

Type studies in *Clitocybe*. 2.

Harri Harmaja

Botanical Museum, University of Helsinki, SF-00170 Helsinki, Finland

HARMAJA, H. 1976: Type studies in *Clitocybe*. 2. — *Karstenia* 15:16–18.

The holotypes of seven taxa, described under the generic name *Clitocybe* (Fr.) Staude (Agaricales) or considered as belonging to that genus, are scrutinized. All but one turned out to be referable to genera other than *Clitocybe*. Four of them are considered to be synonymous with other species of those genera while two are found valid. For the last-named species the following new combinations are therefore made: *Calocybe aromatica* (Murr.) Harmaja and *Lyophyllum subnitens* (Bigelow) Harmaja. In addition, the new combination *Clitocybe dryadicola* (Favre) Harmaja is made. Moreover, to the contrary of the author's previous opinion, *Agaricus clitocyboides* Cooke & Masee is considered distinct from *Singerella (Clitocybe) hydrogramma* (Fr.) Harmaja and the resulting new combination is made: *Singerella clitocyboides* (Cooke & Masee) Harmaja. Notes on *Pseudoclitocybe (Clitocybe) atra* (Vel.) Harmaja are also presented. In addition, the carminophilic (siderophilic) granules, or vesicles connected with the endoplasmatic reticulum, of the basidia of *Lyophyllum* have been observed to be cyanophilic, too, a response not reported before.

Melanoleuca aromatica Murrill, North American Fl. 10: 15. 1914. — *Tricholoma aromaticum* (Murr.) Sacc. & Trott., Syll. Fung. 23: 32. 1925. — *Clitocybe aromatica* (Murr.) Bigelow, Lloydia 28: 161. 1965. — Holotype (part) examined: U.S.A., Michigan, Washtenaw Co., Ann Arbor, Cascade Glen, 1907-10-11, leg. C.H. Kauffman (MICH). — I found the spore wall moderately cyanophilic except for the cyanophobic hilar appendix. The wall is also weakly to moderately carminophilic. After soaking a piece of gill in 5 % KOH for some time, the nuclei of the spores stained with acetocarmine, and their number was observed to be one per spore. In the last-named stain the basidia contained siderophilic (carminophilic) granules, which are now known as 'ER vesicles' (vesicles connected with the endoplasmatic reticulum). The above characters, together with the macroscopic and microscopic features mentioned in the original description, show the type to belong to the genus *Calocybe* Kühn. ex Donk. The specimen represents a valid species taxonomi-

cally very close to *C. gambosa* (Fr.) Donk, from which it differs through the slightly darker colours of the fruit body, the most probably slightly dextrinoid walls of the hyphae of gill trama, the slightly smaller (especially narrower) spores, and fruiting in autumn, in September and October. My conclusion: *Melanoleuca aromatica* is a valid species of the genus *Calocybe*, for which reason the following appropriate new combination is made: *Calocybe aromatica* (Murr.) Harmaja, n. comb. (*Melanoleuca aromatica* Murrill, North American Fl. 10: 15. 1914).

Clitocybe atra Vel. — *Pseudoclitocybe atra* (Vel.) Harmaja (see HARMAJA 1974c). — Three additional notes, not mentioned in HARMAJA 1974c, on the diagnostic characters of this species are presented here. (1) The pure brown colour of the basidiocarp (which thus lacks any grayish tint) was emphasized as a diagnostic character of the species in that paper of mine, especially when *P. atra* is compared with *P. cyathiformis* (Fr.) Sing. which possesses rather similar

spores. The comparison should be made between *dried* fruit bodies as the fresh ones of all species of the genus *Pseudoclitocybe* (Sing.) Sing. display brown colours (as do, on the other side, also those dried for several decades ago). (2) The stipe of *P. atra* is rather short, especially in proportion to the diameter of the pileus, which feature, too, possesses most importance in the separation of the species from *P. cyathiformis*. (3) The stipe is, on the average, somewhat more slender than that of *P. cyathiformis*.

Agaricus clitocyboides Cooke & Masee — *Clitocybe clitocyboides* (Cooke & Masee) Pegler. — In a previous paper, on studying the holotype, I reduced this species to the synonymy of *Singerella* (*Clitocybe*) *hydrogramma* (Fr.) Harmaja (HARMAJA 1974b). Because of the following two facts I now consider the species distinct from *S. hydrogramma*, at least for the time being: (1) the intercalary dermatochrysozystidia are absent from the stipe cortex, (2) both the specimens of this kind originate from the southern hemisphere (see HARMAJA 1974b). My conclusion: *Agaricus clitocyboides* is a valid species of the genus *Singerella*, for which reason the following necessary new combination is made: *Singerella clitocyboides* (Cooke & Masee) Harmaja (*Agaricus clitocyboides* Cooke & Masee, *Grevillea* 15: 98. 1887). — I have been told that the generic name *Singerella* Harmaja (HARMAJA 1974b) should apparently be considered as a later homonym of the older *Singeriella* Petrak (Pyrenomycetes). However, a difference of one letter between names of unrelated genera is enough for considering such names different and legitimate (International Code of Botanical Nomenclature, Art. 75).

Clitocybe crispa Bigelow & Smith, *Michigan Bot.* 5: 224. 1966. — Holotype (part) examined: U.S.A., Michigan, Washtenaw Co., Pinckney State Recreation Area, 1961-09-17, leg. A.H. Smith 64342 (MICH). — The spore wall is weakly cyanophilic and weakly to moderately carminophilic. In acetocarmine the basidia contain siderophilic (carminophilic) granules, or, in other words, the ER vesicles of the basidia are carminophilic. These ER vesicles were also found to be ± strongly cyanophilic in heated cotton blue, a response never reported before in the literature about the carminophilic basidial granules of any fungus. The characters observed by me

together with the macroscopic and microscopic features mentioned in the original description, show the type specimen to belong to the genus *Lyophyllum* Karst. The species is *L. subnitens* (Bigelow) Harmaja (see below). My conclusion: *Clitocybe crispa* is a synonym of *Lyophyllum subnitens*.

