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STUDIES IN INOCYBE–II

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One new species, viz. *Inocybe coelestium*, is described, and two new combinations, *I. corydalina* var. *erinaceomorpha* (Stangl & Veselský) Kuyp. and *I. terrigena* (Fr.) Kuyp. are made.

This study is intended as a companion to a chemosystematic paper by Stijve & al. (1985) for validation of a number of taxa. It forms part of a critical revision of the European representatives of the smooth-spored species of the genus *Inocybe* (Kuyper, 1985). Terminology will be explained in greater detail in that monograph. The term velipellis is used here for the velum universale, which is present as a thin layer above the pileipellis proper. Along the gill edge two types of sterile elements are present, (almost) always connected by intermediates. The thin-walled clavate to pyriform elements are called paracystidia, whereas the term cheilocystidia is restricted to metuloids that are similar to pleurocystidia. The magnifications in the text-figures are as follows: habit × 1, spores × 1.500, pleurocystidia × 1.000.

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Inocybe coelestium Kuyp., *sp. nov.* — Fig. 1.

Pileus ochraceo-brunneus, centro glauco, lanato-coactus, dein recurvate squamuloso-subsquarrosus, centro subtomentoso, velipelli obtecto. Lamellae densissimae angustissimaeque, adnatae, luteolo-griseolae, dein sordide brunneae, margine fimbriata, pallidiore. Stipes aequalis vel subbulbosus, pallide ochraceus vel brunneus, ad basim glaucus, fuscans ad olivaceoniger, apice glabro vel pubescente. Caro alba in pileo, glauco-brunnea in stipite, non rubescens, odore pyrino sicut in *I. incarnata*. Sporae (7.0–)7.5–9.0(–9.5) × 5.0–6.0(–6.5) µm, laeves, subamygdaliformes. Pleurocystidia (29–)31–53(–65) × (10–)11–16(–18) µm, cylindracea, crassiparietalia, cheilocystidia simillima. Caulocystidia absentia. Differt ab *I. corydalina* pileo squamuloso-subsquarroso, lamellis densissimis angustissimisque, carne non rubescente.

Holotypus: *Th. W. Kuyper 2088*, 3.VIII.1982, Federal Republic of Germany, Bavaria, Augsburg, Haunstetterwald (L).

Etymology: coelestes, the inhabitants of the Olympus, the gods; referring to its hallucinogenic properties.

Pileus 15–32 mm, conico-convex, convex to plano-convex, margin reflexed when young, straight later on, without or with low broad umbo, not appendiculate at mar-

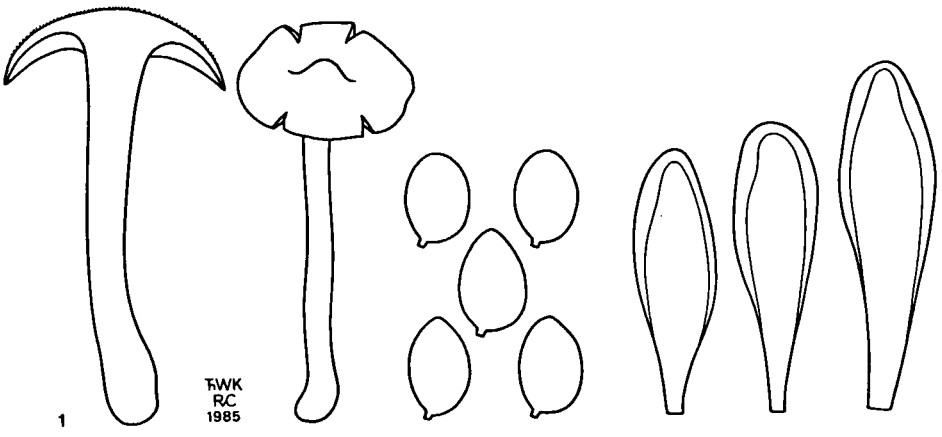

Fig. 1. *Inocybe coelestium* — Habit, spores and pleurocystidia (from holotype).

gin, ochraceous brown (Mu. 10 YR 5/6, 6/6), at centre with (pale) greenish-greyish tinges, sometimes almost whitish around disc, coarsely woolly-felty to recurvately squamulose-subsquarrose, but subtomentose around disc because of velipellis. Lamellae, L = 45–60, l = 3–5, thin, very crowded, very narrow, segmentiform, 1–3 mm broad, rather broadly adnexed, yellowish-greyish (2.5 Y 7/3, 7/4), then sordid brown (10 YR 6/4, 5/4), edge almost even to fimbriate, concolorous to whitish. Stipe 23–52 × 3–5 mm, equal to subbulbous (5–6 mm), solid, apex white to pale ochraceous, brownish halfway, at base mixed with greenish-greyish tinges, darkening on age, and becoming dark olivaceous grey, at apex smooth to hairy, not pruinose, downwards with aeriferous longitudinal striation or smooth. Context whitish in pileus, brown with a greyish-greenish tinge in stipe, not reddening on exposure. Smell faint, as Peruvian balsam, sometimes also with a faint, disagreeable, chemical component.

