## P E R S O O N I A Published by the Rijksherbarium, Leiden Volume 12, Part 3, pp. 307–315 (1984)

# **NEOTYPIFICATION OF HYDNUM BARBA-JOVIS BULL.: FR.**

## W. JÜLICH

#### Rijksherbarium, Leiden

It is shown that Hydnum barba-jovis Bull.: Fr. can neither be placed in Mycoacia nor in Steccherinum, but does belong to the genus Hyphodontia J. Erikss., a synonym of Grandinia Fr.. A neotype is described which is in accordance with the current widely accepted concept of the specific name.

In 1791, Bulliard described (p. 303) a resupinate hydnoid fungus under the name *Hydnum barba-jobi*. According to his diagnosis, the species is sessile, membranaceous, totally adnate, yellow or straw-coloured with reddish tinge (when mature), and shows spines which are apically penicillate; young specimens are whitish. The spines are at first simple, white and wart-like, but develop finally from the apex several filaments which in turn may become subdivided. The fungus grows on dead branches of trees.

The accompanying colour plate (Bulliard, 1791: pl. 481, fig. II D-E) shows a resupinate specimen with a straw-coloured to pale ochraceous basidiocarp and delicate, apically penicillate spines. The Rijksherbarium copy of the plate shows no reddish tinge on the basidiocarp. The spines are conical, apically rounded and develop deeper coloured hyphal fascicles.

During the last decades, Bulliard's taxon was usually interpreted as belonging to the genus *Hyphodontia* J. Erikss. (1958), a later synonym of *Grandinia* Fr. (1838). Some authors, notably Bourdot & Galzin (1914, 1928), placed the species as a variety under *Acia stenodon* (now *Mycoacia*); a solution favoured by Burdsall & Larsen (1983) who state (p. 514): 'Bulliard's description and illustration and Fries' descriptions could be interpreted as referring to any of a number of species of *Mycoacia* or *Steccherinum.*'

According to Burdsall & Larsen (1983), Hydnum barba-jovis Bull.: Fr. has to be removed from the genus Hyphodontia, but a closer study showed that the reverse is the case: the species in question can remain in Hyphodontia and cannot be placed in Mycoacia or Steecherinum.

When Withering (1801: 331) accepted the taxon, he gave a short description drawn from Bulliard: 'Hyd. Barba-jovis. Tawny, membranaceous, spreading, the ends of the prickles pencil-shaped.' His descriptions seems to be based on Bulliard's plate, no reddish tinge is mentioned. Withering changed the name to Hydnum barba-jovis, the same was done by de Candolle (1805: 109) who called the species 'Hydnum barba Jovis' and mainly repeated Bulliard's diagnosis.

When Fries (1821: 421) dealt with the species (as 'H. Barba Jovis'), he referred the taxon to 'Bull. Ch. t. 481. f. 2. With. arr. IV. p. 337, and mentioned some other descrip-

tions. His text runs as follows: 'effusum, tomentosum, pallido-album, aculeis teretibus pubescentibus, apice aurantio-barbatis.' He has seen dried material and states about the colour, that the basidiocarp is 'junius album, dein flavo-rufescens.' In the index to volume one, the species is listed as '*HYDNUM Barba Jovis* Bull.'

This concept of Fries is obviously for a large part based on Bulliard's colour plate where the marginal parts of the basidiocarp are whitish, the central parts straw-coloured and only the fimbriate apices of the spines show a deeper, reddish brown colour. The same situation is found when dried material of *Hydnum barba-jovis* is examined under a binocular—and we should keep in mind that Fries at that time had seen dried specimens only. The basidiocarp is quite pale and only the hyphal fasicles at the apex of the spines show a deeper colour.

If our interpretation of Hydnum barba-jovis is based on Bulliard's plate and Fries' description of dried material, then I see no reason to exclude H. barba-jovis from Hyphodontia. We would continue a tradition which started very early and was only interrupted by comparatively few diverging interpretations which mainly go back to Bourdot & Galzin (1914, the description and notes are repeated without any changes or additions in 1928). These authors placed 'Hydnum barba-Jobi Bull.' as a variety under Acia stenodon, a decision which is not acceptable for several reasons.

