

Some interesting *Cortinarii* from Upper Austria

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Abstract: Several taxa of *Cortinarius* are described and some taxonomic problems discussed. One new variety is proposed: *Cortinarius variipes* R. HRY. var. *janthinophyllus* MOS., var. nova.

Zusammenfassung: Verschiedene Arten aus der Gattung *Cortinarius* FR. werden beschrieben und taxonomische Probleme diskutiert. Eine neue Varietät wird vorgeschlagen: *Cortinarius variipes* R. HRY. var. *janthinophyllus* MOS., var. nova.

During the 23rd "Dreiländertagung" at Ebensee, Upper Austria, 17-24 Sept. 1994, records of a number of uncommon *Cortinarii* have been made. The most productive collecting site was north of the Offensee between the road and the Grieseneckbach. This is a coniferous forest [*Picea abies* (L.) KARSTEN, *Abies alba* MILL.] on dolomitic subsoil. Some interesting records come also from a spruce forest near the Hochsteinalm (Langbath valley). Some of the more interesting taxa are discussed below.

Material and methods

All specimens from Upper Austria are preserved in the Herbarium of the University of Innsbruck (IB).

Colour guides used include RIDGWAY (1915) (R), CAILLEUX (1981) (C), SÉGUY (1936) (S), KORNERUP & WANSCHER (1967) (M). The indication of lamella density used is: L=total number of lamellae reaching the stipe and l=number of lamellulae between two lamellae. In addition the total number of lamellae and lamellulae per one cm at the margin of the pileus is given. Comparison of the lamellae width with the thickness of the pileus context was made about half the radius of the pileus.

Dried material was mounted in 3% KOH solution for microscopic study or in saturated ammonia for the study of gelatinized structures. The microscopic studies were carried out with an Olympus BHS2 microscope, a Sony SSC-C350 color video camera and a Sony Kx14CP1 monitor. Basidiospore measurements for statistical purpose were made from video prints using a Sony UP 9120 video printer. Abbreviations in the spore measurements: S=standard deviation (n=31), Q=quotient of spore length through spore width, V=approximate volume (calculated as ellipsoid).

Subgenus *Myxaciium* (FR.: FR.) TROG

***Cortinarius largodelibutus* R. HRY. 1985 (1963 nom. nud.).** (Colour fig. III, Fig. 1)
Syn. *Cortinarius salor* FR. subsp. *transiens* MELOT (1989 b).

Pileus 3-7 cm in diameter, at first hemispheric with involute margin, later convex, finally applanate and centre sometimes depressed, with age margin becoming upbent, glutinous, at first dark gray, violaceous gray, near Benzoe Brown (R), sometimes with an olivaceous tinge due to the yellow gluten, in age discolouring from the centre and becoming more brownish, finally yellow-brown (C 60N), only the margin often retaining a gray to gray-brown, occasionally also gray-violaceous colour. Lamellae at first lilac, Pale Violet Gray (R), Root's Lavender (R), later mixed with brown tinges, finally gray-brown, near Avellaneous (R), adnate, rounded behind, edges uneven, moderately close, L=60-65, l=1-3, about 13-15/cm at the margin, 6-10 mm wide (= twice the thickness of the pileus context). Stipe 7-10 cm long, 8-16 mm at the apex, 10-20(-25) mm at the base, equal or more frequently clavate, glutinous below the cortina, at first with pale blue colours particularly in the upper half [Lavender Gray (R)], at the apex retaining this colour for a longer time, below the cortina covered by yellow gluten, but not forming yellow belts as in *Cortinarius delibutus*, with age more pale yellow-brown or pallid, Cream Buff (R). Universal veil glutinous, yellow, with age yellow brownish, cortina whitish. Context pale blue in stipe, Pale Violet Gray (R), in the base of the stipe whitish, in pileus buff, near Warm Buff (R). Without distinctive odour, taste mild.

Microscopic characters: Spores broadly ellipsoid to subglobose, (6.8-)7.0-8.3 (-8.8) x 5.35-6.8(-7.0) μm , mean 7.8 (S=0.39) x 6.2 (S=0.38) μm , Q=1.26, V=99-197 μm^3 , mean 156 (S=25) μm^3 , verrucose, verrucosity rather regular. Basidia 4-spored, 35-38 x 9-9.5 μm , clavate to clavo-pedunculate. Lamellae edges with clavate, cylindrical or ventricose sterile cells (cheilocystidia ?) 25-35(-38) x 7.5-10 μm . Sub-hymenial hyphae 4-6 μm wide, in mediostratum 7-10 μm . The hyphae of the gelatinous layer on the pileus surface 4-6 μm wide, repent to somewhat irregularly interwoven, with clamp connections, hyaline to pale yellow, finely granulose-encrusted. Epicuticular hyphae 7-13 μm , nearly hyaline. Hyphae of the glutinous veil from the stipe 4-6(-7) μm , sometimes forked, with clamp connections but not at all septa.

