

NOTULAE AD FLORAM AGARICINAM NEERLANDICAM — XL
New combinations in *Conocybe* and *Pholiotina*

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Some new combinations in *Conocybe* are made and justified. The name *Conocybe apala* is proposed to replace the names *C. albipes* and *C. lactea*. *Conocybe albipes* var. *pseudocrispa* and *C. moseri* var. *bisporigera* are distinguished on the rank of species. On the other hand, *Conocybe subalpina* is reduced to a variety of *C. pallida* and *C. rickenii* to a forma of *C. siliginea*. In addition, three new combinations are made in *Pholiotina* on the rank of subsections.

In this paper some new combinations are proposed that are necessary in the framework of the forthcoming revision of the *Bolbitiaceae* in volume 6 of *Flora agaricina neerlandica* (Arnolds, in prep.). Full descriptions of these taxa will be published in that volume.

***Conocybe apala* (Fr.: Fr.) Arnolds, comb. nov.**

Basionym: *Agaricus apalus* Fr., *Observ. Mycol.* 2 (1818) 142; Fr.: Fr., *Syst. mycol.* 1 (1821) 265.

Synonymy: *Pluteolus apalus* (Fr.: Fr.) Quél., *Enchir. Fung.* (1886) 105. — *Bolbitius albipes* G.H. Otth, *Mitt. naturf. Ges. Bern* 711–744 (1871) 92; *Conocybe albipes* (G.H. Otth) Hauskn., *Österr. Z. Pilzk.* 7 (1998) 102; *Conocybe albipes* var. *rugata* Hauskn., *Österr. Z. Pilzk.* 7 (1998) 110. — *Bolbitius tener* Berk. & Broome, *Outl. Br. Fungol.* (1860) 183 (non *Conocybe tenera* (Schaeff.: Fr.) Fayod, 1889) — *Galera lactea* J.E. Lange, *Fl. agar. dan.* 5 (1940) IV; *Conocybe lactea* (J.E. Lange) Métrod, *Bull. trimest. Soc. Mycol. Fr.* 56 (1940) 46. — *Conocybe huijsmanii* Watling, *Nord. J. Bot.* 3 (1983) 262; *Conocybe huijsmanii* var. *conica* Watling, *Gard. Bull. Singapore* 45 (1994) 377.

Misapplied names. *Galera lateritia* sensu Ricken, *Blätterpilze* (1915) 224; *Conocybe lateritia* sensu Kühner, *Genre Galera* (1935) 121, sensu auct. eur. plur.

Conocybe apala is one of the most widespread and easily recognised species of *Conocybe* in Europe, readily characterised by the whitish, non-striate pileus, pubescent white stipe, very thin and crowded, easily collapsing lamellae and very soft, quickly decaying context. This fungus is at present generally known under the name *Conocybe lactea* (J.E. Lange) Métrod, based on *Galera lactea* J.E. Lange (1940). It would be surprising in fact if no earlier name was available for such a striking agaric. Indeed, Hausknecht (1998: 102) found out that *Bolbitius albipes* G.H. Otth is an earlier synonym, published in 1871. He made the combination *Conocybe albipes* (G.H. Otth) Hauskn.

One may wonder whether Elias Fries knew this fungus as well, since it occurs in the temperate and hemiboreal zone of Sweden (Watling, 1992: 274). Indeed, when reading the original description of *Agaricus apalus* by Fries (1818: 142), it very much resembles the descriptions of *C. lactea* and *C. albipes*. The epithet *apalus* itself, meaning ‘soft’, is already indicative in view of the remarkably soft consistence of basidiocarps of this

fungus. The pileus was described as campanulate, not expanding, obtuse and whitish, sometimes yellowish at centre; the lamellae as narrowly adnate to almost free, whitish at first then orange-ochre; the stipe as 75–150 × 4 mm, slender, slightly thickened at base, fragile, white and entirely pubescent when young; the context as thin and white; the spore-print as ochraceous. Also the habitat and periodicity, mentioned by Fries, are in good agreement with *C. lactea*: in ruderal, grassy place in Femsjö, July–September. Fries (1818) added that *Agaricus apalus* is probably related to *Agaricus vitellinus* (= *Bolbitius vitellinus*). Also, at present *Conocybe lactea* is sometimes considered to belong to the genus *Bolbitius*, e. g. by Bon (1992).

