

NOTES ON HYGROPHORACEAE — XI
Observations on some species of *Hygrocybe* subgenus *Cuphophyllus*

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The nomenclature of the grey violaceous species of *Hygrocybe* subgenus *Cuphophyllus* and the taxonomic position of *H. subviolacea* are discussed. One new species is described and one new combination is made, viz. *Hygrocybe radiata* and *H. flavipes*.

In Europe usually two species with a grey violaceous to lilac pileus are distinguished within *Hygrocybe* subgenus *Cuphophyllus* Donk (= *Camarophyllus* sensu auct.), named *H. subviolacea* (Peck) Orton & Watl. and *H. lacmus* (Schum.) Orton & Watl. The former species is characterized by an entirely white stipe and aromatic smell, whereas the latter species has a yellow base of stipe and no characteristic smell.

Recently, Rald & Boertmann (1988) demonstrated that the name *Agaricus lacmus* Schum. (1803: 333) has been currently misinterpreted since Schumacher did not mention a yellow base of stipe in the original description and an unpublished, authentic plate by that author shows an entirely white stipe. Consequently, *Agaricus lacmus* Schum. is an earlier synonym of *Hygrophorus subviolaceus* Peck (1900: 82) and *H. lacmus* sensu auct. (with a yellow stipe base) should have a new name.

According to Rald & Boertmann (1988) the oldest available name is *Hygrophorus flavipes* Britz. This epithet was not yet combined in *Hygrocybe* and therefore the following combination is proposed:

Hygrocybe flavipes (Britz.) Arnolds, *comb. nov.* — Basionym: *Hygrophorus flavipes* Britz., *Hymenomyc. Südbayern* 8: 10, fig. 69. 1891.

Some authors (Cléménçon, 1982; Bon, 1984) distinguished two species with a yellow base of stipe, differing in spore size only: *Camarophyllus lacmus* sensu Cléménçon with ellipsoid to lacrimiform spores of $6.5\text{--}8 \times 4.5\text{--}6 \mu\text{m}$, and *C. flavipes* sensu Cléménçon with subglobose to broadly ellipsoid spores, $5\text{--}6 \mu\text{m}$ long. In my opinion this difference is too small to warrant a taxonomic distinction. Rald & Boertmann (l.c.) reported for Danish collections of *H. flavipes* an intermediate spore size: $6\text{--}6.5 \times 5.5 \mu\text{m}$.

The taxonomic status of a fourth taxon in this group, *Hygrophorus alboviolaceus* Arnolds *ad int.*, was discussed in an earlier paper (Arnolds, 1986). It is a synonym of *Hygrocybe lacmus*.

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Rald & Boertmann (1988) also showed that both the type description of *Agaricus subradiatus* Schumacher (1803) and Schumacher's original, unpublished plate represent old basidiocarps of *Hygrocybe virginea* (= *H. nivea*). I agree with that view. Since the name was not sanctioned by Fries, it is reduced to a synonym of *Hygrocybe virginea* (Wulf.: Fr.) Orton & Watl.

Most other interpretations of *H. subradiatus* by European authors are identical with *H. colemannianus* Blox. in B. & Br. Cléménçon (1982) united them into a single species, incorrectly named *Camarophyllus subradiatus* (Schum.) Wünsche.

However, in the Netherlands a fungus is known as *Hygrocybe subradiata* (Schum.) Orton & Watl., from only one locality, that is distinct from both *H. colemanniana* and another taxon with predominantly brown colours, *H. virginea* var. *fuscescens* (see notes following description). Since no name is available, it is necessary to describe it as a new species:

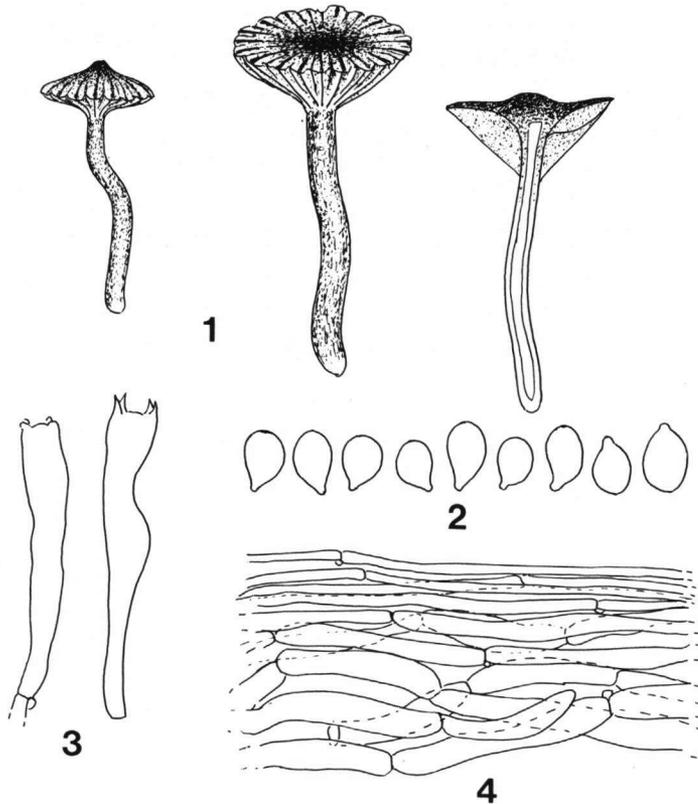
***Hygrocybe radiata* Arnolds, spec. nov. — Figs. 1–4**

