

Four new *Conocybe* taxa in Europe

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Abstract: Three new species and a new variety from different sections of the genus *Conocybe* are presented, viz. *Conocybe enderlei*, *Conocybe enderlei* var. *variispora*, *Conocybe haglundii*, and *Conocybe juncicola*; their delimitation from similar or related species is discussed. A SEM-picture of the spores of one species and colour plates of three taxa are given.

Zusammenfassung: Drei neue Arten und eine neue Varietät aus verschiedenen Sektionen der Gattung *Conocybe* werden vorgestellt; es sind dies *Conocybe enderlei*, *Conocybe enderlei* var. *variispora*, *Conocybe haglundii* und *Conocybe juncicola*. Ihre Abgrenzung zu ähnlichen oder nahestehenden Arten wird diskutiert. Ein REM-Foto der Sporen einer Art und farbige Abbildungen von drei Taxa werden gegeben.

While working on sections, stirpes or other groups in the genus *Conocybe*, sometimes single collections have to be put aside because they cannot be identified to species, but also if little information about the variability of their characters or scanty material is available to justify the description of a new taxon. When new finds are made or revealing collections are found in a herbarium such unsettled problems sometimes can be clarified. Three such cases now can be presented with the description of a new taxon. A further new species has been identified from a copious and sufficiently documented herbarium specimen from Stockholm. In this sample, the microscopical characters are so unambiguous that I decided to describe a new species, although only one single collection is available.

The voucher specimens collected by myself, or provided by other mycologists, are deposited in the herbarium of the University of Vienna (WU) or in the private herbaria of HAUSKNECHT (H) and ZUCCHERELLI (RA).

For the distinction of species it becomes increasingly evident that, besides the germ-pore, the colour of the spores in the light microscope and the thickness of the spore wall and its colour in water or KOH are important. To a certain degree the colour of the spores depends on the mounting medium and the optical conditions of the microscope. Therefore I give a short description of my method of observation.

Spore colour as differential character

It is important to observe fully mature spores. Deposited spores can be used or if these are not available those adherent to the stipe should be judged. Spores are observed in 5% KOH solution (colourless L4 is nearly equivalent) or in tap water. Observation is done with an Olympus BH-2 microscope at 1000x magnification. A light blue filter is used. The colours of isolated spores are noted. It is important to observe several of them and to indicate the darkest tinge of each one. The same applies to the colour of the spore wall.

Conocybe enderlei HAUSKNECHT, spec. nova (Colour fig. XXIII, Fig. 1 a-e)

Latin description:

Pileus 7-25 mm latus, plane conico-convexus, umbonatus, primo ferrugineus, ad marginem pallidior, brunneolus, in statu sicco centro pallide aurantiacus, ad marginem pallide griseo-aurantiacus; hygrophanus, distincte striatus, superficies glabra, sicco micacea. Lamellae anguste adnatae, confertae, ventricosae, pallide ferrugineae. Stipes 20-35 mm longus, 1,5-3 mm latus, cylindricus vel basin versus leviter incrassatus, pallide flavus, melleus ad pallide aurantiacus, uniformiter coloratus, subtiliter pruinosis. Caro flavescens, inodora et insipida.

Sporae (5,5-)6,0-8,1 x 3,7-5,3 μm , in medio 6,0-7,6 x 4,1-4,6 μm , ellipsoidicae, sine poro germinativo, in potassio hydroxydico aurantio-flavae, tunica duplicata concolorata. Basidia tetrasporigera, 19-29 x 7-9 μm . Fibulae adsunt. Reactio ammoniacalis positiva. Cheilocystidia lecythiformia, 15-23 x 6-10,5 μm , capitulo 2,5-5 μm lato. Stipitipellis consistens 95 % cystidiis lecythiformibus collo usque 8 μm longo capituloque 2,5-5,5 μm lato, juvenilis elementis vesiculosus vel cylindrico-filiformibus sparsim immixtis. Pileipellis hymeniformis elementis sphaeropedunculatis, 30-40 x 13-22 μm , pileocystidia absentes, pigmento incrustato.

Habitat ad terram in silvis frondosis thermophilis mixtis, etiam in pratis, gregarius vel caespitosus.

Typus: Austria, Lower Austria, Hollabrunn, Stranzendorf (MTB 7562/1), on naked, loamy ground of a slightly grassy trail in mixed deciduous forest, near *Lacrymaria lacrymabunda* (BULL.: FR.) PAT., 29. 9. 1990, leg. A. HAUSKNECHT (WU 21175, holotypus).

Etymology: dedicated to the mycologist and excellent expert of *Bolbitiaceae* MANFRED ENDERLE, whose collection at first drew my attention on this new species.

