
Inocybe lanatopurpurea

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Inocybe lanatopurpurea Esteve-Rav. & G. Moreno, *sp. nov.*

Etymology. From Latin *lanatus* and *purpureus*, referring to the lanose veil and purple colour of the basidiomata.

Basidiomata agaricoid and stipitate. *Pileus* 10–25 mm, hemispherical convex to convex, broadly umbonate or not, slightly hygrophanous, not translucently striate, margin deflexed to straight, purple-brown to dark purple-grey (Mu 2.5YR 4/1-3) when moist, slightly pallescent on drying, then grey lilaceous at the margin (Mu 10R 4/1-3) and paler to greyish buff at the centre on drying (Mu 10R 6/1-2; 7.5YR 7/1-3); surface fibrillose to flocculose, with age often breaking into adpressed scales at the centre, in some cases squamulose to subsquarrose towards the disc, when young covered by abundant whitish fibrillose veil, breaking into individual lanose to fibrillose scales (*Cortinarius paleaceus*-like). *Lamellae* rather crowded, adnexed, broad, ventricose, pale pink lilaceous at first, then cream to brown or yellowish brown, with whitish crenulate edge. *Stipe* 10–35 × 3–5 mm, cylindrical, with rounded to slightly attenuated base, purplish to grey lilaceous to purplish red ('red wine-like'), paler or whitish towards the base, covered when young by abundant fibrillose to floccose whitish veil, apex fibrillose. *Context* whitish in the pileus, sometimes yellowish at the centre, purplish red to concolorous in the stipe (Mu 10R 5/1-3), fibrose. *Smell* slightly spermatic when cut, *taste* not recorded. *Spores* 8.5–*10*–11.3(–11.5) × 5.1–*5.6*–6 µm, Qm: 1.5–*1.75*–1.95 (n = 30), smooth, amygdaliform with oval to subpapillate apex, yellow in 5 % NH_4OH, thin-walled. *Basidia* 28–33 × 8.5–11 µm, 4-spored, clavate. *Lamella edge* sterile, composed by cheilocystidia and numerous hyaline, clavate paracystidia. *Cheilocystidia* numerous, 50–60(–65) × 10–13.5(–15) µm, fusiform to sublageniform, rather crystalliferous, sometimes filled with intracellular diffuse yellowish pigment, walls 1–2 µm thick, distinctly pale yellow to yellow (but neither bright or intense as in *Inocybe cincinnata*, i.e.) in NH_4OH. *Pleurocystidia* similar to cheilocystidia, somewhat longer, 55–65(–80) × 10–15(–18) µm. *Hymenophoral trama* regular, made up of cylindrical cells, 5–13 µm, with diffuse yellowish intracellular. *Stipitipellis* a cutis bearing numerous hyaline caulocystidioid hairs at the upper third, 5–8 µm wide, often sinuate in outline; caulocystidia absent or sparse at the extreme apex (insertion zone), similar to hymenial cystidia and hardly crystalliferous. *Clamp-connections* abundant in all tissues.

Habitat & Distribution — Known from humus of conifer forests (*Pinus pinaster*, *P. radiata*, *P. sylvestris*) in Spain, and also isolated from a *Populus tremula* ectomycorrhiza (ITS sequence GenBank FN669213) in Estonia (Bahram et al. 2011, as *Inocybe* sp. P156).

Typus. Spain, Andalucía, Jaén province, Santa Elena, road to Miranda del Rey km 4, Llano de las Américas, path to Barranco del Lobo, N38°21'8" W3°33'44", 760 m, in humus of re-forested woodland of *Pinus pinaster* and *P. radiata*, in acid soil, 30 Dec. 2013, *F. Esteve-Raventós*, *G. Moreno & J.D. Reyes* (holotype AH 40445, ITS sequence GenBank KJ432290, MycoBank MB 807747).

Colour illustrations. Llano de las Américas, Santa Elena, Jaén province, reforested forest with *Pinus pinaster* and *P. radiata*, where the holotype was collected (J.D. Reyes); basidiomata, cheilocystidia, basidia and pleurocystidium, pleurocystidium, terminal hairs at the stipe apex, spores (all from holotype). Scale bars = 1 cm (basidiomata), 10 µm (microscopic elements).

Additional specimens examined. Spain, Castilla-La Mancha, Guadalajara province, Aldeanueva de Atienza, river Pelagallinas, N41°11'34" W3°5'58", 1380 m, in humus of *Pinus sylvestris* and *P. pinaster* forest, in acid soil, 12 Oct. 2006, *F. Esteve-Raventós*, *G. Moreno*, *F. Prieto*, *F.D. Calonge*, *M.A. González & M. Heykoop*, AH 34456, ITS sequence GenBank KJ432289; Andalucía, Jaén province, Santa Elena, road to Miranda del Rey Km 4, Llano de las Américas, path to Barranco del Lobo, N38°21'8" W3°33'44", 760 m, in humus of re-forested woodland of *Pinus pinaster* and *P. radiata*, 28 Nov. 2009, *F. Esteve-Raventós & J.D. Reyes*, AH 36498, ITS sequence GenBank KJ432291.

Notes — Colour codes are taken from Munsell (1994), spore measurements are according to Heinemann & Rammeloo (1985) and terminology follows Vellinga (1988) and Kuyper (1986).

Morphologically, *I. lanatopurpurea* can be distinguished by the abundant lanose whitish veil, rather persistent upon development and forming small woolly scales on the pileus; another characteristic feature is the distinct colour, purple-brown to grey purplish or lilaceous, also present clearly in the stipe context; microscopically it shows rather narrow and fusiform cystidia, with (pale) yellow, not very thick (1–2 µm) walls. Among *Inocybe* representatives showing violet, lilac or purplish colours (section *Lilacinae*, see Heim (1931) and Bon (1997)), *I. cincinnata* differs by the brown tinged paracystidia at the lamella edge and brighter yellow cystidia wall in ammonia solutions; *I. griseolilacina* shows smaller, wider and often subcapitate cystidia and a pelargonium-like smell; *I. amethystina* is, apparently, very similar (Kuyper 1986), but the flocculose-subsquamose pileus is devoid of woolly traces of veil and the cystidia are broader (15–20 µm). In the phylogenetic tree presented here, *I. amethystina* clusters in a very different clade, as is the case of *I. griseolilacina* and *I. cincinnata* s.l. All these species do not present caulocystidia, or these are found sparsely at the extreme apex or insertion area of the stipe.

Inocybe lanatopurpurea is phylogenetically close to *I. lavandulochlora* (92 %), which exhibits lilac-violet colours in the stipe (Esteve-Raventós & Villarreal 2001) and 91 % similar to *I. chondroderma* (Matheny et al. 2013) both showing yellow colours in the basidiomata, never brown, greyish or purplish. The European *I. subnudipes* is probably related phylogenetically with these taxa, but the original description does not mention any violet, lilac or similar colour in primordial or young specimens, and type material has not been sequenced yet. At least two closely related sister lineages (98–97 % similar) can be detected, both composed of unpublished sequences produced by Berbee et al. (unpubl.). Provisional identifications in public databases were not displayed in the tree until these have been confirmed by their authors. Whether these sister lineages can be considered conspecific with that of *I. lanatopurpurea*, should be addressed through the study of these specimens. However, molecular differences seem comparable to those found between, e.g., *I. chondroderma* and *I. lavandulochlora*/*I. subnudipes*, so we choose here a conservative approach for *I. lanatopurpurea*, comprising exclusively of the type lineage. Collections studied by the authors are indicated in **bold** in the phylogenetic tree (see figure in MycoBank) for ITS sequences.

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