Index Fungorum no. 528

Effectively published 26/10/2022 10:30:00 (ISSN 2049-2375)


Cortinarius calcofractus Liimat. & Niskanen, sp. nov.
IF 559907
Holotype K(M) 133726

Diagnosis: (all characteristics from a dried specimen): Pileus 2–3.5 cm diam. in exsiccatae, dark olivaceous greyish brown. Lamellae dark brown. Stipe 3–5 cm long, 0.5–0.8 cm thick at the apex, cylindrical to clavate. Context not recorded. Universal veil not recorded. Odour not recorded. Basidiospores 7.5–8 × 5.5–6.5 μm, subglobose to very broadly obovoid, strongly verrucose. Basidia 4-spored, hyaline with greyish granulose contents in 5% KOH. Lamellar trama hyphae hyaline, smooth. ITS sequence (GenBank OP339745, ex holotype) distinct from other members of Cortinarius subgen. Infracti sect. Infracti and with 98.5% similarity to the closest known species, C. mariandrus.

Ecology and distribution: With Corylus and Quercus on calcareous ground. So far known from Estonia, Germany, Norway, and United Kingdom (England).

Specimen examined: United Kingdom, England, Lancashire, Silverdale, Gait Barrows NNR, fairly open area with Corylus and Quercus, with grasses and herbs on moss covered limestone rock, 31 Aug. 1991, P.D. Livermore (IB isotype). GenBank OP339745. The specimen was sampled and sequenced twice with a direct PCR method, that uses as little tissue as possible, to rule out the possibility of contamination. The sequences obtained were identical and thus only one is deposited in the GenBank. The result was also confirmed based on the morphological study of the specimen.

Etymology: The name refers to C. infractus, the type species of the section to which this species belongs to, and the habitat on calcareous ground.

Notes: Cortinarius calcofractus is a typical member of the Cortinarius sect. Infracti having basidiomata with olivaceous colours and subglobose to broadly ellipsoid basidiospores. The closely related C. mariandrus occurs in Eastern North America with coniferous trees and has somewhat broader, more subglobose basidiospores (7.5–8.5 × 6–7 μm).

Cortinarius tugurium Liimat. & Niskanen, sp. nov.
IF 559908
Holotype K(M) 190682

Diagnosis (all characteristics from a dried specimen): Pileus 3 cm diam. in exsiccatae, dark olivaceous greyish brown. Lamellae dark brown. Stipe 5 cm long, 0.8 cm thick at the apex, cylindrical. Context not recorded. Universal veil not recorded. Odour not recorded. Basidiospores 6.5–8 × 5.5–6.5 μm, subglobose, rather strongly verrucose. Basidia 4-spored, hyaline, some with oil drops in 5% KOH. Lamellar trama hyphae hyaline, smooth, with some long and narrow crystals here and there. ITS sequence (GenBank OP339746, ex holotype) distinct from other members of Cortinarius subgen. Infracti, sect. Infracti and with 98% similarity to the closest known species, C. persoonianus.

Ecology and distribution: With Corylus avellana on calcareous ground. So far known from Estonia and United Kingdom (Wales).

Specimen examined: United Kingdom, Wales, Anglesey, Marian-glas, with Corylus avellana, on limestone, 7 Sept. 2011, C.E. Aron (IB isotype). GenBank OP339746. The specimen was sampled and sequenced twice with a direct PCR method, that uses as little tissue as possible, to rule out the
possibility of contamination. The sequences obtained were identical and thus only one is deposited in the GenBank. The result was also confirmed based on the morphological study of the specimen.

Etymology: This species was named after ancient huts, called tuguriums, of which the village, Marian-glas, from where the type specimen was collected, is famous for.

Notes: Cortinarius tugurium is a typical member of the C. sect. Infracti having basidiomata with olivaceous colours and subglobose basidiospores. The closely related C. persoonianus has larger basidiospores (7·5–9 × 6·5–7·5 µm). Cortinarius calcofractus, found in similar habitats to C. tugurium, has somewhat longer basidiospores (7·5–8·5 × 5·5–6·5 µm) but for reliable identification an ITS sequence will be needed.

