

Nomenclatural novelties : T. Niskanen, K. Liimatainen, J. Ammirati & I. Kytövuori

*Cortinarius* sect. *Sporagniti* Kytöv., Niskanen & Liimat., sect. nov.

IF557527

Holotype *Cortinarius pinisquamulosus* Kytöv., Niskanen & Liimat. 2020.

Basidiomata small- to rather small-sized. Pileus conical, soon expanded, often with a small umbo, margin with yellowish scales, yellowish brown to somewhat reddish brown, hygrophanous. Lamellae yellowish brown. Stipe cylindrical, firm, yellow to yellow brown, darker at the base. Universal veil ochraceous white often forming a ring-like zone on the stipe. Odour in lamellae faintly of cedar wood or indistinct. Basal mycelium white. Context dark yellowish brown in the pileus, in stipe yellow brown, darker towards the base of the stipe. Basidiospores narrowly cylindrical to narrowly cylindrical-fusoid to very slightly narrowly boletoid, punctate to finely verrucose, faintly dextrinoid,  $6.5\text{--}8.0 \times 3.0\text{--}4.5 \mu\text{m}$ . Lamellar trama hyphae yellowish brown, finely to distinctly scabrous. In mixed, boreal forests.

Etymology: Named after *Cortinarius sporagnitus* that belongs to this section.

*Cortinarius* sect. *Flexipedes* Kytöv., Niskanen & Liimat., sect. nov.

IF557528

Holotype *Cortinarius flexipes* (Pers.) Fr. 1838.

Basidiomata small- to rather small-sized. Pileus  $\pm$  brown, in some species with purplish tints, smooth or with scales, hygrophanous. Lamellae usually rather dark: dark brown, grayish brown or purplish. Stipe cylindrical or slightly clavate, sometimes tapering downwards, in some species purplish at the apex. Universal veil white forming complete and incomplete girdles on the stipe or sparse. Odour in lamellae in many species pelargonium-like or fragrant, in some species indistinct. Basal mycelium white. Context  $\pm$  brown in the pileus, in stipe yellow brown to grayish brown, usually darker brown towards the base of the stipe. Basidiospores ellipsoid, ellipsoid-fusiform to narrowly fusiform,  $7.5\text{--}12.0 \times 4.5\text{--}7.0 \mu\text{m}$ . Lamellar trama and pileipellis hyphae usually distinctly encrusted. With deciduous and coniferous trees.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Heterospori* Kytöv., Niskanen & Liimat., sect. nov.

IF557529

Holotype *Cortinarius heterosporus* Bres. 1889.

Basidiomata small-sized. Pileus dark brown, innately fibrillose, somewhat hygrophanous. Lamellae crowded, yellow-brown. Stipe cylindrical, sometimes with a small bulb, very pale grayish silky-fibrillose. Universal veil grayish-white, sometimes reddening. Basal mycelium white. Context grayish-white, with a pink tint. Odour in lamellae indistinct. Basidiospores boletoid, Q-value  $> 2$ . In coniferous forests.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Ochrovelati* Niskanen, Kytöv. & Liimat., sect. nov.

IF557530

Holotype *Cortinarius quercocoenicus* Liimat., Kytöv. & Niskanen 2017.

Basidiomata small-sized. Pileus ±brown, smooth or with scales, hygrophanous. Lamellae yellow brown to dark yellow brown. Stipe cylindrical or slightly clavate, sometimes tapering downwards. Universal veil yellow to ochraceous brown. Basal mycelium white. Context yellow brown to dark yellowish brown, in some species blackish brown at the base of the stipe. Odour in lamellae indistinct. Lamellar trama hyphae distinctly encrusted. With deciduous and coniferous trees. Etymology: Species of this section have a yellow to ochraceous brown universal veil.

Cortinarius sect. *Flexibilifolii* Liimat., Niskanen & Kytöv., sect. nov.

IF557531

Holotype *Cortinarius flexibilifolius* Carteret 2004.

Basidiomata small-sized. Pileus ochraceous brown to brown, fibrillose, hygrophanous. Lamellae brown. Stipe cylindrical, sometimes tapering downwards, at first silky-whitish fibrillose later ochraceous brown, darker at the base. Universal veil white, forming incomplete and complete girdles on the stipe. Basal mycelium white. Context in the pileus and upper part of the stipe ochraceous brown, dark brown at the base of the stipe. Odour in lamellae indistinct. Basidiospores ellipsoid to amygdaloid, 8.5–11.0 × 5.5–6.5 µm. In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. *Leiocastanei* Niskanen, Liimat. & Kytöv., sect. nov.

IF557532

Holotype *Cortinarius leiocastaneus* Niskanen, Liimat. & Soop 2008.

