

POLYPORES RECORDED IN MALTA: ADDITIONS AND UPDATED CHECKLIST**Michael Briffa¹****ABSTRACT**

Eight additional species of polypores occurring in Malta and deposited at the author's herbarium are recorded. These are *Inonotus indicus*, *I. cuticularis*, *I. tamaricis*, *Phellinus torulosus* (including an interesting variety), *Coriolopsis aspera*, *Oligoporus balsameus*, *Ganoderma australe*, and *Boletopsis leucomelaena*. Their determination necessitates the cancellation of previous records of *Phaeolus schweinitzii* and *Meripilus giganteus*. *Inonotus indicus* and *Coriolopsis aspera* are new records for Europe. An updated classified checklist of polypores recorded in Malta is also included.

ADDITIONS**Family Hymenochaetaceae****1. *Inonotus indicus* (Mass.) Pieri & Rivoire [= *Aurificaria indica* (Mass.) Reid]**

Material examined: 8.11.82, Wied Ghollieqa Malta, under *Ceratonia siliqua*, (MB903); 25.11.82, Ballut tal-Wardija Malta, on roots of *Quercus ilex* (MB622); 4.12.86, Ta Braxia Malta, on roots of *Acacia cyanophylla*, (MB907); 13.12.93, Wied Ghollieqa Malta, under *Ceratonia siliqua*, (MB803); 23.12.94, Imgiebah Malta, on roots of *Ceratonia siliqua*, (MB909); 23.1.95, Buskett Malta, on roots of *Ceratonia siliqua*, (MB910); 29.9.97, Wied Babu Malta, on roots of *Ceratonia siliqua*. (MB918).

Until recently the distribution of this species had been restricted to Southeast Asia, China, and Kenya (Pieri *et al.* 1996). Its occurrence in Malta was first detected by Pieri and Hentic in 1993 when they examined an unidentified specimen (MB903) collected by the Author in 1982. It was subsequently recorded by Pieri & Rivoire (1996) who proposed a new combination by transferring it from the genus *Aurificaria* to *Inonotus*. They also stated that it is a new species for Europe. Subsequent examination of other Maltese material resulted in several unidentified specimens being determined as different forms of this macroscopically very variable species. Ryvardeen, who at first doubted the occurrence of this species in Europe, examined the Maltese material and confirmed its identity. (Pieri pers. com.). A distinguishing characteristic of *I. indicus* is 'the peculiar velutinate appearance of the surface of the pileus which is caused by the very irregular palisade of the very irregular generative hyphae and not by the usual close pile of skeletal ends' (Corner 1991). Additional means of identification of this species is its colour reaction to KOH, the flesh turning red then brown (Pieri pers. com.), and the spores turning olive-brown. Another reagent-test, which has not been

recorded in the literature, is the metachromatic appearance of the endosporium in cresyl-blue. (Hentic pers. com.). Surprisingly, *I. indicus* seems to have been long established in Malta judging by its frequency and widespread distribution on the Island. In Malta it has a sessile or short-stiped, erect habit and always occurs under frondose trees, mainly on the roots of *Ceratonia siliqua* (Fabaceae). Corner (1991) says it is found on fallen logs and is parasitic at the base of living trees, mentioning *Dialium* sp. (Fabaceae).

It appears that the presence in Malta of *Phaeolus schweinitzii* (Briffa & Lanfranco 1986) is very doubtful. Some forms of *I. indicus* have similar looking carpophores and it is probable that these had been mistaken for *P. schweinitzii*. *P. schweinitzii* is associated mainly with coniferous trees. Out of the five published specimens supporting its occurrence in Malta (Briffa & Lanfranco 1986) the only one allegedly collected 'under conifers', (EL276 Buskett 1.1.72 leg. E & G Lanfranco), could in fact have been at the base of a solitary *Ceratonia siliqua* among a population of conifers (E. Lanfranco pers. com.). Moreover, *P. schweinitzii* has larger carpophores and larger greenish yellow pores, 1-2 per mm, while *I. indicus* has smaller brown pores, 4-5 per mm. Microscopically, *P. schweinitzii* has larger, ellipsoid, hyaline spores, thicker hyphae and numerous cystidia, while *I. indicus* has subglobose, thick-walled spores, olive-brown in KOH, thinner hyphae, and no cystidia.