Cortinarius mariandrus Liimat. & Niskanen, sp. nov.
IF 559909
Holotype K(M) 1434177
Diagnosis: Pileus 4–6 cm diam., at first hemispherical then convex, brownish ochraceous, viscid. Lamellae medium spaced, adnexed, dark olivaceous brown. Stipe 4–5 cm long, 0·8–1·2 cm thick at the apex, cylindrical to somewhat clavate, white to ochraceous white. Context not recorded. Basal mycelium white. Odour not recorded. Basidiospores 7·5–8·5 × 6–7 µm, subglobose, moderately verrucose. Basidia 4-spored hyaline, some with very pale greyish granulose contents in 5% KOH. Lamellar trama hyphae smooth, with pale greyish granulose contents. ITS sequence (GenBank OP339747, ex holotype) distinct from other members of Cortinarius subgen. Infracti and with 98.5% similarity to the closest known species, C. calcofractus.

Ecology and distribution: In mixed coniferous forest, under Picea and Abies. So far known from Canada (Newfoundland and Quebec).

Specimen examined: Canada, Newfoundland and Labrador, Great Northern Peninsula, St Anthony Ski trail, mixed coniferous forest, under Picea and Abies, 8 Sept. 2010, R. Lebeuf SAI-064 (DAOM isotype). GenBank OP339747. The specimen was sampled and sequenced twice with a direct PCR method, that uses as little tissue as possible, to rule out the possibility of contamination. The sequences obtained were identical and thus only one is deposited in the GenBank. The result was also confirmed based on the morphological study of the specimen.

Etymology: Mariandrus (-a, -um) is an artificially composed adjective, deliberately formed from elements of the first names of Maria and Andrus Voitk, in recognition of their contribution to mycology in the Canadian province of Newfoundland and Labrador. The adjective is fashioned after the Botanical Latin adjective tetrandrus, recognizing that both Andrus and -andrus stem from the Greek root andros (man). An intentional neologism, patterned on an existing Latinized adjective with partly shared etymology and spelling, rather than directly derived from personal names, it should not be ‘corrected’ in accordance with Article 60.8 of the ICNapf.

Notes: Cortinarius mariandrus has brownish ochraceous pileus but the dark olivaceous brown lamellae, viscid pileus and subglobose basidiospores soon reveal it to belong to Cortinarius sect. Infracti. The closely related C. calcofractus occurs in Europe with Corylus and Quercus and has somewhat narrower, subglobose to broadly obovoid basidiospores (7·5–8·5 × 5·5–6·5 µm).

Cortinarius sutherlandensis Liimat., D. Savage & Niskanen, sp. nov.
IF 559910
Holotype K(M) 262937
Diagnosis: Pileus 1·5–2 cm diam., low conical, red brown. Lamellae rather distant, brown with pale margin. Stipe 3–4 cm long, 0·15–0·2 cm thick at the apex, cylindrical, silky-whitish fibrillose over a pale tawny ground colour. Context not recorded. Universal veil not recorded. Odour faint. Basal mycelium white. Basidiospores 7·5–8·5 × 4·5–5 µm, narrowly amygdaloid to narrowly ellipsoid, finely
verrucose. Basidia hyaline, some with granulose contents in 5% KOH. Lamellar trama hyphae strongly zebra to spot-like encrusted. Lamellar edge with clavate sterile cells. ITS sequence (GenBank OP339748, ex holotype) distinct from other members of Cortinarius subgen. Iodolentes and with 98.5% similarity to the closest known species.

Ecology and distribution: In spruce forests. So far known from Estonia and United Kingdom (Scotland).

Specimen examined: United Kingdom, Scotland, Sutherland, Woodcock hill plantation, under spruce, 21 Oct. 2018, D.J. Savage 487/18 (IB isotype). GenBank OP339748. The specimen was sampled and sequenced twice with a direct PCR method, that uses as little tissue as possible, to rule out the possibility of contamination. The sequences obtained were identical and thus only one is deposited in the GenBank. The result was also confirmed based on the morphological study of the specimen.

Etymology: This species was named after Sutherland, a county where the type specimen was collected.

Notes: Cortinarius sutherlandensis is a small species, reminiscent of C. acutus that belongs to the same subgenus. Cortinarius acutus, however, has somewhat larger ovoid to broadly amygdaloid basidiospores 8–9 (–9-5) × 4-5–5-5 μm.

Cortinarius pseudohesleri Ammirati, Liimat. & Halling, sp. nov.