The sanctioning description of *Agaricus apalus* by Fries in *Systema* (1821) is largely identical but more concise. The pileus is then described as submembranaceous, 25 mm high and wide, the lamellae as rusty brown when mature. Obviously, Fries described the same fungus as in his *Observationes*.

One may wonder why the epithet *apalus* has not been accepted earlier for *Conocybe lactea*. Kühner (1935: 121) used in his fundamental study on *Conocybe* the name *C. lateritia* (Fr.: Fr.) Kühner for this fungus with the addition “sensu Ricken”. Apparently Kühner was not sure whether his interpretation was identical with the original description of *Agaricus lateritius* by Fries (1821: 265). Indeed, Fries’ diagnosis differs from *C. lactea* in at least three significant characters: the pileus is described as rusty brown, becoming paler (“ferrugineo-expallente”), the stipe as glabrous and the habitat as dung in forest. It is impossible to identify this fungus with any certainty as one of the other modern species of *Conocybe*. The interpretation of *Agaricus lateritius* by Ricken (1912) and Kühner (1935) as identical with *Conocybe lactea* can be better understood in connection with the plate of *Agaricus lateritius* in Fries’ *Icones* (pl. 127, fig. 2, 1884). The third depicted basidiocarp represents a fungus with the characteristic elongated-campanulate, white pileus of *C. lactea*. It is quite remarkable, however, that the next basidiocarp is a fungus with similar shape of the pileus but with a dark orange-brown colour that never occurs in *C. lactea*. The pileus of *Agaricus lateritius* is, in agreement with the name, described as “plus minus obscure lateritius” (lateritius = brick-red), not as white. Consequently, Fries’ plate represents either a heterogeneous collection, or it represents a strongly hygrophanous species that cannot be identified as one of the species, distinguished at present in *Conocybe*. In addition, it should be noticed that *A. lateritius* Fr.: Fr. is an illegal homonym of *Agaricus lateritius* Schaeff.: Fr. (= *Hypoholoma* or *Psilocybe (sub)lateritia*).

Kühner (1935: 123) discussed the name *Agaricus apalus* in his observations on *Conocybe lateritia* and implicitly regarded it as a synonym (“... ces distinctions nous paraissent de bien faible valeur ...”), consequently also as identical with *C. lactea*. Watling & Gregory (1981: 164) in their nomenclatural survey of Bolbitiaceae listed *Agaricus apalus* under the rejected names: “Although obviously distinct with its pubescent stipe this species is unknown; the recently described *Conocybe inocybeoides* Watling closely resembles figures in *Icones Select. Hymenomycetum* II: 127 (1884)”. The plate, quoted by Watling & Gregory, is in fact difficult to interpret. The sporocarp to the left, showing a robust basidiocarp with a convex, non-striate, white pileus and a white, pubescent stipe, might represent *Conocybe lactea* sensu lato indeed. However, the basidiocarp depicted at the centre with a rather dark, grey-brown pileus and white, pubescent stipe, is strongly deviating. The description of the pileus, reading “udus livido-pallescentis,

siccus omnino albus”, indicates a strongly hygrophane species, quite different from both *C. lactea* and the original description of *Agaricus apalus*. One cannot escape the conclusion that Fries changed his concept of this species over the years and/or that the quoted plate is based again on a heterogeneous collection.

It is evident that the plates of both *Agaricus apalus* and *A. lateritius* are misleading, but they are not relevant from a nomenclatural point of view. Only the original descriptions are decisive for interpretation of these names. Since the diagnosis of *Agaricus apalus* by Fries (1818) fits in well with *Conocybe albipes* and *C. lactea* s.l. I propose to replace these names by the older and sanctioned name *Conocybe apala* (Fr.: Fr.) Arnolds.

