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TYPE-STUDIES IN THE POLYPORACEAE—I

Tropical species described by C. H. Persoon

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The type specimens of 20 tropical polypores described by C. H. Persoon have been examined. Eleven species are accepted, seven are reduced to synonymy, while one name is a nomen nudum. One type is so poorly developed that no conclusive determination is possible. The combination *Trametes marianna* (Pers.) Ryv. is proposed.

Persoon described many polypores, but he restricted his own collecting to Central Europe. The only extra-European collections he ever saw were those sent to him from Paris which had been collected by C. Gaudichaud during his journey around the world. The fungi described by Persoon were published in the book Gaudichaud (1827) wrote about the expedition. With the exception of a few specimens from the more ample collections, the material was returned, and today the types are in the Paris herbarium (PC).

Many of Persoon's species later passed into oblivion. However, since they were among the first tropical polypores described, they are very important. I therefore examined the types both macro- and microscopically during a short stay in Paris in 1972. In the following enumeration the species are arranged alphabetically according to specific epithet. The number given refers to the page in the original publication, and the locality indicated is the type locality.

The fungi were collected at the following places:

(a). Rio de Janeiro in Brazil;
(b). Rawak Island—a small island near Waigeo Island, north-west of New Guinea, about 0° S, 130° E;
(c). Mariana Islands—a large group of islands situated in the Western Pacific between 10–20° N and 140–150° E.

No descriptions or drawings of microscopical characters of the accepted species are given here. This will be done separately on loose sheets containing descriptions of tropical polypores in general. Those interested in these descriptions are requested to write the author for information.

POLYPORUS APIARIUS—p. 169, Rawak

The species is a true *Hexagonia*, and it was transferred to this genus by Fries as early as 1838. M. Fidalgo in her monograph on *Hexagonia* (1968a: 41) selected the specimen in Persoon's herbarium in Leiden as holotype; the specimens in Paris then become isotypes.

The typification of *Hexagonia* has been much disputed (cf. Donk, 1960 and 1969, Fidalgo, M., 1968a and b). I agree with M. Fidalgo in her acceptance of *H. crinigera* Fr. as selected type species for the genus. This selection was made by Clements & Shear in 1931 and, being the first, it must be followed (Int. Code of Bot. Nomencl. Art. 8). The species is typical within the Friesian emendation of the genus, while the selection cannot be said to be based on a misinterpretation. Donk (op. cit.) preferred *H. mori*, which was the original and only species of the devalidated genus of Pollini. In my interpretation of the Code as regards typification of revalidated names, it is of no interest or consequence to know what species Pollini included in his genus. What counts is Fries' emendation of the genus, and it is evident from this that it is not drawn up from *H. mori* (which he did not know), but from the group represented by species like *H. hirta*, *H. crinigera*, *H. wightii*, etc., i.e. true *Hexagonia* species in the strict sense, and the group from which Clements & Shear made their selection. The taxon represented by *H. mori* (Poll. ex Fr.) Fr. is a *Polyporus* s. str. originally described as *Favolus europaeus* Fr. and *Cantharellus alveolaris* DC. ex Fr.

The generic name should be spelled *Hexagonia*, not *Hexagona*. The latter is given as an example of an orthographic error. (Art. 73 of the Code).

My concept of the genus is wider than that of M. Fidalgo. She places the main emphasis on the trichoderm of the pileus and excludes all species not having this. Personally, I attach more importance to the microscopic characters. My concept of *Hexagonia* therefore includes species with a trimitic hyphal system having hyaline clamped generative hyphae, hyaline to faintly coloured binding hyphae, and distinctly brown skeletal hyphae. The spores are hyaline, cylindrical, smooth and large, viz., in the range of 10–20 μ long.

Most species have large hexagonal pores. The most closely related genus is *Coriolopsis* Murr., which has the same hyphal configuration, but shorter spores and smaller pores, although there are a very few transitory species.

POLYPORUS AURISCALPIUM—p. 169, Rio de Janeiro

This is an *Amauroderma* species, as already noted by Lloyd (1912). The type is almost sterile and only 12 spores were found; they are pale yellowish, more or less globose, with a diameter of 6–7 μ.

POLYPORUS BIVALVIS—p. 173, Rawak

The type is a typical specimen of the widespread and common *Hexagonia tenuis* (Hook.) Fr., a most variable species, especially in regard to the pore size. Repeatedly

new species have been described on the basis of different pore sizes—a character that clearly breaks down when many specimens are compared. The pileus surface is glabrous and zoned in brown shades, but it may also be covered from the base with a thin reddish cuticle. The extent of this cuticle may vary from a small band near the base to a complete cover. However, this reddish cuticle is of no taxonomic value. In some collections there may be a variation from specimens devoid of this cuticle to such that are more or less covered with it.

