

**THE TYPIFICATION OF *AGARICUS FASTIBILIS* PERS.: FR.
THE TYPE SPECIES OF THE GENUS *HEBELOMA* (FR.) KUMM.¹**

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The typification of *Agaricus fastibilis* Pers.: Fr. is discussed. The neotype, which has been designated by Singer, is rejected. As lectotype the illustration of *Agaricus laterinus* by Batsch is designated. Problems associated with a special typification status for sanctioned names are discussed.

When Fries (1821: 249) described *Agaricus* tribus *Hebeloma*, he included only one species in it, viz. *Agaricus fastibilis* Pers.: Fr. The type of this species name is therefore considered as the holotype of both the tribus name (ICBN Art. 33.5, which declares subdivisions of genera termed tribus in Fries's *Systema mycologicum* as valid; Greuter & al., 1988) and the genus name *Hebeloma* (Fr.) Kumm. We call attention to Fries's diagnosis of tribus *Hebeloma*, which deviates importantly from the characters of *Agaricus fastibilis* as described by Persoon (1801: 326).

Persoon's concept of *Agaricus fastibilis* (Persoon 1801: 326–327) was very broad and included a number of infraspecific taxa, which had the absence of a veil (the species was classified under *Gymnopus!*), the unpleasant, nauseous smell, and the fibrillose-floccose stipe as common features.

Some of these infraspecific taxa belong to the *Hebeloma crustuliniforme*-complex, whereas the status of other infraspecific taxa is more difficult to interpret. Persoon also listed *A. laterinus* Batsch under *A. fastibilis*, and the name *A. fastibilis* would have been nomenclaturally superfluous for *A. laterinus*, if the name *A. fastibilis* had not been adopted and sanctioned by Fries.

The sanctioning description of *A. fastibilis* (Fries, 1821: 249) includes a number of different elements, amongst which both taxa with and without a cortina are present. The diagnosis of tribus *Hebeloma* suggests that in the opinion of Fries the elements with a cortina form the more important part.

Sanction implies not only nomenclatural protection, but also taxonomic protection, because sanctioned names have a special typification status (Korf, 1982). Typification of sanctioned

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names may be effected in the light of anything associated with the name in the sanctioning work (Art. 7.20). This special typification status, introduced at Sydney and reaffirmed at Berlin, is intended to promote nomenclatural and taxonomic stability.

The following three options might be applied in the typification process.—

(1) Typification with an element that is in accordance with Fries's sanctioning description of *A. fastibilis*.

(2) Typification with an element that is in accordance with Persoon's description of *A. fastibilis*.

(3) Typification with the type of *A. laterinus* Batsch, as this name was also cited as a synonym by Fries.

It is clear that all three options are in accordance with the present wording of Art. 7.20. Only the third possibility would have been acceptable if sanctioned names had not been accorded special typification status.

In this case, however, we are not completely free to typify the name *A. fastibilis*, as that name has already been typified by Singer (1961). His (lecto-)typification (actually neotypification, see below) has been accepted by Horak (1968) and Quadraccia (1987).

There are two collections in Persoon's herbarium at L marked *A. fastibilis*. One collection (L 910.258-593), with the remark in Persoon's handwriting '*A. fastibilis cum cortina*', was designated lectotype by Singer. The other collection (L 910.258-591) was rejected as lectotype, on the grounds that it represented a different species.

We consider it unlikely that the designated lectotype is part of the original material, as Persoon described *A. fastibilis* as lacking a cortina (the species was classified in *Gymnopus* and not in *Cortinaria*, where all species with a cortina were placed). As the collection designated lectotype by Singer is almost certainly not part of the original material, it should be regarded a neotype instead. The choice of this neotype must be followed (Art. 8.1), unless (i) any of the original material is rediscovered or (ii) if it can be shown that it is in serious conflict with the sanctioning description (not necessarily with the protologue!). Although the present wording of Art. 8.1 refers to 'serious conflict with the protologue', we note that such an interpretation is clearly contradicted by the explicit wording of Art. 7.20.

