

Calocybe civilis (Fr.) Gulden comb. nov., an agaric new to Norway

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– *Calocybe civilis* (Fr.) Gulden comb. nov., ny for Norge.

– A rich collection considered identical with *Agaricus civilis* as described by Fries (1867) is recorded. The new combination *Calocybe civilis* (Fr.) Gulden is proposed. *Calocybe civilis* resembles the common vernal species *C. gambosa*, both has a more or less pinkish brown cap, minutely verruculose spores, hyphae without clamps, and appears in autumn.

The first description of this species appears to be the one of *Agaricus borealis* by Fries from 1838. Because of a recent description of *Calocybe borealis* Riva, the epithet *borealis* is no longer available in the genus *Calocybe*. Authentic material of *Lyophyllum serius* Romagnesi (holotypus) and of *Calocybe borealis* Riva has been studied and found to be conspecific with the Norwegian material. *Lyophyllum incarnatobrunneum* Gerhardt is also considered conspecific.

– Den sjeldne fagerhatten *Calocybe civilis* (Fr.) Gulden rapporteres for første gang fra Norge. Den minner om vårfagerhatt (*C. gambosa*), men er rosa til kjøttrød i fargen og opptrer om høsten. Mikroskopisk er det klare forskjeller. Arten har tidligere gjerne vært kalt *Tricholoma boreale* (Fr.) Karst., men av nomenklatoriske årsaker kan navnet *borealis* ikke benyttes i slekten *Calocybe*. De nylig beskrevne artene *Lyophyllum incarnatobrunneum* Gerhardt, *L. serius* Romagnesi og *Calocybe borealis* Riva er funnet identiske med *C. civilis*.

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In September 1988 I was confronted with fresh material of an unknown *Calocybe* species. It resembled *Calocybe gambosa*, but had a pinkish brown colour. The older specimens had generally a fairly dark cap center and paler, minutely granulose-punctate margin. Further, the season was quite aberrant for *C. gambosa*.

Micromorphologically there were even clearer differences between my material and *C.*

gambosa: The spores were minutely verruculose, there were no clamps at the hyphal septa, and the cutis had parallel, short celled, inflated hyphae. *Calocybe gambosa* has smooth spores, clamps at all septa, and interwoven, rather narrow and long celled hyphae in the cutis. The material matched very well descriptions and illustrations of *Tricholoma boreale* (Fr.) Karst (e.g. Bresadola 1928 t. 105, Alessio 1977 t. 17, and Cetto 1984 t. 1460)

but also *Lyophyllum incarnatobrunneum* Gerhardt (1982), *L. serius* Romagnesi (1987), and *Calocybe borealis* Riva (1987). Also the illustration of *Agaricus civilis* Fr. in Fries (1867) resembled, but the description was somewhat aberrant. In my opinion, all these names represent one single and rare species, and the case clearly illustrates what often happen to rare agarics: They are described as new species several times, partly because microscopical characters have not been considered, but also because the valuable direct transfer of knowledge from person to person with fresh material at hand is impossible with rare species.

Calocybe civilis (Fr.) Gulden comb. nov.

Figs 1-2.

Basionym: *Agaricus civilis* Fries, Icones selectae hymenomycetum I, p. 38. 1867. Holotypus: Tab. 42, Fries: Icones selectae hymenomycetum I.

Synonyms:

Tricholoma civile (Fr.) Gillet. – *Agaricus militaris* Lasch ss. Fries 1857, non Lasch 1828 nec Fries 1832, 1836-38. – *A. borealis* Fries 1838. – *Tricholoma boreale* (Fr.) P. Karst. – *Calocybe borealis* Riva 1987. – *Lyophyllum incarnatobrunneum* Gerhardt 1982. – *L. serius* Romagnesi 1987.

Description: (Representative collection: Krømer et al. 4.9.1988, (O). Colours are coded according to Seguy (1936)).