POLYPORUS CORRUGATUS—p. 172, Rawak

The type represents *Trametes scabrosus* (Pers.) Cunn. as already noted by Montagne (1834).

POLYPORUS DERMOPORUS—p. 170, Rawak

The type is a typical specimen of *Favolus brasiliensis* (Fr.) Fr., as already noted by Léveillé (1846: 144—with the printing error "desmoporus"). There are two authentic specimens in Paris: one in herb. Montagne and one in the general herbarium sub "Favolus". The latter is selected as lectotype.

POLYPORUS FLACCIDUS—p. 171, Mariana Islands

This species is unknown to me. The type is a small dimidiate specimen about 1.5 cm wide from base to margin and about 2.5 cm long, with a thickness of about 1–2 mm. The pileus surface is glabrous, ochraceous to pale fulvous, with a few wrinkles and small pits. The context is the same colour as the pileus surface, 0.5 mm thick, and soft. The tubes are soft, with a depth of 0.5—1.5 mm. The pores are thin-walled, slightly irregular, 4–6/mm, partly collapsed (pressure during collecting?)

Hyphal structure dimitic or trimitic. Skeletal hyphae 2.5–3.5 μ in diameter, hyaline and thick-walled; binding hyphae (?) moderately branched; no generative hyphae with septa seen. Spores and cystidia not seen.

The general impression is that of a very poorly developed specimen of *Favolus spathulatus* (Jungh.) Lév., even though some objections can be raised. The fruitbody with its semicircular form is not typical of *F. spathulatus*, even if this shape could be ascribed to a young state. However, the colour, the texture, and the pores are all within the range of variation for these characters in *F. spathulatus*. The hyphal structure in this species is difficult, and it seems to me that this is a species in which the distinction between skeletal hyphae and binding hyphae breaks down. Further, it is very difficult to find septate hyphae in *F. spathulatus*, and in some specimens apparently both simple septa and clamps are present. The generally branched hyphae observed in *P. flaccidus* could represent branched generative hyphae devoid of septa or true binding hyphae. Until more material is available, the name *P. flaccidus* should be dropped from consideration.

POLYPORUS FUSCO-BADIUS—p. 172, Mariana Islands

The type specimen is typical of the common and widespread species *Trametes scabrosus* (Pers.) Cunn. This was already noted by Montagne (1834).

POLYPORUS FUSCO-PURPUREUS—p. 172, Mariana Islands

This is a species of *Nigroporus* as this genus is typified by *N. vinosus* (Berk.) Murr. (type examined). A later name for Persoon's species is *Polyporus calignosus* Berk. (type examined). Cunningham (1965: 236) transferred the latter to *Phellinus*. However, *P. fusco-purpureus* is dimitic and has clamped generative hyphae (as in *P. vinosus*, cf. Fidalgo & Fidalgo, 1967: 847); also, the colour of the skeletal hyphae is different from that of *Phellinus*.

The spores of *P. fusco-purpureus* are light brownish, ellipsoid, 2–3(–3.4) × 1–2 μ. Closely related is *Nigroporus roseo-albus* (Jungh.) Ryv., but the spores of this species are larger. Otherwise both species have the pileus umber to fuscous, often zoned and with a distinct cortex, and the context light purplish to brownish.

POLYPORUS LATERALIS—p. 175, Rawak

The type consists of a stipitate specimen with the pileus glued to the sheet. The pileus is semicircular, with a radius of about 3 cm and a thickness of about 3 mm. The surface is exposed only a few mm along the margin, and seems to be glabrous and ochraceous. The stipe is attached laterally, is 2.5 cm long, and has a diameter of about 2.5 mm. The surface is glabrous, with a black, thin cuticle over a hard ochraceous core. The context is pale ochraceous, while the pore surface is pale brown (probably distinctly lighter in fresh state). The pores are entire, thin-walled, round, and 7–9/mm. The hyphal structure is dimitic, with clamped generative hyphae and strongly branched arboriform binding hyphae. Spores were not seen.

The species belongs in *Polyporus* s. str., as I define it. The specimen may represent a young *Polyporus picipes* Fr., which is a variable species with regard to both stipe attachment and pileus colour. The European and African specimens I have seen had a generally darker, more bay pileus than what I could see from the narrow rim of exposed margin of *P. lateralis*. More collections will be required to decide whether it is a species in its own right, or only one of the many forms of *P. picipes*.

