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Nomenclatural novelties: Kare Liimatainen

**Cortinarius fulvopaludosus** Kytov., Niskanen & Liimat., sp.nov.

*IF553947*

Pileus 1.5-3 cm wide, conical to convex, with an acute umbo, yellowish brown to brown, hygrophanous. Lamellae fairly distant, broad, emarginated, pale ochraceous when young, somewhat darker with age. Stipe 5-7 cm long, 0.15-0.2 cm thick at the apex, 0.2-0.3 cm thick at the base, cylindrical, slender, whitish to honey-coloured. Universal veil very sparse, as white silky fibrils on the stipe. Exsiccatia: pileus brown, stipe silky brownish. Basidiospores 7.9-8.7-10.0 x 4.5-5.0-5.4 um, Q=1.64-1.74-1.82, (60 spores, 1 specimen), narrowly amygdaloid-fusoid, often with a very shallow suprahilar depression, finely to fairly finely, densely, evenvly verrucose, sometimes somewhat more strongly verrucose at apex, moderately dextrinoid. Lamellae trama hyphae olive yellow to olive brown in MLZ, distinctly but fairly finely scabrous. ITS sequence (GenBank MG136823, holotype) distinct from other members of subgenus Telamonia and deviating from them by at least six substitutions and indels.

Holotype H 6033460.


Etymology: The name refers to the color of the pileus and the damp habitat from where the species has been found fruiting

**Cortinarius fuscoalbus** Kytov., Niskanen & Liimat., sp.nov.

*IF553953*

Pileus 2-4(-5) cm wide, at first hemispherical, later low convex to almost plane, sometimes with a small umbo, dark reddish brown, almost blackish brown from the centre, hygrophanous. Lamellae medium spaced, very pale yellow brown to pale yellow brown. Stipe 4-8 cm long, 0.2-0.5 cm thick, cylindrical to tapering at base, at first silky whitish fibrillose, later pale reddish brown, darker at the base. Universal veil white, forming incomplete girdles on the stipe. Context in pileus brown, pale yellow brown in stipe, darker brown at the base. Basidiospores 6.8-7.2-7.7 x 3.6-3.9-4.1 um, Q= 1.71-1.84-1.96, narrowly amygdaloid, fairly finely, densely, separately verrucose, fairly slightly to moderately dextrinoid. Lamellae trama hyphae pale olive, smooth to finely scabrous. ITS sequence (GenBank MG136829, holotype) distinct from other members of sect. Atroalbi and deviating from them by at least three substitutions and indels.

Holotype S F44860.

Ecology and distribution: In mesic to damp coniferous forests. Known from Northern Europe and Eastern North America. Holotype: SWEDEN, Angermanland, Sabra, Ostersjaland, in wet mixed coniferous forest, 11 Sep 1988, Lindstrom et al. CFP 760, F44860 (S, holotype). GenBank No. MG136829. Additional specimens: CANADA. Quebec, GenBank no. KJ705137. ESTONIA. Ida-Viru, Illuka, spruce-pine paludified forest near river, 23 Oct 2006, A.Kollom, TAAM128658, Unite No. UB0016059. SWEDEN. Uppland, Uppsala, Nasten, mixed forest, 11 Sept 2005, A. Taylor (UPS), Unite No. UB002234. Note: The closely related C. atroalbus and C. roseomyceliosus have broader spores, C. atroalbus 6.8-7.3-7.7 x 4.3-4.6-4.6 um, Q= 1.50-1.60-1.70 and C. roseomyceliosus 6.1-6.8-7.5 x 4.1-4.3-4.5 um, Q= 1.46-1.58-1.66. This is one of the species previously called C. depressus in the Nordic countries.

Etymology: The name refers to the dark pileus and whitish stipe.