Basidiomata small- to rather small-sized. Pileus ±brown, smooth, hygrophanous. Lamellae at first pale brown, later brown. Stipe cylindrical to clavate, whitish silky-fibrillose. Universal veil white, sparse. Basal mycelium white. Context in pileus brown, in stipe pale brown. Odour in lamellae faintly raphanoid or indistinct. Basidiospores ±amygdaloid, 6.5–9 × 4–5.5 µm. Lamellar trama hyphae smooth to zebra-striped encrusted. Hyphae of the pileipellis smooth to finely encrusted. In mixed forests.

Etymology: Named after the type species of the section.

Cortinarius sect. *Rubrocincti* Liimat., Niskanen & Kytöv., sect. nov.

IF557533

Holotype *Cortinarius rubrocinctus* Reumaux 1995.

Basidiomata small-sized. Pileus dark brown, hygrophanous. Lamellae at first pale brown, later brown. Stipe cylindrical, grayish-white silky-fibrillose. Universal veil white to grayish white, in some species turning pinkish. Basal mycelium white to pinkish. Context in pileus blackish brown, in stipe very pale grayish brown, with a vinaceous tint. Odour in lamellae indistinct. Basidiospores obovoidly ellipsoid, strongly verrucose, moderately dextrinoid, < 10.0 × 6.5 µm. Lamellar trama hyphae distinctly spot-like encrusted. In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. *Incisiores* Liimat., Niskanen & Kytöv., sect. nov.

IF557534

Holotype *Cortinarius incisior* Bidaud, Moënné-Locc. & Reumaux 1997.

Basidiomata small- to medium-sized. Pileus (dark) yellow to reddish brown, often with a grayish tint, smooth, hygrophanous. Lamellae yellow brown to brown. Stipe cylindrical or slightly clavate, sometimes tapering downwards, somewhat silky-fibrillose, yellow brown, darker at the base. Universal veil white, sometimes forming distinct girdles on the stipe. Basal mycelium white. Context in pileus dark brown, in stipe apex pale grayish brown, at the base dark brown to blackish brown.

Odour in lamellae indistinct or earth-like to raphanoid. Basidiospores obovoidly ellipsoid, < 11.0 × 6.0 µm. Lamellar trama hyphae finely encrusted. In deciduous forests.  
Etymology: Named after the type species of the section.

Cortinarius sect. Pseudoduracini Liimat., Niskanen & Kytöv., sect. nov.  
IF557535

Holotype *Cortinarius jacobi-langei* Bidaud 2008.  
Basidiomata medium-sized. Pileus brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical with a somewhat rooting base, whitish silky-fibrillose. Universal veil white, sparse. Basal mycelium white. Context in pileus brown, whitish in stipe. Odour in lamellae indistinct or somewhat raphanoid. Basidiospores ±amygdaloid, 7.5–9.5 × 4.5–5.5 µm. In deciduous forests.  
Etymology: Named after the similarity of the type species with the representatives of the *C.* sect. Duracini.

Cortinarius sect. Ravi Liimat., Kytöv., Niskanen & Ammirati, sect. nov.  
IF557536

Holotype *Cortinarius sphagnoravus* Liimat., Kytöv., Niskanen & Ammirati 2017.  
Basidiomata small-sized. Pileus ±brown, with a small and often acute umbo, finely fibrillose, hygrophanous. Lamellae brown. Stipe cylindrical, whitish silky-fibrillose when young, later pale brown to grayish brown. Universal veil white, forming incomplete girdles on the stipe. Context in stipe apex pale brown, at the base dark brown. Odour in lamellae indistinct. Basidiospores ellipsoid to narrowly ellipsoid. Lamellar trama hyphae smooth to finely encrusted. In mixed and coniferous forests.  
Etymology: Name refers to the grayish to yellow brown colors of the species in this section.

Cortinarius sect. Alnicolarum Kytöv., Niskanen & Liimat., sect. nov.  
IF557537

Holotype *Cortinarius griseocarneus* Carteret 2010.  
Basidiomata small-sized. Pileus dark greyish brown, fibrillose, hygrophanous. Lamellae brown, sometimes with a purplish tint. Stipe cylindrical, at first whitish silky-fibrillose but soon dark gray. Universal veil grayish white, forming distinct girdles on the stipe. Basal mycelium white. Context in the stipe brownish black. Odour in lamellae faint, like cedar wood. Basidiospores narrowly ellipsoid. Lamellar trama hyphae smooth to very finely encrusted. Associated with *Alnus*.  
Etymology: Species of this section are associated with *Alnus*.

Cortinarius sect. Verni Kytöv., Niskanen & Liimat., sect. nov.  
IF557538

Holotype *Cortinarius psammocola* Kytöv., Niskanen & Liimat. 2017.  
Basidiomata small-sized. Pileus dark brown to blackish brown, somewhat fibrillose, hygrophanous. Lamellae pale yellowish brown. Stipe cylindrical, at first whitish silky-fibrillose later grayish ochraceous to yellowish brown, in some species reddening at the base. Universal veil white, very sparse, in some species reddening. Context yellow brown to grayish white to purplish grey, in some species with a pinkish-vinaceous tint. Odour in lamellae indistinct. Basidiospores obovoid, ellipsoid or narrowly ellipsoid. Lamellar trama hyphae smooth. In coniferous and deciduous forests.  
Etymology: Named after *Cortinarius vernus* that belongs to this section.