POLYPORUS LEPTOPUS—p. 169, Rawak

This is an *Amauroderma* species belonging to the characteristic group with a shiny laccate pileus surface. The group has been treated by Furtado (1967). The species is known from Asia and Africa.

POLYPORUS LINEATUS—p. 175, Rawak

The type is a typical specimen of the species formerly called *Polyporus zonalis* Berk. (type examined). The characteristic cystidia, partly smooth, partly incrusted, are

abundantly present, with a diameter of up to 21 μ. The spores are scanty, but the 14 found in the hymenium measured 4.5–6 μ in diameter. The hyphal system is monomitic, with simple septa. *Polyporus lineatus* has recently been transferred to *Rigidoporus* (Ryvarden, 1972b).

Closely related is *Rigidoporus microporus* (Sw. ex Fr.) Overeem (Syn. *Polyporus lignosus* Kl., the types of both examined). However, this species can be separated by the absence of cystidia and its smaller spores; also, the fruitbodies are usually larger and more distinctly zoned.

POLYPORUS MARIANNUS—p. 173, Mariana Islands

This is an earlier name for *Polyporus paleaceus* Fr. (1838). The species belongs in the difficult group around *Trametes modesta* (Fr.) Ryv. *P. mariannus* is characterized by its pileus being glabrous, smooth, and somewhat glossy in broad zones. *Trametes modesta* and closely related species are usually finely adpressed-tomentose, becoming more glabrous and dull only with age. The *T. modesta*-complex was discussed by Fidalgo & Fidalgo (1968).

The glabrous, smooth, and often somewhat glossy surface of *P. mariannus* is due to the hyphae being agglutinated. Cunningham (1965) stated that a cortex is present, but this is not the case in the types of either *P. mariannus* or *P. paleaceus*. According to my experience, the agglutination is usually restricted to a very thin upper layer that does not appear as a cortex when viewed in section. It could be that the agglutination proceeds deeper in older and more weathered specimens.

The following combination is proposed: **Trametes marianna** (Pers.) Ryv., *comb. nov.* (basionym, *Polyporus mariannus* Pers. *apud* Gaudichaud, Voyage Monde 173, 1827).

POLYPORUS NUMMULARIUS—p. 174, Rio de Janeiro

The type has not been traced in either Paris or Leiden. The description runs as follows: "P. orbicularis tenuissimus, pileo subpubescente concentrice zonate griseo pallido, poris distinctis margine acuto inaequaliter prominente." Persoon himself suggests ("probablement") that the species is a variety of *Polyporus versicolor* L. ex Fr.

POLYPORUS POLYZONUS—p. 171, Rawak

The type is a very typical specimen of the common and widespread species usually called *Polyporus occidentalis* Kl., which is the type species of *Coriolopsis* Murr.; since Persoon's name has priority, it has been transferred to that genus (Ryvarden, 1972b). *Coriolopsis* is a genus close to *Trametes*, the principal difference being the brown skeletal hyphae that are responsible for the brown colour of all species of *Coriolopsis*. *Coriolopsis polyzona* is very widespread, and has repeatedly been redescribed under various names. A long, but still not complete, list of synonyms was given by Fidalgo & Fidalgo (1966).

DAEDALEA REPANDA—p. 168, Rawak

The type specimen is a very large and typical specimen of *Lenzites elegans* (Spreng. ex Fr.) Pat., and this was already noted by Murrill (1908). The species is very widespread in the tropics and has repeatedly been redescribed under various names. A long, but still not complete, list of synonyms can be found in Fidalgo & Fidalgo (1966).

POLYPORUS SACCATUS—p. 169, Mariana Islands

No type has been traced in either Paris or Leiden, and the specimen may be lost. The description runs as follows: "Pileo tenui glabro zonato infundibuliformi subnitente ligneo-pallido poris tenuissimus pallidis, stipite brevi glabro."

In the text Persoon suggested that his species may be the same as *Boletus katui* Ehrenb., which has generally been accepted as a synonym of *Polyporus xanthopus* Fr., and Fries (1838) regarded both species as identical with the latter.