IF 559934
Holotype NY Halling 7037

Diagnosis: Pileus 20–70 mm broad, broadly conic umbonate when young, becoming convex to subumbonate, eventually subumbonate with uplifted margin, surface dry, slightly to finely fibrillose, ±hygrophanous, reddish brown to brownish red, disc sometimes dark orange-brown and the margin cinnabar orange in age or faded. Context to 12 mm thick, grayish orange to ochraceous buff, unchanging, stipe fibrous becoming hollow. Odor and taste mild. Lamellae adnexed to adnate or arcuate, close, reddish orange, reddish brown or brownish orange with age, edges even to fimbriate or eroded, slightly paler or near deep orange. Stipe 50–140 mm long, 3–10 mm thick, ±equal or broader below, strict to curved, grayish orange to orange-yellow fibrillose, dry, fibrillose striate, with concolourous veil, soon collapsing, leaving cinnabar orange remains on the stipe surface, basal mycelium light orange to peachy orange. Basidiospores 8-5–11 (–12) × (4-5–) 5–6-5 μm, ellipsoid to ±amygdaliform, sometimes with apiculus, ±coarsely verrucose. Basidia 4-spored. Lamella edges fertile, but with groups or small clusters of elements, sometimes segmented, variable in shape, occasional with a short branch or rounded mucronate apex, at times somewhat strangulated, 18–52 × 6–9 μm. Pileipellis duplex epicutis of radially arranged, interwoven hyphae, cylindrical to broadly cylindrical, mostly 3–10-5 μm wide, colourless or with yellow-brown pigment, often encrusted, often spirally so hypocuts moderately developed, hyphae more or less radially arranged, cylindrical to enlarged or inflated hyphae, but not typically forming a distinct cellular layer, mostly colourless. Clamp connections present.

Habit and Habitat: Scattered to gregarious on soil, Quercus costaricensis and Quercus sp. ITS sequence (GenBank OP265179, ex holotype) distinct from other members of Cortinarius sect. Uracei and with 97% similarity to the closest known species, C. hesleri.


Etymology: Named for its similarity to C. hesleri.
Notes: This species can be confused in the field with C. hesleri, a species that occurs in broadleaf forest in eastern North America.

*Cortinarius pseudoputorius* Ammirati, Dima & Liimat., sp. nov.
IF 559935
Holotype WTU Ammirati 11713

**Diagnosis:** Pileus (14–) 21–34 mm diam, hemispheric to obtuse or broadly campanulate, broadly umbonate expanded, margin incurved to decurved or slightly recurved, opaque, moist to dry, with a light buff to whitish veil coating overall, ground color grayish vinaceous purple to watery violaceous, sometimes with an admixture of brown, often with some watery purple blotches and streaks on margin. Context of pileus watery brownish or whitish, of stipe hollow in apex, at first violet above, sometimes extending to near base, cortex sometimes white mottled, pith and lower stipe whitish, watery gray brown or whitish grey, lilac color almost completely lost in age. Odor pungent, somewhat like *C. putorius*. Taste mild, agaricoid. Lamellae adnexed to sinuate, ±subdistant, ventricose, strongly violaceous at first, becoming grayish violaceous to pale brownish cinnamon buff with lavender tint, edges even, pale to whitish. Stipe up to 80 mm long, apex 6–7 mm, clavate-tapered to narrowly clavate, surface silky white above with watery violet to pale lavender colors beneath, violaceous colors extend to base at first, lower stipe becoming watery grayish to brownish, basal mycelium white, at first lower stipe thinly to heavily coated with pale warm buff veil extending up to white cortina, mature or older lower stipe surface whitish with watery streaks, buff veil zones obscure. Basidiospores 6–6·5 (–7·5) × 4·5–5·5 µm, subgloboid, moderately to ±coarsely verrucose. Basidia 4-spored. Pileipellis duplex: epicutis hyphae loosely interwoven to compacted, slightly gelatinized in places, radially oriented, cylindrical to broadly cylindrical, 4–13 µm wide, colorless to yellowish, some containing yellow pigment or with thickened yellow walls, smooth to encrusted; hypocutis well developed, in places subcellular. Clamp connections present.

Ecology and distribution: Mixed conifers, coastal Oregon. ITS sequence (GenBank OP265181, ex holotype) distinct from other members of *Cortinarius* and with 95% similarity to the closest known species, *C. vagabundus*.