Pileus 3.2-12 cm, convex to plane or slightly umbonate, initially with incurved and pubescent margin, becoming more or less flexuose and centrally depressed with reflexed and lobed margin, mat and dry, smooth to minutely cracked and then appearing granulose-punctate in marginal part, cutis without radial structure, evenly pinkish brown, flesh brown, medium brown (131, 133, 134, 193) or paler towards margin and pinkish to pale alutaceous (190, 193, 199, 200, 204), occasionally with a narrow pinkish zone near margin. *Lamellae* adnexed to emarginate, crowded, with several tiers of lamellulae, up to 7 mm high and more or less veined, white to pale cream, slightly darker than the flesh. *Stipe* 2.5-6 × 0.6-2.5 cm, rather short, somewhat clavate or attenuated downwards, solid, old becoming hollow, young white pruinose at apex, smooth to somewhat fibrillose, white or with a shade of the cap colour. *Flesh* rather firm, fibrous in stipe, white, with a

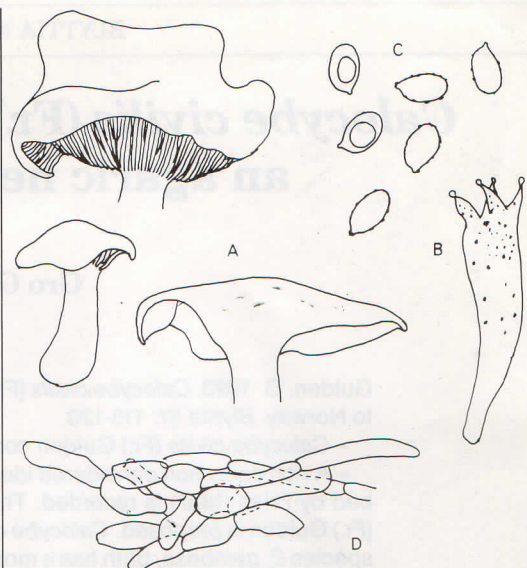


Fig. 1. *Calocybe civilis* (Fr.) Gulden. A: Fruitbodies. B: Basidium. C: Spores. D: Cutis.

Fig. 1. *Calocybe civilis* (Fr.) Gulden. A: Fruktlegemer. B: Basidie. C: Sporer D: Hatthud.

slightly acidulous smell which becomes farinaceous on bruising, and a farinaceous taste. *Spore deposit* white.

Spores 4.5-6.3 × 2.5-3.5 μm, ellipsoid, in front view slightly attenuated towards apex, minutely verruculose, hyaline, inamyloid, siderophilous, cyanophilic. *Basidia* 28.5-36.5 × 5.2-5.8 μm, 4-spored, inside with siderophilous/cyanophilic granules. *Cystidia* absent. *Pileipellis* with a thin upper layer of narrow, long-celled, and interwoven hyphae, below with a layer of parallel, short-celled hyphae which become inflated with age and in places almost isodiametric, up to 35 μm wide; pigment yellowish in microscope, membranous and possibly also intracellular. *Clamps* absent.

Habit and habitat: In colonies, sometimes subfasciculate, on a south-facing slope on Cambro-Silurian calcareous rocks, with lush forest border vegetation of *Picea abies*, *Pinus sylvestris*, *Prunus padus*, *Betula pendula*, *Acer platanoides*, *Populus tremula*, mainly with conifer needles in the bottom layer.

Comments: The verrucae of the spores are extremely small and may apparently be absent in some spores. They are strongly cyanophilous and can hardly be seen in preparations without Cotton blue. In one collection (from Nesodden) a slight and slow pinkish discolouring of the flesh was observed in pi-