2. *Inonotus cuticularis* (Bull.:Fr.) P. Karst.

Material examined: 22.11.96, Ballut tal-Imgiebah Malta, on main trunk of *Quercus ilex*. (MB913).

In Malta this species is only known from a small oak-wood, Il-Ballut tal-Imgiebah, where it is hosted by an old oak-tree (*Quercus ilex*). It was first collected by the author on 26.11.85 (MB174) and was erroneously published as *Meripilus giganteus* (Pers.: Fr.) P. Karst. (Briffa & Lanfranco 1986). Its imbricate carpophores appear regularly, roughly

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every two years, from a wound at the apex of the main trunk. Fresh material collected on 22.11.96 (MB913) was examined by Hentic and Rivoire and determined as *Inonotus cuticularis*. This species could be easily determined by its spore dimensions ($6 \times 5\mu$), the characteristic branched setae on the surface of the pileus, very variable in form and number, and the 'felt-like' surface of the fresh carpophore. (Hentic pers. com.).

3. *Inonotus tamaricis* (Pat.) Maire

Material examined : 6.2.85, Ramla l-Hamra Gozo (Malta), at base of *Tamarix africana*. (MB900).

This macroscopically and seasonally atypical specimen was identified by Hentic. It has a pseudo stipe (probably an extension of the pileus) and the pileus is dark brown and very hispid. The spores, however, are c. $8 \times 6\mu$, yellow in water, and above all it has a granular core, fitting Ryvardeen's description of this species. Half of the specimen is deposited at Hentic's herbarium (RH9702).

I. tamaricis is well known and frequent in Malta mainly on *Tamarix gallica*. In fact it is conspicuous by its absence from the local literature. However, unlike the specimen examined, the pileus is normally much lighter in colour, and much less hispid, the carpophores appear in Autumn high up the trunk rather than at its base, and they turn black and dry up before February.

4. *Phellinus torulosus* (Pers.) Bourdot & Galzin

Material examined : 23.1.95, Buskett Malta, on fallen log of *Ceratonia siliqua* (MB911); 16.10.95, Buskett Malta, on living remains of *Ceratonia siliqua* (MB912).

MB911 was determined by Moreno, noting its hyaline ellipsoid spores ($4-5 \times 3-4\mu$) and the straight setae which distinguish it from *P. ignarius* which has subglobose amyloid spores. MB912 was determined by Pieri.

4a *Phellinus cf. torulosus*

Material examined: 20.2.97, Wied Babu Malta, on main trunk of *Ceratonia siliqua*. (MB915).

A *Phellinus* species with numerous perennial carpophores, hosted by *Ceratonia siliqua*, was first seen and photographed by E. Lanfranco and the author on 4.3.79 at Wied Babu Malta. Fresh identical specimens were collected by the author from the same living tree on 20.2.97 (MB915). They had a distinctly acute, occasionally undulate margin, small round pores (0.1 mm), short tubes (1-2 mm long), and whitish ellipsoid spores ($4-5 \times 3-4\mu$).

This material was examined by Hentic and Rivoire, who both agreed that its microscopic characteristics correspond to *Phellinus torulosus*. Macroscopically, however, its distinctly acute margin did not fit the description of *P. torulosus* which according to Ryvardeen has an obtuse rounded margin, 2 cm thick. A specimen is also deposited in Hentic's herbarium

(RH.9709). The material was later re-examined by Moreno who agreed to label it *P. cf. torulosus*.

Family Polyporaceae

5. *Corioloopsis aspera* (Jungh) Teng

Material examined: MB902, 15.11.78, Maqluba Malta, under *Ceratonia siliqua*.