Cortinarius sect. Nucicolores Niskanen, Kytöv. & Liimat., sect. nov.  
IF557539

Holotype *Cortinarius nucicolor* Liimat., Niskanen & Kytöv. 2014.

Basidiomata small-sized. Pileus sand-brown to dark brown, somewhat fibrillose, hygrophanous. Lamellae pale brown to brown. Stipe cylindrical, at first whitish fibrillose later pale brown. Universal veil white, sparse. Basal mycelium white. Context pale brown. Odour in lamellae indistinct. Basidiospores lacrymoid, amygdaloid to ellipsoid. Lamellar trama hyphae smooth to rather strongly encrusted. In deciduous forests.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Caliginosi* Liimat., Niskanen & Kytöv., sect. nov.

IF557540

Holotype *Cortinarius subcastaneus* Bidaud & Reumaux 2000.

Basidiomata small-sized, sometimes with purplish tints. Pileus dark brown, hygrophanous. Lamellae pale brown to brown. Stipe cylindrical, at first whitish silky-fibrillose later pale brown to brown, often with a pinkish or vinaceous tint, dark brown towards the base especially with age. Universal veil white, sparse. Basal mycelium white. Context pale brown, or dark brown especially at the base of the stipe and in cortex. Odour in lamellae indistinct. Basidiospores  $\pm$ ellipsoid to somewhat amygdaloid. Lamellar trama hyphae smooth. In deciduous forests.

Etymology: Named after *Cortinarius caliginosus* that belongs to this section.

*Cortinarius* sect. *Megaspori* Kytöv., Niskanen & Liimat., sect. nov.

IF557541

Holotype *Cortinarius querculus* Moënné-Loec. & Reumaux 2001.

Basidiomata small-sized. Pileus red brown to greyish brown, darker at the centre, woolly-fibrillose, hygrophanous. Lamellae pale brown. Stipe cylindrical, at first silky-whitish fibrillose later pale brown, sometimes with a purplish tint at the top of the stipe. Universal veil white. Basal mycelium white or becoming pink. Context in the pileus dark brown, in the stipe pale brown. Odour in lamellae indistinct or faintly raphanoid. Basidiospores ellipsoid, on av.  $> 10 \mu\text{m}$  long. Lamellar trama hyphae distinctly encrusted. In coniferous and deciduous forests.

Etymology: The name refers to the large spores of the species.

*Cortinarius* sect. *Atroalbi* Niskanen, Kytöv. & Liimat., sect. nov.

IF557542

Holotype *Cortinarius fuscoalbus* Kytöv., Niskanen & Liimat. 2017.

Basidiomata small-sized, stipe often firm. Pileus dark reddish brown, smooth, hygrophanous. Lamellae pale brown. Stipe cylindrical, at first silky-whitish fibrillose later pale brown to brown, darker brown at the base. Universal veil white, sparse or forming incomplete girdles on the stipe. Basal mycelium white. Context in the pileus dark brown, in the stipe pale brown, darker at the base. Odour in lamellae indistinct. Basidiospores narrowly ellipsoid to narrowly cylindrical, on av.  $< 8.0 \times 4.5 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous and mixed forests.

Etymology: The name refers to the colour of the basidiomata.

*Cortinarius* sect. *Duristipedes* Kytöv., Niskanen & Liimat., sect. nov.

IF557543

Holotype *Cortinarius duristipes* Kytöv., Niskanen & Liimat. 2014.

Basidiomata small- to medium-sized, stipe firm. Pileus dark brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical, at first silky-grayish-white fibrillose later brown. Universal veil white, forming incomplete and complete girdles on the stipe. Basal mycelium white. Context in the pileus and lower part of the stipe brown to dark brown, pale brown to brown in stipe apex. Odour in

lamellae indistinct. Basidiospores narrowly lacrymoid or fusiform, on av.  $< 8.4 \times 5.2 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous forests.  
Etymology: Named after the type species of the section.

Cortinarius sect. Punctatiformes Liimat., Niskanen & Kytöv., sect. nov.

IF557544

Holotype *Cortinarius punctatiformis* Carteret 2012.

Basidiomata small-sized. Pileus dark brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical, sometimes somewhat clavate at the base or tapering, at first silky-white fibrillose later brown. Universal veil white, quite sparse, forming some incomplete and complete girdles on the stipe. Basal mycelium white. Context brown. Odour in lamellae not observed. Basidiospores ellipsoid,  $< 12.0 \times 7.5 \mu\text{m}$ , strongly verrucose. In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Praestigiosi Kytöv., Niskanen & Liimat., sect. nov.