Habitat: in a large group under *Picea abies* and *Abies alba* on dolomitic subsoil, among mosses and *Lycopodium*.

Collection examined: Austria: Upper Austria, Ebensee: north of Offensee (MTB 8249/1), 20. 09. 1994 (IB 94/282).

Comments: The species is closely related to both *Cortinarius delibutus* FR. and *C. salor*. Thus it is not surprising, that MELOT (1989 b) described it as *C. salor* subsp. *transiens*. In the forest at Offensee occurred both *C. delibutus* and *C. salor*. By the yellow gluten it seems to come close to *C. delibutus*. But to me a rank on species level seems to be justified. The colours and habit remind also somewhat of the American *C. griseoluridus* KAUFFM., which usually has a more robust stipe and brighter violaceous colours mixed with yellow areas. The spores are also subglobose to broadly ellipsoid but distinctly larger, 8.5-10.3 x 6.5-8.5 μm . *C. epipoleus* FR. differs clearly by a gray gluten on pileus and stipe and smaller size.



Colour fig. III. *Cortinarius largodelibutus* (IB 94/282). Colour fig. IV. *Cortinarius variipes* var. *janthinophyllus* (IB 94/287, holotypus). Phot. M. MOSER.

***Cortinarius epipoleus* FR. (1838). (Fig. 2)**

Pileus 1.5-4.5(-6.5) cm in diameter, convex, glutinous, pale gray from the beginning, Smoky Gray (R), near the margin Light Drab (R) or sometimes with a very faint gray-violaceous tinge, Pale Quaker Drab to Pale Mouse Gray (R), towards the centre with brown tinges and sometimes with innate fibrils. Lamellae gray-brown from the beginning, Wood Brown (R), with age becoming rather dark, Buffy Brown (R). Stipe 3.5-6(-9) cm long, 7-10(-13) mm at the apex, 8-20 mm at the base, apex dingy whitish or pale gray, Cinereous to Lilac Gray (R), below the whitish cortina pale gray to grayish violaceous, Pale Quaker Drab to Pale Mouse Gray (R) from the gluten. Universal veil glutinous, pale gray. Context pale gray in the stipe, paler in the cortex, in pileus ochraceous to buff, Light Buff to Warm Buff (R). Odour not distinctive or slightly fruity, taste mild.

Microscopic characters: Spores subglobose, $6.7-8.0 \times 5.5-6.5 \mu\text{m}$, mean 7.0 ($S=0.26$) $\times 5.8$ ($S=0.2$) μm , $Q=1.2$, $V=106-174 \mu\text{m}^3$, mean 126 ($S=13$) μm^3 . In an other collection IB 327, Valle di Sella, Trento, Italy, the spores vary from $5.9-8.2 \times 5.4-6.5 \mu\text{m}$. Basidia $30-32 \times 8-8.5 \mu\text{m}$, subhymenial hyphae $4-4.6 \mu\text{m}$, hyaline with clamp connections, hyphae of the mediostrium $6-10 \mu\text{m}$ wide. The gelatinous pellicle of the pileus surface consists of $4-5 \mu\text{m}$ wide, repent to slightly interwoven hyphae with clamp connections, epicuticular hyphae $5-8 \mu\text{m}$, walls pale ochraceous in KOH, hyphodermium not differentiated.

Habitat: under *Picea* and *Abies* on dolomitic soil.

Collection examined: Austria: Upper Austria, Ebensee: Offensee (MTB 8249/1), 20. 09. 94 (IB 94/283).

Comment: A rather characteristic but uncommon species. All my records are from sites with dolomitic or calcareous subsoil.

Subgenus *Phlegmacium* (FR.:FR.) TROG***Cortinarius claricolor* FR. var. *immissus* (SCHLAPFER 1951) NEZDOJIMINO (1983). (Fig. 3)**

Pileus 3-7 cm in diameter, hemispheric at first, margin remaining involute for a long time, then convex or disc somewhat applanate, glutinous, margin sometimes wrinkled, particularly in older specimens, yellow-brown, C 57N, 59P, covered by white veil for a long time and appearing like iced on the outer half. Lamellae pale grayish lilac, Grayish Lavender (R) in the outer half, Avellaneous (R) near the stipe, later narrowly emarginate, edges serrulate, very crowded, $L=95-100$, $l=3-5$, 25-30/cm at the margin, 4-6 mm wide (equaling thickness of pileus context). Stipe 7-10 cm long, 12-20 mm thick above, thickest part up to 30 mm, equal, clavate or somewhat fusoid and deeply rooting, whitish or flushed very faintly grayish blue in the upper part, with white belt and floccose patches of the universal veil. Context white, compact.