Characters:

Pileus: 7-25 mm broad, flat conical-convex with flat, broad umbo; young and in fresh condition rusty brown, cognac (KORNERUP & WANSCHER 1975: 6E8, 6E7), towards the margin paler, light brown, sienna, camel, sun brown (6DE8, 6D7-6D5), dry in the centre light orange (5AB5, 5AB4), towards the margin light grey orange (5B3-4); hygrophanous, up to ½ of the pileus striate, drying out from the centre. Surface smooth, dry micaceous.

Lamellae: narrowly adnate, dense to moderately dense, ventricose, light rusty brown with somewhat paler, slightly crenulate lamellar edge.

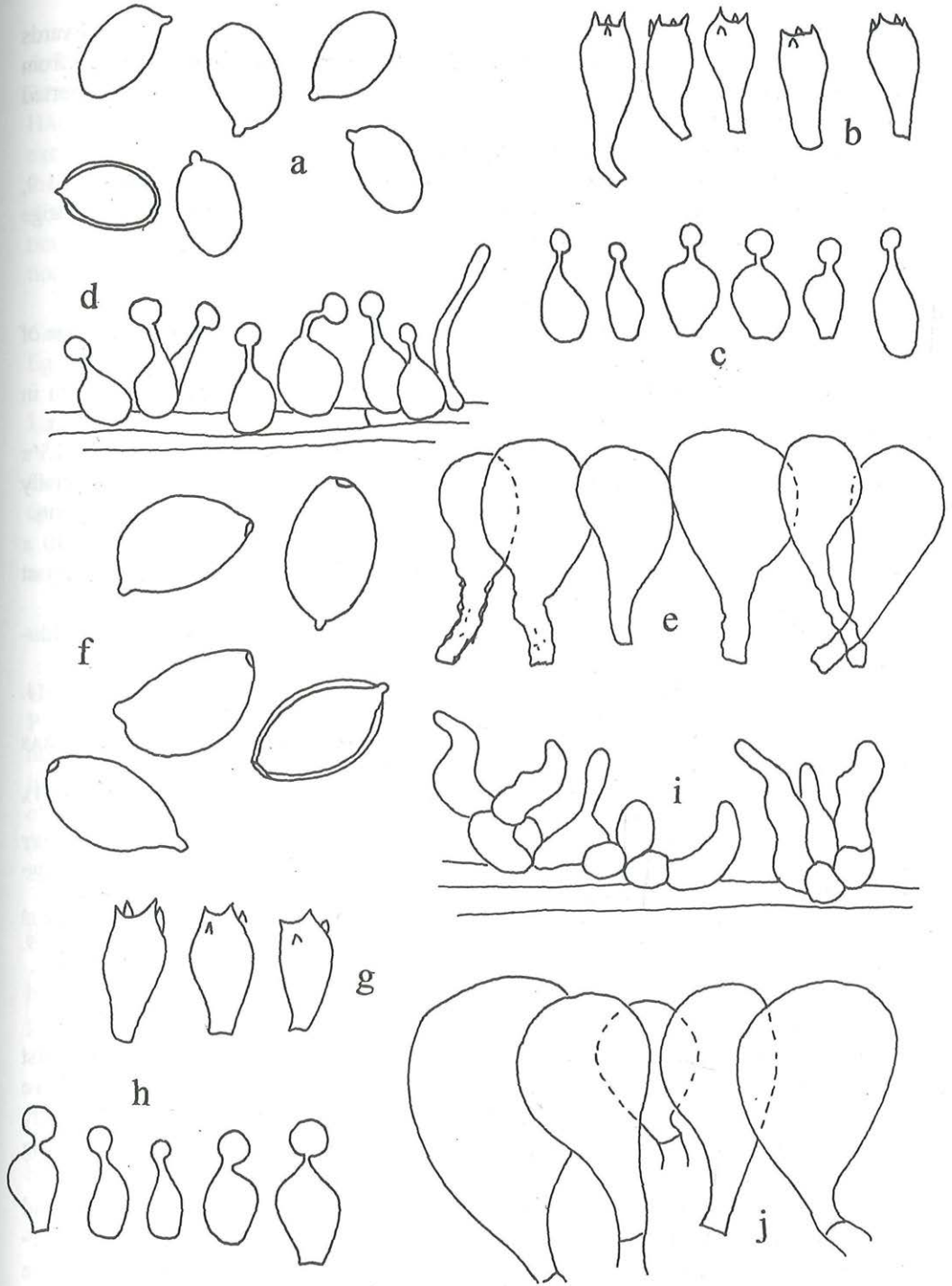


Fig. 1 a-e *Conocybe enderlei* (WU 21175, holotypus). a spores, x 2000. b basidia, x 800. c cheilocystidia, x 800. d stipe-covering, x 800. e pileipellis, x 800. f-j *Conocybe juncicola* (WU 20747). f spores, x 2000. g basidia, x 800. h cheilocystidia, x 800. i stipe-covering, x 800. j pileipellis, x 800.

