

ADDITIONAL STUDIES IN COPRINUS SUBSECTION GLABRI

C. B. ULJÉ¹ & H. BENDER²

First *Coprinus lilatinctus*, belonging to subsect. *Glabri*, is described as new. Secondly, nomenclatural reasons are given for *Coprinus nudiceps* P.D. Orton to be replaced by the older name *C. schroeteri* P. Karst. Type studies of both taxa are given and their synonymy is discussed. To facilitate identification an updated key is given for the species in subsect. *Glabri*.

In 1982 the second author collected for the first time a taxon rather similar to *Coprinus leiocephalus* P.D. Orton but with distinct lilac colours in the young specimens. This character, and the fact that the basidiocarps were larger and more cylindrical than usual in *Coprinus leiocephalus*, made a closer study of the specimens necessary and microscopically a number of characters also proved to be different. The material was labelled by Bender under the provisional herbarium name *Coprinus lilatinctus*, but not published. A few years later the first author recognized the same species, but, at the time, took no action to publish it. Now more material has been collected which confirms the constancy of the differences from *Coprinus leiocephalus*, and we are convinced that we are dealing with an undescribed species.

For the abbreviations used in this paper we refer to Uljé & Noordeloos (1993: 258).

ACKNOWLEDGEMENTS

Machiel Noordeloos critically reviewed and improved the text of this paper, for which we are very grateful. John Lennie is cordially thanked for editing the English text of this paper. Dr. R. A. Maas Geesteranus kindly corrected the Latin diagnosis.

Coprinus lilatinctus Bender & Uljé, *spec. nov.* — Plate 1, Fig. 1

Pileus junior usque ad 30 mm altus, 16 mm latus, cylindricus, ellipsoideus vel conicus, adultus ad 50 mm latus, junior distincte lilacino-tinctus, demum lilaceo-griseo-brunneus vel pallide griseo-brunneus vel griseus, glaber. Lamellae, L = 36–45, l = 1–3(–5), liberae, primo albae demum griseae vel atrae acie pallidior. Stipes usque ad 100 × 2–3 mm, versus basim incrassatus vel bulbosus, albus vel griseo-albus.

Sporae 9.6–13.3 × 9.0–11.2 × 6.1–8.3 µm, 5-angulatae, cordiformes, poro germinativo excentrico praeditae. Basidia 20–45 × 9–12 µm, tetrasporigera. Pleurocystidia 30–95 × 22–38 µm, vesiculosa, subcylindracea, ellipsoidea vel subutriformia. Cheilocystidia 25–70 × 12–28 µm, vesiculosa, ellipsoidea, obovoidea vel subcylindracea, interdum utriformia. Fibulae presentes. Pileipellis hymeniformis e elementis clavatis vel vesiculosis. Elementae microscopicae, praesertim in pileipelle vel hymenio cum granulis griseo-alutacis. Ad terram argillaceam vel ad fragmentam lignosam, gregarius vel fasciculatus.

Holotypus: Netherlands, Alphen a/d Rijn, near Zegerplas, 27-VIII-1988, C. B. Uljé 987 (L).

- 1) Van Dijkstraat 21, 2405 XE Alphen a/d Rijn, The Netherlands.
- 2) Webschulstraße 50, 4050 Mönchengladbach 1, Germany.



Plate 1. *Coprinus lilatinctus*. Fruit-bodies in situ XI. Holotype.

Pileus up to 30 mm high and 16 mm wide when still closed, cylindrical ellipsoid or conical, expanded pileus convex, up to 50 mm wide, lilac when young and fresh, then lilaceous grey-brown, the lilac tinge remaining longest at centre, later pale greyish brown or in most cases greyish, especially at centre; smooth. Lamellae $L = 36-45$, $l = 1-3(-5)$, free, white at first then grey to black with pale edge. Stipe up to $100 \times 2-3$ mm, slightly widened downwards, white or greyish white, at base somewhat swollen (-5 mm).