Clitocybe media Peck, Rep. New York State Mus. 42: 114. 1889. — Holotype examined: "Clitocybe media *Pk.* / North Elba / Chas H. Peck Sept. / Edible." (NYS). — The type represents both macroscopically and microscopically a typical *Hygrophorus camarophyllus* (Fr.) Fr. The spore wall was found cyanophobic. My determination of the type specimen is distinctly at variance with BIGELOW's (1965) opinion according to which the specimen represents *Clitocybe clavipes* (Fr.) Kumm. and *C. media* is consequently a synonym of that species. My conclusion: *Clitocybe media* is a synonym of *Hygrophorus camarophyllus*.

Clitocybe pseudoirina Bigelow & Smith, *Brittonia* 21: 165. 1969. — Holotype (part) examined: U.S.A., Michigan, Washtenaw Co., Nov. 1964, leg. A.H. Smith 71356 (MICH). — The specimen represents in all respects a typical European *Lepista irina* (Fr.) Bigelow as I already supposed in a previous paper (HARMAJA 1974a) which may be consulted for more detailed comments on this case. My conclusion: *Clitocybe pseudoirina* is a synonym of *Lepista irina*.

Clitocybe rivulosa (Fr.) Kumm. var. *dryadicola* Favre, *Ergebn. wiss. Unters. schweizerischen Nationalp.* 5: 33: 199. 1955. — *Clitocybe candicans* (Fr.) Kumm. var. *dryadicola* (Favre) Lamoure, *Bull. Soc. Mycol. France* 81: 507. 1965. — Specimen no. 48a in CHUR is herewith selected as the lectotype of Favre's variety. My conclusion: *Clitocybe rivulosa* var. *dryadicola* represents a valid species of the genus *Clitocybe sensu meo* (this case will be treated more comprehensively later), for which reason the following new combination is made: *Clitocybe dryadicola* (Favre) Harmaja, n. comb. (*Clitocybe rivulosa* var. *dryadicola* Favre, *Ergebn. wiss. Unters. schweizerischen Nationalp.* 5: 33: 199. 1955.)

Clitocybe subnitens Bigelow, *Mycologia* 50: 50. 1958. — Holotype (part) examined: U.S.A., Michigan, Emmet Co., Wilderness Park, 1953-08-30, leg. H.E. Bigelow 1468 (MICH). Also part of a paratype (A. H. Smith 43462; MICH) studied. This species shares the

generic and specific characters of *C. crispa* Bigelow & Smith 1966 (see above). My conclusion: *Clitocybe subnitens* is a valid species of the genus *Lyophyllum* Karst., for which reason the following new combination is made: *Lyophyllum subnitens* (Bigelow) Harmaja, n. comb. (*Clitocybe subnitens* Bigelow, Mycologia 50: 50. 1958.)

Clitocybe Vasilievae Singer, Ann. Mycol. 41: 26. 1943. — Holotype examined: "Clitocybe Vasilievae Sing. / In steppis prope silvam laricinam / inter Gramineas, 1750 m / Aktura Tchuyskiye Alpy / Oyrotiya (the last two lines originally in Russian) / 4-VIII-37 Leg. Singer et Vasilieva / 2-IV-38 Det. Singer" (LE). — The spore wall was observed to be inamyloid, indextrinoid, moderately to strongly cyanophilic and weakly to moderately carminophilic. The hilar appendix is, however, cyanophobic. The ER vesicles of the basidia are carminophilic when the basidia are mounted in heated acetocarmine together with rich supply of iron ions. In that stain the nuclei of some spores stained to some extent, and it was found that the spores contained one central nucleus each. The above characters, together with the macroscopic and microscopic features mentioned in the original description, show that it concerns a specimen which is referable to the genus *Calocybe* Kühn. ex Donk. As for species, the type specimen represents *C. gambosa* (Fr.) Donk. There are, however, some points to be noted. Firstly, the lamellae are apparently somewhat

less sinuate than usually in *C. gambosa*. Secondly, the farinaceous odour, so typical of *C. gambosa*, was not mentioned in the original description; this apparent discrepancy may, however, simply be due to faulty observation. Thirdly, the type specimen was collected on August 4 which is rather late for *C. gambosa*, but this may be explained by the situation of the collecting site high on the mountains. At present it is impossible to judge whether the above mentioned apparent discrepancies are true or not, and, in the former case, whether they justify the recognition of *Clitocybe vasilievae* as a species distinct from *Calocybe gambosa*. My conclusion, for the time being, is: *Clitocybe vasilievae* is a synonym of *Calocybe gambosa*.

Acknowledgements. — I am indebted to Dr. John H. Haines, Albany (NYS), Dr. Robert L. Shaffer, Ann Arbor (MICH); Dr. J. P. Müller, Chur (CHUR) and Prof. Boris M. Tomilin, Leningrad (LE), for providing type specimens for my studies.

REFERENCES

- BIGELOW, H. E. 1965: The Genus *Clitocybe* in North America: Section *Clitocybe*. — *Lloydia* 28: 139-180.
- HARMAJA, H. 1974a: A revision of the generic limit between *Clitocybe* and *Lepista*. — *Karstenia* 14: 82-92.
- 1974b: *Singerella* n. gen., a separate genus for *Clitocybe hydrogramma*. — *Karstenia* 14: 113-115.
- 1974c: *Pseudoclitocybe atra* (Vel.) n. comb. — *Karstenia* 14: 126-128.