Conocybe apala is a variable species concerning the shape of the pileus. In the Netherlands two types can be distinguished. The pileus in the most widespread form has a characteristic, elongated conical or campanulate shape that is always higher than broad and hardly expanding in age. This form corresponds with *C. albipes* and *C. lactea*. However, other populations are characterised by a hemispherical to convex, expanding pileus, being broader than high. This form was described by Watling (1983: 262) as a separate species, *Conocybe huijsmanii*. On the other hand, Hausknecht (1998: 102) synonymised *C. huijsmanii* with *C. albipes*, although he indicated that he never came across collections with both types of pileus intermixed. Also in the Netherlands the populations with elongated and convex pileus are always clearly separated. Since no other differences could be found, I prefer to distinguish these taxa in the rank of varieties.

The question remains to which variety the original *Agaricus apalus* Fr. belongs. Fries (1818) described the pileus as equally high as broad. This is in better agreement with the variety with the convex pileus (= *C. huijsmanii*). Interestingly, the latter variety seems to be more common in southern Scandinavia than the variety with elongated pileus (= *C. lactea*) (Hausknecht in letter). Also Watling (1992: 274) wrote in *Nordic Macromycetes*: “Many of these records [of *Conocybe lactea*] undoubtedly refer to *C. huijsmanii* Watling ...”. Consequently, *C. huijsmanii* is considered to be identical with *C. apala* var. *apala* and *C. lactea* with *C. apala* var. *albipes*.

Conocybe apala* (Fr.: Fr.) Arnolds var. *albipes* (G.H. Otth) Arnolds, *comb. nov.

Basionym: *Bolbitius albipes* G.H. Otth, Mitt. naturf. Gesellsch. Bern 711–744 (1871) 92.

Conocybe pseudocrispa* (Hauskn.) Arnolds, *comb. nov.

Basionym: *Conocybe albipes* var. *pseudocrispa* Hauskn., Österr. Z. Pilzk. 7 (1998) 106.

Conocybe pseudocrispa differs from *C. apala* (= *C. albipes*) not only in 2-spored basidia, but also in spores that are not flattened in frontal view. Therefore it is distinguished in the rank of species.

Conocybe bisporigera* (Hauskn. & Krisai) Arnolds, *comb. nov.

Basionym: *Conocybe moseri* Watling var. *bisporigera* Hauskn. & Krisai, Persoonia 14 (1992) 659.

Synonymy: *Conocybe siliginea* forma *typica*, ‘récoltes bisporiques’ Kühner, Genre Galera (1935) 109 (invalid).

Conocybe bisporigera differs from *C. moseri* not only in 2-spored basidia and consequently larger spores, but also in the clearly flattened shape of the spores. Therefore it is considered a separate species.

Conocybe subpallida* Enderle var. *subalpina* (Sing.) Arnolds, *comb. nov.

Basionym: *Conocybe mesospora* var. *subalpina* Sing., *Feldiana* 21 (1989) 104.

Synonymy: *Conocybe subalpina* (Sing.) Sing. & Hauskn., *Pl. Syst. Evol.* 190 (1992) 89; *Conocybe macrocephala* var. *macrospora* Hauskn., *Österr. Z. Pilzk.* 9 (2000) 92.

Both *Conocybe subalpina* and *C. subpallida* belong to section *Conocybe* with predominantly lecythiform caulocystidia. Within this section these taxa are characterised by the remarkably pale yellow-brown, thin-walled, fairly large spores (on average 9.6–11.4 × 5.4–6.0 μm), cheilocystidia with small capitulum (less than 5.0 μm) and the formation of needle-like crystals in ammonia. *Conocybe tenera* (Schaeff.: Fr.) Fayod is closely related but has much darker, thick-walled spores. *Conocybe subalpina* has also been described as *C. macrocephala* var. *macrospora* Hauskn. (Hausknecht, 2000: 92) but *C. macrocephala* differs rather strongly in smaller spores and in cheilocystidia and caulocystidia with larger capitulum.