IF557545

Holotype *Cortinarius praestigiosus* (Fr.) M.M. Moser 1965

Basidiomata small. Pileus dark reddish brown to purple brown, smooth, hygrophanous. Lamellae very pale, pale grayish brown with white edge, when young. Stipe cylindrical, in one species with a bulb, at first silky-white fibrillose later pale grayish brown, with or without a bluish tint at the top. Universal veil white, red or initially white and then turning red, forming incomplete and complete girdles on the stipe, or a bit volva-like structure if the base of the stipe is bulbous. Basal mycelium white. Context in the pileus dark brown to purple brown, pale grayish brown in the stipe, often with a purplish tint at the top. Odour in lamellae indistinct. Basidiospores broadly ellipsoid to ellipsoid, on av  $< 8.5 \times 5.5 \mu\text{m}$ . Lamellar trama hyphae smooth. In deciduous and mixed forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Friesiorum Liimat., Kytöv. & Niskanen, sect. nov.

IF557546

Holotype *Cortinarius fuscoumbrinus* Liimat., Niskanen & Kytöv. 2014.

Basidiomata medium-sized. Pileus dark brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical, sometimes somewhat clavate, at first grayish white fibrillose, later brown. Universal veil white, very sparse. Basal mycelium white, becoming pink. Context in the pileus and upper part of the stipe yellow brown, dark brown towards the base of the stipe. Odour in lamellae indistinct. Basidiospores ellipsoid, broadly ellipsoid to ovoid, on av  $< 9.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth to small spotted (encrusted). In deciduous forests.

Etymology: Named after the father of Mycology Elias Fries.

Cortinarius sect. Vinaceobrunnei Ammirati, Niskanen & Liimat., sect. nov.

IF557547

Holotype *Cortinarius vinaceobrunneus* Ammirati, Beug, Liimat., Niskanen & O. Ceska 2016.

Basidiomata small to medium-sized. Pileus dark vinaceous brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical with a tapered base, at first silky-white fibrillose, later pale vinaceous brown. Universal veil white, sparse. Basal mycelium white, sparse. Context in the pileus brown, pale brownish white in the stipe. Odour in lamellae pleasant, like parsley. Basidiospores broadly ellipsoid, ellipsoid to somewhat amygdaloid,  $< 9.5 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Bombycini Ammirati, Niskanen & Liimat., sect. nov.

IF557548

Holotype Cortinarius albosericeus Ammirati, Beug, Liimat., Niskanen & O. Ceska 2016.

Basidiomata small. Pileus dark reddish brown to brown, smooth, hygrophanous. Lamellae brown. Stipe cylindrical, with a somewhat tapered base, at first silky-white fibrillose, later very pale to pale brown, sometimes with bluish tints. Universal veil white, sparse, thinly sheathing the lower surface of the stipe. Basal mycelium white. Context pale brown to very pale brownish vinaceous. Odour in lamellae indistinct or somewhat raphanoid. Basidiospores broadly ellipsoid, ellipsoid to amygdaloid,  $< 10.5 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae smooth to encrusted. In deciduous forests.

Etymology: Named after a species, *C. bombycinus*, belonging to the section.

Cortinarius sect. Crassispori Kytöv., Niskanen & Liimat., sect. nov.

IF557549

Holotype Cortinarius crassisporus Kytöv., Niskanen & Liimat. 2014.

Basidiomata medium to large-sized. Pileus pale brown, brown, grey, grey brown to dark reddish brown, in some species coated by white fibrils, hygrophanous. Lamellae at first pale brown, later brown. Stipe clavate to bulbous, silky-white fibrillose. Universal veil white, in some species becoming partially pale brown, sparse or forming a couple of incomplete girdles on the stipe. Basal mycelium white. Context in pileus pale brown to brown, in stipe brownish white to pale brown, marbled hygrophanous, becoming darker brown at the base with age. Odour in lamellae indistinct.

Basidiospores amygdaloid, ellipsoid, obovoid or ovoid to almost subglobose,  $< 13.5 \times 9.0 \mu\text{m}$ .

Lamellar trama hyphae smooth. In deciduous and coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Squalidi Liimat., Ammirati & Niskanen, sect. nov.

IF557550

Holotype Cortinarius squalidus A.H. Sm. 1942.

Basidiomata medium-sized. Pileus cinnamon brown to dark brown, viscid. Lamellae at first pale brown, later brown. Stipe clavate to bulbous, silky-white fibrillose. Universal veil white, sparse. Context in pileus pale brown, in stipe cinnamon brown. Odour in lamellae indistinct. Basidiospores ellipsoid, almost smooth,  $< 9.0 \times 5.0 \mu\text{m}$ . In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Bibuli Niskanen, Kytöv. & Liimat., sect. nov.

IF557551

Holotype Cortinarius bibulus Quél. 1881.

Basidiomata very small to small. Pileus purple to dark purple to dark blackish brown, often blackish from the centre, slightly fibrillose, hygrophanous. Lamellae violet to brown. Stipe cylindrical to somewhat clavate, brownish purple to dark blackish brown. Universal veil white to greyish white, flocculose. Context in pileus purple to blackish brown, in stipe purple to brown to blackish brown. Odour in lamellae indistinct. Basidiospores ellipsoid, finely to rather coarsely verrucose,  $< 10.0 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae smooth to encrusted. In wet *Alnus* forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Politi Ammirati, Niskanen & Liimat., sect. nov.