Spores [160, 8, 6] $9.6-13.3 \times 9.0-11.2 \times 6.1-8.3 \mu\text{m}$, $Q = 1.05-1.30$, av. $Q = 1.12-1.22$; av. $L = 10.7-12.3$, av. $B = 9.5-10.1 \mu\text{m}$, 5-angular and heart-shaped with slightly elongate apex in frontal view, ellipsoid in side view, dark red-brown under the microscope, with eccentric germ pore. Basidia $20-45 \times 9-12 \mu\text{m}$, 4-spored, surrounded by (4-)5-8(-9) pseudoparaphyses. Pleurocystidia $30-95 \times 22-38 \mu\text{m}$, vesiculose, subcylindric, ellipsoid or subuttriform. Cheilocystidia $25-70 \times 12-28 \mu\text{m}$, vesiculose, ellipsoid, obovoid or subcylindric, sometimes a few utriform. Clamp-connections present. Pileipellis hymeniform, made up of clavate or balloon-shaped cells. Part of all microscopical elements, especially pileipellis, cheilocystidia and basidia with grey yellowish granules, probably consisting of oil drops.

Habitat & distribution — In small groups, more or less fasciculate; on paths of clayey soil covered with wood-chips. Rare, only known from Germany and the Netherlands; July–Sept.

Collections examined. GERMANY: Mönchengladbach, Volksgarten, 28 Aug. 1982, *H. Bender*, on debris of deciduous wood. — NETHERLANDS: prov. Flevoland, Muiderzand, 19 July 1988, *C. B. Uljé 932*; prov. Zuid-Holland, Leiden, Leiden-Noord, near allotment gardens, 23 Aug. 1987, *C. B. Uljé 858*; idem,

