

Notes on Polish polypores 4. *Polyporus alveolaris*

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Abundant recent collections of *Polyporus alveolaris* (DC. : Fr.) Bondartsev & Singer (Basidiomycota) help to outline the morphology, ecology and distribution of this rare, predominantly submediterranean polypore. The Polish localities are actually the northernmost ones in Europe, notably expanding the range of *P. alveolaris*. Eleven species of *Polyporus* are known in Poland.

Key words: ecology, Poland, *Polyporus*, taxonomy, wood-rotting fungi

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Introduction

Polyporus alveolaris (DC. : Fr.) Bondartsev & Singer is a species of warm-temperate climate, widely distributed throughout southern Europe, Asia and North America (Gilbertson & Ryvarden 1987, Ryvarden & Gilbertson 1994, Núñez & Ryvarden 1995, 2001). In the monograph of Polish polypores, Domański et al. (1967) mentioned *P. alveolaris* among the species whose finding in Poland is hardly probable. However, some southern species have been found in Poland in subsequent years, for instance *P. rhizophilus* (Pat.) Sacc. and *Oligoporus obductus* (Berk.) Gilb. & Ryvarden, as well as *P. alveolaris*. The map in Ryvarden and Gilbertson (1994) showed the species to exist in Poland, but this record was not accompanied with the reference of citation or herbarium specimen. It seems that the first published record of *P. alveolaris* in Poland, deriving from year 2000, was given by Friedrich and Orzechowska (2002). However, this is not the sole collection of the fungus in the country since there are numerous unpublished findings of this species from 1995 onwards, collected in Tarnów town in southern Poland. My paper provides information on these collections. The morphology, ecology and

distribution of *P. alveolaris* are here outlined based on specimens and observations from Poland.

Taxonomy

Polyporus alveolaris (DC. : Fr.) Bondartsev & Singer Fig. 1
Ann. Mycol. 39: 58. 1941. – For synonyms, see Núñez and Ryvarden (1995).

Basidiome annual, sessile or short stipitate. *Pileus* circular or flabelliform, up to 5 cm in diam. *Upper surface* smooth, glabrous, but with flattened, concentric squamules, orange-yellow, with age becoming cream-coloured to ivory and pale buff and resembling many other species. *Edge* concolorous, uneven, acute. *Pore surface* cream-coloured, pores large, hexagonal or pentagonal, 1–2 per mm. *Context* ivory coloured, azonate, corky, tubes concolorous with context. *Stipe* short, central or lateral, cream-coloured or ivory, up to 1 cm long. *Hyphal system* dimitic, generative hyphae thin-walled, hyaline, with clamps, moderately