IF557552

Holotype Cortinarius politus Niskanen, Liimat. & Ammirati 2013.

Basidiomata medium to large-sized. Pileus reddish brown to dark brown, smooth, hygrophanous. Lamellae cinnamon brown. Stipe clavate to clavate-bulbous, silky-white fibrillose. Universal veil white. Basal mycelium white. Context in the pileus brown, gray brown in the stipe. Odour in lamellae indistinct. Basidiospores ellipsoid to somewhat amygdaloid, moderately verrucose, strongly dextrinoid,  $< 10.0 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae smooth, sometimes finely encrusted. In mixed coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. *Furvi* Liimat., Kytöv. & Niskanen, sect. nov.

IF557553

Holotype *Cortinarius furvus* Liimat., Niskanen & Kytöv. 2014.

Basidiomata medium-sized. Pileus dark brown, hygrophanous. Lamellae pale to dark brown. Stipe cylindrical, often tapering downwards, white, silky-fibrillose. Universal veil white, very sparse. Context in the pileus brown, pale brown to almost white in the stipe. Odour in lamellae not observed. Basidiospores ovoidly ellipsoid to ovoid, thick-walled, moderately to strongly verrucose, very strongly dextrinoid,  $< 10.5 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae fairly strongly encrusted with small olive spots. In coniferous forests on calcareous ground.

Etymology: Named after the type species of the section.

Cortinarius sect. *Rustici* Niskanen, Kytöv. & Liimat., sect. nov.

IF557554

Holotype *Cortinarius rusticus* P. Karst. 1883.

Basidiomata large. Pileus pale grey to greyish brown, sometimes with violet or olivaceous tints, fibrillose-tomentose, margin often with distinct greyish brown veil patches, not hygrophanous. Lamellae brown. Stipe clavate to bulbous, greyish white, some-times bluish at the top. Universal veil grey to greyish brown, abundant, forming girdles on the stipe. Basal mycelium white, sometimes with a bluish tint. Context whitish violet, brownish towards the base. Odour in lamellae faint, slightly sour. Basidiospores ellipsoid, very finely verrucose, strongly dextrinoid,  $< 10.5 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae smooth. In mesic *Picea* forests.

Etymology: Named after the type species of the section.

Cortinarius sect. *Exsulares* Ammirati, Liimat. & Niskanen, sect. nov.

IF557555

Holotype *Cortinarius vinaceogrisescens* Ammirati, Beug, Liimat. & Niskanen 2016.

Basidiomata small to medium-sized. Pileus red brown to brown to dark brown, hygrophanous. Lamellae at first pale brown, later reddish brown to dark brown. Stipe cylindrical to clavate, at first white, later brown to vinaceous brown. Universal veil white, rather sparse. Basal mycelium white. Context in the pileus very pale brown, pale brown in the stipe. Odour in lamellae very slightly fragrant, pleasant. Basidiospores rather large, broadly ellipsoid to ellipsoid, moderately to coarsely verrucose, somewhat to moderately dextrinoid,  $< 12.0 \times 7.0 \mu\text{m}$ . Lamellar trama hyphae smooth, sometimes encrusted. In mixed forests.

Etymology: Named after *Cortinarius exsularis* that belongs to this section.

Cortinarius sect. *Cisqhale* Liimat., Niskanen & Ammirati, sect. nov.

IF557556

Holotype *Cortinarius cisqhale* Bojantchev 2013.

Basidiomata medium to large-sized. Pileus brown to dark brown, smooth, hygrophanous. Lamellae grey brown to reddish brown. Stipe cylindrical to subclavate. Universal veil white. Context brown.

Odour in lamellae earthy. Basidiospores amygdaliform to narrowly ellipsoid, moderately finely verrucose,  $< 9.0 \times 5.0 \mu\text{m}$ . Lamellar trama hyphae with an olivaceous pigment. In deciduous forests. Etymology: Named after the type species of the section.

Cortinarius sect. Phaeosmi Liimat., Niskanen & Kytöv., sect. nov.

IF557557

Holotype Cortinarius phaeosmus Rob. Henry 1981.

Basidiomata medium-sized. Pileus brown, smooth, hygrophanous. Lamellae brown. Stipe clavate to bulbous, first whitish fibrillose, later brownish. Universal veil white, sparse. Basal mycelium white. Context pale brown to brown. Odour in lamellae usually distinct, parsley-like. Basidiospores narrowly obovoid to dacryoid, somewhat to moderately verrucose, somewhat to moderately dextrinoid,  $< 9.5 \times 5.5 \mu\text{m}$ . Lamellar trama hyphae smooth. In deciduous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Tragani Niskanen, Kytöv. & Liimat., sect. nov.

IF557558

Holotype Cortinarius traganus (Fr.) Fr. 1838.