**Cortinarius heterodepressus** Kytov., Niskanen & Liimat., sp.nov.

*IF553954*

Pileus 1-4 cm wide, convex with a low umbo when young, soon expanding to plano-convex to shallowly plano-depressed, with a very faint silky shade, chocolate brown to chestnut brown, at margin somewhat paler than at the centre, hygrophanous. Lamellae moderately crowded, slightly emarginated, pale ochraceous. Stipe 1-2.5 cm long, 0.3-0.9 cm thick at the apex, cylindrical, at first silky whitish fibrillose, later brown but paler than the pileus. Context in the pileus concolorous with the surface, in the stipe paler, brown, marbled watery, somewhat darker in the base. Universal veil very sparse, white, forming a very thin, silky, easily disappearing sheet at the lower half of the stipe. Exsiccatia with a fairly dark brown, sometimes slightly greyish pruinose pileus at the centre. Basidiospores 5.7-6.3-7.0 x 3.0-3.4-3.6 um, x= 6.1-6.4 x 3.3-3.5 um, Q=1.58-1.84-2.06, Qav. = 1.78-1.92 (100 spores, 3 specimens), narrowly cylindrical to cylindrical-fusoid to narrowly fusoid, punctate to finely, evenly, densely verrucose, indextrinoid to faintly dextrinoid. Lamellae trama hyphae mostly narrow, olive yellowish, smooth. ITS sequence (GenBank MG136830, holotype) distinct from other members of sect. Atroalbi and deviating from them by at least three substitutions and indels.

Holotype H 6031902.

Ecology and distribution: In boreal, dry Pinus forests, mostly on sandy soil. Known from Fennoscandia and Central Europe. Fruiting bodies mainly occur on habitats with more or less disturbed vegetation as on footpaths, tracks and roadsides in the northern and northwestern Fennoscandia especially in the pine forests where the grazing of reindeers has strongly disturbed the ground layer vegetation of the forest. Fruiting bodies have not been observed in the moss carpet of Pleurozium schreberi, Hylocomium splendens or Dicranum spp. Basidiomata are produced fairly late in the season, in September and October. Holotype: FINLAND, Kainuu, Suomussalmi, Sarkka, dry Pinus forest with some Picea, Betula, on sandy soil, 16 Sep 2002, Niskanen 02-664 & Kytovuori & Liimatainen, H6031902, (H, holotype K, isotype). GenBank No. MG136830. Additional
Cortinarius psammocola
Corylus, Arbutus, Rubus, Ulmus, Acer, 20 Oct 1997, coll. J. Ammirati, JFA12455 (WTU) Highland Parkway, Populus trichocarpa,
1998/0860 (IB). GenBank no. DQ102684. USA. Washington. King County. University of Washington campus, Seattle, Populus,
no. AY669621. IF553915
Cortinarius hinnuleocervinus
Niskanen, Llimat. & Ammirati, sp.nov.
IF553951
Pileus 3-5.5 cm wide, at first conical, convex, later low conical-convex to almost plane, with a low umbo, surface smooth, reddish
brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

Cortinarius hinnuleocervinus
Niskanen, Llimat. & Ammirati, sp.nov.
IF553951
Pileus 3.5-5.5 cm wide, at first conical-convex, later low conical-convex to almost plane, with a low umbo, surface smooth, reddish
brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

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girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

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Niskanen, Llimat. & Ammirati, sp.nov.
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brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

Cortinarius hinnuleocervinus
Niskanen, Llimat. & Ammirati, sp.nov.
IF553951
Pileus 3-5.5 cm wide, at first conical-convex, later low conical-convex to almost plane, with a low umbo, surface smooth, reddish
brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

Cortinarius hinnuleocervinus
Niskanen, Llimat. & Ammirati, sp.nov.
IF553951
Pileus 3-5.5 cm wide, at first conical-convex, later low conical-convex to almost plane, with a low umbo, surface smooth, reddish
brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.