Etymology: Named for the similar odor to *C. putorius*.

Notes: This species features a grayish vinaceous purple pileus with watery streaks, general violaceous coloration of the lamellae and stipe, pale buff veil and pungent odor.

*Cortinarius parvulosquamulosus* Corrales, Ovrebo, Ammirati, Dima, & Liimat., sp. nov.
IF 559936
Holotype UCH AC371

**Diagnosis:** Pileus 19 mm diam., convex surface squamulose with tiny light brown scales, ground colour light violet, disc lighter coloured, hygrophanous, margin incurved, with brown remnants of the universal veil, still attached to brown annular membranous zone covered with spores. Context in pileus light violet, 0·3 cm thick, in stipe white, violet at the apex soon hollow. Odor mild. Lamellae adnexed to free, close to subdistant, violet. Stipe 45 mm long, 4 mm thick, clavate, curved, surface with brown scales over a light violet ground colour, fibrillose, basal mycelium light violet, cottony. Basidiospores 7·5–9 × (5·5–) 6–6·5 (–7) µm, variable in size and shape, subgloboid, broadly ellipsoid or more ellipsoid, apiculus sometimes extended and curve, moderately to ±coarsely verrucose. Basidia 4-spored. Pileipellis duplex epicutis well developed, hyphae interwoven to entangled, ±radially arranged, cylindrical to broadly cylindrical, 3–10 µm wide, colourless to yellowish, walls
refractive, yellow to colourless, smooth to slightly encrusted hypocutis ± well developed, hyphae cylindrical to enlarged, often with blue-lilac pigment. Clamp connections present.

Ecology: Tropical montane forest, monodominant forest of Oreomunnea mexicana. ITS sequence (GenBank OP339753, ex holotype) distinct from other members of Cortinarius sect. Anomali and with 93% similarity to the closest known species, C. anomalovelatus.

Specimen examined: Panama, Chiriqui, Fortuna Forest Reserve, Honda watershed, 11 Sept. 2013, AC371 (UCH), GenBank OP339753.

Etymology: Named for the small brownish fibrillose scales on the pileus and stipe.

Notes: This species features overall light violaceus colours, brown veil and tiny brownish scales on the pileus and stipe.

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Cortinarius violaceobrunneus Corrales, Ovrebo, Ammirati, Dima & Liimat., sp. nov.

IF 559937

Holotype UCH AC41

Diagnosis: Pileus up to 19 mm diam., campanulate, dark violet, disc brown-purple, margin translucent striate, surface viscid moist. Context brownish purple, 0-2 cm thick, odor of anise, cartilaginous. Lamellae brownish violet, adnate, subdistant, edges undulate, 3 tiers of lamellulae. Stipe up to 65 mm long, cylindrical, apex dark purple, white to lilac towards base, surface white fibrillose patches (scales), with a white apical annular zone, interior narrowly fistulose, basal mycelium white. Basidiospores 7-5–9 × (6–) 6-5–7 µm, subgloboïd, moderately to ± coarsely, distinctly verrucose, with some ovoid to elongate smooth spores. Basidia 4-spored (rarely 2-spored, aborted). Pileipellis duplex epicutis moderately to thinly developed, hyphae interwoven, ± radially arranged, mostly 5–12 µm wide, cylindrical to broadly cylindrical, colourless, yellowish or with yellow pigment, walls ± refractive, colourless to yellowish, smooth encrusted hypocutis well developed, hyphae broadly cylindrical to enlarged, often cellular in appearance, colourless, pale brownish or slightly bluish. Clamp connections present.

Ecology: Tropical montane forest, monodominant forest of Oreomunnea mexicana. ITS sequence (GenBank OP265182, ex holotype) distinct from other members of Cortinarius sect. Anomali and with 96% similarity to the closest known species, C. anomalovelatus.

Specimen examined: Panama, Chiriquí, Fortuna Forest Reserve, Honda watershed, Montane Forest, 5 Mar. 2011, A. Corrales and C. Velasquez, AC41 (UCH), GenBank OP265182.

Etymology: Named for its overall colouration.

Notes: This is an elegant species with a slender stipe, strong purple to brown-purplish colouration, and a veil that leaves a white apical annulus and white fibrillose patches on the stipe. The anise odor is unusual for this group.

