

LEPIOTA CINGULUM SPEC. NOV.
A NEW SPECIES IN SECTION STENOSPORAE

P.H. KELDERMAN

'Paddestoelenstudiegroep Limburg, Natuurhistorisch Genootschap in Limburg', Herkenbroekerweg 23,
6301 EG Valkenburg a/d Geul, The Netherlands

Lepiota cingulum, belonging to *Lepiota* section *Stenosporae*, is described as new, characterized by medium-sized basidiocarps with distinct dark brown zones on stipe, macroscopically resembling *L. cortinarius* J. Lange. Microscopically *L. cingulum* is characterized by spurred spores $7.5\text{--}10.0 \times 3.7\text{--}4.3 \mu\text{m}$, mostly clavate cheilocystidia and a pileus covering made up of long non-septate elements with brown membranous pigment.

Lepiota cingulum Kelderman, *spec. nov.* — Fig. 1

Selected literature. Kelderman, *Coolia* 31 (1988) 89–91, fig. 1 (as *Lepiota spec.*).

Pileus 20–75 mm, convex et late umbonatus, dein plano-convexus, tomentosus-pubescent, squamulis concentricis in zonis, aquilus, badius vel medio-fuscus. Lamellae liberae, albae vel cremaeae. Stipes 35–70 × 5–8(–10) mm, cylindraceus, cremeus, basi clavato vel subbulboso, squamulis in cingulis superiore vel inferiore, aquilus ad rutilo-fuscum, pugnans cum caro. Velum parziale cortinoideum, album. Odor ei tuberorum *Solani tuberosi* et ei *Lepiotae cristatae* affinis.

Sporae $7.5\text{--}10.0 \times 3.7\text{--}4.3 \mu\text{m}$, calcarigerae. Cheilocystidia $22\text{--}38 \times 7\text{--}13 \mu\text{m}$, diversiformes, clavatae, fusiformes, subcylindraceae, subutriformesque. Cellulae squamularum pilei erectae, $140\text{--}350\text{--}(400) \times 9\text{--}20\text{--}(23) \mu\text{m}$, elongatae, cylindraceae, tenue fusiformes, pigmento membranaceae brunneo. Fibulae numerosae.

In fuis lapidibus excisis e metallis et in silvis frondosis ubero luteo, autumno.

Typus: 'Netherlands, prov. Limburg, Kerkrade, 8.IX.1980, J. Conen (*P.H. Kelderman 887*, holotype, L, isotype in herbarium Kelderman)'

Pileus 20–75 mm in diameter and 10–30 mm high, hemispherical to campanulate when young, then convex with broad umbo, plano-convex to often appanate with umbonate centre, sometimes even plano-concave with undulating margin, in early stage uniformly finely tomentose-pubescent, often with reticulate design from centre towards margin, when older at centre minutely squamulose and around centre flocculose in concentric zones, dark brown, maroon, towards margin rather ruddy-brown to medium brown, sometimes cinnamon-coloured; underlying context, when exposed, at first white creamish, then beige and when damaged ruddy-pink; margin remaining inflexed for a long time and hung with white cortinoid remains of velum parziale, often with a dark brown rim above this zone originating from velum universale. Lamellae, L = 48–60, l = 1–3, rather crowded, free, particularly when old with a minute tooth attached to a narrow collarium-like zone, occasionally furcate, subventricose to ventricose, 4–8 mm broad, at first whitish cream, then beige, when older somewhat brownish maculate, in young basidiocarps usually with a greenish tinge, with edge irregularly undulating and strongly to weakly fimbriate, paler than sides. Stipe 35–70 × 5–8(–10) mm, cylindrical, often curved, usually subclavate to