Cortinarius hinnuleocervinus
Niskanen, Llimat. & Ammirati, sp.nov.
IF553951
Pileus 3-5.5 cm wide, at first conical-convex, later low conical-convex to almost plane, with a low umbo, surface smooth, reddish
brown, hygrophanous. Lamellae medium spaced, at first pale greyish brown later cinnamon brown. Stipe 6-12 cm long, 0.6-1.1
mm thick, cylindrical, at first silky grayish white fibrillose, later brown. Universal veil white, forming complete and incomplete
girdles on the stipe. Context in the pileus dark reddish brown, very pale brown at the upper part of the stipe, dark brown in the middle and
at the base of the stipe. Basidiospores 6.3-8.0 x 5.2-6.0 um, Q= 1.17-1.40, short and broad ellipsoid to broadly ovoid, strongly
verrucose, moderately dextrinoid. Lamellar trama hyphae encrusted. ITS sequence (GenBank MG136827, holotype) distinct from other members of sect. Hinnule and deviating from them by at least six substitutions and indels.
strongly emarginated, pale ochraceous. Stipe 3-5 cm long, 0.3-0.7 cm thick, cylindrical, greyish ochraceous. Context purplish greyish. Universal veil white, very sparse, forming a very thin, silky, easily disappearing coating on the stipe. Exsiccatia: pileus fairly dark brown, fibrillose with blackish fibrils. Basidiospores 7.0-7.8-8.6 x 4.3-4.7-5.2 μm, av.= 7.5-8.2 x 4.6-4.8 μm, Q= 1.52-1.67-1.82, Qav.= 1.64-1.72 (120 spores, 3 specimens), narrowly ellipsoid to oblong-cylindrical to obvoidly oblong, moderately to strongly, densely, sharply verrucose (almost echinate), most strongly verrucose at the apex, somewhat dark coloured, somewhat to moderately dextrinoid. Lamellar trama hyphae olive yellowish in MLZ, smooth. ITS sequence (GenBank MG136821, holotype) distinct from other members of sect. Verni and deviating from them by at least nine substitutions and indels.

Holotype H, Kytovuori 99-722.

Ecology and distribution: In boreal, dry Pinus forests mostly on sandy soil. Mainly occurring in habitats with more or less disturbed vegetation as on footpaths, tracks and roadsides on bare soil or among low mosses. It seems to produce basidiomata fairly late in the season, in September and October. The species is rare and so far only collected from a few places from northern hemiboreal and southern boreal pine forests in Finland. Based on ecological studies also known from North West Spain (KY659394).

Etymology: The name refers to the growing place of the species.

**Cortinarius quercocenicus** Liimat., Kytov. & Niskanen, sp.nov.

**IF553949**

Pileus 1-3 cm wide, at first convex to conical, later low conical to low conical to almost plane, with an acute or broader, small umbo, surface finely scaly, dark ochraceous brown to brown, hygrophanous. Lamellae medium spaced to rather distant, yellow brown to dark yellow brown. Stipe 3-6 cm long, 0.2-0.5 cm thick, cylindrical, at first somewhat fibrillose, pale brown later brown. Universal veil brown, abundant, forming a ring and floccose scales on the stipe. Context dark ochraceous brown, almost blackish brown at the base of the stipe. Basidiospores 7.3-8.2-8.8 x 4.5-5.1-5.4 um, av.=7.9-8.6 x 5.0-5.2 um, Q=1.50-1.62-1.71, Qav.= 1.60-1.65 (69 spores, 2 specimens), amygdaloid to fairly narrowly fusoid (ovoidly to most often obvoidly), with a shallow suprahilar depression or not, somewhat thick-walled, finely to fairly strongly, sharply verrucose, strongly dextrinoid. Lamellar trama hyphae yellow in MLZ, strongly incrusted with small to large, red brown spots. Pilepellis partly covered by up to 15 um wide, pale sepia-coloured, very finely, densely scabrous hyphae, some lower hyphae with larger incrust spots. Amorphous, olive pigment spots present deep in the cuticle. Stipitipellis incrusted with red brown spots. Universal veil incrusted. ITS sequence (GenBank MG136825, holotype) distinct from other members of sect. Ochrovelati. With a sister group relationship to C. castaneopallidus and deviating from it by ten substitutions and indels.

Holotype H 7018166.