(i) The spines of *Acia stenodon* and of all other European species of the genus now called *Mycoacia* never develop long projecting hyphal fascicles. The apex is either smooth or only covered with very short, whitish hyphae, clearly contrasting in dried condition with the deeper coloured spines. Besides, these very short projecting hyphae were probably invisible to Bulliard who had only low-power lenses at his disposal. In every case, the dark coloured, elongated hyphal fascicles originating from a lighter coloured spine, as described by Fries and illustrated by Bulliard, is a character not known of *Mycoacia*.

(ii) Bourdot & Galzin (1914, 1928) described the marginal part of the basidiocarp to develop rigid, radiating fibrils which remain either adnate to the substrate or form ascending tufts of hyphae. At certain points these hyphal fascicles form even a tawny Ozonium-like structure. ('Vers la bordure ces faisceaux forment des fibres rigides, radiées, les unes ascendantes en touffes, les autres apprimées. En certain points, ces fibres forment un véritable Ozonium fulvescent.' 1914: 15). This also is a character not found in Bulliard's description or plate. On the contrary, the specimen depicted by Bulliard shows an entire margin without any tufts of hyphal fascicles.

Because of the conspicuous, penicillate spines and the absence of hyphal fascicles or hyphal tufts at the margin, Bourdot & Galzin's interpretation of *Hydnum barba-jovis* Bull.: Fr. is not acceptable. If we start now to compare the widely accepted concept of *Hyphodontia barba-jovis* with Fries' description and Bulliard's plate, then we will not find convincing evidence for Burdsall & Larsen's statement (1983: 515) 'that *H. barbajovis* does not appear to represent a species of *Hyphodontia*.' On the contrary, we can see that a dried specimen of *Hyphodontia barba-jovis* (Bull.: Fr.) J. Erikss. agrees perfectly in shape and colour of the basidiocarp, as well as with the enlarged details of the apical part of the spines. The fruit-body is straw-coloured to pale ochraceous, the marginal part is often abruptly delimited and shows no hyphal fascicles or *Ozonium*-like structures. The spines are conical, pale coloured, with deeper stained to reddish-brownish fibrils at their apex.

Therefore, there is no reason to abandon the hitherto widely accepted concept of *Hydnum barba-jovis* Bull.: Fr., nor is there any reason to accept Burdsall & Larsen's statement that *H. barba-jovis* is 'a species name which may well be representative of *Mycoacia* or *Steccherinum*' (l.c.: 514). I have compared the basidiocarps and especially the apical parts of the spines of all European taxa of *Mycoacia* and *Steccherinum* and found all of them to be devoid of the typical fibrillate apices so clearly illustrated by Bulliard. The spines of taxa of the two mentioned genera are clearly different and cannot be confused with Bulliard's species. The situation is illustrated on Plates 1 and 2, where the spines of different species of *Mycoacia, Steccherinum* and of *Hyphodontia barba-jovis* are shown.

Since Bourdot & Galzin's interpretation of Hydnum barba-jovis Bull.: Fr., as well as Burdsall & Larsen's proposal to remove the taxon from Hyphodontia (= Grandinia) are not acceptible, it seems necessary to stabilize the prevailing interpretation of H. barbajovis by the designation of a neotype. This would also make unnecessary the adoption of Kneiffia irpicoides P. Karst. as a substitute for Hydnum barba-jovis. The name Kneiffia irpicoides, which Burdsall & Larsen (1983) transferred to Hyphodontia, is rather misleading, since the basidiocarp is not irpicoid; moreover, it has never been used. According to Bresadola (1897: 97) and Miller (1934: 23), Kneiffia irpicoides is a synonym of Hydnum barba-jovis, which again illustrates the long tradition in the use of the latter name.

## Hydnum barba-jovis Bull.: Fr. — Figs. 1, 2

Hydnum barba-jovis Bulliard, Hist. Champ. Fr. 1 (2): 303, pl. 481, fig. II D-E. 1791; Fries, Syst. Mycol. 1: 421. 1821.

Basidiocarp annual, resupinate, effused, totally adnate, at first rounded, later confluent, membranaceous, with homogeneous context; margin narrow, without rhizomorphs or hyphal strands. Hymenial surface odontioid with conical, about 1 mm long, apically penicillate teeth, young whitish, later cream-coloured to ochraceous; the fimbriate apices of the teeth often deeper coloured to reddish-brownish.