Spores (7.0–)7.5–9.0(–9.5) × 5.0–6.0(–6.5) µm, on average 7.7–8.5 × 5.5–6.0 µm, Q = 1.3–1.6, $\bar{Q}$ = 1.4–1.5, smooth, subamygdaliform, not limoniform, with subconical apex. Pleurocystida (29–)31–53(–65) × (10–)11–16(–18) µm, cylindrical, somewhat thick-walled, wall to 2.0(–2.5) µm thick, hyaline to very pale yellow, crystalliferous at apex, but sometimes hardly so, moderately abundant. Cheilocystidia identical to pleurocystida, scarce. Paracystidia (slenderly) clavate, thin-walled, hyaline, abundant. Basidia 25–31(–32) × 8–10 µm, 4-spored. Pigment of pileipellis not encrusting. Caulocystidia absent, stipe-apex with scattered, rather undifferentiated to caulocystidioid hairs, without paracystidia, downwards soon disappearing.

Habitat & distribution.—Under deciduous (*Fagus sylvatica*) and coniferous (*Picea abies*) trees on calcareous soil. Known from Austria and the Federal Republic of Germany. Aug.–Oct.

Collections examined.—AUSTRIA, Tirol, Pertisau, Dristenautal, 6.IX.1982, *Kuyper 2154* (L). — FEDERAL REPUBLIC OF GERMANY, Bavaria: Haspelmoor, 4.VIII.1982, *Kuyper 2106* (L); Augsburg, Haunstetter Wald, 3.VIII.1982, *Kuyper 2088* (L, holotype), 12.VIII.1982, *Stangl* (M), 22.IX.1981, *Stangl* (M); Augsburg, Göggingcr Wäldchen, 20.X.1984, *Stangl* (M).

Inocybe coelestium differs from *I. corydalina* Quél. var. *corydalina* in smaller habit, squamulose-subsquarrose covering of pileus, very crowded and narrow lamellae, and un-

changing, not-reddening context. The pleurocystidia seem to be somewhat more abundant, but this character is difficult to use for specific discrimination. The smell is also somewhat dissimilar from other members of sect. *Lactiferae.*

Inocybe corydalina Quél. var. **erinaceomorpha** (Stangl & Veselský) Kuyp., *comb. & stat. nov.* —Fig. 2.

Inocybe erinaceomorpha Stangl & Veselský in Ceská Mykol. 33: 72. 1979 (basionym).

Pileus 38–52 mm, convex, plano-convex to almost applanate, when young with involute margin, straight later on, margin extending somewhat beyond lamellae, sometimes even denticulate, umbonate or not, dark brown to almost blackish brown at centre, outwards brown to brownish buff, with appressed, polygonal or somewhat irregular scales at centre, towards margin squamulose or fibrillose-subsquamose; pileipellis later excoriate in outer half; velipellis usually absent, sometimes present, but indistinct, slightly greenish-tinged grey. Lamellae, L = 50–75, l = 1–3, crowded, subventricose, 3–5 mm broad, narrowly adnexed, buff, pale brown or pale greyish brown, with minutely fimbriate, concolorous or paler edge. Stipe 39–85 × 5–8 mm, cylindrical or broadened at apex and somewhat tapering below, at first whitish, then sordid greyish buff or sordid brownish, white at apex, sometimes with reddish tinges, exceptionally with greenish-greyish tinges at base, minutely hairy under lens at apex, downwards indistinctly fibrillose. Context whitish to pale greyish buff, only slightly reddening on exposure. Smell faint to strong, as Peruvian balsam.