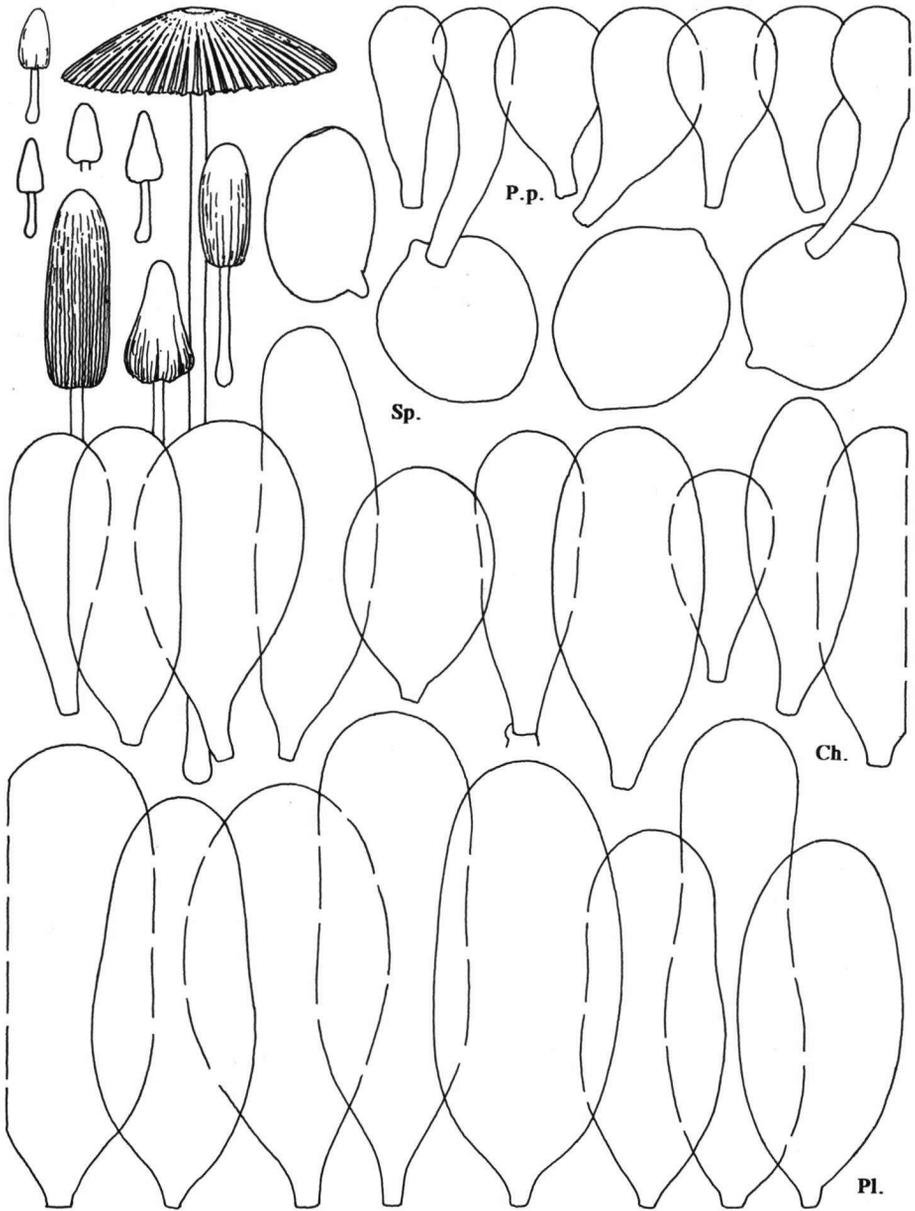


Fig. 1. *Coprinus lilatinctus*. Basidiocarps, × 1; spores, × 2000; pileipellis, pleuro- and cheilocystidia, × 800 (all from type).

6 July 1988, *C.B. Uljé 944*; Alphen a/d Rijn, near Zegerplas, 27 Aug. 1988, *C.B. Uljé 987* (holotype, L); Reeuwijk, Reeuwijkse Hout, 10 Sept. 1995, *C.B. Uljé 1272*.

Coprinus lilatinctus is a species rather close to *C. leiocephalus* P.D. Orton and *C. plicatilis* (Curt.: Fr.) Fr. It differs from both in shape, size and colour of the basidiocarps, size of the spores, and the grey yellowish granules in the microscopical elements, though in dried material the granules are not always clear. The shape of the spores is similar to that of *C. leiocephalus*, but they are distinctly larger (av. length of spores in *C. leiocephalus*: 9.0–10.7, in *C. lilatinctus*: 11.3–11.5 μm). In *C. plicatilis* the spores are more elongate and on average, just as in *C. leiocephalus*, less than 9.5 (9.8) μm wide (in *C. lilatinctus* 9.5–10.1 μm). *Coprinus nudiceps* P.D. Orton agrees in spore size, but that species is smaller, lacks lilaceous tints and never grows on wood-chips. However, the most important difference is the shape of the spores which is rounded triangular in *C. nudiceps* and without the lemon-shaped apex that is characteristic in *C. lilatinctus*, *C. leiocephalus* and *C. plicatilis*.

In the literature no colour illustrations of our new species are available.

ON COPRINUS NUDICEPS

In the past *Coprinus nudiceps* P.D. Orton has been described under several names from different substrates (Uljé & Bas, 1988: 443). Until recently, the only species we had studied, for which type material was available, was that of *Coprinus nudiceps* P.D. Orton and we used that name for the taxon. The first author has now studied the type of *Coprinus schroeteri* P. Karst. and found the material identical to *C. nudiceps* except in the size of the basidiocarps, which is smaller in *C. schroeteri* than commonly found in *C. nudiceps*. However, the microscopical characters agree in all respects. Since the name of Karsten has priority over *Coprinus nudiceps*, and also seems to be the oldest name that may refer to this species (Uljé & Bas, 1988: 444) we introduce here the name *Coprinus schroeteri* P. Karst. for *C. nudiceps*. The original diagnoses of both taxa are given below and supplemented with data and illustrations obtained from the type-studies.

Although both *Coprinus schroeteri* and *C. nudiceps* are described from dung, the species frequently is collected from soil. The colour of the basidiocarp differs according to the substrate on which it has been collected: specimens from dung are generally yellowish or nice ochre-brown, those from soil (generally in lawns) are usually somewhat darker brown or red-brown. Because of this macroscopical difference there may appear to be two taxa but both types are indistinguishable microscopically. In addition dark brown specimens have also been found on dung. In our experience, other dung-inhabiting species also tend to have yellow colours, possibly under the influence of the substrate, and the character is, therefore, of restricted taxonomical value. We attach more importance to the microscopical characters and, in the case of *Coprinus schroeteri*, we see no reason to keep the yellowish specimens apart from the brown ones.

Colour photographs of *C. schroeteri* (as *C. nudiceps*) have been published by Bender & Enderle (1988: opposite p. 48) and by Cacialli et al. (1995: 227).