Stipe: 20-35 mm long, 1.5-3 mm thick, cylindrical or slightly thicker towards base; pale yellow, honey yellow to pale orange (5A3-4), rather uniformly coloured from the apex to the base; slightly pruinose. Base not bulbous but sometimes deeply inserted in the ground.

Context: yellowish, smell and taste indistinct.

Spores: (5.5)-6.0-8.1 x 3.7-5.3 μm , on average 6.0-7.6 x 4.1-4.6 μm , Q = 1.5-1.9, ellipsoidal, thick-walled, germ-pore absent, in KOH orange yellow to pale orange brownish with concolorous, double wall.

Basidia: 4-spored, 19-29 x 7-9 μm .

Clamp-connections: present.

Ammoniacal reaction: positive (partly abundant short crystals at the edge of the cover-slip); only in the Italian collections more inconspicuously.

Cheilocystidia: lecythiform, 15-23 x 6-10.5 μm , with capitulum 2.5-5 μm in diam.

Stipe-covering: to more than 95% consisting of lecythiform cystidia, 14-25 x 6.5-11.5 μm with up to 8 μm long neck and 2.5-5.5 μm large capitulum; especially when young also sparsely intermixed with vesiculous or cylindrical, hair-like elements.

Pileipellis: hymeniform, consisting of sphaeropedunculate elements, 30-40 x 13-22 μm , between them no pileocystidia observed, pigment incrusting especially at the base of the sphaeropedunculate cells of pileipellis and subcutis.

Habitat and distribution: gregarious to slightly caespitose in thermophilic deciduous forests, moist to dry meadows or in dry grassland, from N to S Europe.

Collections examined (besides type): **Austria:** Burgenland, Illmitz, Kirchsee (MTB 8166/4), 14. 10. 2000, leg. I. KRISAI-GREILHUBER & H. VOGLMAYR (WU 21178).

Finland: Åland, Finström, Emkarby, Österskog, in pastured meadow, 11. 9. 1992, leg. J. VAURAS (WU 21239, TUR-A).

Germany: Bavaria, south of Riedheim, on the meadow of GOTTFRIED HONOLD (MTB 7527/1), 2. 9. 1992, leg. M. ENDERLE (WU 21129).

Italy: Ravenna, Pineta San Vitale, Bardello, in moist meadow, 10. 11. 1992, leg. A. HAUSKNECHT (WU 21272); - - 11. 11. 1992, leg. A. HAUSKNECHT (WU 21176 & 21177). Foggia, Mattinata, Tratturita, in dry grassland over limestone, 12. 11. 2000, leg. A. HAUSKNECHT & F. REINWALD (H S3287).

The Netherlands: Zuid-Holland, Alphen a. d. Rijn, near Zegerplas, 27. 7. 1988, leg. C. B. ULJÉ (L 0065434). Groningen, Wierthuizen, Waddendijk, on the ground between moss and grass, 7. 9. 1997, leg. R. SULLOCK ENZLIN (WAG-W).

Comments:

Conocybe enderlei is characterized by warm brown to orange brown colours, in moist condition strongly striate pileus, uniformly coloured stipe, distinctly to weakly positive ammoniacal reaction and above all, microscopically, by the small thick-walled, strongly coloured spores without a trace of a germ-pore (also under REM) and a stipe-covering of almost exclusively lecythiform cystidia with long necks.

The systematic position of the new species is somewhat problematic. Habit and spore size conform more to stirps *Mesospora* (WATLING 1982), the positive NH_3 reaction and the occurrence of single hair-like elements in the stipe-covering point more towards stirps *Tenera*; e.g., *C. macrocephala* KÜHN. & WATLING var. *riedheimensis* HAUSKN. & ENDERLE, in stirps *Tenera* has spores of similar small size as *C. enderlei* (HAUSKNECHT 2000). I therefore intend to classify the new species within stirps *Tenera*.

Macroscopically, *C. enderlei* can easily be confounded with *C. mesospora* KÜHN. & WATLING or an untypical, vividly coloured *C. brachypodii* (VELEN.) HAUSKN. & SVRČEK (= *C. excedens* KÜHN. & WATLING var. *pseudomesospora* SINGER & HAUSKN.). However, both have paler coloured spores with a distinct germ-pore and exclusively lecythiform cystidia on the stipe. Other representatives with small spores of the *C. mesospora* group, such as *C. microspora* (VELEN.) DENNIS and var. *brunneola* (KÜHN. & WATLING) SINGER & HAUSKN. and *C. roberti* SINGER & HAUSKN. in addition have mostly much smaller fruitbodies and other pileus colours, besides the deviations in germ-pore and ammoniacal reaction.

