

Type-studies in the *Polyporaceae* 2  
Species described by M. Beeli

by  
Leif Ryvarden (\*)

*Summary.* — 25 species originally described in the *Polyporaceae* by M. Beeli have been examined. 4 species are accepted in the *Polyporaceae*, 17 species are reduced to synonymy, 3 species have previously been transferred to the *Boletaceae* by Heinemann. One name is a nomen nudum. The following new combinations are proposed: *Microporellus collybiiformis* (Beeli) Ryv. (*Polyporus collybiiformis* Beeli), *Amauroderma kwiluensis* (Beeli) Ryv. (*Polystictus kwiluensis* Beeli).

M. Beeli worked actively on large groups of fungi from Zaire (formerly Belgian Congo) and among other species he described altogether 25 polypores. Most specimens were collected by Madame Goossens-Fontana, and the types of all species are today in the herbarium of the Jardin botanique national de Belgique (BR). During a visit to Brussels I had the opportunity to examine the types, while a certain number were borrowed for more detailed studies. Those interested in a list of other species described by Beeli from Zaire are referred to Hendrickx (1948).

In the following enumeration the species are arranged alphabetically according to specific epithet. The original description is not cited, but there is a reference to the appropriate year of publication. This is followed by the type locality and the number of the collection concerned. A list of Beeli's papers where he described polypores is given in the list of cited literature.

In this and the following papers in this series, there will be no reference to authors of species published before 1821. When such species were validated by Fries or other authors only the validating author will be cited.

(\*) L. Ryvarden, Botanical Laboratory, University of Oslo, P. O. Box 1045, Blindern, Oslo 3, Norway. — Manuscript received November 27, 1973.

I am obliged to the staff of the herbarium of the Jardin botanique national de Belgique for their generous cooperation and assistance during this study.

*Lenzites alba* Beeli 1929 : 66. — Eala, *Goossens-Fontana* 63.

The type specimen is a badly developed one with a narrow, finely warted to asperulate ochraceous pileus. The context is pale ochraceous and about 2 mm thick. The hymenial surface is poorly developed with a very few angular pores about 0.5 to 2 mm in diam., along the margin split into a few flattened teeth or short lamellae. The hyphal system is trimitic with hyaline skeletal and binding hyphae. The generative hyphae are delicately thinwalled, hyaline and with clamps at the septa. Spores were not found.

This is a specimen of the very polymorphic species *Lenzites vespacea* (Pers.) Ryv. The white to pale ochraceous finely asperulate pileus is very characteristic for this species. The pore surface is, on the other hand, very variable. It may be poroid, daedaloid to lamellate, and the species has repeatedly been redescribed under various names due to this variability. Fig. 1 shows a specimen where the different pilei have developed different hymenial configurations. A similar picture is given in Lloyd (1910 : 29, fig. 313-314).

*Favolus alutaceus* Beeli 1929 : 56. nomen nudum, non *F. alutaceus* Berk. & Mont., Ann. Sci. Nat., ser. 3, 11 : 240 (1849). — Diobo, *Goossens-Fontana* 524.

Beeli's species was given a valid name by Hendrickx (1948 : 91) as *Favolus beelii* Hendr. Even if Hendrickx is the author of this species it is treated here since Beeli gave the description.

The type is a single stipitate specimen with a funnel-shaped pileus which is about 5 cm in diam., smooth to very finely wrinkled and yellowish brown to bay. The pore surface is ochraceous and pores are only developed in the area close to the stipe; they are angular, about 4-6 per mm and about 0.5 mm deep. The stipe is centrally attached, blackish brown and very finely velvety tomentose and longitudinally wrinkled. The hyphal system is dimitic, binding hyphae of the Bovista-type are present while the generative hyphae are hyaline and with clamps at the septa.