Type studies:

Coprinus schroeteri P. Karst., Meddn Soc. Fl. Fauna fenn. 5 (1879) 20 (Symb. Mycol. fenn. VI). — Fig. 2

Original diagnosis:

Pileus tenerrimus, ex ellipsoideo vel ovoideo expansus revolutusque, sulcatus, glaber, ochreo-isabellinus vel subgilvus, expallens, demum dilute fuliginatus, ad 1 cm usque latus. Stipes aequalis, sursum leviter striatulus, primitus puberulus, 1–2 cm longus. Lamellae fuscae. Sporae angulato-ovoideae, subinde anguloso-sphaeroideae vel sphaeroideo-ellipsoideae, fuscae (s.l.), pellucidae, longit. 13–15 mmm, crassit. 8–12 mmm.

In fimo bovino prope Mustiala die 20 m. Aug. h. a. semel. Priori proximus.

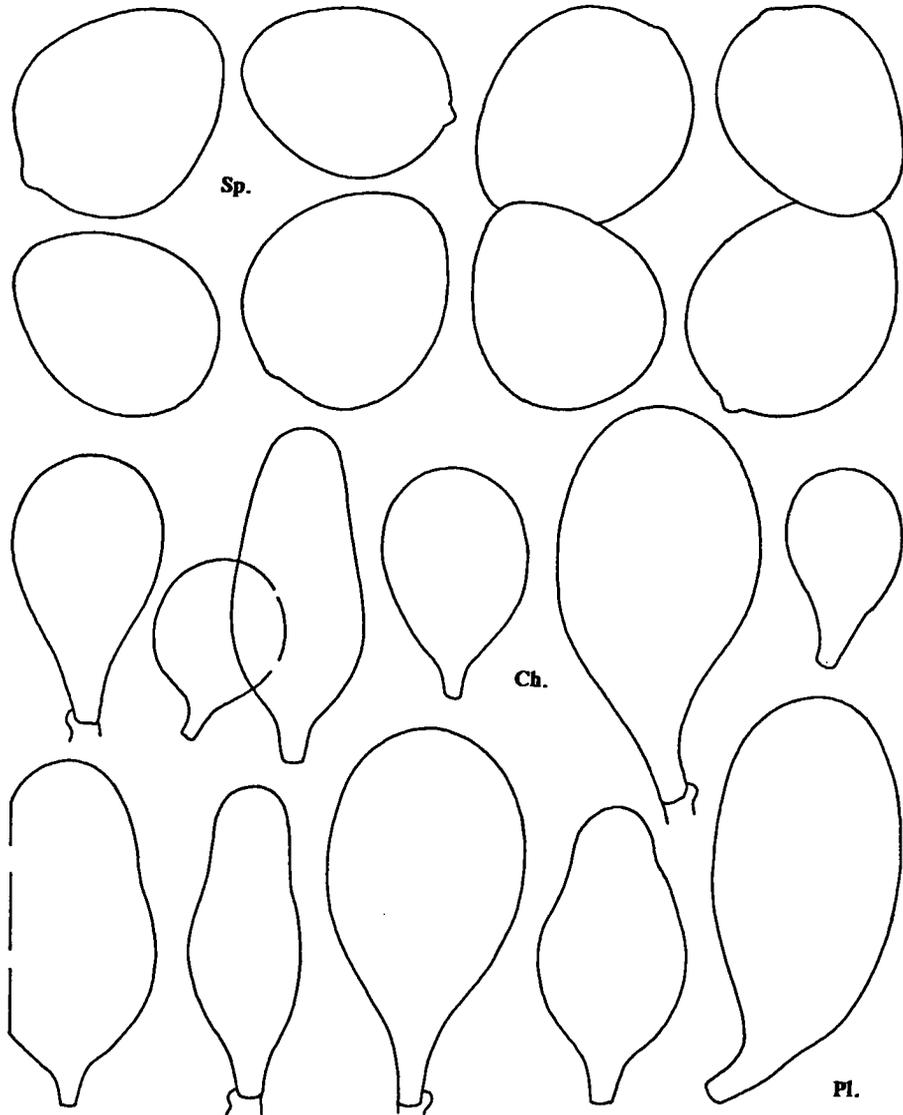


Fig. 2. *Coprinus schroeteri*. Spores, $\times 2000$; pleuro- and cheilocystidia, $\times 800$ (all from type).

