

## COPRINUS HERCULES, SPEC. NOV.

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*Coprinus hercules*, a new species related to *C. plicatilis* and found on lawns in the Netherlands, is described and illustrated.

Several times a small species of *Coprinus* has been collected by one of us (C. B. U.) on the regularly mown lawns of a recreation area at Leiden. This species, called *C. hercules* because of the very large spores it carries, shows a great similarity to *C. plicatilis* but can easily be distinguished by its large, flattened, subtriangular spores born on 4-spored basidia.

In the following description the colour code of Munsell Soil Color Charts (abbreviated Mu.) is used to designate colours. The notation [360/18/6] stands for '360 spores from 18 basidiocarps from 6 collections measured'. 'L' indicates the length of the spores, 'D<sub>1</sub>' the width of the spores in face view and 'D<sub>2</sub>' the width in profile. Q<sub>1</sub> and Q<sub>2</sub> stand for the length-width ratio respectively in face view and in profile.

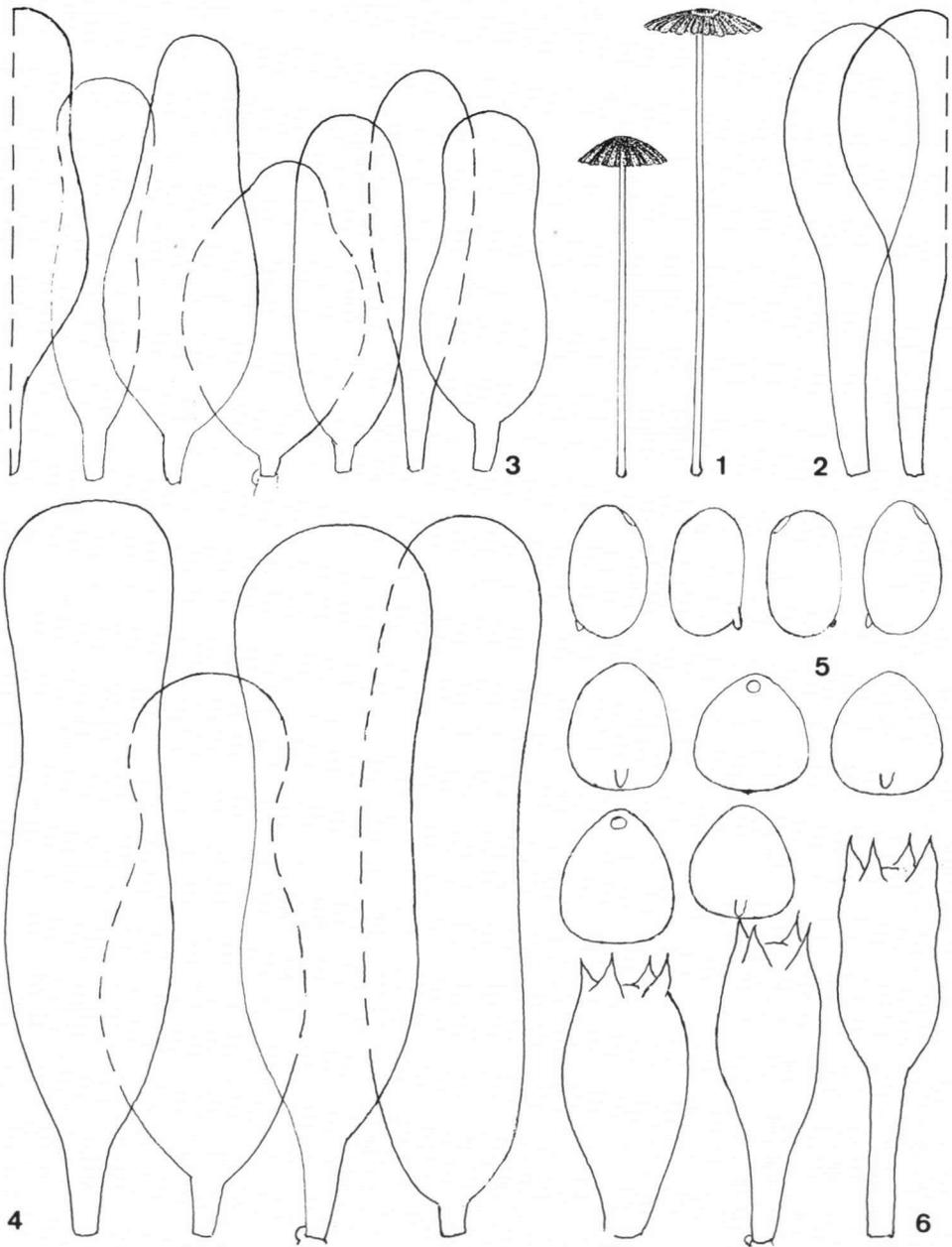
*Coprinus hercules* Uljé & Bas, *spec. nov.* — Figs. 1–6