Basidiomata medium to large-sized. Pileus pale purple to silvery grey, slightly fibrillose, not hygrophanous or with hygrophanous streaks. Lamellae yellow brown. Stipe clavate to clavate-bulbous, silky fibrillose, pale purple. Universal veil white, abundant, forming woolly girdles on the stipe. Basal mycelium white. Context in the pileus and stipe vividly yellow brown. Odour in lamellae strong, fruity. Basidiospores amygdaloid to somewhat ellipsoid, finely to moderately verrucose, only somewhat dextrinoid,  $< 9.5 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius subsect. Colymbadini (Melot) Niskanen, Kytöv. & Liimat. comb. nov.

IF557559

Basionym: Cortinarius sect. Colymbadini Melot, Doc. Mycol. 20(no. 77): 97 (1989)

Cortinarius subsect. Flavobasiles Ammirati, Niskanen & Liimat., subsect. nov.

IF557560

Holotype Cortinarius flavobasilis M.M. Moser & O.K. Mill. ex Peintner, Kuhn.-Fink., C.L. Cripps & Ammirati 2017.

Basidiomata small to medium-sized. Pileus pale ochraceous to darker brown, smooth, hygrophanous. Lamellae pale ochraceous brown. Stipe cylindrical, white, yellow at the base. Universal veil white to yellow. Context in the pileus pale brownish, whitish in the stipe. Odour in lamellae indistinct or slightly pungent. Basidiospores amygdaloid, moderately to strongly verrucose,  $< 10.5 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae somewhat to strongly encrusted. UV fluorescent orange in the stipe base. In mixed coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Pseudobicolores Liimat., Niskanen & Kytöv., sect. nov.

IF557561

Holotype Cortinarius mattiae Soop 2010.

Basidiomata medium to large-sized. Pileus reddish brown. Lamellae cinnamon brown to purplish brown. Stipe cylindrical or slightly clavate, sometimes tapering. Universal veil white, sparse. Basal mycelium white. Context in the upper part violet gray, yellowish brown in the lower part. Odour in

lamellae strong, cellar-like. Basidiospores amygdaloid to shortly fusiform with a distinct suprahilar depression, finely to moderately verrucose, somewhat dextrinoid,  $< 9.0 \times 5.5 \mu\text{m}$ . Lamellar trama hyphae distinctly finely encrusted. In coniferous forests.

Etymology: The species of this section are reminiscent to those of *Cortinarius* sect. *Bicolores*.

*Cortinarius* sect. *Viliores* Liimat., Niskanen & Kytöv., sect. nov.

IF557562

Holotype *Cortinarius cinnamoviolaceus* M.M. Moser 1968.

Basidiomata medium to large-sized. Pileus reddish brown to dark brown, smooth, hygrophanous. Lamellae reddish brown. Stipe cylindrical or slightly clavate, sometimes tapering. Universal veil white, sparse. Basal mycelium white. Context in the pileus brown to dark brown, in the upper part of the stipe purplish white, white in the lower part. Odour in lamellae strong, cellar-like. Basidiospores amygdaloid to ellipsoid to somewhat fusoid, finely verrucose, almost indextrinoid,  $< 10.5 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous forests.

Etymology: Named after a synonym of the type species of the section.

*Cortinarius* sect. *Micro-ornati* Niskanen, Kytöv. & Liimat., sect. nov.

IF557563

Holotype *Cortinarius melleopallens* (Fr.) Britzelm. 1892

Basidiomata medium to large-sized. Pileus dark, honey brown to greyish yellow brown, hygrophanous. Lamellae yellow brown to dark brown. Stipe cylindrical, whitish fibrillose. Universal veil white, sparse. Context yellowish brown. Odour in lamellae faint of cedar-wood. Basidiospores fusiform, very finely verrucose, somewhat dextrinoid,  $< 8.0 \times 4.5 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous forests.

Etymology: Named after a synonym of the type species of the section.

*Cortinarius* sect. *Sejunctifolii* Liimat., Niskanen & Kytöv., sect. nov.

IF557564

Holotype *Cortinarius sejunctifolius* Rob. Henry 1995.

Basidiomata medium-sized. Pileus reddish brown, hygrophanous. Lamellae brown. Stipe cylindrical, silky-white fibrillose. Universal veil white, sparse. Basal mycelium white. Context in the pileus brown, in the stipe pale brown. Odour in lamellae raphanoid. Basidiospores amygdaloid to fusoid, finely to moderately verrucose, dextrinoid,  $< 9.5 \times 5.5 \mu\text{m}$ . Lamellar trama hyphae smooth to very finely encrusted. In mixed forests.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Cacaodisci* Kytöv., Niskanen & Liimat., sect. nov.

IF557565

Holotype *Cortinarius cacaodiscus* Liimat., Niskanen & Kytöv. 2014.

