

Nomenclatural novelties : K. Liimatainen, D. Wang, D. Savage, T. Niskanen & I. Kytövuori

*Thaxterogaster reginae* Niskanen, Liimat., Kytöv. & Danhao Wang, sp. nov.

IF 559267

Holotype H 7017991

Diagnosis: Pileus 3–6 cm diam., at first hemispherical, then low convex, white to slightly ochraceous, with hygrophanous veins, viscid. Lamellae greyish white, medium spaced, adnate to adnexed. Stipe 5–8 cm long, 1–1.3 cm thick at the apex, cylindrical to tapering downwards, white, later slightly ochraceous. Context very pale ochraceous white. Universal veil white. Odour sweetish-raphanoid. Basidiospores 7.5–8.5 × 4.0–4.5 μm, amygdaloid to ellipsoid, finely verrucose. Basidia 4-spored, hyaline, with hyaline granules/crystals. Lamellar trama hyphae hyaline, with hyaline granules/crystals. Preparation full of hyaline oil drops in 5% KOH. ITS sequence (GenBank OP295480, ex holotype) distinct from other members of *Thaxterogaster* and with 98% similarity to the closest known species, *T. barbatus*.

Ecology and distribution: In *Fagus* forests on calcareous ground. So far known from Estonia, Sweden, and United Kingdom.

Specimens examined: Sweden. Bohoslan, Sotenas, Tossene, E of Bovallstrand, Hogsams bokskog, *Fagus* forest with some *Betula* and *Populus*, shells on ground, 29 Sep. 2004, K. Liimatainen, T. Niskanen 04-1017a (K(M) isotype). GenBank OP295480. United Kingdom. England, Buckinghamshire, Pullingshill Wood, near Marlow, beech woods on calcareous soil, 3 Oct. 2018, G. Kibby, 001434182 (K(M)).

Etymology: This species was named in honour of Queen Elizabeth II Platinum Jubilee.

Notes: This species is morphologically similar to *T. barbatus* and for a reliable identification ITS sequence will be needed.

*Thaxterogaster ultimus* Liimat., Danhao Wang, D. Savage & Niskanen, sp. nov.

IF 559367

Holotype K(M) 001434219

Diagnosis: Pileus 3 cm diam., convex with a prominent umbo, apricot brown, hygrophanous and fairly soon drying pale brownish ochraceous. Lamellae pale brown to brown, medium spaced, adnexed. Stipe 3.5 cm long, 0.5 cm thick at the apex, cylindrical, whitish silky-fibrillose with a very pale yellowish tint. Context yellowish brown. Universal veil white. Odour fragrant, pleasant. Basidiospores 7.5–9 × 4.5–5 (–5.5) μm, amygdaloid to somewhat ellipsoid, finely verrucose. Basidia 4-spored, hyaline, with hyaline granules/crystals. Lamellar trama hyphae hyaline, with hyaline granules/crystals. Preparation full of hyaline oil drops in 5% KOH. ITS sequence (GenBank OP295481, ex holotype) distinct from other members of *Thaxterogaster* and with less than 98.5% similarity to the closest known species, *T. monaensis*.

Ecology and distribution: In spruce forests. So far known from United Kingdom, Scotland.

Specimens examined: United Kingdom. Scotland, Caithness, Loch Eileanach plantation, spruce plantation, on peat, 27 Aug. 2020, D. J. Savage 966/20 (IB isotype). GenBank OP295481.

Etymology: This species was found from Caithness, a town by the sea in the northern Scotland, thus the name 'ultimus' meaning end of the world.

Notes: *Thaxterogaster ultimus* is a rather typical member of the *Thaxterogaster* sect. *Vibratiles*: the basidiomata are small, pileus is apricot brown, stipe is whitish, basidiospores are rather small

and the preparation from lamellae is full of hyaline oil drops in 5% KOH. The closely related species, *T. monaensis*, has more ellipsoid and relatively somewhat broader spores, 7.5–8.5 × 4.7–5.5 μm.

*Thaxterogaster monaensis* Liimat., Danhao Wang & Niskanen, sp. nov.

IF 559368

Holotype K(M) 264670

Diagnosis (all characteristics from a dried specimen): Pileus 1 cm diam., brown. Stipe 2.5 cm long, 0.1–0.2 cm thick at the apex, cylindrical. Context not recorded. Universal veil not recorded. Odour not recorded. Basidiospores 7.5–8.5 × 4.5–5.5 μm, somewhat broadly ellipsoid to somewhat broadly amygdaloid, finely verrucose. Basidia 4-spored, hyaline, with hyaline granules/crystals. Lamellar trama hyphae hyaline, with hyaline granules/crystals. Preparation full of hyaline oil drops in 5% KOH. ITS sequence (GenBank OP295482, ex holotype) distinct from other members of *Thaxterogaster* and with less than 98.5% similarity to the closest known species, *T. ultimus*.

Ecology and distribution: In mixed forests. So far known from United Kingdom, Wales.

Specimen examined: United Kingdom. Wales, Anglesey, Cae-brych Forestry, mixed forest, 22 Nov. 2014, C.E. Aron 3701 (IB isotype). GenBank OP295482.

Etymology: This species was named after the locality of the type specimen, Anglesey, which is *Ynys Mon* in Welsh and comes from the Latin name *Mona*.

Notes: *Thaxterogaster monaensis* is a small species in *Thaxterogaster* sect. *Vibratiles*. The closely related *T. ultimus* has more amygdaloid and relatively narrower spores, 7.5–9 × 4.5–5 (–5.5) μm.