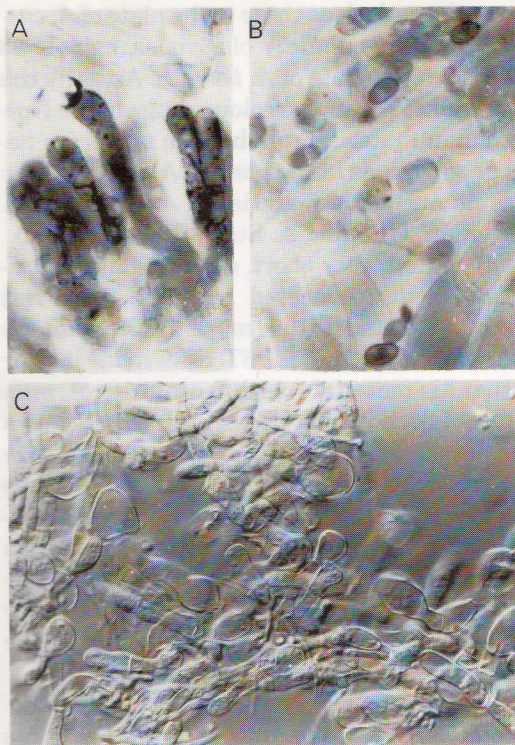


Fig. 2 A-C: *Calocybe civilis* (Fr.) Gulden. A: Mature basidium with cyanophilic granulation accumulated in the sterigmata and young basidia with scattered cyanophilic grains. B: Spores from preparation of cutis. C: Cutis hyphae, gently pressed preparation. A-B: Preparations in lactic acid and Cotton blue. C: Preparation in KOH; interference contrast (DIC). Norway, Buskerud, N. Eiker, 4.9. 1988, Krømer et al. (O).

Fig. 2 A-C. *Calocybe civilis* (Fr.) Gulden. A: Moden basidie med cyanofil granulasjon vesentlig i sterigmene og umodne basidier med spredte cyanofile korn. B: Sporer i preparat fra hatthuden. C: Hyfer i hatthuden, lett presset preparat. A-B: Preparert i melkesyre med bomullsblått. C: Preparat i KOH, interferensmikroskopi (DIC). Norway, Buskerud, N. Eiker, 4.9. 1988, Krømer et al. (O).

leus and stipe. *Rhodocybe truncata* may be very similar in stature, colour, and micro-morphology, but differs by having decurrent lamellae and basidia lacking cyanophilic/siderophilous granulation.

Habitats and distribution: Grows both with conifers (pine, spruce, juniper) and deci-

duous trees, often found in grassy habitats, on a wide range of soils, ranging from calcareous parent soils to decalcified sandy soils (cf. Winterhoff 1977). Norway, Sweden, Denmark, Germany, France, Austria and Italy.

Material examined: Norway: Akershus: Bærum, 13. Sept. 1970, leg. Odd Røseeng, among needles of *Picea*, (tentatively identified as *Lepista ovispora*); Nesodden: Sandaker gartneri, leg. Odd-Røseeng, 1. Sept. 1969 (tentatively identified as *Tricholoma civilis*); Buskerud: Nedre Eiker: Behind N. Eiker church. Leg.: Berit Krømer, Per Marstad and Ivar Sørensen, 4. and 9. September 1988 – all in herb. **O. Sweden:** Småland: Femsjö, 13.9.1940, among grass in a sandy site, S. Lundell & J. Stordal (no. 6149) and 21.9.1948, among *Pinus sylvestris*, near a stump, S. Lundell & G. Haglund (no. 5552) – both in UPS. **France:** Vosges, Deyvillers, 29.8.1981, no. 81.123, leg. ? (part of holotype of *L. serius* Romagnesi) – kept in O. **Italy:** Magras, 7.8.1985, G. Voltolini, herb. A. Riva, Balerna.

Taxonomy

The siderophilous basidia indicate that the species belongs in tribus Lyophyllea of Tricholomataceae, in one of the genera *Calocybe* or *Lyophyllum*. However, the absence of clamps is aberrant in both genera. Clémencçon (1986), as the first, included two species without clamps in *Lyophyllum*, viz., *Clitocybe leucopaxilloides* Bigelow & A.H. Smith and *Lyophyllum suburens* Clém. Following this, Gerhardt (1982) proposed a new subgenus, *Lyophyllopsis*, of *Lyophyllum* to accommodate the clampless species of the genus, among them his new species *L. incarnatobrunneum* (= *C. civilis*, see below).