Observations on the type

Spores [20, 1, 1] $11.3\text{--}14.2 \times 10.7\text{--}12.3 \mu\text{m}$; $Q = 1.05\text{--}1.20$, av. $Q = 1.15$; av. $L = 13.1$, av. $B = 11.4 \mu\text{m}$. Basidia $22\text{--}42 \times 10\text{--}13 \mu\text{m}$, 4-spored, surrounded by 6–7 pseudoparaphyses. Pleurocystidia $50\text{--}75 \times 18\text{--}32 \mu\text{m}$, ellipsoid, vesiculose or utriform. Cheilocystidia $35\text{--}65 \times 18\text{--}35 \mu\text{m}$, subglobose, ellipsoid or slightly utriform. The cystidia are only slightly developed because of the young stage of the basidiocarps used for studying cystidia.

Collection examined. FINLAND: Fennia Travastia australis, Tammela, Mustiala, 20 Aug. 1878, P. Karsten 3762 (holotype, H).

Coprinus nudiceps P. D. Orton, Notes R. bot. Gdn Edinb. 32 (1972) 142 (Notes on British Agarics. IV). — Fig. 3

A C. misero a sporis majoribus et habitu robustiore differt. Pileus ellipsoideus vel ovoideus $7\text{--}15/4\text{--}8$ mm, dein expansus $9\text{--}24$ mm interdum ad discum depressus, luteolus vel ochraceus dein ad discum fulvum vel cinnamomeum versus griseascens, primo laevis leviter nitidus, mox ad marginem dein ad discum versus sulcatus vel plicato-striatus, ad marginem postremo manifeste laceratus vel radialiter fissuratus. Lamellae liberae vel anguste adnatae, e pallide luteolo vel ochraceo mox umbrinae vel nigricantes, subconferatae, ad aciem primo albo-flocculosae. Stipes $30\text{--}60/0.5\text{--}1$ mm, sursum attenuatus, leviter bulbosus (ad basim $1.5\text{--}3$ mm latus) ex albido sordide cremeus vel cremeo-luteolofuscus, minute adpresse sericeostriatus, ad basim primo fibrillis albosericis manifestis obtectus. Caro pilei concolorata ad discum admodum crassa. Odor nullus. Sporae lentiformes, ellipsoideo-ovoideae vel subgloboso-triangulares interdum leviter 5- vel 6-angulatae, $13\text{--}15.5/8.5\text{--}9.5/10\text{--}12 \mu\text{m}$ (Fig. 4A, B), poro germinativo medio, in cumulo violaceonigrae. Basidia 4-sporigera. Cystidia aciei lamellarum pyriformia vel utriformia interdum irregulare vel late fusiformia vel vesiculosa, $30\text{--}60/14\text{--}28 \mu\text{m}$. Cystidia faciei lamellarum non vidi. Cellulae cuticulae pilei $10\text{--}26 \mu\text{m}$ latae. Setulae et sphaerocystes desunt.

Inverness-shire. Tomich, ad fimum equinum, 3 ix 1971, Orton 4133 (holotype, E).

Cap ellipsoid or ovoid $7\text{--}15/4\text{--}8$ mm, then expanded \pm plane $9\text{--}24$ mm, margin becoming conspicuously split or lacerate radially, saffron or ochraceous (G in Colour Chart), then becoming grey from margin inwards and fulvous, sienna or cinnamon at centre, smooth and rather shiny at first then soon plicate or grooved-striate from margin inwards. Gills free or narrowly adnate, pale saffron or pale ochraceous then buff, soon umber or date-brown to blackish, fairly crowded, edge white flocculose when fresh. Stem $30\text{--}60/0.5\text{--}1$ mm ($1.5\text{--}3$ mm at the base), attenuated upwards from slightly bulbous base, whitish then dirty cream or pale creamy-buff, minutely adpressedly silky fibrillose and \pm interruptedly striate, base with conspicuous adpressed white silky fibrils when fresh. Flesh concolorous in cap, often fairly thick at centre. Smell none. Spore-print violaceous-black.