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Cortinarius tenneovelatus Corrales, Ovrebo, Ammirati, Dima & Liimat., sp. nov.

IF 559938

Holotype UCH AC415

Diagnosis: Pileus 18 mm diam., convex to plane-convex, surface fibrillose-scaly, hygrophanous, light purple with light brown cottony scales, disc light brown, margin entire, decurved with reddish brown universal veil attached (basidiospores). Context in pileus light purple, 1·5 mm thick, stipe interior hollow, white at the base, purple at the apex. Odor mild. Lamellae, adnate to subdecurrent, subdistant, brownish purple, edges even. Stipe 40 mm long, 2·5 mm thick, equal to subbulbous, strict, curved at the base, surface fibrillose with fibrils orange brown (basidiospores) over a shiny light purple background, interior hollow, white at the base and purple at the apex, annular zone fibrillose, brownish orange (basidiospores), basal mycelium white, very dense at the base. Basidiospores 7–8-5 (–9) × 6–6·5 (–7·5) µm, variable in size, subgloboïd to broadly ellipsoid, rarely
more ellipsoid, ± coarsely verrucose. Basidia 4-spored (2–3 spored). Pileipellis duplex: epicutis ± well developed, hyphae interwoven, ± radially arranged, cylindrical to broadly cylindrical, 3–11 µm wide, colourless, yellowish rarely blue-lilac, walls ± refractive, colourless to yellowish, smooth to slightly encrusted hypocutis well developed, hyphae cylindrical to enlarged, ± cellular in places. Clamp connections present.

Ecology: Tropical montane forest, monodominant forest of Oreomunnea mexicana. ITS sequence (GenBank OP265183, ex holotype) distinct from other members of C. sect. Anomali and with 94% similarity to the several closest known species.

Specimen examined: Panama, Chiriquí, Fortuna Forest Reserve, Honda watershed, 8 Oct. 2013, A. Corrales and C. Velasquez AC415 (UCH), GenBank OP265183.

Etymology: Of the colour tenné, orange-brown veil.

Notes: The basidiomata of this small species are characterized by a mixture of purple and brown colouration and conspicuous pale orange-brown veil elements on the pileus edge and stipe surface.

*Cortinarius adrianae* Ovrebo, Ammirati, Dima & Liimat., sp. nov.

**IF 559939**

**Holotype UCH CO5272**

Diagnosis: Pileus 18–38 mm diam., broadly convex to plane with a low umbo, glabrous, dry to slightly moist but with slight sheen sublenta, rugulose in places sublenta, light purple-medium purple, some tan to brown over center. Context in pileus 2–3 mm thick, buff, purplish beneath cuticle, in stipe hollow, purple in upper half, buff below. Odor and taste nondescript. Lamellae 1.5–4 mm wide, adnate to broadly sinuate, close, dark purple when young, becoming dark brown mature, edges entire. Stipe 40–65 mm long, 3–5 mm thick, tapering slightly to apex with sub-bulbous base, surface with coating of shaggy, loosely entangled brownish fibrils, silky beneath this layer, weak fibrillar-annular zone present, light purple overall, basal mycelium purplish. Basidiospores 7.5–8.5 × 6–7 (–7.5) µm, somewhat variable in size and shape, subglobose to broadly ellipsoid, ± coarsely verrucose. Basidia 4-spored. Pileipellis duplex: epicutis ± moderately developed, hyphae ± radially arranged, ± interwoven, ± cylindrical, 3–11 µm wide, colourless to yellowish, wall ± refractive, colourless to yellowish, smooth hypocutis well developed, hyphae cylindrical to enlarged, often ± cellular, walls ± refractive, colourless to yellowish. Clamp connections present.

Ecology: Tropical montane forest, co-dominant forest of Oreomunnea mexicana and Quercus sp.

ITS sequence (GenBank OP265184, ex holotype) distinct from other members of C. sect. Anomali and with 97% similarity to the several closest known species.

Specimens examined: Panama, Chiriquí, Fortuna Forest Reserve, trail to Cerro Hornito, from Bocas del Toro Road, 7 Jul. 2014, CO5272 (UCH), GenBank OP265184.

Etymology: Named for Adriana Corrales.