This is *Polyporus melanopus* Fr., a very polymorphic and widespread species. Hagström (1971) has studied *P. melanopus* and

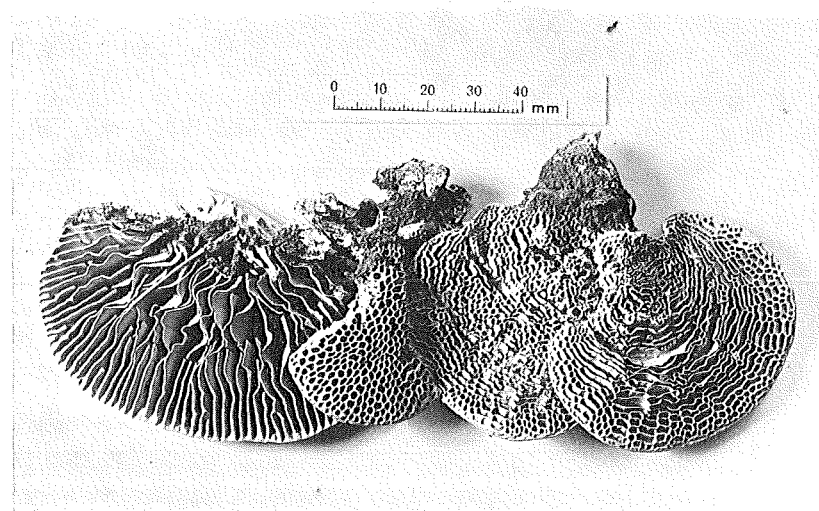


Fig. 1. — *Lenzites vespacea* (Pers.) Ryv. with variable hymenial configuration on different pilei within the same fruitbody. The form to the left has often been called *Lenzites asper* Jungh, the central one *Hexagonia albida* Berk. while the right one corresponds to that of *Polyporus vespaceus* Pers. [Philippine Islands, Luzon, Bataan, Jan. 1910, H. Curran s.n. (S)].

*P. picipes* and concluded that she was unable to find any constant character separating the two species. Hagström (op. cit. : 39) states that no Friesian material of *P. melanopus* is left in Sweden. However there is an authentic specimen labelled by Fries (loc. Uppsala) in the Kew Herbarium and this specimen is selected as the type.

Donk (1969) and Pouzar (1972) are of the opinion that *P. picipes* is a good taxon and that the correct name should be *P. badius* (S. F. Gray) Schw.

**Favolus ater** Beeli 1927 : 162. — Lisala, *Goossens-Fontana* 541.

This is a species not belonging in the *Polyporaceae* and was transferred to the *Boletaceae* by Heinemann (1951) as *Phylloporus ater* (Beeli) Heinem.

**Favolus boletiformis** Beeli 1927 : 162. — Lisala, *Goossens-Fontana* 542.

As the preceding species this was correctly transferred to the *Boletaceae* by Heinemann (1951) as *Xerocomus boletiformis* (Beeli) Heinem.

**Polyporus collybiiformis** Beeli 1929 : 59 (as *collybiaeformis*). — Eala, *Goossens-Fontana* 120.

This is a very distinctive species. The type collection consists of three small, centrally stipitate specimens. The pilei are glabrous, dark ochraceous and papery-thin at the margin, about 1 mm thick at the centre. The context is very thin, ochraceous, and there is a dark resinous hard zone above the pores. These are angular to rounded, very shallow (maximum 1 mm deep) and 7-9 per mm. The stipe is attached centrally in the type specimens and is glabrous, dark fulvous and 1-2 mm in diam., 10-20 mm long. The hyphal system is monomitic with clamped generative hyphae. The diameter is very variable, those of the hymenium are quite narrow, 2-7  $\mu\text{m}$  in diam., those of the context and stipe have a diameter varying from 4-16  $\mu\text{m}$  and the clamps are usually very small. These hyphae are thinwalled and apparently collapsed quite considerably during drying and are today difficult to separate. Spores observed on the hymenium were globose, thinwalled, non-amyloid, smooth, 4-6  $\mu\text{m}$  in diam. They were not seen attached to basidia.