Conocybe enderlei* HAUSKNECHT var. *variispora* HAUSKNECHT, var. *nova (Colour fig. XXIV, Fig. 2 a-e)

Latin diagnosis:

A typo differt basidiis bisporigeris, sporis in medio grandioribus et varibilibus multiformioribusque in dimensionibus, sphaericis, ellipsoidicis ad elongato-ellipsoidicis, $Q = 1,2-2,0$.

Typus: Austria, Lower Austria, Hollabrunn, Maissau (MTB 7460/2), in freshly seeded grassland over sandy soil, 15. 5. 1984, leg. C. GRILL (WU 7137).

Etymology: "varius" (lat.) = variable and „spora“ = spore, because of the very variable spores.

Characters:

Pileus: 6-18 mm broad, up to 10 mm high, distinctly conical-campanulate to campanulate-convex, old more expanded with broad, obtuse umbo; young and in fresh condition in the centre brown, light agate brown (7E7), towards margin especially when older paler, up to sun brown (6D5), soon drying out and then brightly brown orange (6C8) in the centre, towards margin more grey orange (5B4, 5C4); hygrophanous, striate when moist, drying radially striate. Surface smooth, dry slightly micaceous.

Lamellae: narrowly adnate, ventricose, distant, bright rusty brown with indistinct lamellar edge.

Stipe: 20-42 mm long, 1-2 mm thick, cylindrical, base not or only slightly bulbous; young almost white, beige-ochre, older light ochre yellow, towards base more pale orange yellow, totally fine pruinose.

Context: smell indistinct.

Spores: 6.0-10.5 x 4.4-6.8 μm , on average 7.9-9.0 x 4.9-5.8 μm , $Q = 1.2-2.0$, broad ellipsoidal, oviform, sphaerical to almost cylindrical-elongate, extremely variable, partly intermixed with depressed or deformed spores, in KOH reddish yellow brown with double, red wall; germ-pore absent, not even a callus observed.

Basidia: 2(1)-spored, very rarely 4-spored (only in WU 21221, not found in the type), 13-22 x 7.5-9.5 μm , with long sterigmata.

Clamp-connections: present, but rare.

Ammoniacal reaction: weak, but distinctly positive (short needles at the edge of cover-slip).

Cheilocystidia: lecythiform, 16-23 x 6-9 μm , with long, narrow neck and 3-4 μm large capitulum.

Stipe-covering: consisting of lecythiform cystidia similar to cheilocystidia, very rarely intermixed with cylindrical-sphaerical elements.

Pileipellis: hymeniform, consisting of sphaeropedunculate elements (20-35 x 12-25 µm), no pileocystidia observed.

Habitat and distribution: in lawn, natural dry grassland and along grassy forest fringe, always on warm, open places; the variety has up to now only been known from E Austria.

Collections examined (besides type): Austria: Lower Austria, Hollabrunn, Maissau (MTB 7460/2), type locality, 20. 5. 1985, leg. A. HAUSKNECHT (WU 21220); - Ernstbrunn, Niederleis, Buschberg (MTB 7464/1), in dry grassland over limestone, 25. 10. 1981, leg. A. HAUSKNECHT & R. SCHÜTZ (voucher lost). Burgenland, Eisenstadt, Mörbisch, Schneidergraben (MTB 8265/4), along grassy forest fringe near *Robinia*, 26. 10. 1992, leg. A. HAUSKNECHT (WU 21221).

Comments:

Var. *variispora* differs from var. *enderlei* mostly by the number of sterigmata and the extremely variable larger spores. In the type collection the more strongly campanulate, less vividly coloured pilei are conspicuous.

The spores are very reminiscent of *Conocybe lobauensis* SINGER & HAUSKN. (see SINGER & HAUSKNECHT 1988: 109) but smaller. Further differences are the much larger fruitbodies with longer stipes, the hygrophanous, never rugose pileus, somewhat different pileus and stipe colours and the stipe-covering without hairs and only exceptionally with non-lecythiform elements.