Notes: This species has comparatively small basidiomata with dominate purple colouration except for brownish disc and loose shaggy brown veil fibrils that coat the stipe surface.

*Cortinarius anomalobrunneus* Corrales, Ovrebo, Ammirati, Dima & Liimat., sp. nov.

**IF 559940**

**Holotype UCH AC653**

Diagnosis: Pileus 20 mm diam., convex to umbonate, surface light brown to caramel brown, ± radially striate on margin and a bit rugulose, dry, margin revolute, entire. Lamellae adnexed to free, light brown, close to subdistant, edges even. Stipe 40 mm long, 2 mm thick, strict, equal to subbulbous, surface fibrillose, veil forming a white to brown membranous ring. Basidiospores 7.5–8.5 × 6–6.5 µm, subglobose to broadly ellipsoid, ± coarsely verrucose. Basidia 4-spored. Pileipellis duplex: difficult to revive epicutis ± well developed, compacted and gelatinized in place, hyphae
±interwoven, ± radially arranged, cylindrical to broadly cylindrical, mostly 3–10 µm wide, colourless to yellowish, walls ± refractive, colourless to yellowish, smooth or slightly encrusted hypocutis well developed, hyphae cylindrical to inflated, ±cellular in places, walls refractive yellowish to colourless
Hyphae in general with more yellowish walls (more pigmented than blue species). Clamp connections present.

Ecology: Tropical montane forest, monodominant forest of Oreomunnea mexicana. ITS sequence (GenBank OP265185, ex holotype) distinct from other members of Cortinarius sect. Anomali and with 95% similarity to the several closest known species.

Specimens examined: Panama, Chiriquí, Fortuna Forest Reserve, Honda watershed, 13 Jan. 2014, AC653 (UCH), GenBank OP265185.

Etymology: Named for the overall brownish colouration.

Notes: The basidiomata of this species are dominated by brown colouration, including the brownish veil fibrils and annulus on the stipe. The contextual hyphae of this species are more highly pigmented compared to other species seen from Panama.

Cortinarius emollitus Fr., Epicr. syst. mycol. (Upsaliae): 269 (1838) [1836-1838]
IF 559906
Neotype K(M) 227405 (here designated)

Thaxterogaster emollitus (Fr.) Niskanen & Liimat., comb. nov.
IF 559905
Basionym Cortinarius emollitus Fr. Epicr. syst. mycol. (Upsaliae): 269 (1838) [1836-1838]

IF 559946

Calonarius olivaceolamellatus (Lebeuf, A. Paul & J. Landry) Niskanen & Liimat., comb. nov.
IF 559947
Basionym Cortinarius olivaceolamellatus Lebeuf, A. Paul & J. Landry, Sydowia 74: 211 (2021)

Calonarius viridicarneus (Lebeuf, A. Paul & J. Landry) Niskanen & Liimat., comb. nov.
IF 559948

IF 559949

Phlegmacium flavollacaceum (Lebeuf, A. Paul & J. Landry) Niskanen & Liimat., comb. nov.
IF 559950
IF 559951

Phlegmacium pseudoarcuatorum (Rob. Henry) Niskanen & Liimat., comb. nov.
IF 559952
Basionym Cortinarius pseudoarcuatorum Rob. Henry, Docums Mycol. 63–64 80 1986

Phlegmacium viridocaelestinum (Armada & Bellanger) Niskanen & Liimat., comb. nov.
IF 559953
Basionym Cortinarius viridocaelestinus Armada & Bellanger, Mycol. Progr. 21(6, no. 55): 18 (2022)

Phlegmacium malavallii (Bellanger & Ballarà) Niskanen & Liimat., comb. nov.
IF 559954
Basionym Cortinarius malavallii Bellanger & Ballarà Mycol. Progr. 21(6, no. 55): 16 (2022)

Phlegmacium marklundii (Brandrud, Dima, Saar, Schmidt-Stohn & Ballarà) Niskanen & Liimat., comb. nov.
IF 559955
Basionym Cortinarius marklundii Brandrud, Dima, Saar, Schmidt-Stohn & Ballarà, Mycol. Progr. 21(6, no. 55): 14 (2022)

