

TYPIIFICATION OF
VOLVARIELLA GLOIOCEPHALA (DC.: FR.) BOEKHOUT & ENDERLETEUN BOEKHOUT¹ & MANFRED ENDERLE²

A neotype is designated for *Volvariella gloiocephala* (DC.: Fr.) Boekhout & Enderle, to serve as an representative collection for the current concept of this species, that generally is considered conspecific with *V. speciosa* (Fr.: Fr.) Kummer.

Authentic material of many species of agarics described in the nineteenth century or before is not preserved. This has led to many controversies about the interpretation of species names in agaricology. Designation of a lectotype, paratype, neotype or epitype contributes to taxonomic and nomenclatural stability (Greuter et al., 1994, Art. 9.2, 9.5, 9.6, 9.7). However, the selection of lecto-, para-, neo- or epitypes may be complicated (see e.g. Fell et al., 1989; Kuyper & Vesterholt, 1990; Guého et al., 1992; Rodrigues de Miranda & Batenburg-van der Vegte, 1981).

Many early descriptions of agarics are short, e.g. that of *Amanita speciosa* Fr. (Fries, 1818), and lack information on taxonomically important characters. Therefore, unambiguous interpretations may not always be possible. In principle, careful comparison of descriptions of the same species given by subsequent authors may help to understand the (changes in) historical concepts of the species concerned, which are the basis of currently used taxonomic concepts. When a species description can only be interpreted equivocally, and no authentic material fitting the protologue is present, most taxonomists tend to reject these names (see e.g. Kosonen, 1993). Every now and then, mycologists try to interpret old and hardly interpretable names, e.g. *Agaricus phaepodius* Bull.: Fr. (Singer & Clémenton, 1972), *Agaricus humilis* Persoon (Métrod, 1948), *Agaricus fastibilis* Pers.: Fr. (Kuyper & Vesterholt, 1990). As a result, conflicting interpretations of these species exist, or a name is used for different species as in the case of *Agaricus melaleucus* Pers. (Kühner, 1978; Maire, 1916).

The recently adopted 'Tokyo Code' provides for epitypes, or interpretative types in cases where the holotype, lectotype, neotype or all original material is demonstrable ambiguous and cannot be critically identified for purposes of the precise application of the name of a taxon. It is the authors' opinion that nomenclatural and taxonomic stability can only be achieved if the interpretation of old species names is accompanied by the designation of lecto-, para-, neo- or epitypes. If possible pure cultures, made from recently collected neo- or epitype specimens, should be deposited in public culture collections. Once such a typification is settled, future workers must stick to it, unless the typification seriously conflicts with the protologue (ICBN, Art. 9.13). However, in cases of great

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confusion it is useful to regard the original diagnosis non-interpretable, reject the name, and describe a new species. Undesired nomenclatural changes can now be circumvented by the widely expanded possibility for conservation of names (ICBN, Art. 14).

Current progress in the study of ancient DNA, which also includes herbarium specimens, and making use of the polymerase chain reaction (PCR) are promising (Bruns et al., 1990; Wingfield & Wingfield, 1993; K. O'Donnell, pers. communication). It can be foreseen that in the near future these methods will become optimized and standardized, and will benefit the elucidation of taxonomic confusion between early and currently used species concepts.

Volvariella gloiocephala (DC.: Fr.) Boekhout & Enderle and *V. speciosa* (Fr.: Fr.) Kummer are currently considered conspecific (Orton, 1974; Boekhout & Enderle, 1986; Boekhout, 1990), as formerly used differentiating characters were found to overlap strongly. *Volvariella gloiocephala* was thought to differ from *V. speciosa* mainly by its greyish brown pileus, whereas that of *V. speciosa* is whitish (Shaffer, 1957; Courtecuisse, 1984). However, the original descriptions do not provide arguments for this distinction as De Candolle (1815) described the pileus of *Agaricus gloiocephalus* DC. as "d'un blanc gris de souris", whereas Fries (1818) described the colour of *Amanita speciosa* Fr. as "glabro alba, disco griseo." Moreover, both colours have been found to occur in, supposedly, one and the same mycelium (e.g. *Daams 945*, L), and they have been experimentally obtained from one mycelium (Herrmann, 1973). The species grows saprotrophically and can be commonly found in gardens, lawns, deciduous forests, agricultural fields, compost, wood chips, saw dust, etc.

Unfortunately, no material of *A. gloiocephalus* studied by De Candolle is known to be preserved, nor is an illustration cited in the protologue. Fries (1821) did not refer to any illustration for *Agaricus gloiocephalus* or *A. speciosus*, nor is material known to be preserved in UPS. Therefore, a neotype is selected for *Volvariella gloiocephala* (DC.: Fr.) Boekhout & Enderle. Generally, it may be preferred to select a neotype from an area mentioned in the protologue (viz. Montpellier). However, in this case we prefer material from Germany, which has been studied for many years by one of the authors (M.E.). There seems no risk for misinterpretation, as considerable consensus on the species concept of *V. gloiocephala* exists (see synonymy given by Shaffer, 1957; Boekhout & Enderle, 1987; Boekhout, 1990).

The neotype of *V. gloiocephala* (DC.: Fr.) Boekhout & Enderle was collected in Germany, Bavaria, northeast of Riedheim, near Leipheim, MTB 7527/1, growing singly or in small groups on an arable field owned by G. Kreiss (acre no. 258), collected and identified by Manfred Enderle, 18 Oct. 1990. It has been deposited in L (988.032-099), and isoneotypes are placed at M and CBS. Unfortunately, attempts to isolate a culture of the neotype failed thus far.

No specimens nor illustrations of the species made by Fries are preserved at UPS (O. Constantinescu, pers. comm.). In the Persoon herbarium (L) a specimen of *Agaricus gloiocephalus* DC. is present (L, 910.255-459). It concerns a medium-sized agaric, with a clear volva. The spores are broadly ellipsoidal, with a clear apiculus, and measure $11.6\text{--}16.6 \times 8.2\text{--}9.1 \mu\text{m}$. Therefore, Persoon's specimen is considered to agree with the current interpretation of the species.

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