Microscopic characters: Spores $7.7-8.8(-10.0) \times 3.5-4.3 \mu\text{m}$, mean 8.0 ($S=0.33$) $\times 4.0$ ($S=0.18$) μm , $Q=2$, $V=50-80 \mu\text{m}^3$, mean 66 ($S=7.5$) μm^3 , slender, punctate-marbled. Basidia $27-30 \times 6.5-8 \mu\text{m}$, 4-spored, clavate. Hyphae of the cortina $3.5-4 \mu\text{m}$ wide, hyaline, clamp connections present.

Chemical reactions: KOH and NH_4OH negative on context.

Habitat: under *Picea abies* on calcareous soil.

Collection examined: Austria: Upper Austria, Gmunden: Langbathtal near Hochsteinalm (MTB 8148/3), 18. 09. 1994 (IB 94/265).

Comment: This taxon is very closely related to *C. claricolor* and differs only by the slight bluish tints in the lamellae and eventually the uppermost part of the stipe. This is rather a quantitative than a qualitative character and does not justify a separation on species level. I regard it, therefore, as a variety of *C. claricolor*.

***Cortinarius spadiceus* (BATSCH 1783) FRIES 1838. (Figs. 4, 5)**

Pileus 3-13 cm in diameter, at first hemispheric, then convex, sometimes umbonate, margin at first involute, glutinous, with brown colours over the whole surface to the very margin from the beginning, C 57P, 57N, 47P, not innately fibrillose. Lamellae at first pale bluish, Lavender Gray (R), soon mixed with brown tinges, then brown, Cinnamon Drab (R), finally more gray-brown, Sayal Brown (R), edges eroded, emarginate around the stipe, close to crowded, L=100-110, l=3-5(-7). Stipe 5-8 cm long, 15-25 mm thick, base 20-25 mm, equal or slightly clavate, at first pale bluish, later pale brownish. Context at first pale bluish at least in some parts of the stipe, otherwise whitish. No distinctive odour, taste mild.

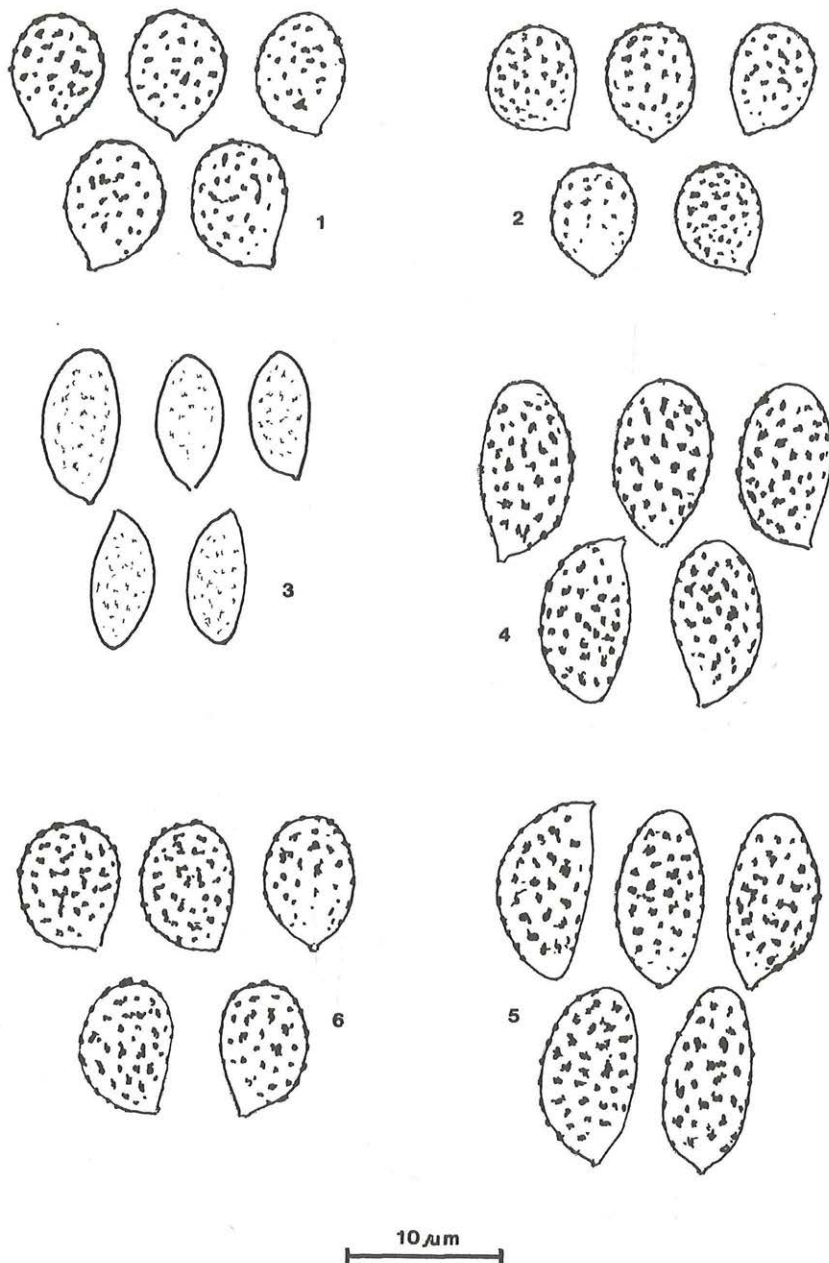
Chemical reactions: KOH on context brown with yellow margin, NH₄OH deep yellow to orange yellow.