Conocybe haglundii HAUSKNECHT, spec. nova (Fig. 2 f-j)

Latin description:

Pileus 4-8 mm latus, convexus, distincte umbonatus, centro potius brunneus, aliter mel-leus; distincte bicoloratus, etiam exsiccatum bicoloratum centro griseobrunneum ad marginem pallide brunneolum, hygrophanus, valde striatus. Lamellae anguste adnatae, potius distantes, ventricosae, pallide ferrugineae in exsiccato. Stipes 10-16 x 0,5 mm, filiformis, cylindricus basin versus non incrassatus, apex hyalinus, basin versus brun-neoflavus, superficies glabra, epruinosa. Caro valde gracilis.

Sporae 5,8-7,8 x 3,3-4,4 µm, in medio 7,1 x 3,8 µm, Q = 1,5-2,0, ellipsoidicae, lacriformes, apiculo grandi, semper sine poro germinativo, in potassio hydroxydico hyalinae, valde tenuitunicatae, glabrae. Basidia tetrasporigera, 12-18 x 6-8,5 µm. Fi-bulae interdum basi basidiorum tramaeque praesentes. Cheilocystidia lecythiformia, 12-17 x 6-8 µm, capitulo 3-4 µm lato. Stipitipellis consistens solum cystidiis lecythifor-mibus cheilocystidiis similis sed variabiliores, 10-18 x 4-7,5 µm capitulo 2,5-4 µm. Pileipellis hymeniformis elementis sphaeropedunculatis, 22-35 x 17-26 µm, pileocys-tidia absentes, pigmento incrustato.

Habitat ad terram arenosam.

Typus: Sweden, Djurö s. n., Runmarö, practise ground, in sand, 17. 8. 1952, leg. G. HAGLUND (S, as *Conocybe* aff. *brunneola*, holotype; isotype in WU 21174).

Etymology: named after the finder, the excellent Swedish mycologist G. HAG-LUND.