The diagnostic difference between the two genera is related to carpophore pigmentation, where the brightly coloured species belong in *Calocybe* (Singer 1986). The basis for differentiating the two genera may be insufficient, however, I feel it is still practical. Whether or not *Calocybe* is included in *Lyophyllum*, the present species clearly should be placed close to *C. gambosa* and not in a separate section together with rather different, but clampless species.

Nomenclature

The oldest description of the species seems to be the one in Fries (1836-38) of *Agaricus borealis*. A more elaborate description and a pla-

te is found in Fries (1867, tab. 41). According to these presentations this is a rather pale pinkish species included in the same group as *Agaricus gambosus*, occurring shortly after solstice in summer, and smelling like *A. (Clitopilus) prunulus*. The species turns paler or whitish with age and the cap surface is rivulose as dry. There is no authentic material of *A. borealis* Fr. in the herbaria of Uppsala and Stockholm (S. Ryman, UPS, Å. Strid, S, pers. comm.), but its identity seems quite clear from its documented grossmorphological characters. Unfortunately, the epithet *borealis* is no longer available for a species in the genus *Calocybe*, since the name *Calocybe borealis* already has been used by Riva (1987) based on a different type, namely coll. B/553 (of *Tricholoma boreale* (Fr.) Karst.) in the herbarium of Bresadola. When Riva discovered that the material of Bresadola had siderophilous basidia, he described a new species, *Calocybe borealis* Riva, instead of simply transferring *A. borealis* Fr. to *Calocybe*.

Fries (1836-38) in the protologue of *A. borealis* referred to *A. monstrosus* Sow. which could possibly be an earlier name for our species. However, *A. monstrosus* Sow. (Sowerby 1800, tab. 283) is a later homonym of *A. monstrosus* Schaeffer (1774, tab. 260), and thus not available for our species. (Neither the species of Schaeffer, showing an agaric with two small, inverted pilei on the top, nor that of Sowerby, resembling *Lyophyllum connatum*, have much in common with *A. borealis*).

Fries (1867) also described and illustrated *A. civilis* (tab. 42). The plate shows pink to flesh coloured specimens, darker than those of *A. borealis* in tab. 41, and with a fibrillose stipe almost concolorous with the pileus. The text indicates, however, a more yellowish (gilvo-pallescens) pileus, darker in the center and hardly discoloring with age, and furthermore a white stipe. The discrepancy of text and figure with regard to colours has probably led to a general disregard of this species and references to *A. civilis* are few and generally given with some doubt (cf. Lange 1940, Winterhoff 1977, Bon 1984). Some specimens of the present material ha-

ve pilei as dark as those in the plate of *A. civilis* and some, mainly older ones, as pale as those in the plate of *A. borealis*. Actually the two plates cover the colour range of the Norwegian material well, but the stipes are never so dark as in the plate of *A. civilis*. There is no authentic material of *A. civilis* Fr. (S. Ryman, UPS and Å. Strid, S, pers. comm.).

The first, very short, description of *Agaricus civilis* appeared already in Fries (1836-38) under the name of *A. militaris* Lasch. Later (1857, 1867) Fries made it clear that his material was different from *A. militaris* Lasch (which he then interpreted as a member of the *Tricholoma pessundatum* complex), and accordingly he described it as a new species, *A. civilis*. A certain modification of the descriptions took place from 1836-38 to 1867, although it is reasonable to believe that the same material, collected near Lurbo at Uppsala by Lindblad, formed the basis for the descriptions at all occasions.

Agaricus civilis Fr. was described as inodorous in 1867, whereas in 1838 the smell was characterised as peculiar. This probably reflects the variability of this feature in *Calocybe civilis*. Fries (1867) described the pileus as subviscid (in the diagnose) and viscid as moist (in the description), a feature not found in the Norwegian material and quite aberrant in this group of tricholomatoid fungi. In Fries (1836-38) the pileus was described as almost viscid («paene viscidus»).