Later on Hausknecht (2002: 69) described *Conocybe subalpina* and *C. subpallida* as separate species, differing in the considerably darker pileus colour in *C. subalpina* and in the covering of the stipe, made up of (almost) exclusively lecythiform cystidia in *C. subalpina*, whereas in *C. subpallida* the lecythiform cystidia are intermixed with cylindrical hairs. However, in material from the Netherlands the two characters are intergrading to some extent. Some collections combine a dark brown pileus with the occurrence of hairs at the stipe and the proportion of hair-like caulocystidia is quite variable from one collection to the other. Therefore, *C. subalpina* is reduced to a variety of *C. subpallida*.

Conocybe siliginea* (Fr.: Fr.) Kühner forma *rickenii* Arnolds, *comb. nov.

Basionym: *Galera rickenii* Schaeff., *Z. Pilzk.* 6 (1930) 171.

Conocybe siliginea s.l. is well-characterised by the combination of the pale, pubescent, non-striate pileus, pubescent stipe without or with few lecythiform cystidia, 2-spored basidia and large spores, measuring (10.5–)12.0–19.0(–22.5) × 7.0–10.5 μm. It is a variable species concerning size and general appearance of basidiocarps. The pileus size ranges from 5–30(–40) mm, the stipe from 15–80(–100) × 1–4 mm. In view of this variation, many authors distinguish two species, viz. *C. siliginea* with small basidiocarps and *C. rickenii* with larger basidiocarps (e.g. Watling, 1982; Moser, 1983; Hausknecht & Passauer, 1997). Large basidiocarps are usually found immediately on dung or compost whereas small basidiocarps mainly grow on fertile soil in fields, gardens and ruderal sites. A similar morphological variation is often found in dung-inhabiting species. Enderle & Hübner (1999: 9) suggested therefore that *C. rickenii* is probably only a luxuriant form of *C. siliginea* due to a richer substrate and recognised only one taxon.

However, there seem to be some other subtle differences between the two taxa. In larger basidiocarps the pileus surface often has a shiny, somewhat greasy appearance

and the colour of the pileus tends to be slightly darker, often with an olivaceous tone. In Dutch collections the characters of the two taxa are more or less intergrading. The microscopic characters are identical. Therefore the taxa are distinguished at the rank of forma.

The nomenclature of *C. siliginea* has been much disputed. Enderle & Hübner (1999: 9) stated correctly that the identity of *Agaricus siligineus* Fr. cannot be established with any certainty on the basis of the authentic descriptions by Fries (1818, 1821) and therefore they preferred the use of the name *Conocybe rickenii* (Schaeff.) Kühner. On the other hand, there are no obvious discrepancies between Fries' diagnosis and the current use of the name *Agaricus siligineus*. Recent interpretations of this name are consistent and always concern the taxon described above. In addition, a neotype has been designated by Hausknecht & Passauer (1997: 36) in agreement with current interpretations. Therefore the name *Conocybe siliginea* is maintained for this fungus.

Some new combinations in *Pholiotina* will be used in *Flora agaricina neerlandica* (Arnolds, in prep.):

Pholiotina subsect. **Intermediae** (Watling) Arnolds, *comb. & stat. nov.*

Basionym: *Conocybe* sect. *Intermediae* Watling, *Persoonia* 6 (1971) 328.

Pholiotina subsect. **Verrucisporae** (Sing.) Arnolds, *comb. nov.*

Basionym: *Pholiotina* sect. *Verrucisporae* Sing., *Beih. Nova Hedwigia* 7 (1973) 79.

Pholiotina subsect. **Cyanopodinae** (Sing.) Arnolds, *comb. nov.*

Basionym: *Pholiotina* sect. *Cyanopodae* Sing., *Beih. Nova Hedwigia* 7 (1973) 79.

ACKNOWLEDGEMENTS

For his critical reading of the manuscript I am indebted to Dr. Th. W. Kuyper (Wageningen).

This study has been carried out for the project 'Flora agaricina neerlandica' with financial support of the Rijksherbariumfonds Dr. Kits van Waveren.

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