The species is distinctive due to its size, the resinous zone above the pores, and the large, thinwalled hyphae of the context and

the stipe with small, often collapsed clamps. The closest relative seems to be *Microporellus obovatus* (Jungh.) Ryv., a common pan-tropic and vary variable species repeatedly redescribed under different names as *Polyporus mutabilis* Berk., *P. gallinaceus* Berk. & Cooke, *P. dilatatus* Berk., *P. rasipes* Berk., *P. polygrammus* Berk. & Curt. 1868 nom. nud. non Mont. 1837, *P. ravenalii* Berk. & Curt., *Stereum spathulatum* Berk. and *P. caryophyllaceus* Berk. & Curt. (types of all examined). *M. obovatus* also has a monomitic hyphal system with clamped generative hyphae, but the walls are usually thickened to a variable degree. Further its pores are different from those of *P. collybiiformis* and it is a much larger species with a finely tomentose pileus becoming glabrous, usually zonewise only with age, and there is no resinous line or zone above the tubes.

According to my generic concept Beeli's species clearly belongs in *Microporellus* as typified by *P. dealbatus* Berk. & Curt. Hence :

*Microporellus collybiiformis* (Beeli) Ryv. comb. nov.

*Polyporus collybiiformis* Beeli, Bull. Soc. Bot. Belg. 62 : 59 (1929).

*Favulus congolensis* Beeli 1929 : 57. — Diobo Akuba, *Goossens-Fontana* 42.

The type is a large specimen of the rather variable species *F. spathulatus* (Jungh.) Lev. The species is common in Asia and Africa and is characterized by a smooth ochraceous brown pileus, in larger specimens often with distinct darker lines radiating from the base and spreading towards the margin. This state was described as *F. multiplex* Lev. (type examined) and is often filed under this name in European herbaria.

The pore size is variable as is often the case to a greater degree with tropical polypores than for temperate and boreal species. In small specimens (like the type of Junghuhn) they are small (about 3-5 mm) while they become larger (1-3 mm) in age and in large specimens. The porewalls are thin, often slightly dentate in the mouths and they are typically elongated in radial direction.

*Polyporus durissimus* Beeli 1930 : 256. — Bas-Congo, Kimpako et Kasai, Ipamu, *Vanderyst* s.n. (1909).

The type collection is mixed and consists of a large and a small specimen. The largest specimen is *Nigrofomes melanoporus* (Mont.)

Murr. The smaller one is *Nigroporus vinosus* (Berk.) Murr. In view of the specific name there should be no doubt that the specimen of *N. melanoporus* with its very hard, woody consistency should be selected as the type.

*Daedalea ealaensis* Beeli 1929 : 65. — Eala, *Goossens-Fontana* 16.

The type is a specimen of the very common *Sclerodepsis meyenii* (Kl.) Ryv. This species has a very characteristic duplex structure as the pileus is covered with a dense tomentum separated from the real context by a distinct black resinous zone which appears as a cuticle in very old and weathered specimens. The pores are slightly split with a semilabyrinthic to semidaedaloid appearance so typical for the whole genus. There is no doubt about the synonymy.

*Polyporus ealaensis* Beeli 1929 : 60. — Eala, *Goossens-Fontana* 439.

The species belongs to the genus *Amauroderma* and has earlier been transferred to this genus (Ryvarden 1972). It is related to *A. oblongisporum* Furt. (syn. *Polyporus fuscatus* Lloyd nom. nud. non Fr. 1821) which has subcylindrical spores while they are almost globose to spherical in *A. ealaensis*. Further, the former has a glabrous ochraceous pileus while in *A. ealaensis* it is brown and with prominent hairy protuberances in the center of the pileus at least in young specimens. Both species have a very brittle consistency quite unique in the genus *Amauroderma*. The African species of the genus have fruitbodies with a woody to corky consistency. This is the case with *A. argenteofulvum* (van Byl) Doidge, which, like *A. oblongisporum*, also has long cylindrical spores.

Besides the type, specimens of *A. ealaensis* have also been seen from Uganda and the species belongs probably in the element of species restricted to the lowland rainforests from West Africa to Uganda.

*Polyporus goossensiae* Beeli 1929 : 59. — Eala, *Goossens-Fontana* 103.

The type specimen is a large and typical specimen of *Amauroderma sericatum* (Lloyd) Wakefield, a fairly widespread and common species in tropical Africa.

*Polyporus graciosus* Beeli 1929 : 63. — Eala, *Goossens-Fontana* 124, 221, 261.