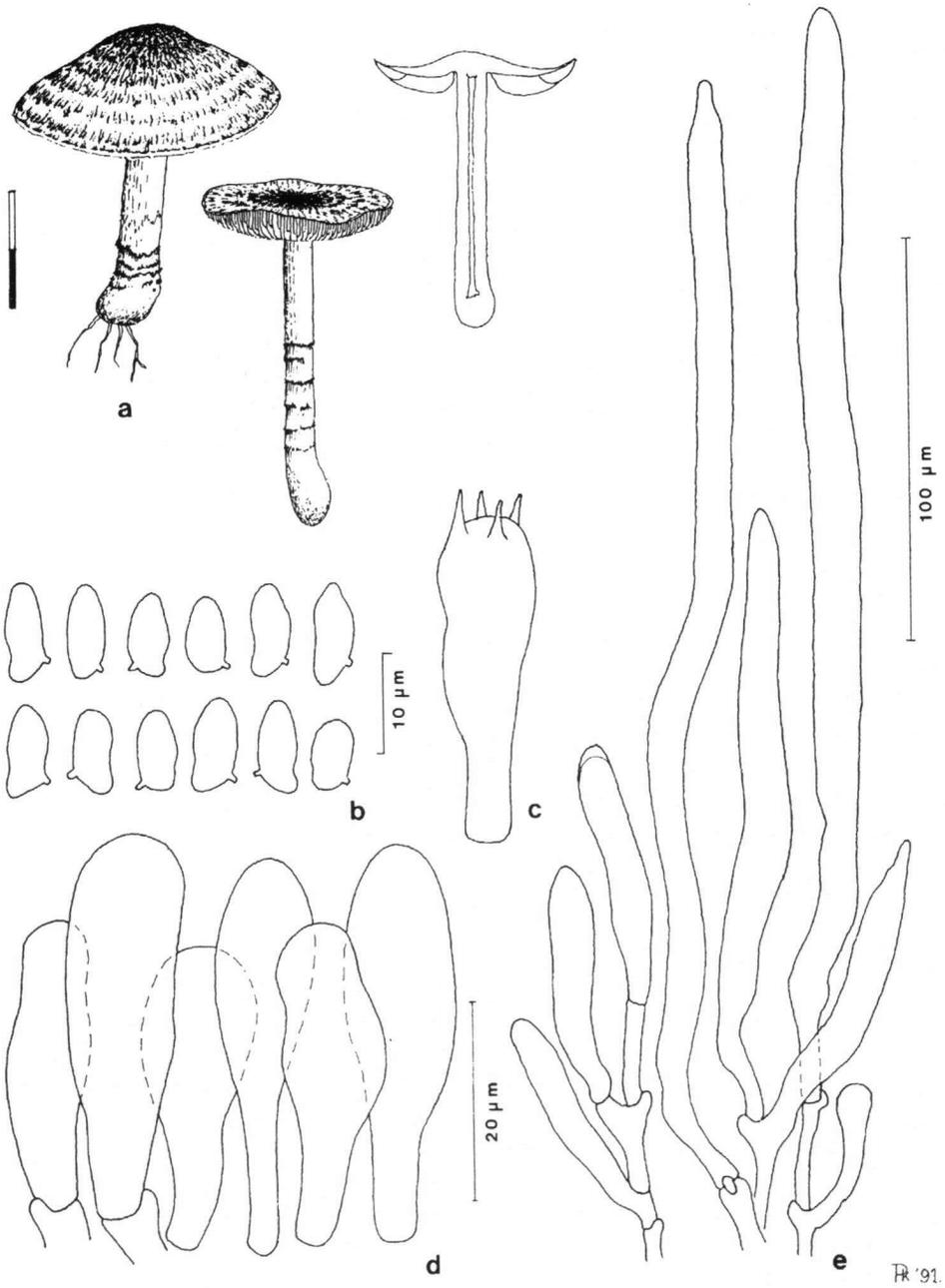


Fig. 1. *Lepiota cingulum*. a. Basidiocarps; b. spores; c. basidium; d. cheilocystidia; e. elements of pileus covering. All figures from holotype.