*Cortinarius muscicola* Liimat., Danhao Wang, D. Savage & Niskanen, sp. nov.

IF 559369

Holotype K(M) 001434202

Diagnosis: Pileus 1.5 cm diam., convex with an umbo, rather dark reddish brown, darker from the centre, with a narrow pale margin, hygrophanous. Lamellae brown with a pale margin, medium spaced, adnexed. Stipe 3.5 cm long, 0.2 cm thick at the apex, cylindrical, red brown, fibrillose. Context not recorded. Universal veil white, forming girdles on the stipe. Odour disinfectant like. Basidiospores 8–9 × 4.5–5.5 μm, amygdaloid, moderately verrucose. Basidia 4-spored hyaline, some with granulose contents in 5% KOH. Lamellar trama hyphae distinctly zebra-striped encrusted. ITS sequence (GenBank OP295483, ex holotype) distinct from other members of *Cortinarius* and with 97% similarity to the closest known species.

Ecology and distribution: In coniferous forests. So far known from United Kingdom, Scotland.

Specimen examined: United Kingdom. Scotland, Caithness, Chracairnie Plantation, mixed spruce and pine plantation, on sphagnum, 25 Oct. 2019, D. J. Savage 840/19 (IB isotype). GenBank OP295483.

Etymology: The name refers to the habitat of species among mosses.

Notes: *Cortinarius muscicola* belongs to the *Cortinarius* subgen. *Iodolentes*. Typical morphological characteristics supporting the placement are uniformly coloured stipe that does not become darker towards the base, the smell of disinfectant and distinctly encrusted hyphae of lamellar trama. Other, currently known species of the subgenus are rather distant from *C. muscicola* in their ITS regions and vast majority have paler, red brown to yellow brown pileus and stipe.

*Cortinarius vikingus* Liimat., Danhao Wang, D. Savage & Niskanen, sp. nov.

IF 559419

Holotype K(M) 001434192

Diagnosis: Pileus 2.5 cm diam., convex, light brown with a darker centre and a white margin, hygrophanous. Lamellae pale brown, medium spaced, adanate to somewhat adnexed. Stipe 5 cm

long, 0.5 cm thick at the apex, whitish silky-fibrillose, with a purplish tint at the apex. Context pale cream, blackening with KOH. Universal veil white forming a thin, sock-like sheet, or broad girdles on the stipe, sometimes ending up on a ring on the upper part of the stipe. Odour faint, spicy wood-like. Basidiospores  $10.5\text{--}12.5 \times 5.5\text{--}6.5 \mu\text{m}$ , narrowly amygdaloid to somewhat narrowly ellipsoid, some with a suprahilar depression, finely verrucose. Basidia 4-spored, hyaline in 5% KOH. Lamellar trama hyphae smooth or very finely encrusted. ITS sequence (GenBank OP295484, ex holotype) distinct from other members of *Cortinarius* and with 97% similarity to the closest known species.

Ecology and distribution: In birch forests. So far known from United Kingdom, Scotland.

Specimen examined: United Kingdom. Scotland, Caithness, Ousdale, under birch in a natural ravine side wood, 12 Oct. 2019, D. J. Savage 826/19 (IB isotype). GenBank OP295484.

Etymology: This species was named after Ousdale, the place from where the type specimen was collected. The area has historical remains and the name Ousdale has a Norse origin indicating a presence of Scandinavian people in the area.

Notes: *Cortinarius vikingus* belongs to *C.* subgen. *Telamonina*, clade *Erubescentes*, sect. *Megaspori*, that have small basidiomata, white veil and large basidiospores. *Cortinarius hirtus* and *C. hemitrichoides* differ by having somewhat broader, usually more ellipsoid basidiospores ( $10\text{--}12.5 \times 6\text{--}7 \mu\text{m}$  and  $9.5\text{--}12 \times 6\text{--}6.5 \mu\text{m}$  respectively) and *C. decipientoides* by having broader basidiospores ( $10\text{--}13 \times 6.5\text{--}7 \mu\text{m}$ ).

*Cortinarius vicus* Liimat., Danhao Wang & Niskanen, sp. nov.

IF 559420

Holotype K(M) 161301

Diagnosis (all characteristics from a dried specimen): Pileus 5 cm diam., brown. Lamellae brown. Stipe 5 cm long, 0.6 cm thick at the apex, somewhat clavate, brown. Context not recorded. Universal veil not recorded. Basidiospores  $7\text{--}8 \times 5.5\text{--}7.0 \mu\text{m}$ , very broadly obovoid, moderately verrucose. Basidia 4-spored, hyaline with granulose contents in 5% KOH. Lamellar trama hyphae smooth. ITS sequence (GenBank OP295485, ex holotype) distinct from other members of *C.* subgen. *Infracti* and with 97.% similarity to the closest known species, *C. maculatocaespitosus*.

Ecology and distribution: In mixed deciduous woodland with *Fagus sylvatica*. So far known from Estonia and United Kingdom, England.

Specimen examined: United Kingdom. England, North Somerset, Long Sutton, Long Sutton Plantation, mixed deciduous woodland with *Fagus sylvatica*, 12 Aug. 2008, N.W. Legon (IB isotype). GenBank OP295485.

Etymology: The species was found from Long Sutton, a village dating back to medieval times, thus an epithet *vicus* meaning a village was given for the species.

Notes: The sister species *Cortinarius maculatocaespitosus*, also occurring with *Fagus* and known from Finland to Spain and in east as far as Georgia, has more subglobose but also broadly obovoid basidiospores. For a reliable identification ITS sequence is needed. Further studies with more materials may reveal other characteristics useful for morphological identification.