The specimen was round, with a diameter of 17cm, and consisted of a central mass of corky, brown trama, from the base of which sprang many proliferating, thin, faintly zonate, fan-like projections of different sizes, c. 1-2 mm thick, bearing hymenia of relatively large, dark brown pores (c. 0.4 mm diam.), with very short tubes (up to 1 mm long). Although the specimen was now old and carried no spores, it was determined by Ryvardeen in November 2001. In a personal communication he says its macroscopical features correspond with this species and so is its typically trimitic hyphal system. *C. aspera* is a widespread species in the paleotropical zone, rather common in Asia and less so in Africa. The specimen is the first record of this species in Europe. Its occurrence in Malta is possibly due to introduction.



Fig. 1 *Phellinus cf. torulosus*

6. *Oligoporus balsameus* (Peck) Gilb. & Ryvarden

[= *Postia balsamea* (Peck) Jülich]

Material examined : 28.11.95, Buskett Malta, on main trunk of *Ceratonia siliqua*. (MB611).

A single imbricate polypore (MB611) one meter up the trunk of a living *Ceratonia siliqua*, reminiscent of *Postia*, was collected at Buskett by A. Bonnici and the author on 28.11.95. It had the following macroscopic features: carpophore forming a few fan-shaped, light greyish brown, smooth, and lightly zonate pilei; white tubes, up to 5 mm long; circular to subangular pores 2 - 4 per mm; white flesh, very soft, contracting and hardening when dry; mild taste. It was examined and determined by Hentic, who made the following remarks: Microscopically the specimen has a monomitic hyphal system with clamp connections. All hyphae are metachromatic in cresyl blue (a characteristic distinguishing the genus *Oligoporus* from *Tyromyces*). The spores are ellipsoid ($4 \times 2.5\mu$), and above all it has numerous cystidia. Of all the species belonging to the genus *Oligoporus* as published by Ryvarden & Gilbertson (1994), *O. balsameus* is the only pileate species with cystidia and ellipsoid spores. Moreover the macroscopic features of the carpophore surface of the specimen generally fit the description of this species [(Ryvarden & Gilbertson, 1994) and (Bourdot & Galzin 1928 = *Coriolus kymatodes* Rost.)]. This species is generally hosted by conifers but also, more rarely, by hard-wood species.

Family Ganodermataceae

7. *Ganoderma australe* (Fr.) Pat. [= *G. adpersum* (Schulzer) Donk]

Material examined : 15.11.94, Ghajn il-Kbira, Malta, on main trunk of *Eriobotrya japonica*. (MB917)

The specimen was determined by Moreno. It is very similar to *G. applanatum*, from which it is easily distinguished by its dark reddish brown context.

Family Thelephoraceae

8. *Boletopsis leucomelaena* (Pers.) Fayod

Material examined: 30.1.85, Buskett Malta, under conifers (MB360).

A terrestrial stipitate species with whitish angular pores, very easy to determine by its unique habit, blackish colour, and warty pale brown spores, irregular in outline.

UPDATED POLYPORE CHECKLIST OF THE MALTESE ISLANDS

The common designation 'polypores' here is mainly limited to parasitic or saprophytic lignicolous species with a porous hymenium, formerly grouped under one family, *Polyporaceae* Freis, excluding the unrelated species of the family *Boletaceae*.

The checklist follows the classification and nomenclature adopted in Ryvarden & Gilbertson (1993-1994), and is based mainly on the records published by Sommier & Caruana-Gatto (1915), which include all previous local records of polypores published by Zerapha (1831), Gulia (1859), Saccardo (1912, 1914 & 1915), and Borg (1899 & 1901). To these are added later records published by Borg (1922), Briffa & Lanfranco (1986), and the ones published in the present work. Both the updated and the recorded nomenclature appear in this checklist.