The three collections cited above unfortunately do represent three different species. No. 124 is a *Tyromyces* sp., no. 221 is a small and poorly developed specimen of *Lenzites elegans* (Fr.) Pat, while no. 261 is *Perenniporia ochroleuca* (Berk.) Ryv. However, both the description and Beeli's drawing (fig. 16 on pl. 3) clearly indicate that the typification must be based on no. 261. Most decisive are the spores which Beeli measured to be  $11-13 \times 6-7 \mu\text{m}$ . This excludes both no. 124 and 221 which have considerably smaller spores, while no. 261 alone has spores similar to those described by Beeli.

*P. ochroleuca* is quite common in Africa and after examining several collections I have been forced to conclude that I was wrong in my previous assumption that there was a difference in sporesize between *P. ochroleuca* and *P. obiensis* (Ryvarden 1972). It seems that the sporesize varies considerably even within the same fruit-body and, according to my experience, the range and variation seems to be  $10-17 \times 6-9 \mu\text{m}$ .

*Polystictus kwiluensis* Beeli 1930 : 250. — Kwango, Moyen-Kwilu, *Vanderyst* s.n. (1911).

This is an *Amauroderma* species, characterized by a very thin, narrow, concentrically zoned pileus in varying shades of bay to brown. The pileus is completely glabrous even in young specimens and only about 2 mm thick at the center, papery-thin at the curled margin in the type specimens. The pores are small, 6-9 mm, almost invisible to the naked eye in the young specimen. The spores are spherical and finely verrucose,  $8-11 \mu\text{m}$  in diam.

The closest relatives are apparently *A. sikorae* and *A. sericatum* which, however, are species with a distinctly thicker and radially wrinkled pileus and in both, the pileus is finely tomentose becoming glabrous, zonewise with age. Further, both these species have thick-walled skeletal hyphae in the dissepiments while any such are absent in *P. kwiluensis*.

The following combination is proposed :

*Amauroderma kwiluensis* (Beeli) Ryv. comb. nov.

*Polystictus kwiluensis* Beeli, Bull. Jard. Bot. Etat Brux. 8 : 250 (1930).

*Polyporus loreus* Beeli 1930 : 225. — Barumbu, *Bequaert* 7086.

The type is a small specimen of the common and widespread species *Corioloopsis sanguinaria* (Kl.) Ryv. In Africa this species usually grows in an imbricate fashion, often in long rows on fallen trunks and the pilei are usually finely warted to scurpouse. However, as is typical for many tropical polypores such as *Hexagonia tenuis* and *Trametes scabrosa*, in age the upper layer of hyphae on the pileus becomes agglutinated and forms a reddish to bay cuticle starting from the base and spreading, often patchwise, towards the edge. This variable surface inspired Klotzsch to describe the species twice, partly as *P. sanguinarius* with a reddish base and partly as *P. pruinatus* with a pruinose to warted surface. Junghuhn described the species as *P. bicolor* due to the striking contrast between the reddish inner part and the brownish peripheral part. In Asia it seems that the species attains the reddish cuticle more readily than in Africa as most Asian specimens I have seen in European herbaria have had this cuticle. This is not the case in Africa where mixed collections are most common.

*Polyporus mamelliporus* Beeli 1929 : 62. — Eala, *Goossens-Fontana* 184.

This is *Ganoderma subresinosum* Murr and earlier indicated in the herbarium by R. L. Steyaert.

*Daedalea milliaui* Beeli 1930 : 256. — Ituri, Mongbwalu, *Milliau* 1.

The type specimen is a poorly developed and misshapen specimen of the very common and pantropic species *Lenzites elegans* (Fr.) Pat. The pileus is smooth and light ochraceous while the hymenial surface is daedaloid to sinuous as is so typical for *L. elegans*. The hyphal system is trimitic and corresponds to that of *L. elegans*. Spores were only seen floating and measured  $4.5-6 \times 2-3 \mu\text{m}$ , which is within the normal range of *L. elegans*.

*Hexagonia patouillardii* Beeli 1927 : 163. — Eala, *Goossens-Fontana* 194.