Microscopic characters: Spores 9.4-10.9 x 5.0-5.9(-6.5) µm, mean 10.2 (S=0.34) x 5.5 (S=0.27) µm, Q=1.87, V=127-191 µm³, mean 161 (S=16) µm³, almond-shaped, verrucose. Basidia 30-32 x 7.5-8 µm, 4-spored, clavate. Subhymenial hyphae 4.5-6.5 µm, with clamp connections, hyphae in the mediostratum 8-11 µm wide. Cortina hyphae 4-4.5 µm, hyaline, clamp connections present. Gelatinous layer on pileus surface of 4-5.5 µm thick, repent, subirregular hyphae, walls pale brown, encrusted, epicuticular hyphae 6-8 µm thick, walls brown, slightly encrusted, hypodermium hardly differentiated, hyphae only slightly thicker and less pigmented.

Habitat: under *Picea abies* on calcareous soil.

Collection examined: Austria: Upper Austria, Gmunden: Langbathtal near Hochsteinalm (MTB 8148/3), 18. 09. 1994 (IB 94/267).

Comments: The interpretation of this taxon is not quite easy. The protologue of BATSCH (1783) is very short and can be interpreted in different ways, but does not contradict the above interpretation. The same holds true for his figure. FRIES (1838) gives a more detailed description, which in our opinion does not contradict the protologue of BATSCH. FRIES (1863) considers a relationship to *C. largus* FR. The name "spadiceus" means "chestnut brown or date-brown", a colour which applies fairly well to the above described fungus. The figures in FRIES' Icones show much duller colours, somewhat in contrast to the description. But in Monographia II (1863: 307) FRIES explains, that the figured specimens were old and discoloured. ("Habemus tantum observatus in statu decolorato, in juniore lamellae pulchrae cyaneae, hinc post *C. largum* inseratur"). Besides of *C. largus* this is the only taxon of this group collected in recent times in the area of Femsjö. FRIES, however, has collected it in the surroundings of Uppsala.



Figs. 1-6. Spores (x 2000). - 1. *Cortinarius largodelibutus* (IB 94/282). - 2. *C. epipoleus* (IB 94/293). - 3. *C. claricolor* var. *immissus* (IB 94/265). - 4-5. *C. spadiceus* (IB 94/267 and IB 79/351, Femsjö). - 6. *C. ferrugineipes* (IB 94/288).

***Cortinarius variipes* HRY. (1977) var. *variipes*. (Figs. 7, 8, 11, 12, 13)**Misapplied names: *Cortinarius intentus* FR. 1838 s. BRANDRUD (1987).*Cortinarius firmus* (WEINMANN) FR. 1838 s. A. H. SMITH in herbarium Ann Arbor.

Pileus 3-8(-10) cm across, at first hemispheric, then convex to applanate and margin becoming undulate, margin strongly involute at first, dull and dry, somewhat glistening particularly towards the margin, occasionally centre somewhat guttate-squamulose, bright yellow-brown (M 5B7, S 196) Ochraceous Tawny, Mars Yellow (R), paler toward the margin, ochraceous (M 4A5-4), sometimes also slightly variegate, sometimes with slight olivaceous flush, dry to lubricous but never really viscid (without gelatinous surface layer). Lamellae wood yellowish to wood brownish (S between 339 and 337), milk coffee brown with slight olive-ochre tinge, near the margin nearly S 246, edges rather uneven to eroded, strongly emarginate, moderately close, L=80-100, l=3, 6-15 mm wide. Stipe 5-8(-9) cm long, apex 10-15 mm thick, base 12-18 mm, with fusoid, more rarely clavate base, with a peculiar ochraceous colour with a very slight olivaceous hue, toward the base also tinged somewhat reddish brown, longitudinally innately fibrillose, with age becoming brownish or sometimes with wine-red spots. Mycelium white. Context pale ochraceous, similar to the stipe surface, in stipe watery marbled. Odour not distinctive or slightly grassy when cut. Taste mild, somewhat adstringent.

Chemical reactions: KOH and NH_4OH brown on context, umber-brown on pileipellis, Guaiac blue after some time, phenol red after some time, negative with HCl, sulfoformol, alpha-naphtol and lugol.