Typification according to the first option implies that we are bound to accept Singer's neotypification, as this collection is certainly not in conflict with the sanctioning description (although it is in serious conflict with the protologue). A reinvestigation of this collection by Vesterholt (1989) showed the following characters: spores nearly smooth, ellipsoid, 8.5–10 × 5 µm; cystidia not observed, apparently collapsed. As this collection consists of two slender specimens (pileus 16–22 mm diam.; stipe 32–36 × 2–3 mm), it is clear that this collection is not conspecific with the taxon that is now widely known as *H. fastibile* (sensu Lange, Bruchet, Moser), but represents a closely related taxon, viz. *H. mesophaeum* (Pers.) Qué! Accepting Singer's neotypification would therefore result in nomenclatural instability and *H. mesophaeum* should be called *H. fastibile*, whereas *H. fastibile* sensu auct. should get another name. This is rather unfortunate, because *H. mesophaeum* is a well-known species in forestry and mycorrhizal research. Vesterholt (1989) proposed that both *H. mesophaeum* and *H. fastibile* sensu auct. should not be separated at specific, but only at varietal level. This taxonomic treatment does not, however, lessen the disadvantage of nomenclatural changes.

The other collection at L was also studied by Vesterholt and found to represent a taxon with longer, amygdaloid, somewhat dextrinoid spores ($9.5\text{--}12 \times 6.5\text{--}7 \mu\text{m}$); cystidia were not found. Most likely it represents a non-veiled *Hebeloma*, although in the absence of several critical characters any conclusion on its status must remain debatable. Typification based on this collection would therefore hardly be commendable.

Typification according to the second option is excluded, since rejection of Singer's designated neotype is not possible, as this neotype is not in serious conflict with the sanctioning description.

Typification according to the third option seems a better possibility. *Agaricus laterinus* Batsch (1789: 29) was published with an illustration and, under the revised wording of Art. 9.3 this illustration may be considered the type of *A. laterinus* Batsch, as this latter name is without a type specimen. We designate this 'iconotype' illustration as lectotype of *A. fastibilis* Pers.: Fr. and this lectotype automatically supersedes Singer's neotype. We realise that types, which are based on illustrations, although permissible under the Code, have disadvantages in comparison with specimens, because illustrations cannot be sectioned, analysed, have reagents applied, etc.

This illustration indicates that *A. laterinus* Batsch lacks a veil, just like *A. fastibilis* as described by Persoon. The illustration most likely represents a species belonging to the species complex around *Hebeloma crustuliniforme* (Bull.) Kumm., although its exact identity cannot be determined.

Fries (1821: 249) thought that *A. fastibilis* could be divided in several species, and later (Fries 1838: 178) he set out to refine his earlier views. He reconsidered the importance of velar characters, and arrived at a new classification where *A. laterinus* Batsch was explicitly excluded from *A. fastibilis*, because *A. laterinus* Batsch was included under *A. crustuliniformis*. Interestingly, '*A. fastibilis* Pers. et S.M.' was maintained as a cortinate species, whereas '*A. fastibilis* vulgo' was cited under *A. crustuliniformis*. A study of the 1838 description makes it clear that Fries's revised concept is in close agreement with the taxon that is nowadays called *H. fastibile*.

This situation, that Fries (1838) revised earlier taxonomic decisions made in the sanctioning works, occurs not infrequently when a discrepancy between the protologue and the sanctioning description can be seen. Further examples are *Agaricus adiposus* and *A. scabellus*.

Such cases are normally handled under Art. 48.1 (adoption of an existing name but with explicit exclusion of its original type), but we are not sure whether the sanctioning of the name *A. fastibilis* makes application of that article as straightforward as it would have been without sanctioning. If this article can be applied in this case, we must conclude that *A. fastibilis* Fr. 1838 is a new name. If, however, this article cannot be applied, because Fries (1838) did not exclude all elements that are eligible for typification, we must still cite this taxon as *A. fastibilis* Pers.: Fr. A clarification of the ICBN in this respect seems in order.

In conclusion we note that our lectotypification of *A. fastibilis* has the positive effect of stabilising the nomenclature on species level. Unfortunately, this lectotypification will probably necessitate a change in sectional nomenclature, as *Hebeloma* sect. *Indusiata* will have to replace the name *Hebeloma* sect. *Hebeloma*.

As the sanctioning system is still beset with difficulties, e. g., the criteria for rejection of a neotype and the application of Art. 48.1, renewed study towards its consequences and a reconsideration of its usefulness are certainly necessary.

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