Spores lentiform, ellipsoid in side-view, subglobose-triangular or slightly 5- or 6-angled in face-view, $13\text{--}15.5/8.5\text{--}9.5/10\text{--}12 \mu\text{m}$ (Fig. 4A, B), germ-pore central. Basidia 4-spored. Marginal cystidia pyriform to \pm utriform or irregularly or broadly fusiform or vesiculose, $30\text{--}60/14\text{--}28 \mu\text{m}$. Facial cystidia not seen. Cells of cap cuticle $10\text{--}26 \mu\text{m}$ broad. Setules and sphaerocysts absent.

Inverness-shire, Tomich, on horse dung, 3 ix 1971, Orton 4133 (holotype, E). Midlothian, Selm Muir Plantation, on (?cow) dung, 7 x 1967, leg. R. Watling. Mull. Torosay House, 10 ix 1968, leg. P. James, Watling 7859.

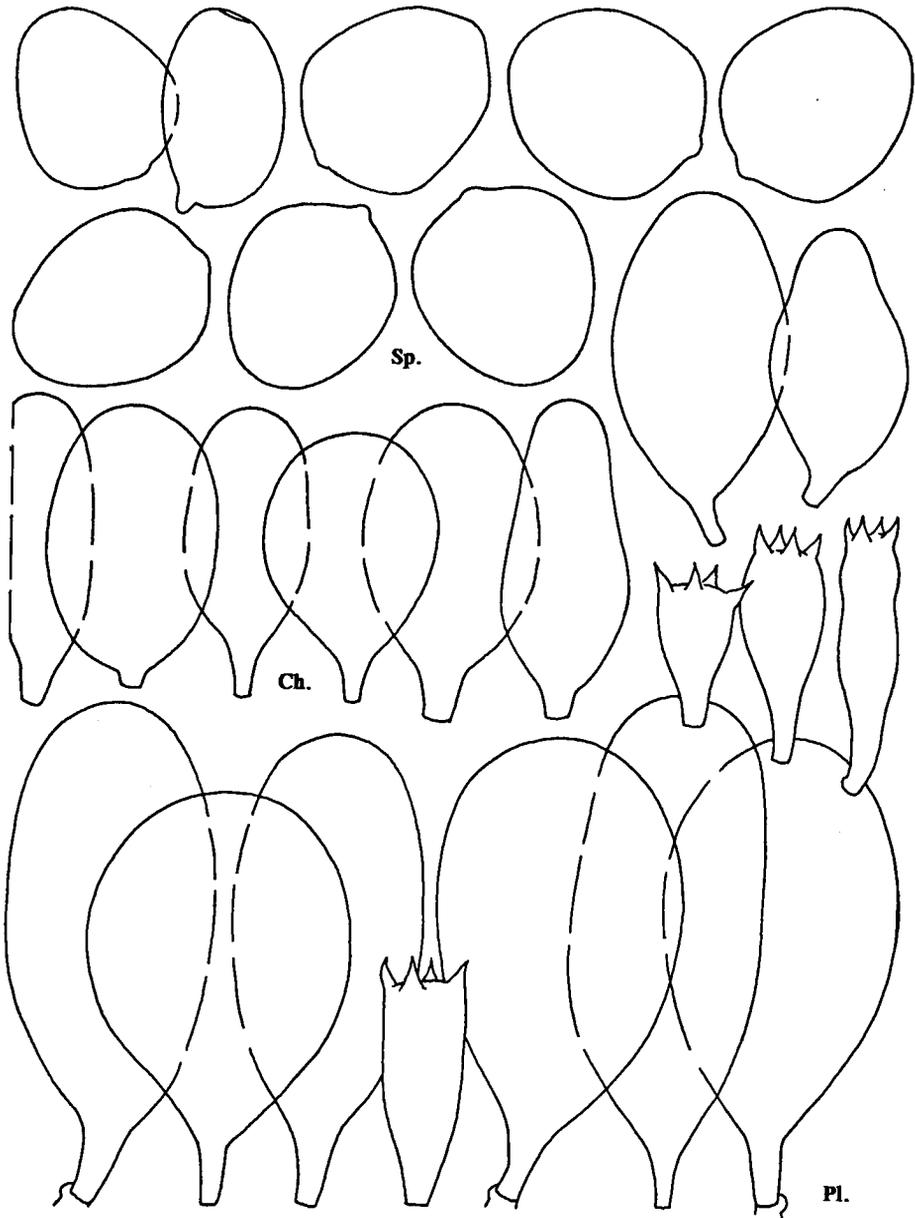


Fig. 3. *Coprinus nudiceps*. Spores, $\times 2000$; basidia, pleuro- and cheilocystidia, $\times 800$ (all from type).