Hyphal system monomitic. Hyphae hyaline in the subhymenial part, hyaline to slightly yellowish in the subiculum, distinct, cylindrical,  $2-4 \mu m$  wide, somewhat thick-walled (up to 1  $\mu m$ ), with smooth surface; clamps always present. Cystidia numerous, especially in the apical part of the teeth, hyaline or somewhat yellowish in the basal part, cylindrical or flexuous to somewhat constricted, up to  $300 \times 6-8 \mu m$ , thick-walled (up to  $1-2 \mu m$ ), smooth, with a basal clamp and often with some secondary septa, projecting; contents homogeneous. Basidia hyaline, at first narrowly clavate, later suburniform,  $14-18 \times 4-5.5 \mu m$ , thin-walled, with a basal clamp and four, rarely two subulate sterigmata; contents homogeneous. Spores hyaline, subglobose when young, later broadly ellipsoid, thin-walled, smooth,  $4.5-6(-6.5) \times 3.5-4(-4.3) \mu m$ , with small apiculus; contents homogeneous or 1-guttulate; the spore wall neither amyloid, nor dextrinoid, nor cyanophilous.

Habitat.—On wood or bark of a deciduous tree.

# Neotype specimen.—France, SW. of Paris, Forêt d'Ecouves, 17.IX.1952, M. A. Donk 11.138 (L 980.40-137).

#### SPECIMENS EXAMINED

Hydnum barba-jovis: France, Fôret d'Ecouves, 17.IX.1952, M.A. Donk 11.138 (neotype, L; Figs. 1b, c, 2a, b). — Sweden, Dalarna, Norrbäcke parish, Smedjebacken, 30.VII. 1937, K. G. Ridelius (Lundell & Nannfeldt, Fung. exs. suec. 1018; L; Fig. 2c).

Mycoacia aurea: Austria, Kärnten, near Rosegg, 20.VII.1 31, J. Tobisch (W; Fig. 3b, d).

Mycoacia fusco-atra: Sweden, S. of Stockholm, 5.X.1970, W. Jülich (herb. Jülich; Fig. 4a, b).

Mycoacia uda: Great Britain, England, Northumberland, Whitefriars Wood, 23.IX.1971, M.A. Donk (L; Fig. 3a, c).

Steecherinum fimbriatum: Denmark, Bornholm, Døndalen, 12.X.1964, M. A. Donk (L; Fig. 5c, d).

Steccherinum laeticolor: Federal Republic of Germany, Baden, Bodman, Bodensee, 26.VIII. 1973, O. Baral (L; Fig. 4c, d).

Steccherinum ochraceum; The Netherlands, Noord-Brabant, Oisterwijk, Staalbergven, IX.1962, M. A. Donk (L; Fig. Sa, b).

#### REFERENCES

BOURDOT, H. & GALZIN, A. (1914). Hyménomycètes de France. V. Hydnées. In Bull. Soc. mycol. Fr. 30: 243-280.

---- & ---- (1928). Hyménomycètes de France.

BRESADOLA, J. (1897). Hymenomycetes Hungarici Kmetiani. In Atti I.R. Accad. Sci. Lett. Arti Agiati, Rovereto, Ser. 3, 3: 66-120.

BULLIARD, J. B. F. (1791). Histoire des Champignons de la France. Vol. 1 (2).

BURDSALL, H. H. & LARSEN, M. J. (1983). On the recent proposal to conserve Hyphodontia J. Erikss. against Kneiffiella P. Karst. In Mycotaxon 17: 513-516.

FRIES, E. M. (1821). Systema Mycologicum. Vol. 1.

MILLER, L.W. (1934). The Hydnaceae of Iowa. II. The genus Odontia. In Mycologia 26: 13-32, pls. 2-3.



Fig. 1. Hydnum barba-jovis. — a. From Bulliard (1791: pl. 481, fig. II, reduced. — b, c. Neo-type, from France (b × 38, c × 70).



Fig. 2. Hydnum barba-jovis. — a, b. Neotype, from France (× 120). — From Sweden (× 120).



Fig. 3. a, c. Mycoacia uda (a × 38, c × 57). — b, d. M. aurea (b × 38, d × 26).



Fig. 4. a, b. Mycoacia fusco-atra (a  $\times$  41, b  $\times$  38). — c, d. Steccherinum laeticolor (c  $\times$  26, d  $\times$  120).



Fig. 5. a, b. Steccherinum ochraceum (a × 26, b × 28). — c, d. S. fimbriatum (c × 380, d × 620).