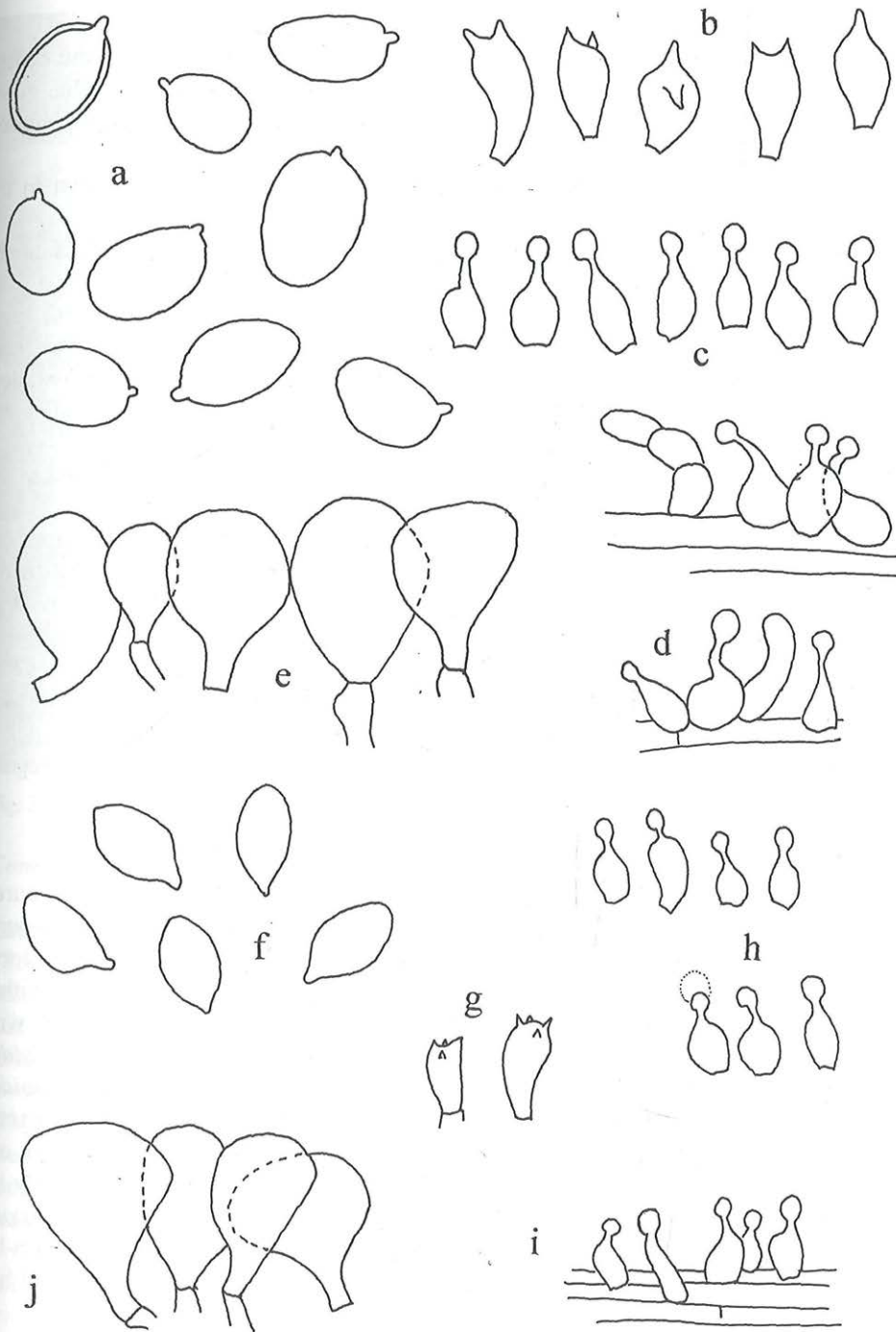


Fig. 2 a-e *Conocybe enderlei* var. *variispora* (WU 7137, holotypus). a spores, x 2000. b basidia, x 800. c cheilocystidia, x 800. d stipe-covering, x 800. e pileipellis, x 800. f-j *Conocybe haglundii* (S, holotypus). f spores, x 2000. g basidia, x 800. h cheilocystidia, x 800. i stipe-covering, x 800. j pileipellis, x 800.

Characters:

Pileus: 4-8 mm broad, convex with large umbo; rather deeply brown in the centre, otherwise honey yellow; this remarkable bicolouration still being clearly visible in the exsiccatum with a grey brown centre and a pale beige brownish margin; hygrophanous, in moist condition strongly striate from the margin up to the centre.

Lamellae: narrowly adnate, rather distant, ventricose, pale rusty brown in the exsiccatum.

Stipe: 10-16 x 0.5 mm, filiform, cylindrical, base not enlarged, hyaline at the apex, brownish yellow towards the base, smooth, not pruinose.

Context: very thin.

Spores: 5.8-7.8 x 3.3-4.4 μm , on average 7.1 x 3.8 μm , Q = 1.5-2.0, ellipsoidal-lacrimoniform with large apiculus, almost hyaline in KOH, extremely thin-walled, smooth, germ-pore absent when observed in LM and SEM.

Basidia: 4-spored, 12-18 x 6-8.5 μm .

Clamp-connections: sporadically present at the base of the basidia and in the trama.

Cheilocystidia: lecythiform, 12-17 x 6-8 μm with 3-4 μm large capitulum.

Stipe-covering: consisting exclusively of lecythiform cystidia similar to the cheilocystidia, but somewhat more variable, 10-18 x 6-8 μm , with 2.5-4 μm large capitulum.

Pileipellis: hymeniform, consisting of sphaeropedunculate cells, 22-35 x 17-26 μm , pigment encrusting at the base of the sphaeropedunculate cells and in the subcutis, pileocystidia absent.

Habitat and distribution: on a practice ground, in sand of a sand bank, gregarious. *Conocybe haglundii* is only known from the type locality.

Comments:

The typical characters of the new species are a small fruitbody, distinctly bicoloured strongly striate pileus, almost colourless slightly lacrimoid spores without germ-pore, small cheilocystidia with small capitula, a stipe-covering consisting exclusively of lecythiform cystidia. Thanks to the latter character, the species is to be classified within sect. *Conocybe* stirps *Mesospora* (WATLING 1982), in which no other species with such spores is known. Similarly pale almost colourless spores occur in *C. spiculoides* KÜHN. & WATLING and *C. pallidospora* KÜHN. & WATLING. *Conocybe spiculoides* belongs to stirps *Magnicapitata* and differs from *C. haglundii* mainly in significantly larger cheilo- and caulocystidia with a capitulum 4-9.5 μm in diam. The spores are larger and more ellipsoidal, the basidia are larger and in the pileipellis not rarely lecythiform pileocystidia similar to the cheilocystidia are found. *Conocybe pallidospora* belongs to stirps *Siliginea* in which the stipe-covering consists of hairlike and non-lecythiform cystidia. The spores of *Conocybe pallidospora* are pale and thin-walled but much larger with an indistinct germ-pore.