Beeli first identified no. 194 with *Polyporus megaloporus* Mont. (Beeli 1926 : 213). However, later he became aware of Patouillard's study of 1914 dealing with *P. megaloporus* and some closely related

species. He then concluded that his identification was wrong and that no. 194 represented a new species which he named as cited above. In the same paper (1927 : 163) he identified *Goossens-Fontana* 527 as *P. megaloporus* but described it as a new variety, var. *incarnatus*, of this species. As Beeli's paper was published before a latin diagnosis was obligatory, his French description of 1926 of what he then thought was *P. megaloporus*, validates his nomen novum of 1927. Unfortunately no. 194 has apparently been lost, but by means of the M<sup>me</sup> Goossens-Fontana colour drawing no. 194 and a small pencil sketch by Beeli of the same and specimen no. 527, a reasonable conclusion can be reached on the identity of no. 194. *Goossens-Fontana* 527 is a typical specimen of *Favolus spathulatus* (Jung.) Lev. and indicates that Beeli had a somewhat confused concept of *Echinochaete megalopora* (Mont.) Reid the currently used name for *P. megaloporus*. Goossens-Fontana's drawing no. 194 shows a semistipitate reddish brown specimen with small scaly tufts of hyphae on the pileus. Beeli's pencil drawing of the pores is without any scale but gives the impression that the pores were large and he indicated dark cystidia-like organs projecting from the pore-walls. Further, Beeli described the spores of no. 194 as being larger than those of no. 527 and *E. megalopora* really has larger spores than *F. spathulatus*.

Shortly, both M<sup>me</sup> Goossens-Fontana's drawing, Beeli's indication of dark organs projecting from the pores and his note of the spore-size clearly indicate that no. 194 really was *E. megalopora*. It is with little hesitation that I place *H. patouillardii* in synonymy with *E. megalopora*.

*Polyporus purpureo-aurantiacus* Beeli 1929 : 64. — Eala, *Goossens-Fontana* 59.

The type is a fine specimen of the highly characteristic species *Pyrofomes albo-marginatus* (Lev.) Ryv. which seems to be rare in Africa, the species is common in South-Eastern Asia and most collections in European herbaria are from this latter area.

*Favolus purpureus* Beeli 1926 : 213. — Eala, *Goossens-Fontana* 132.

This is a species not belonging to the *Polyporaceae* and was transferred to the *Boletaceae* by Heinemann (1951) as *Phylloporus purpureus* (Beeli) Heinem.

*Polyporus quarrei* Beeli 1930 : 250. — Lubumbashi, *Quarré* s.n. (1927).

This is a highly characteristic species and has been transferred to a genus of its own (Ryvarden 1973) to which the reader is referred.

*Daedalea sistotremoides* Beeli 1930 : 257. — Kisangani, *Bequaert* 7030.

This is *Lenzites stereoides* (Fr.) Ryv., a widespread pantropic species. The pileus is white to pink and finely adpressed, velvety in narrow zones. The context is white to faint pink. The hymenial surface is most variable, from poroid with a few split pores, semi-daedaloid or labyrinthic, with long radiating dentate lamellae to deeply split flattened teeth, to purely hydroid with long and almost cylindrical spines. The latter state was named *Irpex durescens* by Cooke, but there are even transitions from this hydroid state to the more poroid ones, often within the same collection. The species has repeatedly been redescribed as new, based on the variable hymenial surface.

The hyphal system is trimitic with hyaline binding hyphae, quite sparsely branched and long hyaline skeletal hyphae, endings of both these types project into the hymenium as cystidial organs often with scattered small crystals. The generative hyphae is thin to thick-walled and with clamps at the septa.

*Polyporus subcollossus* Beeli 1930 : 252. — Kisangani, *Ghesquière* 589.

The type specimen is a fine and typical specimen of *Meripilus percicinus* (Berk. & Curt.) Ryv. a widespread but not common species in the tropics. Other synonyms are *P. talpae* Cooke and *P. mesotalpae* Lloyd (types of both examined).

*Polyporus sublucidus* Beeli 1929 : 62. — Eala, *Goossens-Fontana* 49.

This is a *Ganoderma* species and will be treated by R. L. Steyaert in his forthcoming monograph on this genus.

*Polyporus umbrinus* Beeli 1929 : 61. — Eala, *Goossens-Fontana* 53, 199.