Microscopic characters: Spores broadly ellipsoid, pip-shaped and often with a characteristic suprahilar depression, punctate to verrucose, $7.5\text{-}8.0 \times 4.8\text{-}5.0 \mu\text{m}$. Basidia 4-spored, $30 \times 8\text{-}9 \mu\text{m}$, clavate, gill edges sometimes with few scattered filiform to ventricose cheilocystidia, pileipellis with a non-gelatinized surface layer of $3\text{-}5.5 \mu\text{m}$ thick hyphae with pale, but yellow encrusted walls, epicuticular hyphae $5\text{-}10 \mu\text{m}$, walls yellow-brown, partly encrusted, hypodermium of thick hyphae, almost subcellular.

Habitat: All my collections from Central Europe were made on sites with calcareous, mainly dolomitic soils (but often with acidified humus-layer) under *Picea abies*, *Abies alba*, occasionally also mixed with *Fagus*. In Scandinavia it occurs often among *Sphagnum*. This holds true also for the collecting area at Barlow Pass in Washington.

Collections examined: **Austria:** Upper Austria, Almsee (MTB 8249/2), 28. 08. 1972 (IB 72/252); -- 21. 08. 1975 (IB 75/79); -- 18. 09. 1977 (IB 77/300); -- 01. 08. 1979 (IB 79/244); - Almtal near Grünau (MTB 8149/4), 13. 10. 1984 (IB 84/273); - Ebensee: Offensee (MTB 8249/1), 20. 09. 1994 (IB 94/285 and IB 94/286); -- 22. 09. 1994 (IB 94/298). **Norway:** Öståsen, Rinilhaugen, Lunner, Oppland, 02. 09. 1981 (IB 81/354); - Bredehaugen, Öståsen, Lunner, Oppland, 03. 09. 1981 (IB 81/357b). **Italy:** Passo Mte Croce near Fiammo, Karni, 11. 09. 1984, leg. U. NONIS (IB 84/208). **North America:** Barlow Pass, Sauk River, Snohomish Co., Cascade Mts, Washington, 27. 08. 1989 (IB 89/328); - SMITH 17148, Olympic Hot Springs, Olympic National Park, Washington, 22. 09. 1941 (as *C. firmus* FR.).

Comments: It is very likely, that such a characteristic and widely distributed species may have been described by earlier authors. BRANDRUD (1987) and MELOT (1989 a) suggested several synonyms. But all these proposals are not sufficiently supported and not fully convincing and the protologues of the respective taxa differ of-

ten in essential characters. As long as no more convincing arguments are presented, I prefer not to replace a certain name by an uncertain and doubtful.

BRANDRUD (1987) synonymises *C. variipes* with *C. intentus* FR. I can not agree with this for several reasons. BRANDRUD (1987) may have been misled by the figures in FRIES' (1877-1884) Icones, which show a somewhat fusoid stipe. However, when we compare the protologue and the more detailed description in FRIES' Monographia we find too many characters which object this interpretation. FRIES placed his fungus in *Phlegmacium* and describes it with a more or less viscid pileus ("pileus plus minus viscidus"). *C. variipes* to the contrary has never a viscid pileus surface and by repeated careful microscopic examination not a trace of gelatinization of the surface hyphae could be detected. The fusoid, relatively hard and rigid stipe is a constant character of *C. variipes*. FRIES (1877-1884) figures in Icones, pl. 147, 1 specimens of *C. intentus* with a fusoid stipe. In the protologue, however, FRIES does not mention this character but calls the stipe "omnino aequalis, cylindricus l. sursum leviter attenuatus, fibrillosus". Thus it seems, that a fusoid stipe in *C. intentus* is rather the exception than the rule. Moreover FRIES describes the stipe as "mollis, intus araneoso-farctus, apice definite cavo". *C. variipes* has a rather hard, compact and rigid stipe. A third character concerns the colour of the lamellae. FRIES stresses the particular colour which he calls "laete croceis" and in Epicrisis (FRIES 1836-1838) "laete crocatae (croci stigmatum sicco) s. fere igneae, quibus semel observatis illico agnoscitur". These are colours which never occur in *C. variipes* neither in young nor in old basidiomata. To the contrary the lamellae of this fungus are remarkably pale. To this comes the occurrence of forms with pale or even deep violet colours in the gills. Moreover, FRIES (1836-1838) writes in Epicrisis "lamellis confertissimis angustis", in Monographia (FRIES 1863) "valde confertae, pertenuis". The lamellae of *C. variipes* are to the utmost close to moderately crowded, but never one might call them "confertissimis".

MELOT (1989 b) considers *Cortinarius ignobilis* KARST. (1889) and *C. instabilis* KARST. (1890) as possible earlier names for *C. variipes*. I have not checked the types of these two taxa. The descriptions of KARSTEN contain certainly some characters which could favour such an interpretation. This would be the non-hygrophanity of the pilei, the colours, the spore size. On the other hand there are also characters which make this interpretation doubtful. This are the viscosity of the pilei, further that KARSTEN does not mention the strikingly fusoid stipe but calls the stipe for both species "aequalis vel deorsum leviter incrassatus, tortuosus, flexuosus, raro rectus". But in any case this question deserves to be studied more carefully.