Basidiomata medium-sized. Pileus dark brown, hygrophanous. Lamellae dark brown. Stipe somewhat clavate, whitish fibrillose. Universal veil white. Basal mycelium white. Odour in lamellae indistinct. Basidiospores lacrymoid to amygdaloid-fusoid, almost smooth to very finely verrucose, almost indextrinoid,  $< 8.0 \times 5.0 \mu\text{m}$ . Lamellar trama hyphae smooth to somewhat spot-like encrusted. In coniferous forests.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Tortuosi* Niskanen, Kytöv. & Liimat., sect. nov.

IF557566

Holotype *Cortinarius dolabratus* Fr. 1838.

Basidiomata medium-sized. Pileus brown to dark reddish brown, hygrophanous. Lamellae red brown. Stipe cylindrical, silky-white fibrillose, often purple at the top of the stipe. Universal veil white. Basal mycelium white. Context in pileus brown to dark reddish brown, in stipe pale brown to brownish white, often purplish at the top of the stipe. Odour in lamellae faint of cedar wood. Basidiospores fusiform to amygdaloid to ellipsoid, somewhat to moderately verrucose, somewhat to moderately dextrinoid,  $< 10.5 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae strongly encrusted. In dry to mesic coniferous and mixed forests.

Etymology: Named after *Cortinarius tortuosus* that belongs to this section.

*Cortinarius* sect. *Pseudotragani* Niskanen, Liimat. & Ammirati, sect. nov.

IF557567

Holotype *Cortinarius subrimosus* A.H. Sm. & Hesler 1944.

Basidiomata medium to large-sized. Pileus whitish pale purple to silvery grey, fleshy, not hygrophanous. Lamellae pale brown. Stipe abruptly bulbous, silky-white fibrillose. Universal veil white. Context yellowish white. Odour in lamellae strong, fragrant, fruity. Basidiospores ellipsoid to amygdaloid, verrucose,  $< 10.0 \times 5.5 \mu\text{m}$ . Lamella trama hyphae smooth to slightly brown encrusted. In mixed conifer hardwood forests.

Etymology: The species of this section are reminiscent to those of *Cortinarius* sect. *Tragani*.

*Cortinarius* sect. *Craticii* Niskanen, Kytöv. & Liimat., sect. nov.

IF557568

Holotype *Cortinarius craticius* Fr. 1838.

Basidiomata small to medium-sized. Pileus red brown, usually with hygrophanous streaks. Lamellae yellow brown. Stipe cylindrical or slightly clavate, whitish silky-fibrillose, turning vinaceous red with age or after handling. Universal veil vinaceous-orange red to olivaceous yellowish brown, sparse, forming zones. Context whitish to pale yellow brown, in lower part of the stem reddish. Odour in lamellae slightly radish-like or raphanoid. Basidiospores obovoid to somewhat ellipsoid, moderately verrucose, fairly weakly to moderately dextrinoid,  $< 8.5 \times 5.5 \mu\text{m}$ . Lamellar trama hyphae smooth. In mixed forests.

Etymology: Named after the type species of the section.

*Cortinarius* sect. *Ionosmi* Niskanen, Kytöv. & Liimat., sect. nov.

IF557569

Holotype *Cortinarius boreasensis* A.H. Sm. 1944.

Basidiomata medium-sized. Pileus greyish brown, yellowish brown or reddish brown, hygrophanous. Lamellae greyish brown to yellow brown. Stipe cylindrical, silky-whitish fibrillose. Universal veil white. Context brown. Odour in lamellae strong, *Viola Odourata*-like, at least when mature and on drying. Basidiospores narrowly ellipsoid, moderately verrucose, moderately to strongly dextrinoid,  $< 10.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth. In mesic coniferous forests, on rich to calcareous soil. Etymology: Named after a synonym of the type species of the section.

*Cortinarius* sect. *Valgi* Niskanen, Kytöv. & Liimat., sect. nov.

IF557570

Holotype *Cortinarius valgus* Fr. 1838.

Basidiomata medium-sized. Pileus dark brown, silky shiny fibrillose, with hygrophanous streaks. Lamellae pale grey brown. Stipe cylindrical, at first silky-white fibrillose, later pale brown, often with a purplish tint at the top. Universal veil yellowish-brown to somewhat olivaceous, very sparse.

Context in pileus brown, in stipe pale brownish yellow, darker towards the base of the stipe, usually purplish at the top. Odour in lamellae faint, somewhat raphanoid. Basidiospores fairly broadly ovoid-ellipsoid, fairly strongly verrucose, somewhat to moderately dextrinoid,  $< 9.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae not or very finely encrusted. In mixed forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Privignati Niskanen, Kytöv. & Liimat., sect. nov.

IF557571

Holotype Cortinarius privignipallens Kytöv., Niskanen & Liimat. 2014.

Basidiomata medium-sized. Pileus pale brown, greyish white fibrillose, hygrophanous. Lamellae brown. Stipe clavate, silky-white fibrillose. Universal veil white, sparse. Basal mycelium white. Context brown. Odour in lamellae indistinct. Basidiospores broadly ellipsoid to obovoidly subglobose, somewhat thick-walled, moderately to strongly verrucose, fairly strongly dextrinoid,  $< 9.0 \times 6.5 \mu\text{m}$ . Lamellar trama hyphae smooth to finely scabrous. In coniferous forests.