Pileus primo campanulatus vel hemisphaericus, dein convexus vel applanatus, 8–14(–17) mm latus, sulcatus usque ad centrum, brunneus vel pallide brunneus, postea cinerascens, nudus. Lamellae liberae, subdistantes (L = 16–24; l = 0–1(–3)), ex albo cinerascens vel nigricantes. Stipes 48–71 × 0.6–1.2 mm, sursum subattenuatus, albidus, subvitreus, glaber, fragilis, basi subbulbosus. Sporae 12.4–17.2 × 11.3–15.2 × 8.2–10; 8 μm, valde lentiformes, subtriangulatae vel subquinqueangulatae, poro germinativo excentrico instructae, obscure rubro-brunneae (fere nigrae), in cumulo purpureo-nigrae. Basidia 4-sporigera. Cheilocystidia vesiculosa vel late utriformia, usque ad 50(–70) μm longa, 10–23(–30) μm lata. Pleurocystidia subutriformia vel subcylindrica, usque ad 105 μm longa, 22–30 μm lata. Pileipellis hymeniformis. Fibulae praesentes. Typus: 'Netherlands, Leiden, 10 VIII 1984, C. B. Uljé (L)'.

Basidiocarps small to very small, solitary, terrestrial. Pileus at first campanulate to hemispherical, later convex to flat and then 8–14(–17) mm in diam., sulcate-striate up to centre, brown (Mu. 5YR 3/4) at centre and on ridges, later somewhat paler (from 7.5 YR 4/6 to 5/6), near margin pale grey-brown (10 YR 5/3), finally turning grey from margin towards centre, glabrous. Lamellae free, fairly distant (L = 16–24, l = 0–1(–3)), up to 2 mm wide, at first whitish, later grey to almost black. Stipe in mature basidiocarps 48–71 × 0.6–1.2 mm, slightly thickening towards subbulbous, up to 1.5 mm wide base, whitish, somewhat vitreous, glabrous, very fragile. Spore print blackish with faint purplish hue.

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Figs. 1–6. *Coprinus hercules*. — 1. Basidiocarps. — 2. Cells of pileipellis. — 3. Cheilocystidia. — 4. Pleurocystidia. — 5. Spores. — 6. Basidia (Fig. 1 natural size, other Figs.  $\times 1,000$ ).

Spores [360/18/6]  $12.4-17.2 \times 11.3-15.2 \times 8.2-10.8 \mu\text{m}$ ,  $Q_1$  1.04–1.15–1.28 (average  $Q_1$  1.07–1.19),  $Q_2$  1.48–1.59–1.70\*, rounded 3-angular to weakly 5- or even 7-angular in face view, strongly dorso-ventrally flattened and therefore oblongo-ellipsoid in profile, with strongly (dorsally) excentric germ pore, sub micr. in water very dark red-brown, almost black, opaque. Basidia  $22-51 \times 13-16 \mu\text{m}$ , 4-spored. Cheilocystidia up to  $50(-70) \mu\text{m}$  long,  $10-23(-30) \mu\text{m}$  wide, from clavate or vesiculose with short broad neck to broadly utriform or broadly cylindrical, thin-walled, colourless. Pleurocystidia up to  $105 \mu\text{m}$  long,  $22-30 \mu\text{m}$  wide, more or less cylindrical to (sub)utriform, thin-walled, colourless. Pileipellis a hymenium of clavate to spheropedunculate cells  $50-70(-100) \mu\text{m}$  long and up to  $23 \mu\text{m}$  wide. Clamps present.