It should be noted that a few taxa had been listed by Saccardo (1915) at 'form' level, named after their host trees. These could have possibly been endemic forms, having been based on material collected in Malta. They include: *Fomes ribis* f. *tamaricis*, *F. robustus* f. *punicae*, and *F. robustus* f. *amigdali*. Unfortunately, however, in his work Saccardo (1915) failed to describe their distinguishing features, as he did in the case of other endemic taxa, at species level, and so their real taxonomic significance is not known. All infraspecific taxa have therefore been left out in the updated nomenclature. One cannot deny, however, that sometimes polypore species seem to have a tendency to evolve local forms which become specific to their host trees. Other authors, in fact, have published justified descriptions of similar forms. E.g. *Inonotus (Xanthocrus) hispidus* f. *quercus* (sic), and f. *salicum* (sic) in the south of France (Bourdot *et al.* 1928 P.278), *Phellinus robustus* f. *aceris*, in Crimea, and *P. robustus* v. *buxi* f. *atrophaxidis* (sic), in Tadzhikistan (Larsen *et al.* 1990 p.123), and *Phellinus igniarius* f. *alni* (Cetto 1987-1993 V. Nr.2015).

HOMOBASIDIOMYCETES

Polyporaceae

Abortiporus biennis (Bull.:Fr.) Singer = *Polyporus biennis* (Bull.) Fr., on *Olea europea* (Saccardo 1912), (Borg 1922).

Bjerkandera adusta (Willd.: Fr.) P. Karst. = *Polyporus adustus* (Willd.) Fr., on dead wood (Saccardo 1912).

Bjerkandera fumosa (Pers.: Fr.) P. Karst. = *Polyporus fumosus* (Pers.) Fr., on *Citrus* sp. (Borg 1901).

Cerrena unicolor (Bull.: Fr.) Murrill = *Daedalea unicolor* (Bull.) Fr., (Gulia 1859).

Coriopsis aspera (Jungh) Teng, under *Ceratonia siliqua*, (Briffa ! MB902)

Coriopsis gallica (Fr.) Ryvarden = *Trametes hispida* (Baglietto) Fr., on dead *Quercus* wood (Saccardo 1914 & 1915), also an undescribed form: f. *resupinata* (the only description being that implied by its name), on dead *Citrus* wood Saccardo (1915), and on dead wood of *Olea europaea* (Briffa ! MB908).

Note: Cetto (1983-1990 IV No.1588) also mentions a resupinate form of this species (= *Funalia gallica* (Fr) Bond. & Singer)

Gloeophyllum abietinum (Bull.:Fr.) Karst = *Lenzites abietina* (Bull.) Fr., on rotting wood of *Abies* sp. (Saccardo 1912). Note: The genus *Gloeophyllum* includes species with a porous hymenium (e.g. *G. protractum*), lamellate hymenium (e.g. *G. abietinum*), and mixed porous and lamellate hymenium (e.g. *G. sepiarium*).

Gloeophyllum sepiarium (Wulf.:Fr.) Karst. = *Lenzites saepiaria* Fr., on rotting wood of *Larix* sp., rare, (Saccardo 1915)

Grifola frondosa (Dicks.: Fr.) Gray = *Polyporus frondosus* (Dicks.) Fr., on *Ceratonia siliqua* (Borg 1922), (Briffa ! MB904).

Laetiporus sulphureus (Bull.: Fr.) Murrill = *Polyporus sulphureus* Fr. v. *ceratoniae* Risso, on *Ceratonia siliqua* (Borg 1922), (Briffa ! MB655) = *Polyporus ceratoniae* Risso = *P. sulphureus* v. *ceratoniae* Quel, on *Ceratonia siliqua* (Saccardo 1912).

Oligoporus balsameus (Peck) Gilb. & Ryvardeen, on *Ceratonia siliqua* (Briffa! MB611).