subbulbose at base (up to 9–11 mm broad), and often somewhat truncate at base, fistulose with age, cream-coloured and fibrillose with verrucose-flocculose dark brown to ruddy-brown velar zones over whole length except at utmost apex or only in lower part, strongly contrasting with the cream to beige, sometimes somewhat ruddy-pink background, with distinct white rhizomorphs at base. Context in pileus and stipe white to cream, in cortex of stipe in young basidiocarps sometimes with green tinge, and eventually slightly yellowish-ruddy. Smell variable, weak and resembling that of potatoes, *Lilium bulbiferum* or when older slightly of *L. cristata*. Taste slightly farinaceous. Spore print colour white.

Spores [205/14/14] in side view $(7.0\text{--})7.5\text{--}10.0\text{--}(10.5) \times (3.5\text{--})3.7\text{--}4.3\text{--}(4.5) \mu\text{m}$, $\text{av. l.} \times \text{av. w.} = 8.5\text{--}9.0 \times 3.8\text{--}4.1 \mu\text{m}$, $Q = (1.9\text{--})2.0\text{--}2.6\text{--}(2.9)$, $\text{av. } Q = 2.1\text{--}2.3$, projectile-shaped to cylindrical, with obtuse to rather acute apex, with distinct eccentric hilar appendage, dextrinoid. Basidia $22\text{--}35\text{--}(40) \times (6.5\text{--})7.5\text{--}10.0\text{--}(11.5) \mu\text{m}$, clavate, often slightly widened at middle, 4-spored, rarely 2-spored and then spores up to $11\text{--}12\text{--}(13) \mu\text{m}$ long; sterigmata up to $5 \mu\text{m}$ long. Cheilocystidia numerous, $(17\text{--})22\text{--}38\text{--}(45) \times (6\text{--})7\text{--}13\text{--}(15) \mu\text{m}$, clavate, fusiform, cylindrical to subutriform, hyaline, with up to $0.8 \mu\text{m}$ thick wall. Pleurocystidia absent. Hymenophoral trama $(45\text{--})55\text{--}90\text{--}(100) \mu\text{m}$ wide, regular to subregular, consisting of irregular cylindrical to inflated elements, with a gradual transition into a pseudoparenchymatic subhymenium. Pileus covering an irregular trichoderm made up of long cylindrical, elongated fusiform elements $(100\text{--})140\text{--}350\text{--}(400) \times (8\text{--})9\text{--}20\text{--}(23) \mu\text{m}$, tapering towards apex, sometimes with subcapitate apex or with papilla, with up to $2 \mu\text{m}$ thick wall at apex, with subhymeniform basal layer with short elements, $38\text{--}100 \times 8\text{--}15 \mu\text{m}$, clavate, cylindrical to subfusiform. Pigment brown and membranous. Pileitrama made up of cylindrical, inflated and fusiform, often branched elements, $90\text{--}140 \times 2\text{--}20\text{--}(25) \mu\text{m}$. Stipitipellis consisting of cylindrical $1.5\text{--}6\text{--}(8) \mu\text{m}$ wide hyphae. Stipititrama made up of parallel, cylindrical to slightly inflated and sometimes furcate hyphae, $2\text{--}15\text{--}(20) \mu\text{m}$ broad. Elements of velum parziale $2\text{--}7 \mu\text{m}$ broad, hyaline. Stipe covering very similar to pileus covering, but elements rather stockier and broader, $(60\text{--})100\text{--}300 \times 10\text{--}23\text{--}(28) \mu\text{m}$, not seldom with septum at base. Clamp connections present in all parts of basidiocarp.

Habitat & distribution. Until recently this taxon had been found exclusively at the coal-mine dumps in southern Limburg, the Netherlands. The taxon is now also reported in frondose woods on clayey soils near Amsterdam (Amsterdamse Bos) and at Nijenrode (prov. Utrecht). On the rock dumps the species fructifies solitarily or subgregariously at the base of slopes exposed to the north and to the north-west, in loose debris mixed with particles of compost with a pH of 4.5, under *Populus spec.*, *Carpinus betulus*, *Fagus sylvatica*, *Robinia pseudoacacia*, *Salix spec.*, and *Betula spec.*, with *Athyrium filix-femina* and *Rubus spec.* among others. August–October.