Despite these irregularities I have arrived at the conclusion that *Agaricus civilis* Fr. must be considered conspecific with *A. borealis* Fr. A similar conclusion was reached by Moser (1989) who has a photo of «*Calocybe civilis* (Fr.) (= *C. borealis* Riva 1987)» and by Winterhoff (1977 p. 90) who applied the name *Tricholoma civile* Fr. for a species matching my material in grossmorphological characters as well as being devoid of clamps. Riva (1988) on the other hand interpreted *A. civilis* Fr. as conspecific with *Tricholoma acerbum* (Bull.: Fr.) Quéf.

The epithet *civilis* is not sanctioned and there might hence be older names available. *Agaricus militaris* Lasch, with virgate pileus and maculate lamellae (Lasch 1828) is, however, clearly not a synonym of *A. civilis*.

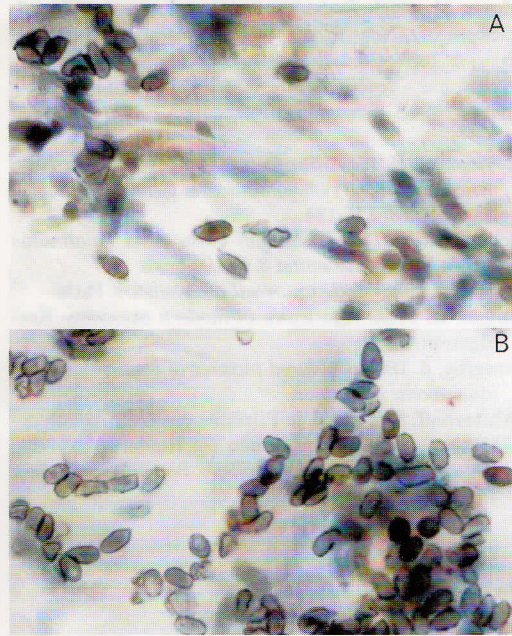


Fig. 3 A-B. A: *Calocybe borealis* Riva, Magras 7.8.1985, spores in preparation of cutis. B: *Lyophyllum serius* Romagnesi, holotypus, spores in preparation of cutis. Preparations in lactic acid and Cotton blue.

Fig. 3 A-B. A *Calocybe borealis* Riva, Magras 7.8.1985, sporer i preparat fra hatthuden. B: *Lyophyllum serius* Romagnesi, holotypus, sporer i preparat fra hatthuden. Preparert i melkesyre med bomullsblätt.

Further synonyms of *Agaricus civilis* Fr.

I have studied authentic material of *Calocybe borealis* Riva and the holotype of *Lyophyllum serius* Romagnesi and found them to be identical with the Norwegian material (cf. Figs 2-3). Material of *L. incarnatobrunneum* has not been studied, but the detailed descriptions by Gerhardt (1982, 1989) leave little doubt as to the identity of the species. Gerhardt (1982) did not compare his species with any of the species *A. borealis* Fr. or *A. civilis* Fr., but indicated similarity to *Collybia distorta*, *C. proluxa*, and *Rhodocybe truncata*. In 1989 he discussed the relation to both *A. borealis* Fr. and *A. civilis* Fr., but arrived at the conclusion that *L. incarnatobrunneum* was different from *A. borealis* because the pre-

sentation in Fries (1867) indicated more crowded lamellae and a stronger farinaceous smell than he generally found in *L. incarnatobrunneum*. However, Gerhardt (1982) described the lamellae as very crowded («sehr gedrängt»), and in 1989 he stated that the species was relatively variable both with regard to grossmorphology and smell, the latter sometimes farinaceous and sometimes lacking. Schwöbel (1989; according to Gerhardt 1989) considered *L. incarnatobrunneum* identical with *A. civilis* Fr. and proposed the new combination *Lyophyllum civile* (Fr.) Schwöbel, probably an invalid combination since doubts were indicated whether *Lyophyllum* or *Calocybe* was the most appropriate genus (Gerhardt 1989).

Tricholoma linctum Karst. as originally described by Karsten in 1879 and more detailed in 1890, probably also represents *Calocybe civilis* as do furthermore «*Rhodocybe calocyboides* Clémencçon ? ined.», presented as no. 1454 in Cetto 1984.

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