
Coprinopsis afrocinerea

Fungal Planet 725 – 13 July 2018

Coprinopsis afrocinerea Mešić, Tkalčec, Čerkez, I. Kušan & Matočec, *sp. nov.*

Etymology. Named after the continent on which the type material was found and its similarity to *Coprinopsis cinerea*.

Classification — *Psathyrellaceae*, *Agaricales*, *Agaricomycetes*.

Pileus up to 28 mm wide when expanded, ellipsoid to paraboloid at first, later conical to convex, finally applanate or planoconcave with revolute margin, strongly plicate-sulcate except in the central disc, light to medium brown at centre and whitish to light brown towards the edge when young, later light grey to brownish grey except brownish to brown central disc, mostly with serrated edge at maturity. *Veil* on young pileus composed of dense, loosely adpressed hairs, easily detaching, more scattered and floccose at maturity, completely white or light rusty brown in the central zone. *Lamellae* free, moderately crowded, L = c. 45, l = c. 1–3, white at first, later grey, finally brown-black and deliquescent. *Stipe* 30–70 × 1.5–2.5 mm, central, cylindrical or gradually thickened towards the base, not rooting, hollow, dry, hairy-fibrillose at first, later hairy-floccose (more pronounced towards the base), sometimes becoming glabrous in the upper part, hairs white, underneath the surface brownish to light brown. *Odour* and *taste* not observed. *Spore print* brown-black. *Basidiospores* (250/5/3) (9.5–)10–*11.6*–13.3 × 6.8–*7.9*–9.1 µm (in KOH 2.5 %), in average (among different basidiomata) 11.3–12 × 7.7–8.1 µm, Q = (1.28–)1.35–*1.47*–1.59(–1.64), Qav = 1.43–1.5, ellipsoid to ovoid in frontal view, ellipsoid to (sub)amygdaliform in side view, with rounded to slightly conical base and rounded apex, not flattened, smooth, dark reddish brown in H_2O, dark brown in KOH, non-amyloid and non-dextrinoid, slightly transparent, thick-walled (up to 1.5 µm); germ-pore central with inner diam of 1–1.6 µm and outer diam of 2–3.5 µm, covered with disk- to plate-shaped, transparent, red-brown lid, (2.2–)2.6–3.2(–3.6) × 0.3–0.6(–0.8) µm (measured in H_2O), mostly attached to the spore in H_2O, profusely releasing from the spore surface in KOH, expanding (up to 6 µm wide) and shaped like contact lens. *Basidia* 15–30 × 8.5–11 µm, clavate, 4-spored, thin-walled, hyaline, surrounded by 3–6 hymenophysalides (pseudoparaphyses). *Cheilocystidia* probably present, but totally collapsed and unrecognizable in our material (even in young basidiomata). *Pleurocystidia* of trabecular type (anchored in two neighbouring lamellae), abundant, elongated, c. 40–100 µm long, hyaline, rather collapsed in our material (not fully recovered in KOH). *Veil cells* on the pileus 20–200 × 2.5–25(–30) µm, cylindrical to (somewhat) inflated, in chains, often constricted at the septa, with cylindrical, inflated, conical or fusiform terminal elements, not diverticulate, exceptionally with individual and simple excrescences, not branched, thin-walled (up to 0.5 µm), at the centre of the pileus sometimes moderately thick-walled (up to 0.8 µm) or rarely thick-walled at places (up to 2 µm), glabrous, less frequently finely encrusted, rarely coarsely encrusted at the centre, hyaline or pale yellow-brown at the centre. *Pileipellis* a cutis, composed of repent, hyaline, thin-walled, 1.5–25 µm wide hyphae, often constricted at septa, with narrowest hyphae on the surface. *Stipitipellis* a cutis, composed of repent, cylindrical, hyaline, thin-walled, 2–10 µm wide hyphae. *Clamp connections* present and abundant.