The examination of collection 17148 of A. H. SMITH under the name *Cortinarius firmus* revealed, that it corresponds to *C. variipes*. It agrees in shape and the fusoid stipe as well as the typical ellipsoid, drop-shaped, relatively small spores [in this collection 6.7-7.7 x 4.4-5.0 µm, mean (n=30) 7 x 4.7 µm, Q=1.5]. There are numerous further collections of A. H. SMITH in the herbarium at Ann Arbor and at least part of them represent the same fungus. The occurrence of this taxon in North America has been verified by AMMIRATI and MOSER (AMMIRATI & al. 1994). FRIES' (1836-1838) description of *C. firmus* has in fact some characters in common with *C. variipes*, as the dry and smooth, hardly hygrophanous pileus, and the colours of the pileus and lamellae fall more or less in the range of variability of *C. variipes*. The unpublished plate of *C. firmus* in the herbarium at Stockholm shows also a somewhat fusoid stipe.

FRIES describes and figures, however, a fungus with a white stipe. This does not agree with *C. variipes*. A. H. SMITH indicates in an unpublished description measurements of the pileus up to 15 cm. I have never seen *C. variipes* as big as this. The largest specimens had a pileus diameter of 10 cm. I have not checked the other collections mentioned in this manuscript.

The structure of the pileipellis and the colours of the pileus remind somewhat of *C. renidens* FR. and I thought once of a possible relationship of the two taxa. But they differ clearly by the hygrophany and the shape of spores. Moreover *C. renidens* is seemingly the only *Cortinarius* without a cortina.

With respect to *C. vespertinus* FR. I refer to my earlier paper (MOSER 1989). I uphold still my arguments to object a synonymy. But I am convinced that the two taxa are closely related. The two taxa form certainly a particular group best placed in subgenus *Phlegmacium*. I know also examples from other groups of *Phlegmacia* where species with gelatinized and dry pileipellis are closely related.

***Cortinarius variipes* R. HRY. var. *janthinophyllus* MOS., var. nova.** (Colour fig. IV, Figs. 9, 10)

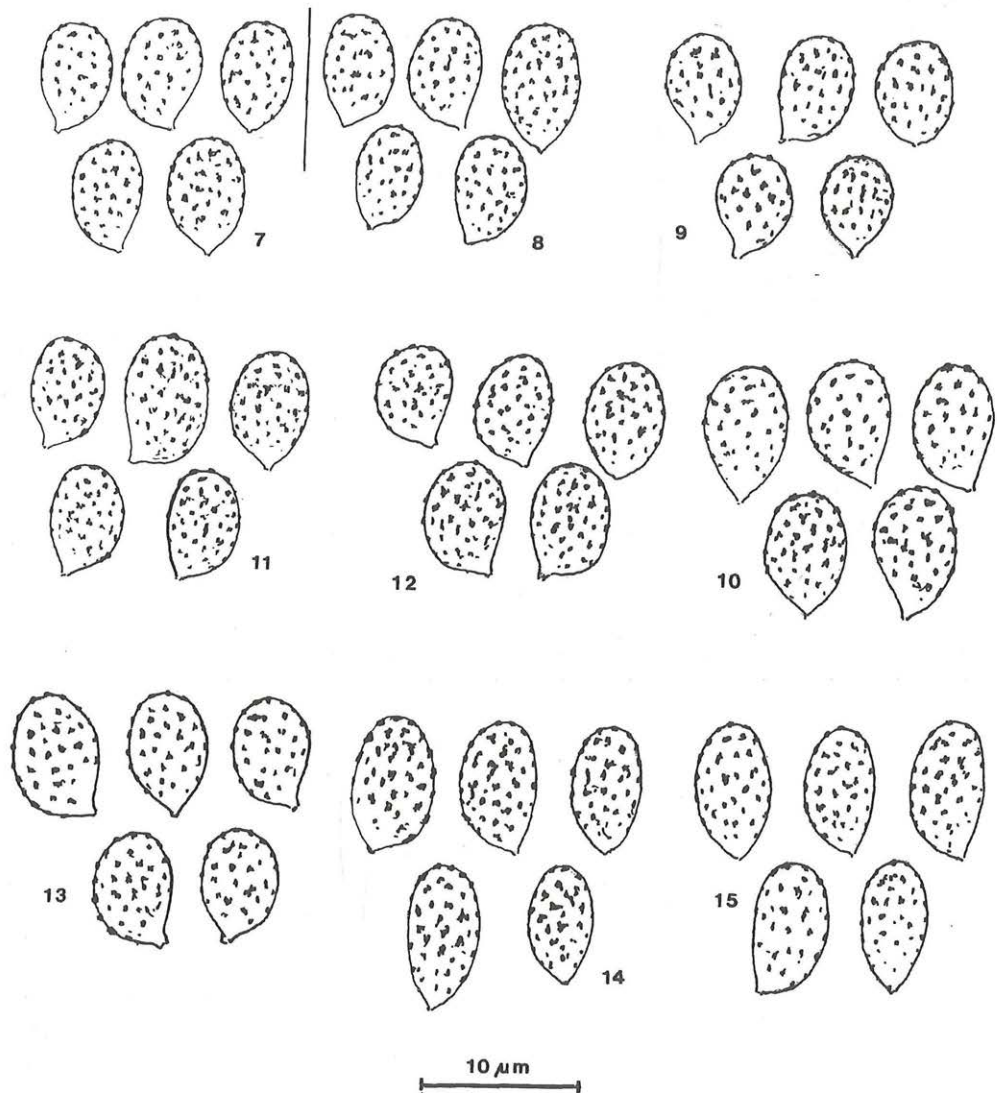
Differt a typo lamellis obscure violaceis et coloribus pilei plus minusve sordide griseo-brunneis. Holotypus: Austria Superior, Ebensee: Offensee, 20. 09. 1994, in herbario IB 94/287 conservatur.