Etymology: Named after Cortinarius privignatus that belongs to this section.

Cortinarius sect. Alboambiti Niskanen, Liimat. & Ammirati, sect. nov.

IF557572

Holotype Cortinarius alboambitus Niskanen, Liimat. & Ammirati 2013.

Basidiomata small to medium-sized. Pileus reddish brown, hygrophanous. Lamellae brown. Stipe slightly clavate to clavate, whitish silky fibrillose. Universal veil white, fairly sparse. Basal mycelium white. Context in the pileus dark reddish brown, pale brown in the stipe. Odour in lamellae indistinct. Basidiospores amygdaloid to broadly amygdaloid, moderately verrucose, moderately to fairly strongly dextrinoid,  $< 9.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth. In coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius sect. Ochropallescens Liimat., Niskanen & Ammirati, sect. nov.

IF557573

Holotype Cortinarius ochropallens Liimat., Niskanen & Ammirati 2013.

Basidiomata medium-sized. Pileus yellowish brown to ochraceous brown, felty-fibrillose, non hygrophanous. Lamellae ochraceous brown. Stipe somewhat clavate, white, becoming pale brown when bruised. Universal veil white, with a bluish tint, very sparse. Basal mycelium white. Context yellowish, darkest at the base of the stipe where yellow brown. Odour in lamellae very strong of cedar wood. Basidiospores ellipsoid to  $\pm$  amygdaloid, finely and distinctly verrucose,  $9.0\text{--}10.5 \times 5.5\text{--}6.0 \mu\text{m}$ , non-dextrinoid, Lamella trama hyphae with yellow to colorless walls, strongly yellow encrusted or smooth. In coniferous forests.

Etymology: Named after the type species of the section.

Cortinarius subsect. Terribiles Niskanen, Liimat. & Kytöv., subsect. nov.

IF557574

Holotype Cortinarius anisochrous Kytöv., Liimat., Niskanen & H. Lindstr. 2013.

Basidiomata medium-sized to large-sized. Pileus ochraceous brown, greyish brown, brown to dark brown, fibrillose, hygrophanous to somewhat hygrophanous. Lamellae at first pale brown, later dark brown. Stipe clavate to bulbous, at first whitish fibrillose, later brown to dark brown, base often darker especially with age. Universal veil more or less white, sparse or more abundant, in some species forming a sock-like sheet on the stipe. Basal mycelium white. Context in pileus brown, in stipe brown, in some species with a purplish tint at the top, marbled hygrophanous. Odour in lamellae indistinct, or in some species faint of Pelargonium. Basidiospores more or less amygdaloid

to ellipsoid to ellipsoid-ovoid to fusiform-ovoid, verrucose, dextrinoid,  $< 12.0 \times 7.5 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. Most species in deciduous forests, some in coniferous forests on calcareous ground.

Etymology: Named after *Cortinarius terribilis* that belongs to this section.

*Cortinarius* subsect. *Furvolaesi* Niskanen, Kytöv. & Liimat., subsect. nov.

IF557575

Holotype *Cortinarius neofurvolaesus* Kytöv., Niskanen, Liimat. & H. Lindstr. 2005.

Basidiomata medium-sized (to large-sized). Pileus brown to dark brown, hygrophanous. Lamellae brown. Stipe clavate to bulbous, at first whitish silky-fibrillose, later  $\pm$  brown. Universal veil white. Context  $\pm$  brown, often darker towards the base of the stipe. Odour in lamellae indistinct or slightly raphanoid. Exsiccates with dark sordid brown pileus. Basidiospores ellipsoid, ellipsoid-ovoid to amygdaloid, verrucose, dextrinoid,  $< 10.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae smooth to finely encrusted. In coniferous and mixed forests.

Etymology: Named after *Cortinarius furvolaesus* that belongs to this section.

*Cortinarius* subsect. *Carabi* Kytöv., Niskanen & Liimat., subsect. nov.

IF557576

Holotype *Cortinarius carabus* Kytöv., Niskanen & Liimat. 2009.

Basidiomata small to medium-sized. Pileus dark red brown to almost blackish brown, hygrophanous. Lamellae dark brown. Stipe cylindrical to tapering downwards, dark brown to almost blackish brown, covered with whitish fibrills. Universal veil white, very sparse. Basal mycelium white, sparse. Context dark brown. Odour in lamellae indistinct. Exsiccates with greyish black pileus and stipe. Basidiospores ovoid, dacryoid to obovoid-subglobose, moderately to very strongly verrucose, somewhat to moderately dextrinoid,  $< 9.0 \times 6.0 \mu\text{m}$ . Lamellar trama hyphae strongly encrusted. In coniferous forests.

Etymology: Named after the type species of the section.