Spores 7.0–10.0(–10.5) × 5.0–6.0 μm, on average 7.8–9.8 × 5.1–5.8 μm Q = 1.4–1.7(–1.8), $\bar{Q}$ = 1.5–1.6, smooth, (sub)amygdaliform, with (sub)conical apex. Pleurocystidia (36–)37–64(–70) × 10–16(–18) μm, cylindrical to slenderly fusiform, thick-walled, wall to 2.0 μm, hyaline to very pale yellow, apex not or hardly

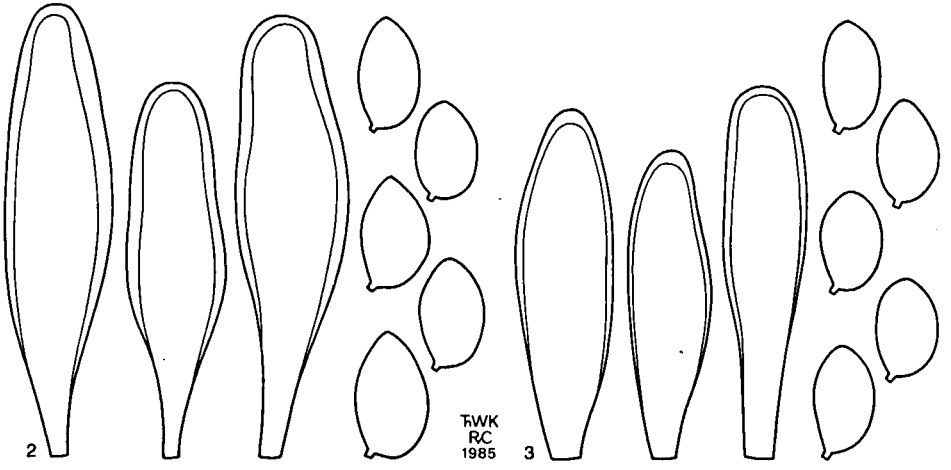

Fig. 2. *Inocybe corydalina* var. *erinaceomorpha* —Spores and pleurocystidia (from holotype).

Fig. 3. *Inocybe corydalina* —Spores and pleurocystidia (from *Kuyper 1936*, the Netherlands, Utrecht, estate Oud Amelisweerd, 13.X.1981).

crystalliferous, scarce. Cheilocystidia as pleurocystidia, (very) scarce. Paracystidia clavate, thin-walled, hyaline, abundant. Basidia (27–)28–34 × 8–10 μm, 4-spored. Pileipellis with minutely encrusting pigment. Caulocystidia absent, at extreme apex only some undifferentiated hairs present.

Habitat & distribution.—Under deciduous trees (pre-dominantly *Fagus*, but also *Quercus* and *Carpinus*), once found under *Picea abies*, on calcareous, nutrient-rich soil. Widespread in western and central Europe. Aug.–Oct.

Collections examined.—BELGIUM: prov. Namur, Houyet, 6.X.1982, *Kuyper 2277* (L). — FEDERAL REPUBLIC OF GERMANY, Bavaria: Augsburg, Siebentischpark, 6.IX.1964, *Stangl 345* (M, holotype); Augsburg, Wittelsbacherpark, 8.IX.1984, *Stangl* (L, M); Unterfahlheim, 4.IX.1982, *Enderle* (L); Rheinland Pfalz: Gerolstein, 24.IX. 1966, *Bas 4758* (L). — NETHERLANDS: prov. Gelderland, Rheden, Estate Middachten, 19. VIII.1961, *Bas 2359* (L); prov. Utrecht: Utrecht, Koningsweg, 16.X.1968, *Arnolds 326* (L); Utrecht, Estate Amelisweerd, 20.X.1984, *Bas 8346* (L): prov. Zuid-Holland, Oegstgeest, Rhijnhof, 16.VIII.1960, *Bas 2015* (L).

Examination of the type of *Inocybe erinaceomorpha* and several other collections belonging to the same taxon showed complete similarity with the microscopical characters of *I. corydalina* (see Fig. 3). The only difference between both taxa is to be found in the structure of the pileipellis, viz. with appressed scales in *I. erinaceomorpha*, and with a smooth, subtomentose velipellis in *I. corydalina*, which causes the characteristic greenish tinge in the centre of the pileus. Considering the fact that *I. erinaceomorpha* sometimes also shows a very thin greenish-tinged greyish velipellis, and that both taxa are able to synthesize psilocybin, the reduction of *I. erinaceomorpha* to a variety of *I. corydalina* seems inevitable.

As the combination *Inocybe terrigena* (Fr.) Kühner is invalid under ICBN Art. 33.2, it is formally validated here: **Inocybe terrigena** (Fr.) Kuyp., *comb. nov.* — *Agaricus terrigenus* Fr. in Öfv. K. Vet-Akad. Förh. 8: 46. 1852 ('1851') (basionym).

REFERENCES

KUYPER, TH. W. (1985). A revision of the smooth-spored species of the genus *Inocybe* in north-western Europe with a reconnaissance of the remaining taxa in Europe. In Persoonia Suppl. 3 (in preparation).

STIJVE, T, KLÁN, J. & KUYPER, TH. W. (1985). Occurrence of psilocybin and baeocystin in the genus *Inocybe* (Fr.) Fr. In Persoonia 12: 469–473.