Colour illustrations. Heavily disturbed secondary tropical forest in vicinity of Akure, Nigeria; basidiomata (top); basidiospores (top first three in H_2O, all other basidiospores in KOH); veil on the pileus (phase contrast). Scale bars = 10 mm (basidiomata), 5 µm (basidiospores), 20 µm (veil).

Distribution & Habitat — Nigeria, Lagos and Ondo States, two localities 182 km apart; gregarious on sandy/gravel soil with some plant remnants in a courtyard (typus) and on the same substrate in a heavily disturbed secondary tropical forest (*Theobroma cacao*, *Elaeis guineensis*, *Musa* sp., *Khaya ivorensis*), and on rotten log of *Elaeis guineensis* in a courtyard; saprotrophic. India (GenBank KR155115).

Typus. Nigeria, Ondo State, 11 km NW from Akure, N07°19'28" E05°07'31", 400 m a.s.l., on soil, 21 July 2008, *M. Čerkez* (holotype CNF 1/5838, ITS and LSU sequences GenBank MG662162 and MG662158, MycoBank MB823829).

Additional material examined. Nigeria, Ondo State, 11 km NW from Akure, N07°19'28" E05°07'31", 400 m a.s.l., on soil, 21 July 2008, *M. Čerkez*, CNF 1/5836, ITS sequence GenBank MG662164; Lagos State, 6 km W from Imota, N06°39'58" E03°37'05", 50 m a.s.l., on rotten log of *Elaeis guineensis*, 4 July 2008, *M. Čerkez*, CNF 1/5811, ITS sequence GenBank MG662163.

Notes — *Coprinopsis afrocinerea* is morphologically very similar to *C. cinerea*. According to our study, the only constant morphological difference between them are the somewhat smaller basidiospores in the latter. Based on our measurement of 350 spores (from seven basidiomata, in four collections from different localities in Croatia) and data from Uljé (2005), *C. cinerea* has an average spore length less then 11 µm (9–10.9 µm) and an average spore breadth less than 7.5 µm (6.1–7.3 µm), while *C. afrocinerea* has an average spore length more than 11 µm (11.3–12 µm) and an average spore breadth larger than 7.5 µm (7.7–8.1 µm). Another difference is in their ecology. While *C. cinerea* lives on heaps of herbivorous dung (mixed with straw, grass or wood chips), on rotten straw or grass, or on other herbaceous refuse, *C. afrocinerea* was found on sandy/gravel soil with some plant remnants and on rotten wood. Another morphologically similar species is *C. annulopora* which differs by its more robust basidiomata (pileus up to 70 mm wide, stipe up to 18 mm wide), strongly rooting stipe, somewhat larger and more elongated basidiospores (average spore length more than 12.5 µm (12.8–13.2 µm) and an average Q of more than 1.6 (1.61–1.65)), and by a different substrate (heaps of herbivorous dung). The peculiar character shared by all three species is a lid covering the germ pore of the basidiospores, which only partially releases from the spores in H_2O but profusely in KOH. While *C. annulopora* was named after that structure (Enderle 2004), only some authors observed it in *C. cinerea*, at least in some collections or spores (e.g., Citerin 1994, Doveri 2004, Enderle 2004, Gierczyk et al. 2014, Bender 2017, Melzer 2017). However, they described it as annuliform bulge around a germ pore. None of them noticed that this structure was not hollow but shaped like a contact lens.

A megablast search in GenBank using the ITS sequence from holotype of *Coprinopsis afrocinerea* showed that the closest three species were *C. cinerea* (e.g., GenBank AY461825, Identities = 673/696 (97 %), 7 gaps (1 %)), *C. calospora* (GenBank GQ249275, Identities = 616/638 (97 %), 7 gaps (1 %); GenBank JX118675 (holotype), Identities = 524/534 (98 %), 3 gaps (0 %)) and *C. annulopora* (GenBank HQ847017, Identities = 624/653 (96 %), 7 gaps (1 %)). For full phylogenetic analysis, see MycoBank.

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