
Inocybe norvegica

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Inocybe norvegica Vauras & E. Larss., *sp. nov.*

Etymology. Refers to Norway where the first collection was found.

Classification — *Inocybaceae*, *Agaricales*, *Agaricomycetes*.

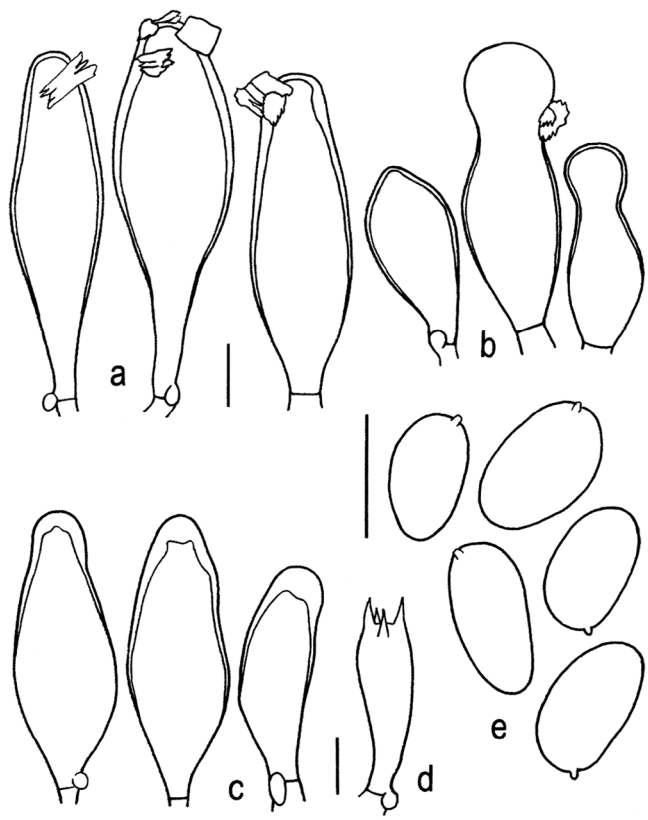
Pileus 8–17 mm diam, hemispherical, later plano-convex, sometimes indistinctly umbonate, whitish, pale brown to brown around centre, towards margin greyish brown to brown, subtomentose-smooth around centre, towards margin coarsely fibrillose, subsquamulose to recurvately squamulose, margin not rimulose, often with indistinct velipellis. *Lamellae* moderately crowded, to 4 mm broad, broadly adnate, some emarginate with decurrent tooth, at first pale greyish brown, then grey-brown, ochraceous to ochraceous brown; edge fimbriate, pale to brownish. *Stipe* 20–38 × 1–3 mm, equal to slightly bulbous but without bulb, grey-brown, brown, black-brown especially in middle part, not pruinose, longitudinally woolly-fibrillose, often coarsely so, part of fibrils silvery pale. *Cortina* greyish, rather abundant in young basidiomes. *Context* pale brown, often with reddish tint, shiny in stipe, cortex rather dark reddish brown. *Smell* faint, indistinct to slightly acidulous. *Basidiospores* (9.9–)10.5–*11.7*–12.9(–13.5) × (6.0–)6.3–*6.8*–7.4(–7.7) µm, Q = (1.5–)1.55–*1.71*–1.9(–2.0) (*n* = 140), smooth, subamygdaliform, subellipsoid to subphaseoliform, some minimally angular, with obtuse apex, often with indistinct germ-pore, rather dark, yellow-brown, rather thick-walled. *Basidia* (24–)28–*30*–35(–40) × (9–)10–*11*–13(–14) µm (*n* = 80), subclavate to clavate, 4-spored. *Pleurocystidia* (48–)54–*61*–74(–78) × (12–)13–*17*–20(–22) µm (*n* = 80), fusiform to subclavate, sometimes indistinctly capitate, with up to 2 µm thick, colourless to slightly yellow wall, crystalliferous at apex. *Cheilocystidia* (33–)35–*49*–67(–70) × (10–)11–*16*–24(–28) µm (*n* = 62), more variable than pleurocystidia, often brown. *Paracystidia* (16–)19–*23*–27(–30) × (9–)10–*13*–17(–18) µm (*n* = 21), rather scarce, often pyriform, colourless to brown. *Caulocystidia* at stipe apex only, (29–)33–*46*–58 × 10–*15*–22(–25) µm (*n* = 43), cauloparacystidia few. *Clamp connections* present.

