



Fungal Planet 1021 – 18 December 2019

***Penicillium cuddlyae* Visagie & I.H. Rong, sp. nov.**

Etymology. Latin, *cuddlyae*, named after Cuddly the Dachshund; this species was isolated from her dog food.

Classification — *Aspergillaceae*, *Eurotiales*, *Eurotiomycetes*.

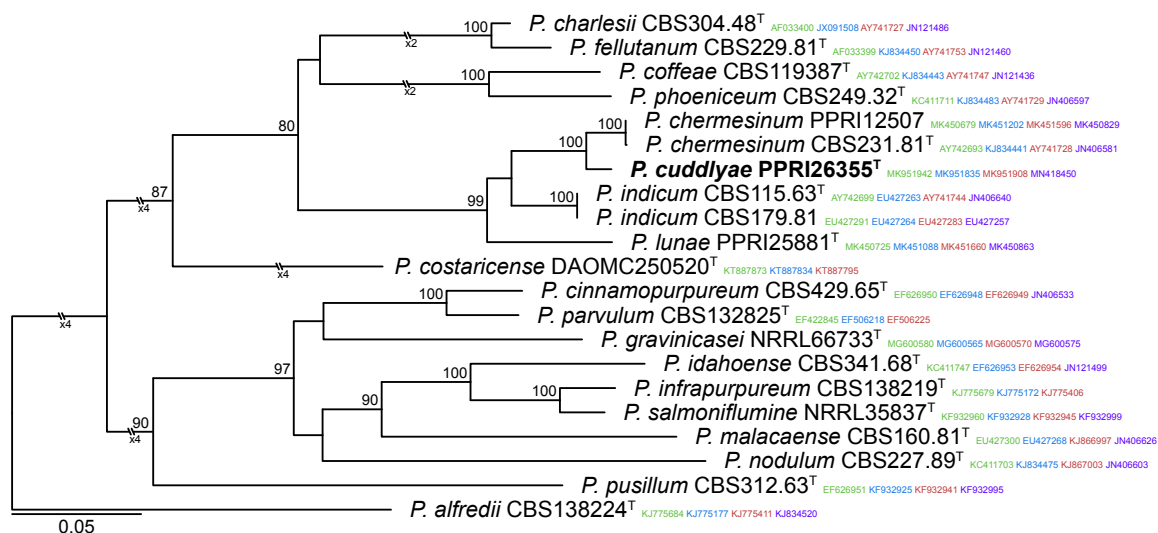
Conidiophores monoverticillate; *stipes* smooth-walled, 20–45 × 2–3 µm; *vesicle* 5–6 µm wide; *phialides* ampulliform, 10–20 per vesicle, 8–10 × 2–3 µm (9 ± 0.7 × 2.6 ± 0.2); *conidia* smooth-walled, ellipsoid, often almost appearing cylindrical, 2–3 × 2.5–2 µm (2.5 ± 0.2 × 1.8 ± 0.2), average length/width = 0.73, n = 54.

Culture characteristics (25 °C, 7 d) — On Czapek yeast autolysate agar (CYA): Colonies low, radially and concentrically sulcate, raised centrally; margins low, narrow (1 mm), entire; mycelia white to inconspicuously yellow to orange; texture floccose; sporulation very sparse, conidia *en masse* not determined; soluble pigments absent; exudates clear to orange; reverse orange to reddish orange (6A7–7A7; colour code based on Kornerup & Wanscher (1967)), orange (5A6), pale yellow (2A3). On malt extract agar (MEA): Colonies low, plain, raised centrally; margins low, wide (3 mm), entire; mycelia white; texture velutinous and floccose; sporulation sparse to moderately dense, conidia *en masse* greyish green (25B3–26B3); soluble pigments absent; exudates absent; reverse greyish orange (5B6), greyish green (30B4–C4), yellowish white (2A2). On yeast extract sucrose agar (YES): Colonies moderately deep, radially and concentrically sulcate, sunken centrally; margins low, wide (2–3 mm), entire; mycelia white, inconspicuously yellow at centre; texture floccose; sporulation sparse, conidia *en masse* greenish white (25A2); soluble pigments absent; exudates absent; reverse orange

(6A7), brownish orange (5C3), pale yellow (3A3). On dichloran 18 % glycerol agar (DG18): Colonies low, radially sulcate, raised centrally; margins low, narrow (1 mm), entire; mycelia white; texture floccose; sporulation sparse to moderately dense, conidia *en masse* greenish white (25A2); soluble pigments absent; exudates absent; reverse light orange (5A5), light yellow (3A5). On creatine sucrose agar (CREA): Colonies weak growth, no acid production. *Colony diam* (*in mm*): CYA 24–26; CYA 30 °C 31–33; CYA 37 °C 19–21; CYA with 5 % NaCl 19–20; MEAb1 21–23; DG18 24–25; YES 30–32; oatmeal agar 28–30; CREA 12–14.

Typus. SOUTH AFRICA, Gauteng Province, Pretoria, from dog food, Feb. 2019, coll. I. Rong, isol. C.M. Visagie (holotype PREM 623302, cultures ex-type PPRI 26355 = CMV016A6, LSU, ITS, *BenA*, *CaM* and *RPB2* sequences GenBank MN388754, MK951942, MK951835, MK951908 and MN418450, MycoBank MB832433).

Notes — A BLAST search against an ex-type reference sequence dataset placed the new species in *Penicillium* sect. *Charlesia* (Visagie et al. 2014). A multigene phylogeny based on ITS, *BenA*, *CaM* and *RPB2* resolves *Penicillium cuddlyae* as sister to *P. chermesinum*, *P. indicum* and the recently described *P. lunae* (Crous et al. 2019a). All four genes distinguish these species. Morphologically, *P. lunae* is the only of the three that can grow on CYA at 37 °C. Compared to *P. chermesinum* and *P. indicum*, the new species generally shows more restricted growth (especially on CYA) (Pitt 1980, Peterson et al. 2005). Microscopically they are very similar except for *P. cuddlyae* and *P. lunae* producing longer phialides (up to 10 µm vs 7–8 µm) (Pitt 1980). *Penicillium cuddlyae* produces ellipsoid conidia compared to the subglobose to broadly ellipsoid conidia of *P. lunae*.



Combined phylogeny of representative *Penicillium* species from sections *Charlesia* and *Cinnamopurpurea* based on ITS, *BenA*, *CaM* and *RPB2*. Aligned datasets were analysed in IQ-tree v. 1.6.8. Bootstrap support values (≥ 80 %) are given above branches. The new species is indicated by bold text, T = ex-type strain. GenBank accession numbers are given in a smaller font after the culture accession number (ITS = green, *BenA* = blue, *CaM* = red, *RPB2* = purple). The tree is rooted to *P. alfredii*.

Colour illustrations. Dog food pellets. Colonies on CYA and MEA; colony texture on MEA; conidiophores; conidia. Scale bars = 10 µm.

Cobus M. Visagie, Department of Biochemistry, Genetics and Microbiology, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria; and Biosystematics Division, Agricultural Research Council – Plant Health and Protection, P. Bag X134, Queenswood, Pretoria 0121, South Africa; e-mail: cobus.visagie@fabi.up.ac.za
Isabel H. Rong, Biosystematics Division, Agricultural Research Council – Plant Health and Protection, Private Bag X134, Queenswood, Pretoria 0121, South Africa; e-mail: RongI@arc.agric.za