Ecology and distribution: In hemiboreal and temperate deciduous forests. Known from central and northern Europe. Holotype: SWEDEN, Oland, Hogsrum, Habtorp nature reserve, deciduous forest (Carpinus, some Ulmus, Corylus, Fraxinus, Tilia), on mull soil, 10 Sept 2003, Kytovuori, Limatainen Niskanen 03-1305, H7018166, (H, holotype K, isotype). GenBank No. MG136825. Additional specimens: SWEDEN. Upland, Uppsala, Bondykrka, Kvarnbo, under Salix and Quercus on rich ground, 11 Sep 1986, Lindstrom et al. CFP 485, F44892 (S). GERMANY, Thuringia, several sequences from soil, e.g GenBank no. HF675625. Note: This species has previously been called as C. psammocephalus together with its sister species C. castaneopallidus, but we conclude that the original description does not represent either of the species and therefore describe this one here as new.

Etymology: The name refers to the conical pileus and habitat often with Quercus.

**Cortinarius sphagnoramus** Liimat., Kytov., Niskanen & Ammirati, sp.nov.

**IF553950**

Pileus 1-4 cm wide, at first conical to conical-convex, later low conical to almost plane, with a more or less acute, small umbo, surface finely whitish fibrilllose, reddish brown but the fibrils on the surface make it look more greyish brown, hygrophanous, sometimes 1/4 pellucid-striate. Lamellae medium spaced, at first pale yellow brown later more brown. Stipe 4-8 cm long, 0.2-0.5 cm thick, at first somewhat fibrillose, later pale brown. Universal veil white, forming incomplete girdles on the stipe. Context in pileus brown, very pale brown at the upper part of the stipe, somewhat darker brown at the base of the stipe. Basidiospores 7.5-8.5-9.3 x 4.8-5.3-5.7 um, av.= 8.2-8.7 x 5.2-5.3 um, Q=1.44-1.60-1.74, Qav.= 1.53-1.62 (140 spores, 3 specimens), narrowly ellipsoid to oblong, fairly finely verrucose, more strongly verrucose at apex, somewhat to moderately dextrinoid. Lamellar trama hyphae pale yellow to yellowish brown in MLZ, smooth to very finely scabrous. ITS sequence (GenBank MG136826, holotype) distinct from other members of sect. Ravi and deviating from them by more than 20 substitutions and indels.

Holotype S F44869.


Etymology: The name refers to the color of the pileus and damp habitat.

**Cortinarius subminiatopus** Kytov., Niskanen & Limat., sp.nov.

**IF553946**

Pileus 1-2.5 cm wide, first conical, later expanding to subumbonate with a narrow, fairly acute umbo, surface smooth, dark
Ochroleus to live brown with a pale ochreous margin, hygrophanous, with age narrowly pellucid striate at the margin. Lamellae medium spaced, emarginated, ochraceous when young, later dark brown. Stipe 2.5-7 cm long, 0.2-0.5 cm thick, slender, cylindrical, slightly clavate at the base, whitish to pale ochreous. Universal veil scarlet red, forming fibrilloose coating to clavate on the pileus margin (when young) and on the most part of the stipe, colour strongest at the base. Basidiospores 9.1-10.2-11.3 x 5.7-6.2-6.6 um, av. = 9.9-10.3 x 6.1-6.2 um, Q=1.50-1.65-1.79, Qav. =1.61-1.68 (240 spores, 7 specimens), narrowly oblong-ellipsoid to very slightly amygdaloïd, with a blunt to round apex, seomewhat thick-walled, finely, densely, evenly verrucose, slightly more strongly verrucose at the apex, moderately dextrinoid. Lamellar trama hyphae yellow to reddish brown in MLZ, distinctly to fairly strongly scabrous, sometimes with larger, red brown incurst plates and spots. ITS sequence (GenBank MG136822, holotype) distinct from other members of sect. Anthracini. With a sister group relationship to C. miniatus (epitype) and deviating from it by two substitutions in the ITS 2 region, ITS1 regions identical.

Holotype H 6031919.


Etymology: The name refers to the affinity to C. miniatus.

Cortinarius subminiatus Kytov., Niskanen & Liimat., sp.nov.

Etymology: The name refers to the affinity to *C. paleaceus* (current name *C. hemitrichus*).