Collections examined. NETHERLANDS: prov. Limburg, Brunssum, coal-mine dump 'Hendrik', 29.X.1981, *P. H. Kelderman 1508*, and 30.X.1982, *P. H. Kelderman 1599*; Kerkrade, coal-mine dump 'Laura-Julia', 8.IX.1980, J. Conen, coll. *P. H. Kelderman 887* (holotype, L), 13.IX.1980, *P. H. Kelderman 882*, 20.IX.1980, *P. H. Kelderman 887b*, 27.IX.1980, *P. H. Kelderman 875*, 18.X.1980, *P. H. Kelderman 888*, 18.VIII.1981, *P. H. Kelderman 1500*, 28.VIII.1981, *P. H. Kelderman 899*, 8.IX.1982, *P. H. Kelderman 1531*, 11.IX.1982, *P. H. Kelderman 1582*, 25.IX.1982, *P. H. Kelderman 1529*, 21.IX.1990, *P. H. Kelderman 2056*, and 6.X.1990, *P. H. Kelderman 2002*; Valkenburg, Biebosch, 5.IX.1992, *P. H. Kelderman 2231* (all collections in herbarium Kelderman, except holotype).

This taxon was first found on 8 September 1980 by Mr J. Conen from Heerlen on a coal-mine dump at Kerkrade. Afterwards this taxon has appeared regularly every year and rather abundantly at this locality. Subsequent finds were also made on another dumping-ground, viz. that of the former 'Hendrik' coal-pit at Brunssum.

This taxon is not conformable to any species from *Lepiota* sect. *Stenosporae*. Macroscopically, due to its robust and fleshy characteristics, it somewhat resembles *L. cortinarius* J. Lange, but it lacks the typical bulbous base of the stipe. Microscopically the pileus covering does not differ much either, as to shape and size, from *L. cortinarius*. But the spores are distinctly different: projectile-shaped to mostly triangular in side view in *L. cingulum*, and more or less cylindrical in *L. cortinarius* (see also Kelderman, 1988, and Vellinga, 1992). The spores of *L. cingulum* show a distinct depression on the abaxial side, whereas spores of *L. cortinarius* are more or less straight on that side.

Spore sizes agree with those of *L. tomentella* J. Lange to some extent, but otherwise the two taxa are entirely different, in macroscopical and microscopical characteristics (see for a description of *L. tomentella* Vellinga & Huijser, 1993). It is distinguished from other more or less brownish species in the section, *L. boudieri* Bres. or *L. castanea* Quél., by the differences in pileus covering. In *L. boudieri* the elements are articulate and provided with intracellular pigment; in *L. castanea* the elements are septate, with membranal pigment.

Exceptionally long cheilocystidia (up to 80 μm) have been found once in one basidiocarp of a collection from Nijenrode (pers. comm. H. A. Huijser). These sizes are not representative of the taxon.

ACKNOWLEDGEMENTS

My particular gratitude goes to Mr J.C. Leeuwenburgh for the English text and to Else C. Vellinga for scrutinizing an earlier draft of this paper.

REFERENCES

- Kelderman, P.H. 1988. Nieuwe en zeer zeldzame *Lepiota*-soorten III. *Coolia* 31: 89–93.
Vellinga, E.C. 1992. Notulae ad Floram agaricinam neerlandicam – XVIII. Some notes on *Cystolepiota* and *Lepiota*. *Persoonia* 14: 407–415.
Vellinga, E.C. & H.A. Huijser. 1993. Notulae ad Floram agaricinam neerlandicam – XXI. *Lepiota* section *Stenosporae*. *Persoonia* 15: 223–240.