Pileus 2.8-6 cm in diameter, strongly convex, compact, margin involute, dry, not hygrophamous, colour rather dingy brown, more gray-brown than the type variety, C 47P, 49P, 49N, often variegated, with age also with slight olivaceous tinge as in the type variety, in young specimens margin covered by ochraceous veil, dull. Lamellae deep violaceous-purple when young, Deep Dull Lavender, Slate Violet, Tamier Blue, Vinaceous Drab, Brownish Drab (R), later mixed with brown, Benzoe Brown (R), finally even, at least partly, Sayal Brown (R), adnate, close to crowded, L=80, l=1, 20/cm at the margin, 3-5 mm broad (1-2 times thickness of pileus context). Stipe strongly fusoid, compact and hard, 5-7 cm long, apex 10-15 mm thick, the ventricose part 16-25 mm thick, apex in young specimens pale lilac, otherwise pallid to brownish, sometimes much deeper violet, Deep Dull Lavender (R), often longitudinally innately striate, but not in all specimens. Veil ochraceous. Context violaceous in pileus and upper half of stipe, Deep Dull Lavender and Slate Violet (R) marbled, in lower half ochraceous Buff, cream Buff, with age also with wine-red spots. Without distinctive odour, taste mild.

Chemical reactions: KOH on pileus surface dark brown, no reaction on context.

Microscopic characters: Spores 6.2-7.0 x 4.1-5.0 μm , mean 6.5 (S=0.22) x 4.5 (S=0.18) μm , Q=1.4, V=54-87 μm^3 , mean 70 (S=7) μm^3 (in coll. 73/53a 6.5-7.7 x 4.1-5.3 μm , Q=1.6). Basidia 4-spored, 34-35 x 7-8 μm , clavate. Without cheilocystidia. Pileipellis in surface layer with repent, pale yellowish-brown, not gelatinized hyphae of 3-5 μm , with granulose encrustation, clamp connections present, epicuticular hyphae 6-10(-12) μm , stronger pigmented. Cortina hyphae 4-6 μm , with clamp connections.

Habitat: Coniferous forest (*Picea abies*, *Abies alba*) on calcareous soil.



Figs. 7-15. Spores (x 2000). - 7, 8, 10, 11. *Cortinarius variipes*; - 7. IB 94/298; - 8. IB 94/286; - 10. IB 81/357b from Bredehaugen, Norway; - 11. IB 89/328 from Barlow Pass, Washington. - 9. *C. variipes* var. *janthinophyllus* (IB 94/287 and IB 73/53a). - 14, 15. *C. praestigiosus*; - 14. IB 57/45 from Femsjö; - 15. IB 94/301.

Collections examined: Austria: Upper Austria, Almsee (MTB 8249/2), 02. 09. 1973 (IB 73/53a); - Ebensee: Offensee (MTB 8249/1), 20. 09. 1994 (IB 94-287, holotype).

Comments: Both varieties occur in the same forests both at the Almsee and Offensee, but not on the same mycelium.

Subgenus *Sericeocybe* P. D. ORTON

Cortinarius ferrugineipes RICEK (1987) forma. (Fig. 6)

Pileus 5-7 cm in diameter, convex, margin involute, dry, not hygrophanous, glabrous, smooth, with red-brown, rusty-brown colours (C 27R, 53R), disc also paler and more dingy (C 47P). Lamellae deep violaceous at first, Deep Vinaceous Gray (R), later becoming mixed with brown, Vinaceous Drab to Benzoe Brown (R), adnate to indistinctly emarginate, edges eroded, close, L about 80, $l=1-3$, 14-15/cm at the margin, 5-7 mm broad (equal to thickness of pileus context). Stipe 6.5-8 cm long, 14-20 mm thick, equal or downwards slightly enlarged, with violaceous colours at the apex and the base, in the middle part rusty brown discoloured, longitudinally fibrillose, but without or with only indistinct belts. Context deep violaceous in all parts, Slate Purple (R) and paler marbled, in the base of the stipe becoming somewhat ferrugineous. Without distinctive odour, taste mild. KOH and ammonia give no reactions on the context.