Ecology & Distribution — Associated with *Salix* spp. and *Betula pubescens* subsp. *czerepanovii* in open areas on somewhat calcareous sandy soils. Basidiomata so far only known from the subalpine zone of Norway and alpine zone of Sweden, where it grew amongst *Salix herbacea*. In addition, ITS sequence data generated from soil samples in a locality in the alpine zone shows that it also occurs in Austria.

Typus. Norway, Hedmark, Folldal, Liamælan near Gravbekkli bru, in subalpine moor-like area on gravelly soil with *Betula pubescens* subsp. *czerepanovii*, *B. nana* and *Salix* spp., amongst mosses and lichens, 820 m a.s.l., 21 Aug. 2012, *J. Vauras* 29084F, *S. Jacobsson* & *E. Larsson* EL109-12 (holotype TUR-A 198408, ITS-LSU sequence GenBank MW617340; isotypes GB-0207604, AH, O, MycoBank MB 838947).

Additional materials examined. Norway, Troms, Storfjord, NW of Helligskogen along E8, subalpine area on gravelly ground with *Betula pubescens* subsp. *czerepanovii* and *Salix* spp., 310 m a.s.l., 20 Aug. 2017, *E. Larsson* EL172-17 and *J. Vauras*, GB-0207603, TUR-A 208752, ITS-LSU sequence GenBank MW617339; ibid., 21 Aug. 2017, *E. Larsson* & *J. Vauras*, EL193-17, GB-0207602. – Sweden, Lule lappmark, Jokkmokk, Padjelanta NP, Sorjosjaure, alpine area on calcareous ground, among *Salix herbacea*, 830 m a.s.l., 17 Aug. 2016, *J. Vauras*, TUR-A 204346, ITS-LSU sequence GenBank MW617341.

Notes — *Inocybe norvegica* belongs in the *I. lacera* group. It is a rather small species characterised by hemispherical pileus which is subsquamulose to recurvately squamulose and often with indistinct velipellis. Microscopically it shows rather dark and ellipsoid spores, often with indistinct germ-pore. *Inocybe helobia* (Kuyper 1986, Bandini et al. 2020) grows like *I. norvegica* with *Salix* and has similarly dark spores, but they are more amygdaliform and angular, and with larger average Q (1.9–2.3 vs 1.7 in *I. norvegica*). Further, it has pleurocystidia with often acute apex and thicker and mostly more yellow walls, and grows mainly in moist habitats. *Inocybe impexa* (Kuyper 1986) is another species with rather darker spores. It is stouter and has larger spores, with larger average Q (2.0–2.3). It grows on sandy seashores, but also in inland sand-pits, and even in alpine localities with *Salix herbacea.* Other smooth-spored taxa of the *Inocybe lacera* group (*I. lacera*, *I. lacera* var. *heterosperma* and *I. pluppiana*) have paler spores.



Inocybe norvegica. Drawing of micro-morphological characters from the holotype (TUR-A 198408). a. Pleurocystidia; b. cheilocystidia; c. caulocystidia; d. basidium; e. spores. Scale bars = 10 µm.

Colour illustrations. *Inocybe norvegica* habitat in the subalpine zone with *Betula pubescens* subsp. *czerepanovii* and *Salix* spp. shrubs, Folldal, Hedmark, Norway. *In situ* basidiomata and cross-sections of the holotype (TUR-A 198408); cheilocystidia and basidiospores of isotype (GB-0207604). Scale bars = 20 µm (cheilocystidia), 10 µm (spores).

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