No. 53 is selected as type, and this collection represents *Amauroderma sericatum* (Lloyd) Wakefield. No. 199 is a young specimen, probably of the same species.

*Favolus vanderystii* Beeli 1930 : 247. — Kwango, Ipamu, *Vanderyst* s.n. (1921).

This is *Hexagonia velutina* Pat. & Har., a very common species in Africa. It belongs in the group otherwise formed by *H. speciosa* Fr. and *H. dermatiphora* Lloyd. All three species are characterized by a dark brown pileus at the base, in variable degree covered with an unzoned quite dense pad or layer of ochraceous tomentum, often slightly warted or with small, raised uneven spots. These spots also often occur isolated in front of the coherent layer. The rest of the pileus is glabrous, shiny brown in narrow concentric zones. *H. speciosa* is a large species often some centimeters thick at the base and the pores are large, e.g. of an order of 1-4 mm in diam. *H. velutina* and *H. dermatiphora* are both thinner, rarely above 1 cm thick at the base, the main character separating the two species is the pore size. In *H. velutina* the pores are about 1 mm in diam. and this seems to be fairly constant. *H. dermatiphora* has smaller pores, viz. 2-3 per mm. For the time being I prefer to keep the three species separate, but more ample collections from Africa may show that there are intergrading specimens both in relation to size and pores, making a separation untenable. The microscopic characters seem to be identical for all three species.

*Fomes wombaliensis* Beeli 1930 : 258. Bas-Congo, Wombali, *Vanderyst* 26 292.

The type is a small and poorly developed specimen of *Coriopsis polyzona* (Pers.) Ryv. (syn. : *P. occidentalis* Kl.). This synonymy was already noted on the sheet by D. Reid.

The disposition of the polypores described by M. Beeli is summarized as follows :

*Lenzites alba* = *Lenzites vespacea* (Pers.) Ryv.

*Favolus alutaceus* nom. nud. non Mont. validated by Hendrickx as *Favolus beelii* Hendr.

*Favolus ater* = *Phylloporus ater* (Beeli) Heinem.

*Favolus beelii* Hendr. = *Polyporus melanopus* Fr.

*Favolus bolëtiformis* = *Xerocomus boletiformis* (Beeli) Heinem.

*Polyporus collybiiformis* = *Microporellus collybiiformis* (Beeli) Ryv.

*Favolus congolensis* = *Favolus spathulatus* (Jungh.) Lev.

*Polyporus durississimus* = *Nigrofomes melanodermus* (Mont.) Murr.

*Daedalea ealaensis* = *Sclerodepsis meyenii* (Kl.) Ryv.

*Polyporus ealaensis* = *Amauroderma ealaensis* (Beeli) Ryv.

*Polyporus goossensiae* = *Amauroderma sericatum* (Lloyd) Wakef.

*Polyporus graciosus* = *Perenniporia ochroleuca* (Berk.) Ryv.

*Polystictus kwiluensis* = *Amauroderma kwiluensis* (Beeli) Ryv.

*Polyporus loreus* = *Coriopsis sanguinaria* (Kl.) Ryv.

*Polyporus mamelliporus* = *Ganoderma subresinosum* Murr.

*Daedalea milliaui* = *Lenzites elegans* (Fr.) Pat.

*Hexagonia patouillardii* = *Echinochaete megalopora* (Mont.) Reid.

*Polyporus purpureo-aurantiacus* = *Pyrofomes albo-marginatus* (Lev.) Ryv.

*Favolus purpureus* = *Phylloporus purpureus* (Beeli) Heinem.

*Polyporus quarrei* = *Tomentoporus quarrei* (Beeli) Ryv.

*Daedalea sistotremoides* = *Lenzites stereoides* (Fr.) Ryv.

*Polyporus subcollossus* = *Meripilus percinus* (Berk. & Curt.) Ryv.

*Polyporus sublucidus* = *Ganoderma* sp.

*Polyporus umbrinus* = *Amauroderma sericatum* (Lloyd) Wakef.

*Favolus vanderystii* = *Hexagonia velutina* Pat. & Har.

*Fomes wombaliensis* = *Coriopsis polyzona* (Pers.) Ryv.

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