

(1539) Proposal to conserve the name *Chlorophyllum* Masee against *Endoptychum* Czern. (Agaricaceae)

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- (1539) *Chlorophyllum* Masee, Kew Bull. 1898: 136. 1898, non *Chlorophyllum* Murrill, 1910. [Fungi], *nom. cons. prop.*
 Typus: *C. esculentum* Masee (= *C. molybdites* (G. Mey.: Fr.) Masee, *Agaricus molybdites* G. Mey.: Fr.)
 (=) *Endoptychum* Czern., Bull. Soc. imp. Nat. Moscou 18 (2): 146. 1845, *nom. rej. prop.*
 Typus: *Endoptychum agaricoides* Czern.

Endoptychum Czern. is a small genus of four species (Singer & Smith, Brittonia 10: 216–221. 1958) with a secotioid habit. *Endoptychum agaricoide*s Czern. (Bull. Soc. imp. Nat. Moscou 18 (2): 146. 1845), the type of the genus, is widespread and the best known of the four. It was said to be closely related to *Chlorophyllum* Masee (Singer & Smith, l.c.) on account of the squamose pileus and the green spores. Similarities in ITS and LSU nrDNA sequences (Vellinga & al., submitted to Mycologia) confirmed this relationship, demonstrating that it is a sister taxon to *Chlorophyllum molybdites* and *Macrolepiota globosa* Mossebo. In the same study, *Endoptychum depressum* Singer & A. H. Sm. was shown to be closely related to *Agaricus arvensis* Schaeff. Morphological characters, such as the general shape of the basidiocarp, the yellowing reaction of the basidiocarp on drying, and the spore colour, point in the same phylogenetic direction. The other two species, *E. melanosporum* (Berk.) Singer & A.H. Sm. from Australia, and *E. arizonicum* (Shear & Griffiths) Singer & A. H. Sm. from North America, are again quite different; the first with black spores, the second one with white globose spores, and clamp-connections at the base of the basidia and in the trama (personal observations; Singer & Smith (l.c.) stated that clamp-connections were absent). It seems likely that all four taxa belong to different genera.

The genus *Chlorophyllum* is equally small, with four species described, two from India, one from Madagascar, and the well-known *C. molybdites*. The latter name is based upon an older, sanctioned synonym, *A. molybdites* G. Mey. (Prim. fl. esseq., 1818), [*Agaricus molybdites* G. Mey.: Fr., Syst. mycol. 1: 308. 1821] of *C. esculentum*

the type of *Chlorophyllum*. Hitherto, *Chlorophyllum* species have been characterized by normal agaricoid basidiocarps, and they closely resemble members of *Macrolepiota* sect. *Laevistipedes* (Pázmány) Bon. They differ by the green or ochre spores for which staining reactions are difficult to observe. *Lepiota ochrospora* Cooke & Masee and *Macrolepiota globosa* share the coloured, truncate spores, and the general *Chlorophyllum* characters, and clearly belong to the genus *Chlorophyllum* as traditionally defined. *Chlorophyllum molybdites* is widespread in the tropics, and in subtropical to temperate areas where it occurs during the warmer months in irrigated areas, especially in lawns. This species causes gastro-intestinal problems and features in numerous reports from poison control centers and the like. Reid & Eicker gave a thorough overview of the literature up to 1991 (Reid & Eicker, Bot. Bull. Acad. Sinica 32: 317–333. 1991). It is the species most often associated with poisonings in the North American Mycological Association's Mushroom Poisoning Case Registry (Cochran, McIlvainea 14 (2): 34–40. 2001).

The resemblance of *C. molybdites* to *Macrolepiota* sect. *Laevistipedes* led Moreno & al. (Mycotaxon 55: 467–471. 1995) to include *C. molybdites* in *Macrolepiota* Singer (Papers Mich. Acad. Sc. Arts Letters 32: 141. ("1946") 1948), erroneously retaining for the combined genera the younger generic name *Macrolepiota*. However, the genus *Macrolepiota* itself is inferred to be not monophyletic (Vellinga & al., l.c.), and its members are divided into two distinct clades: (1) the clade with the type, *M. procera* (Vittad.) Singer, and species like *M. dolichaula* (Berk. & Broome) Pegler & Rayner, *M. mastoidea* (Fr.: Fr.) Singer, *M. excoriata* (Schaeff.: Fr) Wasser, and *M. clelandii* Grgur.; and (2) members of sect. *Laevistipedes* grouped together with *Chlorophyllum* and *E. agaricoide*s; this clade is a sister group to *Agaricus* L. The results of a preliminary study on the phylogeny of the lepotiaceous fungi by Johnson (Mycologia 91: 443–458. 1999) hinted already at these findings. Morphological characters, in particular the structure of the covering layers of pileus and stipe, support this division into two genera. Hence, the genus

Macrolepiota is retained for sections *Macrolepiota* and *Macrosporae* (Singer) Bon, and strong molecular and morphological evidence supports the synonymization of *Chlorophyllum* with *Endoptychum*, and the inclusion of *Macrolepiota* sect. *Laevistipedes* in this genus.

There are three reasons to conserve the name *Chlorophyllum* against *Endoptychum*. (1) The name *Endoptychum* is associated with a secotioid habit, and is not well-known. Indeed, the genus *Endoptychum* is now acknowledged to be highly heterogeneous and not monophyletic, as noted above. Only the type remains and belongs to the same monophyletic group as *Chlorophyllum* and *Macrolepiota* sect. *Laevistipedes*. Maintaining *Endoptychum* would mean that a virtually unknown name associated with a single secotioid species would have to be adopted for at least nine agaricoid species, a group that contains widespread and well-known species including notable poisonous and edible fungi. (2) It would be extremely confusing and dangerous to change a name that physicians are trained to look for in medical emergencies involving mushroom poisoning. This argument carries particular weight in North America where *Chlorophyllum molybdites* is very common in urban areas throughout the eastern and southern parts and is the principal cause of these emergencies. (3) The number of name changes would be somewhat less if *Chlorophyllum* were adopted.