Microscopic characters: Spores $7.3-9.4 \times 5.3-6.5 \mu\text{m}$, mean 8.2 ($S=0.4$) $\times 5.7$ ($S=0.28$) μm , $Q=1.4$, $V=112-206 \mu\text{m}^3$, mean 140 ($S=19$) μm^3 , broadly ellipsoid to subglobose, verrucose. Basidia $25-28 \times 7.5-8 \mu\text{m}$, 4-spored. Without cheilocystidia. Epicutis relatively thin, formed of 4-6 μm thick hyphae with yellowish walls in KOH, clamp connections present. Hypodermium strongly developed, subcellular, elements 12-20 μm thick, walls in KOH very pale yellowish.

Habitat: under *Picea abies* and *Abies alba*, among mosses.

Collection examined: Austria: Upper Austria, Ebensee: near Offensee (MTB 8249/1), 20. 09. 1994 (IB 94/288).

Comments: RICEK (1987) describes and figures specimens with very strongly developed rusty-brown belts and patches on the stipe. In the above described collection this character was only indistinctly developed. I have several other records of this species which show this character in varying degree. The other characters agree well with the material of RICEK and he may be right, that the species belongs to sect. *Anomali*. This is corroborated by the strongly developed, subcellular hypodermium and the broadly ellipsoid to subglobose spores. One may argue about the validity of the name as RICEK indicated as type a collection in the Herbarium of the University of Graz and in the herbarium KRIEGLSTEINER et filii. Seemingly this is a divided collection, but he did not explicitly declare one part as holotype. Therefore, the two specimens are syntypes and the specimen at Graz is herewith chosen as lectotype.

Subgenus *Telamonia* (FR.: FR.) TROG

Cortinarius praestigiosus (FR. 1838) MASSEE (1893). (Figs. 14, 15)

Pileus 1.5 to 2.5 cm in diameter, convex and umbonate, dry, hygrophanous, in moist

condition not translucently striate, glabrous and smooth, shiny, in moist condition dark chocolate brown, C 29S, fading centrifugally and in radial streaks and becoming dingy red-brown, on disc C 47P, near the margin 49N, somewhat porphyraceous. Lamellae gray-brown with a violet tinge, then porphyraceous, C 27N, Light Vinaceous Drab (R), later C 53P, adnate to indistinctly emarginate, edges uneven, crowded, L=40-45, l=1-3, 18-19/cm at the margin, 2-4 mm wide (=2-3 times thickness of the pileus context). Stipe 2.5-3.5 cm long, 2.5-3.5 mm thick, apex in some specimens with a slight violaceous tinge, in others pallid, Pinkish Buff (R), with the same colour in the lower half. With a more or less distinct reddish to red-brown belt and some patches and fibrills from the universal veil. Context pale umber in moist pileus, pale brown in stipe. Without distinctive odour, taste mild.

Chemical reactions: with KOH (30%) both pileipellis and context slowly darker brown, veil brownish.

Microscopic characters: Spores 6.7-9.1 x 4.1-5.6 μm , mean 7.8 (S=0.5) x 4.8 (S=0.4) μm , Q=1.6, V=63-141 μm^3 , mean 95 (S=21) μm^3 , ellipsoid, punctate to verrucose. Basidia 30-35 x 6.5-7 μm , clavate, gill edges with clavate cheilocystidia, 30-40 x 7-9(-10) μm . In the lamellae trama subhymenial hyphae 4.5-6.2 μm , in mediotrillum 9-12(-13) μm wide. Hyphae of the veil rather wide, 8-10 μm , not discolouring in KOH, clamp connections present.

Habitat: under *Picea abies* and *Abies alba* among mosses.

Collections examined: Austria: Upper Austria, Ebensee: north of Offensee (MTB 8249/1), leg. C. FURRER, 22. 09. 1994 (IB 94/301). Italy: Trento, Paneveggio above Predazzo, 22. 9. 1993 (IB 93/238).

Comments: BIDAUD & al. (1995) list an inedited species *C. pseudopraestigiosus*, which differs by smaller spores. My measurements are overlapping and at present I am not yet convinced that an additional taxon can be distinguished. *C. boulderensis* A. H. SMITH has a similar habit and similar spores. Spore measurements from the holotype (SMITH 17461, Olympic Hot Springs, Olympic National Park, Clallam Co., Washington, 30. 09. 1941) are: 6.7-9.6 x 4.6-6 μm , mean 8 (S=0.5) x 5.1 (S=0.3) μm , Q=1.6, V=83-182 μm^3 , mean 111 (S=19) μm^3 , ellipsoid, finely verrucose. But the veil remnants are brighter red and contain anthraquinonic pigments, with KOH changing colour to purple.

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