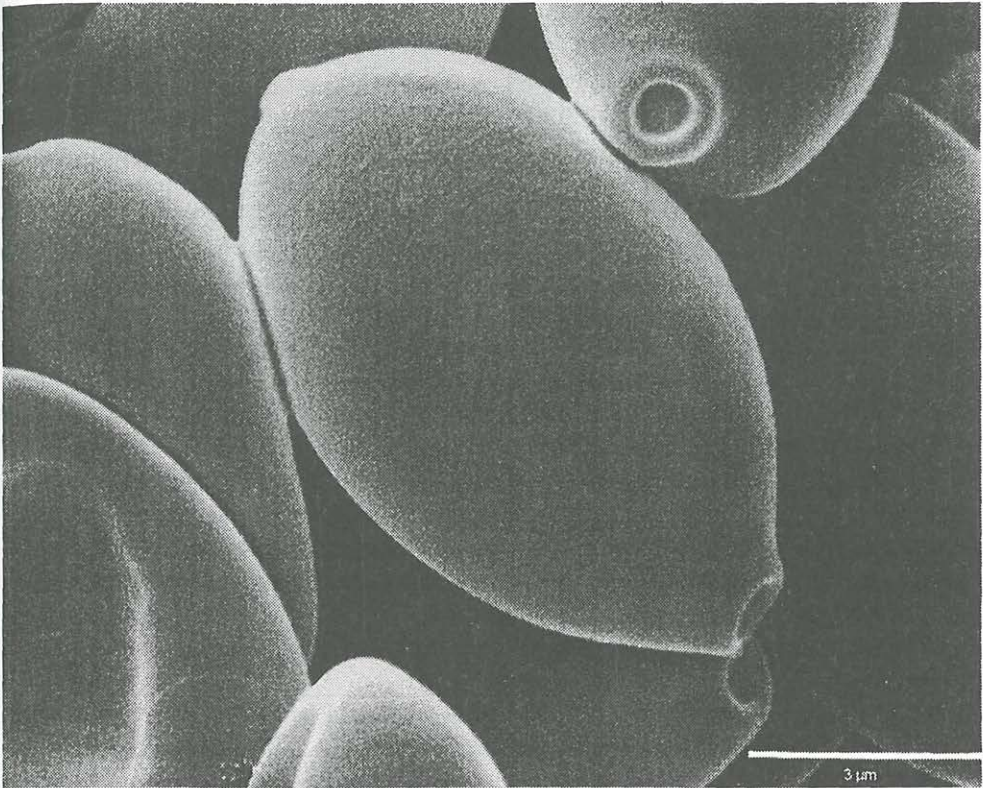


Fig. 3. *Conocybe juncicola* (WU 20747), spores.

***Conocybe juncicola* HAUSKNECHT, spec. nova** (Colour fig. XXV, Figs. 1 f-j, 3)

Latin description:

Pileus 6-40 mm latus, plane convexus, ± subtiliter umbonatus, centro juvenilis et in statu humido ferrugineus, brunneus, ad marginem pallidior, postremo avellaneus, pallide griseo-brunneus; hygrophanus, non striatus, denique humecto pilei veteres leviter striati; superficies glabra, nitida. Lamellae anguste adnatae, confertae, angustae vel leviter ventricosae, pallide ferrugineae. Stipes 15-45 mm longus, 1,5-3 mm latus, cylindricus basin versus non bulbosus, primo albus, deinde usque ad aurantio-griseus, mox medio fuscatus, usque ad griseo-brunneus, rubro-brunneus; superficies pruinosa vel tomentosa, basis ad fasciculos mortuos *Junci effusi* L. sita, sed non radicans. Caro alba ad ochracea, basi stipitis atrobrunnea, odore leviter terraneo.

Sporae 7,9-10,9 x 5,4-6,4 μm, in medio 9,5-10,2 x 5,8-6,2 μm, Q = 1,5-1,8, ellipsoidicae, leviter duplicato-tunicatae, poro germinativo parvo, asymmetrico ad excentrico; in potassio hydroxydico aurantio-flavae ad aurantio-brunneae. Basidia tetrasporigera, 17-25 x 8,5-11,0 μm. Fibulae praesentes. Cheilocystidia lecythiformia, 16,5-25 x 6-11 μm, capitulo 2-6 μm lato. Stipitipellis solum elementis filiformibus et non lecythiformibus, 30 x 8 μm. Pileipellis hymeniformis, elementis sphaeropedunculatis, 25-53 x 17-32 μm, pileocystidia absentes, pigmento leviter incrustato.

Habitat in pratis ± inundatis ad fasciculos mortuos *Junci effusi*.

Typus: Italy, Ravenna, Pineta San Vitale, Bardello, on very wet place in a swamp meadow, on dead parts of *Juncus effusus*, 11. 11. 1997, leg. A. HAUSKNECHT & A. ZUCCHERELLI (WU 17833, holotype).

Etymology: „juncicola“ (lat.) = living on *Juncus*, on account of the habitat.