Polyporus brumalis (Pers.) Fr., on old branches of *Cistus monspeliensis* (Briffa & Lanfranco 1986). (Briffa ! MB39)

Trametes hirsuta (Fr.) Pilát = *Polyporus hirsutus* Fr., on *Morus alba* and *Punica granatum* (Borg 1922), on fallen log of *Cupressus sempervirens* with unusual colour, (Briffa ! MB620 det. Pieri).

Trametes versicolor (L.: Fr.) Pilát = *Polystictus versicolor* (L.) Fr., on rotting wood (Saccardo 1912), on dead wood (Briffa !).

Hymenochaetaceae

Coltricia cinnamomea (Jacq.) Murrill = *Polyporus cinnamomeus* (Jacq.) Pers., on *Pyrus* spp. (Borg 1922).

Inonotus cuticularis (Bull.:Fr.) P. Karst., on *Quercus ilex* (Briffa ! MB913).

Inonotus hispidus (Bull.: Fr.) P. Karst. = *Polyporus hispidus* (Bull.) Fr., on *Morus alba* (Saccardo 1914), on *Malus* spp. (Borg 1922), on *Morus alba* (Briffa ! MB901).

Inonotus indicus (Mass.) Pieri & Rivoire, mainly on *Ceratonia siliqua* (Briffa ! MB903)

Inonotus obliquus (Pers.:Fr.) Pilát = *Fomes obliquus* (Pers.) Cooke, on *Citrus* spp. (Borg 1901 & 1922).

Inonotus rheades (Pers.) P. Karst. = *Polyporus rheades* Pers., on *Pinus* sp. (Saccardo 1912).

Inonotus tamaricis (Pat.) Maire, on *Tamarix* spp (Briffa ! MB900)

Phellinus ignarius (L.: Fr.) Quél. = *Fomes ignarius* (L.) Gillet., on *Ceratonia siliqua* (Zerapha 1831), *Boletus ignarius* L.), (Gulia 1859 *Polyporus ignarius* (L.:Fr).

Phellinus pomaceus (Pers.) Maire = *Fomes fulvus* Fr. = *F. fulvus* (Scop.) Pat. (according to Cetto II p.531) on *Prunus* spp. (Saccardo 1912), Borg (1922), (Briffa ! MB608).

Phellinus robustus (P. Karst.) Bourdot & Galzin = *Fomes robustus* P. Karst. f. *amygdali* Sacc., on *Prunus amygdalus* (Saccardo 1915), (Borg 1922), and f. *punicae* Sacc., on *Punica granatum* (Saccardo 1915, Borg 1922), on dead stump of *Citrus deliciosa* (Briffa ! MB914) det. by Hentic. However this specimen may also be referable to *P. punctatus* (P. Karst.) Pilát: It has no pileus, and was saprophytic on a Citrus stump.

Phellinus torulosus (Pers.) Bourdot & Galzin, on *Ceratonia siliqua* Briffa ! MB911, including a variety having its carpophores with distinctly acute margin (MB915).

Phylloporia ribis (Schumach.:Fr.) Ryvardeen = *Fomes ribis* (Schumach.) Gillet. f. *tamaricis* Sacc., on *Tamarix gallica* (Saccardo 1915). Sommier & Caruana-Gatto (1915) say this taxon is 'not rare'.

Ganodermataceae

Ganoderma australe (Fr.) Pat., on main trunk of *Eriobotrya japonica*. (Briffa ! MB917)

Ganoderma applanatum (Pers.) Pat., (Briffa & Lanfranco 1986)

Ganoderma lucidum (Curtis: Fr.) P. Karst., (Gulia 1859 = *Polyporus lucidus*), on *Ceratonia siliqua* (Borg 1922); on *Ceratonia siliqua*, *Laurus nobilis*, *Populus alba*, *Fraxinus angustifolia*, *Ulmus minor*, and *Carya olivaeformis* (Briffa ! MB906).

Thelephoraceae (Porous species)

Boletopsis leucomelaena (Pers.) Fayod, under conifers (Briffa ! MB360).

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