POLYPORUS SCABROSUS—p. 172, Mariana Islands

This is a very widespread, common species. It is polymorphic, especially as concerns the pileus, which may vary from pure white and finely tomentose to deep red and glabrous, as the hyphae begin to agglutinate to a thin, reddish cuticle that, spreading from the area of attachment, finally covers the whole pileus. Owing to this variation, Persoon alone described the species three times, viz. as *P. scabrosus*, *P. corrugatus*, and *P. fusco-badius*. Montagne (1834) was the first to note their identity, and Fries (1838) placed the last two in synonymy with the first (*P. scabrosus*) which then became the correct name for the species. The species belongs in *Trametes*, as I define the genus.

POLYPORUS SERPENS—p. 173, Mariana Islands

Nomen nudum, not *P. serpens* Fr., 1821.

The specimens in Paris represent the species now called *Polyporus latus* Berk., 1839 or *Coriolopsis latus* (Berk.) Ryv. (type examined). Further synonyms are *Trametes acupunctata* Berk., *Polyporus luteo-olivaceous* Berk. & Br., and *Polyporus aratus* Berk. (all types examined).

As it is a later homonym of *P. serpens* Fr., *P. serpens* Pers. cannot be used.

POLYPORUS TORNATUS—p. 173, Mariana Islands

The species belongs in *Ganoderma* as indicated already by Bresadola (1912). Steyaert (1972) concluded that *G. applanatum* and *G. tornatum* had better be treated as two separate species in spite of the fact that the microscopical characters are identical. To me, *G. tornatum* clearly falls within the range of variation we must allow for *G. applanatum*.

POLYPORUS VESPACEUS—p. 170, Rawak

The specimen at Paris is better developed and more typical than the one at Leiden, and is therefore selected as type.

This species is a very variable one owing to the hymenium varying from true lamellae (*Lenzites aspera* Kl., type examined) to hexagonal pores (*Hexagonia albida* Berk., type examined), with all intermediates. Lloyd (1912: fig. 314) gave a most convincing picture, which shows that this variation may occur in fruitbodies from the same mycelium. The pileus surface is white to cream, typically finely asperulate, but it may also be more or less smooth. The hyphal configuration is trimitic; generative hyphae hyaline, with clamps; skeletal hyphae hyaline and thick-walled, while the binding hyphae are moderately to strongly branched with the upper branches typically projecting into the hymenium—appearing almost like cystidia.

The species belongs in *Lenzites*, as I define the genus, owing to its tendency to develop lamellae and the typically branched binding hyphae which are so prominent in *Lenzites betulina* L. ex Fr.—the type of the genus.

Lenzites vespacea (Pers.) Ryv. is known from the Western Pacific to Tropical Africa.

The disposition of tropical polypores described by C. H. Persoon is summarized as follows:—

Polyporus apiarius = *Hexagonia apiaria* (Pers.) Fr.
P. auriscalpium = *Amauroderma auriscalpium* (Pers.) Torr.
P. bivalvis = *Hexagonia tenuis* (Hook). Fr.
P. corrugatus = *Trametes scabrosa* (Pers.) Cunn.
P. dermoporus = *Favolus brasiliensis* (Fr.) Fr.
P. flaccidus = Type poorly developed; the name should be dropped from consideration until more material becomes available.
P. fusco-badius = *Trametes scabrosa* (Pers.) Cunn.
P. fusco-purpureus = *Nigroporus fusco-purpureus* (Pers.) Ryv.
P. lateralis Pers. = *Polyporus* (s. str.) *lateralis* Pers.
P. leptopus = *Amauroderma leptopus* (Pers.) Furt.
P. lineatus = *Rigidoporus lineatus* (Pers.) Ryv.
P. mariannus = *Trametes marianna* (Pers.) Ryv. (for recombination, see p. 309).
P. nummularius = Type not seen. Probably a synonym of *Trametes versicolor* (L. ex Fr.) Lloyd.
P. polyzonus = *Coriolopsis polyzona* (Pers.) Ryv.
Daedalea repanda = *Lenzites elegans* (Spreng. ex Fr.) Pat.
P. saccatus = Type not seen. Probably a synonym of *Microporus xanthopus* (Fr.) Kuntze
P. scabrosus = *Trametes scabrosa* (Pers.) Cunn.
P. serpens = Nomen nudum, not *Polyporus serpens* Fr. 1821.
P. tornatus = *Ganoderma applanatum* (Pers. ex Wallr.) Pat.
P. vespaceus = *Lenzites vespacea* (Pers.) Ryv.

No mycologist has influenced and stimulated me more than did Dr. M. A. Donk. His encouragement and support were decisive when I considered taking up the study of tropical polypores. It is very appropriate, that the present paper, which I hope will be the first of a long series, appears in a number of Persoonia dedicated to his memory.

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