Characters:

Pileus: 6-40 mm broad, flat convex with or without obtuse, flat umbo; young and in moist condition rusty brown, cognac, leather brown (6E8, 6E7, 6E6, 6DE6), even deep brown (7E8) in the centre, paler towards margin, red-haired, sun brown to sienna (6C4, 6D5-6D7), old fruitbodies with more dull colours, camel, light grey brown (6D4, 6D4-5); hygrophanous, but in fresh condition completely estriate, after being moist for a longer time old pilei weakly striate. Surface fatty shining when moist, smooth.

Lamellae: narrowly adnate, dense, narrow to slightly ventricose, light rusty brown with inconspicuous lamellar edge.

Stipe: 15-45 mm long, 1.5-3 mm thick, cylindrical, base not bulbous, young almost white, then birch-white to light orange grey (6B2-3), soon, above all in the centre darker, up to dirty grey- to reddish brown; surface tomentose/pruinose and often extremely strongly striate; stipe base adhering to dead remnants of *Juncus*, but not directly rooting.

Context: whitish to ochre, in the stipe base up to blackish brown, with slightly soil-like smell.

Spores: 7.9-10.9 x 5.4-6.4 μm , on average 9.5-10.2 x 5.8-6.2 μm , Q = 1.5-1.8, ellipsoidal with slightly double wall and small, partly also in front view asymmetrical to eccentric germ-pore; in KOH orange yellow to light orange brownish.

Basidia: 4-spored, 17-25 x 8.5-11 μm .

Clamp-connections: present.

Cheilocystidia: lecythiform, 16.5-25 x 6-11 μm with 2-6 μm large capitulum.

Stipe-covering: consisting only of hair-like and non-lecythiform elements, the latter up to 30 x 8 μm ; even at the stipe apex no lecythiform cystidia observed.

Pileipellis: hymeniform, consisting of sphaeropedunculate cells (25-53 x 17-32 μm), pileocystidia absent; pigment weakly incrusting.

Habitat and distribution: up to now only observed on dead parts of *Juncus effusus* (one find in a place, where *Juncus* was burnt). Hitherto the species is only known from the type locality.

Collections examined (besides type): **Italy:** Ravenna, Pineta San Vitale, Bardello, 11. 11. 1997, leg. A. HAUSKNECHT (WU 17834); - - 10. 11. 2000, leg. A. HAUSKNECHT & A. ZUCCHERELLI (WU 20747, RA).

Comments:

The most striking character is the small but distinctly asymmetric to eccentric germ-pore of the spores. In the genus *Conocybe* this character hitherto has become known only in two large-spored, dung inhabiting species, i.e. *C. wallingii* HAUSKN. and *C. gigasperma* ENDERLE & HAUSKN. In a montaneous spruce forest in Salzburg I found a single fruitbody whose spores also had an eccentric germ-pore (*Conocybe obliquoporus* ad int., see RÜCKER & al. 1993: 99), but it belonged to sect. *Mixtae* (WATLING

1982) with larger spores than the new species. Unfortunately the material available was insufficient for a clarification and eventual new description.

Macroscopically, *C. juncicola* could be confounded with *C. sienophylla* (BERK. & BR.) SINGER ss. auct. europ. However, the latter is distinguished by smaller fruitbodies, mostly distinctly striate pileus and less strongly striate stipe, besides an always central germ-pore and often some lecythiform cystidia at least on the stipe apex. The same is true for *C. anthracophila* KÜHN. & WATLING which can be hardly distinguished macroscopically from *C. sienophylla* but becomes as large as *C. juncicola*. *Conocybe anthracophila* has much duller colours towards brown, partly with an olive tint, a distinctly striate pileus and spores that become darkly reddish brown in KOH with a central germ-pore (see PEINTNER & al. 1999).

I thank Prof. Dr IRMGARD KRISAI-GREILHUBER, Vienna, for making the latin descriptions and diagnosis and for the translation into English. Further, I thank MANFRED ENDERLE, Leipheim-Riedheim, for placing his notes and herbarium specimen at my disposal; Prof. ANDERS TEHLER, Prof. NILS LUNDQVIST, CECILIA HAMMARBERG and GUNVI LINDBERG (all in Stockholm) for help with the translation of the notes of G. HAGLUND's *Conocybe* collection; the curators of the herbaria L, S, TUR-A, WAG-W and WU for the loan of material; Dr H. HALBRITTER for taking the REM-picture; and MONIKA KÖBERL for the artwork.

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XXIII



XXIV



XXV



Colour fig. XXIII. *Conocybe enderlei* (WU 21175, holotypus). Colour fig. XXIV. *Conocybe enderlei* var. *variispora* (WU 21221). Colour fig. XXV. *Conocybe juncicola* (WU 17833, holotypus). – Phot. A. HAUSKNECHT.

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