Pileus 15–25 mm latus, plano-convexus vel applanatus, centro umbonatus vel depressus, margine crenulatus, hygrophanus, pallide brunneus, centro obscure brunneus, ad marginem subalbidus, obscure brunneus radiato-striatus, siccus, glaber, centro subfibrillosus. Lamellae (L = 17–19, l = (0–)1–3) subdecurrentes vel decurrentes, distantes, crassae, intervenosae, pallide brunneo-griseae. Stipes 27–36 × 2–5 mm, aequalis, fistulosus, brunneo-griseus, subfibrillosus, siccus. Caro concolor. Odor et sapor nulli. Sporae (6–)6.5–9 × 4.5–6(–6.5) μm, Q = (1.2–)1.3–1.6, ellipsoideae vel lacrimiformes. Basidia 38–48 × 6–7.5 μm, 4-sporigera. Lamellarum acies fertilis. Lamellarum trama irregularis, hyphis cylindricis vel inflatis, 60–130 7–15 μm. Pileipellis cutiformis, 15–20 μm latus, hyphis 2–4 μm latis. Fibulae frequentes. Inter graminosa ad terram. — Holotypus: 'Voorst, dike along river IJssel, 15 Oct. 1978, H. & G. Piepenbroek 57' (in herb. Biol. Stat. Dr. W. Beijerinck, Wijster = WBS).

Pileus 15–25 mm, convex, then plano-convex to depressed, often umbonate, margin often crenulate, hygrophanous, when moist centre dark, slightly reddish brown (K. & W.* 6F7), rather sharply delimited, otherwise pale brown (6D5, 5C4), margin almost white, when moist dark brown translucently striate up to the centre, with dry, smooth or near centre slightly fibrillose surface, drying evenly pale greyish brown. Lamellae [L = 17–19, l = (0–)1–3] short-decurrent, very thick, distant, intervenose, pale brownish grey to whitish (6B2/C2). Stipe 27–40 × 2–5 mm, cylindrical, fistulose, whitish or pale brownish grey, sometimes with weak violaceous tinge (Methuen 5C2). Context rather firm, in the pileus up to 2 mm thick, brown; in the stipe concolorous with the surface. Smell and taste weak, not distinctive. Spore print 'white'. Spores (6–)6.5–9 × 4.5–6(–6.5) μm, Q = (1.2–)1.3–1.6, average Q = ± 1.4, ellipsoid, ovoid or tapering towards apiculus and ± lacrimiform, with large, obtuse apiculus, not constricted. Basidia 38–48 × 6–7.5 μm, Q = 5.5–8, slenderly clavate, 4-spored. Hymenial cystidia absent. Hymenophoral trama irregular, made up of cylindrical and slightly inflated elements, 60–130 × 7–15 μm. Pileipellis a poorly differentiated cutis, 15–20 μm thick, made up of repent, cylindrical hyphae, 2–4 μm wide, hyaline or with pale brown intracellular pigment; darker brown pigment situated in the upper layers of the pileitrama. Stiptipellis a poorly differentiated cutis, made up of repent hyphae, 2–5 μm wide. Clamps present.

HABITAT & DISTRIBUTION. — In the Netherlands very rare (Voorst) in an unfertilized grassland on dry, loamy, calcareous sand. October.

* K. & W. = Komerup, A. & Wanscher, J.H., Methuen handbook of colour.



Figs. 1-4. *Hygrocybe radiata*. — 1. Basidiocarps, $\times 1$. — 2. Spores, $\times 1000$. — 3. Basidia, $\times 1000$. — 4. Radial section of pileipellis, $\times 400$ (from H. & G. Piepenbroek 57, holotype).

COLLECTIONS EXAMINED. — NETHERLANDS: prov. Gelderland, Voorst, dike along river IJssel N. of Wilp, 15 Oct. 1978, H. & G. Piepenbroek 57 (WBS).

This species differs from *H. colemanniana* (Blox. in B. & Br.) Orton & Watl. in smaller basidiocarps (in *H. colemanniana* pileus (18-)25-65 mm wide, stipe (3-)5-10(-12) mm thick), pale pileus with striking dark brown striae (in *H. colemanniana* more evenly brown to reddish brown), the structure of the pileipellis (in *H. colemanniana* a thicker, gelatinized cutis to ixocutis, 30-110 μm thick), and possibly also in the presence of lacrimiform spores. Habit and colours are more similar to *H. virginea* var. *fuscescens* (Bres.) Arnolds, but in that taxon the pileus is predominantly whitish with a small, brownish dot at the centre, the spores are longer and predominantly ellipsoid-oblong, and the pileipellis is a gelatinized cutis to ixocutis.

The earlier description of *Hygrophorus subradiatus* by Arnolds (1974: 88) concerns in fact *Hygrocybe colemanniana*.

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