Phlegmacium violaceoserrulatum (L. Albert, Dima, Schmidt-Stohn, C. Rossi & Ballarà) Niskanen & Liimat., comb. nov.
IF 559956
Basionym Cortinarius violaceoserrulatus L. Albert, Dima, Schmidt-Stohn, C. Rossi & Ballarà Mycol. Progr. 21(6, no. 55): 13 (2022)

Phlegmacium gratum (Reumaux) Niskanen & Liimat., comb. nov.
IF 559957

Phlegmacium basorapulum (Danks, T. Lebel & Vernes) Niskanen & Liimat., comb. nov.
IF 559958
Basionym Cortinarius basorapulus Danks, T. Lebel & Vernes Persoonia 24: 115 (2010)

Phlegmacium subspadiceum (Reumaux) Niskanen & Liimat., comb. nov.
IF 559959
Basionym Cortinarius subspadiceus Reumaux, Atlas des Cortinaires (Meyzieu) 8: 298 1996

Phlegmacium subcrassoides (Moënne-Locc. & Remaux) Niskanen & Liimat., comb. nov.
IF 559960
Phlegmacium sphagnetorum (Bidaud) Niskanen & Liimat., comb. nov.
  IF559961
  Basionym Cortinarius sphagnetorum Bidaud Atlas des Cortinaires (Meyzieu) 8: 297 (1996)

Phlegmacium occultum (Moënne-Locc. & Reumaux) Niskanen & Liimat., comb. nov.
  IF 559962

Phlegmacium maculatipes (Bidaud) Niskanen & Liimat., comb. nov.
  IF 559963
  Basionym Cortinarius maculatipes, Bidaud Atlas des Cortinaires (Meyzieu) 8: 294 (1996)

Phlegmacium lintrisporum (Reumaux) Niskanen & Liimat., comb. nov.
  IF 559964
  Basionym Cortinarius lintrisporus Reumaux Docums Mycol. 27 no. 106 53 (1997)

Phlegmacium hemicaeruleum (Brotzu, Lorenzon, Padovan, Bellù & Dima) Niskanen & Liimat., comb. nov.
  IF 559965

Phlegmacium largusiellum (Reumaux) Niskanen & Liimat., comb. nov.
  IF 559966
  Basionym Cortinarius largusiellus Reumaux, Atlas des Cortinaires (Meyzieu) 8: 293 1996

Phlegmacium parargutum (Bidaud, Moënne-Locc. & Reumaux) Niskanen & Liimat., comb. nov.
  IF 559967

Phlegmacium balteatoindicum (Dima, Semwal, V. Papp, Brandrud & V.K. Bhatt) Niskanen & Liimat., comb. nov.
  IF 559968
  Basionym Cortinarius balteatoindicus Dima, Semwal, V. Papp, Brandrud & V.K. Bhatt, Persoonia 44: 375 (2020)

Phlegmacium lemanicum (A. Favre & Vialard) Niskanen & Liimat., comb. nov.
  IF 559969

Phlegmacium pseudonaevosum (Rob. Henry) Niskanen & Liimat., comb. nov.
  IF 559970
Phlegmacium subopimum (Bidaud) Niskanen & Liimat., comb. nov.
   IF 559971

Phlegmacium balteatotomentosum (Rob. Henry) Niskanen & Liimat., comb. nov.
   IF 559972

Phlegmacium balteatum var. praestantoides (Reumaux) Niskanen & Liimat., comb. nov.
   IF 559973
   Basionym Cortinarius balteatus var. praestantoides Reumaux, Atlas des Cortinaires (Meyzieu) 8: 290 (1996)

Phlegmacium clarobaltoides var. longispermum (Reumaux) Niskanen & Liimat., comb. nov.
   IF 559974

Phlegmacium olidoamarum var. valentinum (Mahiques & A. Favre) Niskanen & Liimat., comb. nov.
   IF 559975

Phlegmacium argutum var. corydalinoides (Langl. & Reumaux) Niskanen & Liimat., comb. nov.
   IF 559976

Phlegmacium argutum f. gemellum (Bidaud, Moënne-Locc. & Reumaux) Niskanen & Liimat., comb. nov.
   IF 559977

Phlegmacium argutum f. perflavescens (Bidaud, Moënne-Locc. & Reumaux) Niskanen & Liimat., comb. nov.
   IF 559978

Phlegmacium glaucopus f. ingratum (Moënne-Locc.) Niskanen & Liimat., comb. nov.
   IF 559979