Habitat & distribution.—On open, regularly mown lawns on clayey soil of recreation areas. Known only from two localities, ca. 15 km apart, in the North of the prov. Zuid-Holland, but probably wide-spread.

Collections examined.—NETHERLANDS, prov. Zuid-Holland: Leiden, Leiden-Noord, 23 June, 16, 27 and 29 July, 10 August (type, L), 26 and 30 Sept., 13 Oct.; Langeraar, Van Wasse-naerstraat, 1, 6 and 8 Aug.; all leg. C. B. Uljé, 1984 (herb. Uljé, except type).

Because of its glabrous pileus and stipe and the strongly flattened spores *Coprinus hercules* certainly belongs to the *C. plicatilis*-complex, in which it is the species with by far the broadest spores in face view ( $11.3-15.2 \mu\text{m}$ ).

*Coprinus plicatilis* (Curt.: Fr.) Fr. and *C. leiocephalus* P. D. Orton differ in larger basidiocarps and smaller, but above all narrower spores in profile as well as in face view. Moreover, in these two species the number of lamellae is usually larger than 24, even in very small basidiocarps, whereas in *C. hercules* this number is usually ca. 20. This last character, together with the colour of the pileus, makes it possible to recognize *C. hercules* in the field. The colour of the pileus of other members of the *C. plicatilis*-complex growing on lawns is more grey than that of *C. hercules* of which the pileus remains brown for a long time, particularly around the centre.

*Coprinus miser* P. Karst has much smaller spores. *Coprinus hemerobius* Fr. and *C. megaspermus* P. D. Orton differ in considerably more ellipsoid (= less flattened) spores with a central germ pore. *Coprinus nudiceps* P. D. Orton grows on dung, has initially yellow colours of pileus and gills and spores with a central germ pore.

Finally our species has to be compared with *C. galericuliformis* Watling, another species resembling *C. plicatilis* and *C. hercules*, but growing in woods, along paths in shady places and in cool glasshouses, especially on recently disturbed ground. Its spores resemble those of *C. hercules* fairly well in shape and in having an excentric germ pore, but are considerably smaller, viz.  $10-12(-12.5) \times 8.5-10.5(-11) \times 6-7 \mu\text{m}$ .

Kühner & Romagnesi (1953: 377) included in their keys *C. galericuliformis* Losa with spores measuring  $12-15 \times 11-13 \times 8-9 \mu\text{m}$ , referring to a description given by Locquin (1947: 87). However in his original description Losa España (1942: 154) gave the size of the spores as  $10 \times 6 \mu\text{m}$ . *Coprinus galericuliformis* sensu Locquin and Kühn. & Romagn. differs from *C. hercules* in lacking pleurocystidia and in having

\*  $L-D_1 = 0.6-1.78-2.7$ ;  $L-D_2 = 4.6-5.4-6.2 \mu\text{m}$ ;  $D_1-D_2$  on an average about  $3.5 \mu\text{m}$ .

fusiform cheilocystidia and a pileus that does not expand beyond the hemispherical-campanulate stage.

*Coprinus galericuliformis* Losa is according to Losa España's illustrations a species with a habit rather different from the other species in the *C. plicatilis*-complex, viz. large (pileus 20 mm) and with a relatively short and thick, subfasciculate stipe.

It is regrettable that Watling did take up Losa España's invalid name for his species apparently without having studied authentic material. To us it seems possible that three different species are involved, viz. *C. galericuliformis* Watling, *C. galericuliformis* Losa (not validly published) and *C. galericuliformis* sensu Locquin (and consequently sensu Kühner & Romagnesi). None of these three 'species', however, seems identical with *C. hercules*.

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