Observations on the type

Spores [40, 1, 1] 11.6–14.6 × 10.6–12.4 μm; Q = 1.05–1.20, av. Q = 1.15; av. L = 13.3, av. B = 11.6 μm. Basidia 22–44 × 10–15 μm, 4-spored, surrounded by 5–7 pseudoparaphyses. Pleurocystidia 40–70 × 18–30 μm, ellipsoid, vesiculose or utriform. Cheilocystidia 60–90 × 25–40 μm, subglobose, ellipsoid or slightly utriform. Clamp-connections present.

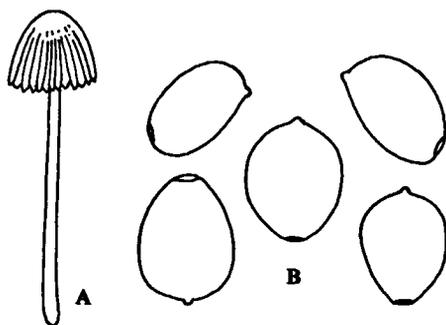


Fig. 4. *Coprinus nudiceps* (after Orton). A. Basidiocarp, × 1; B. spores, × 1000.

REVISED KEY TO THE SPECIES OF SUBSECT. GLABRI

(For nomenclature and full descriptions see Uljé & Bas, 1988)

1. Basidiocarps growing on pure dung.
 2. Pileus > 10 mm wide when expanded; length of spores 10–15 μm.
 3. Spores heart-shaped with average Q less than 1.4 *C. schroeteri* P. Karst.
 3. Spores ellipsoid with average Q more than 1.4 *C. megaspermus* P.D. Orton
 2. Pileus < 10 mm wide when expanded; length of spores < 11 μm
C. miser P. Karst.
1. Basidiocarps not on dung.
 4. Average breadth of spores > 7.8 μm; spores (sub)globose or rounded 5–6 angular. If rounded triangular then on average more than 9 μm broad.
 5. Pileus without lilaceous tinges; spores on average 8–9.5 μm broad when 5–6 angular; cheilocystidia without oily granules.
 6. Average length of spores < 11 μm.
 7. Spores heart-shaped in frontal view with rounded angles
C. leiocephalus P.D. Orton
 7. Spores (sub)globose in frontal view without angles
C. galericuliformis Watl.
 6. Average length of spores > 11 μm.
 8. Expanded pileus up to 30 mm wide; spores less than 14 μm broad.
 9. Spores 10–14 × 7.5–10 μm, elongate 5–6 angular
C. plicatilis (Curt.: Fr.) Fr.
 9. Spores 10–16 × 9–13 μm, rounded triangular . . . *C. schroeteri* P. Karst.
 8. Expanded pileus small, up to 13(–17) mm; spores 12–17 × 11.5–16 μm
C. hercules Uljé & Bas
 5. Pileus lilaceous when young and fresh; spores 10–13 × 9–11 × 6–8 μm, 5–6 angular; pileipellis and cheilocystidia with oily granules
C. lilatinctus Bender & Uljé
 4. Average breadth of spores < 7.8 μm; spores rounded triangular
C. kuehneri Uljé & Bas

REFERENCES

- Bender, H. & M. Enderle. 1988. Studien zur Gattung *Coprinus* in der Bundesrepublik Deutschland. IV. *Z. Mykol.* 54: 45–68.
- Cacialli, G., V. Garoti & F. Doveri. 1995. *Funghi fimicoli*. Schede di micologia 1. Trento.
- Uljé, C.B. & C. Bas. 1988. Studies in *Coprinus*–I. *Persoonia* 13: 433–448.
- Uljé, C.B. & M.E. Noordeloos. 1993. Studies in *Coprinus*–III. *Persoonia* 15: 257–301.