base, tapering towards the apex, 12–20 µm wide. *Asci* not observed. *Ascospores* hyaline, fusiform, aseptate, pointed at both ends, straight or curved, 7.5–11 × 2–2.5 µm (in 2 % KOH), with residues of gelatinous sheath visible.

Culture characteristics — Colonies on 2 % malt extract agar fertile, showing the best growth at 25 °C in the dark reaching 80 mm in 21 d, growing circular with entire edge, flat, with vegetative hyphae mostly submerged and a layer of upright conidiophores developing in a circle, resulting in the colony appearing olivaceous-brown.

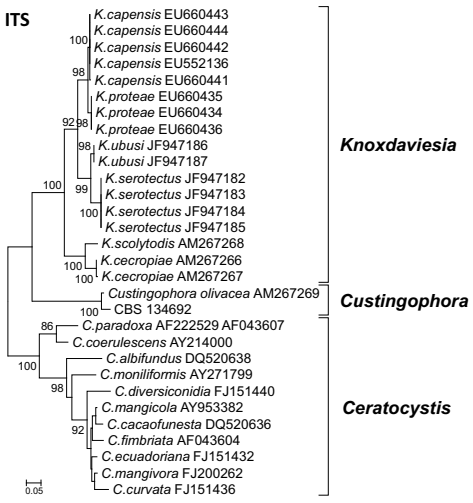
Typus. Uruguay, near Maldonado, on soft wood of a *Phytolacca dioica* (*Phytolaccaceae*), Oct. 2012, *M.J. Wingfield & C.A. Perez* (holotype PREM 60874, culture ex-holotype CBS 134692 = CMW 39052, isotype PREM 60875, cultures ex-isotype CBS 134693 = CMW 39053, CMW 39000–39002, 39054, ITS sequence of CBS 134692, GenBank KF680045 and LSU sequence of CBS 134692, GenBank KF680046, MycoBank MB805540).

Notes — The genus *Custingophora* was erected for *Cus. olivacea*, known only from its original discovery on compost in Germany (Stolk & Hennebert 1968). Subsequently three additional species were described in the genus (Morgan-Jones & Sinclair 1980, Pinnoi et al. 2003, Kolařík & Hulcr 2009). Later, Kolařík & Hulcr (2009) treated the asexual states of two *Gondwanamyces* spp. in *Custingophora*. However, de Beer et al. (2013b) concurred with Viljoen et al. (1999) and van der Linde et al. (2012) and distinguished between *Custingophora* and *Knoxdaviesia*. De Beer et al. (2013b) also applied one fungus one name principles (Hawksworth 2011, Hawksworth et al. 2011) under which *Knoxdaviesia*, the oldest name, has priority over the sexual genus *Gondwanamyces*. *Knoxdaviesia* was thus redefined to accommodate species with known sexual states previously treated in *Gondwanamyces* (de Beer et al. 2013b). Phylogenetic analyses of the ribosomal DNA sequences in the present study (ITS tree) support the separate treatment of *Custingophora* and *Knoxdaviesia* (= *Gondwanamyces*) in the *Gondwanamycetaceae* and *Microascales* (Réblovà et al. 2011, de Beer et al. 2013a).

The sexual state for the type species of *Custingophora*, *Cus. olivacea* is not known. *Custingophora blanchettei* produced ascomata abundantly on the host tissue but they were overmature and no asci or fresh ascospores were collected. The dried ascomata were scraped from the substrate and mounted in 2 % KOH. A few ascospores were obtained, and although the presence of a gelatinous sheath was evident, its exact shape could not be determined. The ascomata of *Cus. blanchettei* resemble those of *K. capensis* and *K. scolytodis* that lack ostiolar hyphae, but differ from those of *K. proteae* and *K. wingfieldii*, which have divergent ostiolar hyphae (Wingfield et al. 1988, Wingfield & van Wyk 1993, Kolařík & Hulcr 2009, Crous et al. 2012c).

Based on the current classification, *Cus. blanchettei*, is the second species in the genus, and can be distinguished from *Cus. olivacea* by its larger conidia. The ITS sequence of *Cus. blanchettei* differs in 25 bp positions from that of *Cus. olivacea*, and the two species form a well-supported lineage distinct from *Knoxdaviesia* spp. (see ITS tree). The phylogenetic distance between the two *Custingophora* species is comparable to the distance between *Ceratocystis* spp. such as *C. mangivora* and *C. curvata*, or *C. mangicola* and *C. cacaofunesta*.

Maximum likelihood tree based on sequences of the ribosomal internal transcribed spacer (ITS) regions constructed in MEGA v. 5.05 (Tamura et al. 2011). The two species of *Custingophora* differed in 25 bp positions from each other. The sequences were aligned online in MAFFT v. 7 (http://mafft.cbrc.jp/alignment/server/index.html) and the dataset consisted of 707 characters. Support values at branches were obtained from 1 000 bootstrap replicates.



Colour illustrations. *Phytolacca dioica* growing near Maldonado in Uruguay; ascomata and conidiophores on the host tissue (200 µm); ascospores (5 µm); conidiophores on MEA (50 µm); conidiogenous cells (10 µm); rhizoid foot cell (20 µm); conidia (5 µm).

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