

Aspergillus kumbius



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***Aspergillus kumbius* Pitt, sp. nov.**

Etymology. Named for the small town of Kumbia, South Burnett District, Queensland, Australia, near where this species was collected.

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

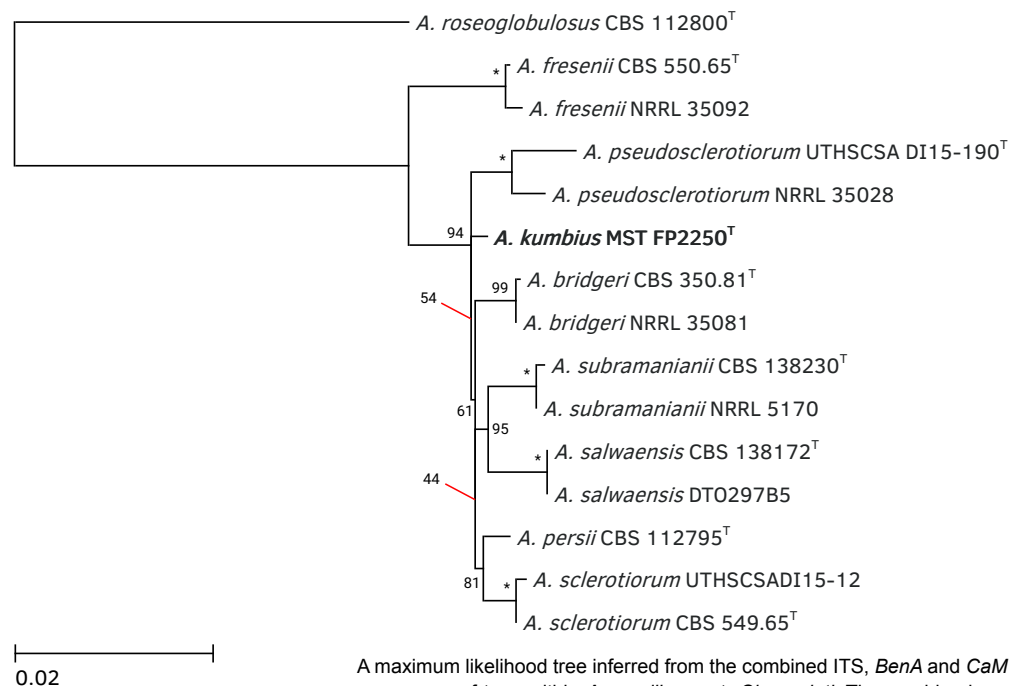
Conidiophores borne from aerial hyphae, stipes 300–400 (–600) × 5–6 µm, uncoloured to pale brown, smooth walled. **Vesicles** spherical, 15–25 µm diam, fertile over the upper hemisphere or two thirds; metulae 6–8 × 2.5–3.0 µm; phialides acerose, 7–8 × 2.0–2.2 µm. **Conidia** spherical, 2.2–2.5 µm diam, walls smooth to finally roughened, borne in disordered chains.

Culture characteristics — Czapek yeast extract agar (CYA), 25 °C, 7 d: Colonies 45–50 mm diam, plane, low and relatively sparse, lightly sulcate, velutinous; margins entire, wide; mycelium white to pale yellow; abundant sclerotia borne on the agar surface, white at first, at maturity pale orange to orange grey (M. 5A–B3), spherical or near, 400–800 µm diam; conidial production sparse, pale yellow brown (M. 4–5A3); clear to pale brown exudate produced; soluble pigment absent; reverse pale yellow. Malt extract agar (MEA), 25 °C, 7 d: Colonies 50–55 mm diam, low, plane, sparse and velutinous; margins subsurface, entire; mycelium inconspicuous, white to pale yellow brown; sclerotia moderately abundant, as on CYA except sometimes enveloped in fine white hyphae; conidial production light, yellow brown (M. 4A–B3), exudate and soluble pigment not produced; reverse uncoloured to pale orange. 25 % Glycerol nitrate agar (G25N), 25 °C, 7 d: Colonies 26–30 mm diam, of white mycelium; reverse uncoloured. 37 °C, CYA, 7 d: Colonies 6–12 mm diam, of white mycelium, reverse pale.

Media formulations are from Pitt & Hocking (2009); (M.) capitalised colours and notations are from Kornerup & Wanscher (1978).

Typus. AUSTRALIA, Queensland, Kumbia, from rhizosphere soil beneath pasture, 2004, J.I. Pitt (holotype DAR 85044, cultures ex-type FRR 6049 = MST FP2250 = CBS 146722; ITS, *BenA*, *CaM* and *RPB2* sequences GenBank MT179307, MT184782, MT184788 and MT184794, MycoBank MB835225).

Notes — *Aspergillus kumbius* belongs in *Aspergillus* subgenus *Circumdati* sect. *Circumdati*. Molecularly, it is very close to *Aspergillus bridgeri* and *A. subramanianii*. It is distinguished by rapid growth at 25 °C with abundant buff coloured spherical sclerotia. When grown on agar, liquid media or grain, *A. kumbius* displays a unique chemotaxonomic profile including kumbicins A–D, which are not present in the closely related species *A. bridgeri*, *A. subramanianii*, *A. salwaensis*, *A. persii* or *A. sclerotiorum*. *Aspergillus kumbius* also produces known metabolites asterriquinol D dimethyl ether, petromurins C and D, aspochracin, JBIR-15, and neohydroxyaspergillilic acid, compounds previously reported from other *Aspergillus* species.



A maximum likelihood tree inferred from the combined ITS, *BenA* and *CaM* sequences of taxa within *Aspergillus* sect. *Circumdati*. The combined sequence alignment was partitioned by marker; substitution models for each partition were chosen according to the Bayesian Information Criteria using ModelTest-NG v. 0.1.6 (Darriba et al. 2020). The HKY model was used for ITS sequences, K80+G4 for *BenA* and K80 for *CaM*. The tree was constructed using RAxML-NG v. 0.9.0 (Kozlov et al. 2019). Bootstrap support values are derived from 1 000 bootstrap replicates. Alignment available in TreeBASE (study S25913).

Colour illustrations. A scene of pasture near Kumbia, Queensland, similar to the one from which this species was described. Colonies grown on CYA (left) and MEA (right) for 7 d at 25 °C; fruiting structures and conidia. Scale bars = 20 µm (fruiting structures) and 5 µm (conidia).

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