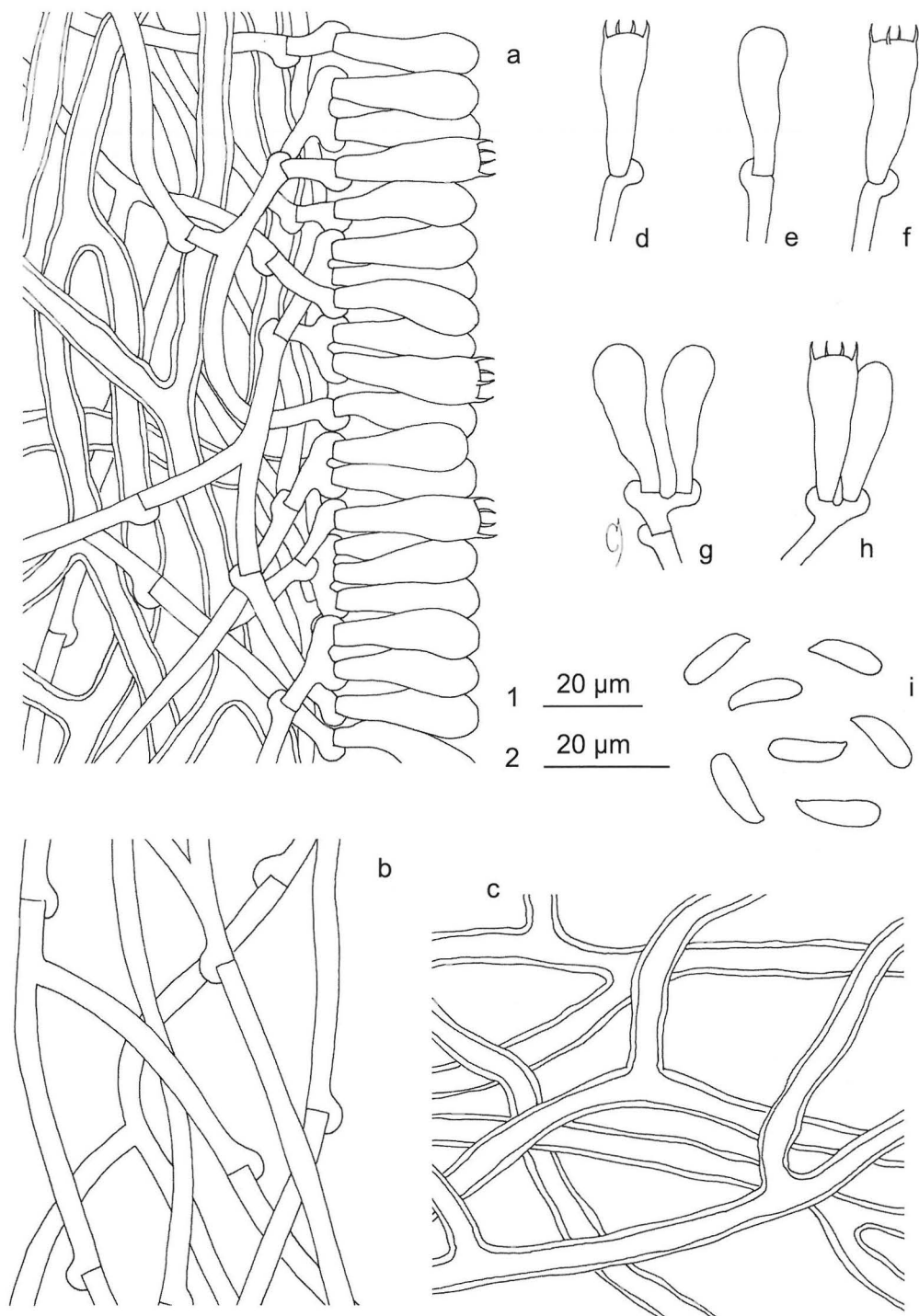


Fig. 1. Microscopical structures of *Polyporus alveolaris* (DC. : Fr.) Bondartsev & Singer (drawn from KRAM F-39490). – a) hymenium, b) generative hyphae, c) skeleto-binding hyphae, d–h) basidia, i) basidiospores. Use the scale 1 for a–h and scale 2 for i.

branched, up to 4 μm wide, skeleto-binding hyphae thick-walled, nonseptate, richly branched, up to 7 μm wide. Cystidia or other similar sterile elements absent. Basidia clavate, with basal clamp and 4 sterigmata, 20–30 \times 7–9 μm . Basidiospores cylindrical, hyaline, smooth, non amyloid, 10–13(–14) \times 3.5–5 μm .

Specimens examined: **Poland.** Małopolska Prov. Tarnów Distr., Tarnów: Park Kwiatkowskiego, fallen branch of deciduous tree (4 cm), 6.IX.1996 Piątek (KRAM F-39230); at Akacjowa St., dead still attached branch of *Syringa vulgaris*, 12.IX.1996 Piątek (KRAM F-39213); Lasy Krzyskie (complex I, at Wiśniowa St.), *Tilio cordatae-Carpinetum betuli*, fallen branches of *Acer platanoides* (0.5 and 1.5 cm), 21.IX.1999 Piątek (KRAM F-39541), fallen branch of *Fraxinus excelsior* (2 cm), 8.IX.2000 Piątek (KRAM F-52161); Lasy Krzyskie (complex IC, at Wiśniowa St.), *Tilio cordatae-Carpinetum betuli*, fallen branch of *Quercus rubra* (6 cm), 10.V.1999 Piątek observation; Lasy Krzyskie (complex IIA, at Ścieżki St.), with *F. excelsior* and *Q. rubra*, fallen branches of *F. excelsior* (3 and 5 cm), 10.V.1999 Piątek (KRAM F-39508, F-39509); Lasy Krzyskie (complex IIB, at Ścieżki St.), with *F. excelsior* and *Q. rubra*, fallen branch of *F. excelsior* (1 cm), 26.VIII.1999 Piątek (KRAM F-39838); Lasy Krzyskie (complex III, at Kalinowa St.), with *F. excelsior* and *Q. rubra*, dead still attached branch of *Q. rubra* (2 cm), 10.V.1999 Piątek (KRAM F-39510); south of the Krzyskie Stawy ponds, humid alder forest, fallen branch of *F. excelsior* (5 cm), 20.IX.1999 Piątek (KRAM F-39737); Park Sanguszków, manor park, fallen branch of deciduous tree (1 cm), 12.IX.1995 Piątek (KRAM F-39214); near ruins of the Tarnowskich Castle, tree stand, fallen branch of *F. excelsior* (2 cm),

6.IX.1997 Piątek observation; Góra Świętego Marcina, *Tilio cordatae-Carpinetum betuli*, fallen branch of *A. platanoides* (1 cm), 13.VIII.1997 Piątek (KRAM F-39229), fallen branch of *A. platanoides* (4 cm), 2.VII.1998 Piątek (KRAM F-39228), fallen branch of *A. platanoides* (1 cm), 6.IX.2002 Piątek (KRAM F-52814), fallen branch of *F. excelsior* (2 cm), 17.V.1999 Piątek observation, fallen branch of *F. excelsior* (3 cm), 17.V.1999 Piątek (KRAM F-39507); Pogórze Wiśnickie: Panieńska Góra Reserve, ca. 16 km SW of Tarnów, *Tilio cordatae-Carpinetum betuli*, fallen branch of *A. platanoides* (5 cm), 10.VIII.1998 Piątek (KRAM F-39348).

Discussion

Polyporus alveolaris is a lignicolous species, restricted to deciduous wood. In Poland it was most often recorded on small branches 1 to 6 cm thick. Usually the basidiomes were growing on the upper side of branches lying on the ground, but sometimes the basidiomes emerged from dry branches still attached to the tree. The main host in the Polish populations of the fungus was *Fraxinus excelsior* followed by *Acer platanoides*, *Quercus rubra* and *Syringa vulgaris* (Fig. 2). Similar hosts were found for the fungus, e.g. in Switzerland (Breitenbach & Kränzlin 1986), Italy (Bernicchia 1990) and the Czech Republic and Slovakia (Kotlaba 1984). However, in the latter area the most common hosts were maple trees *Acer campestre* and *A. pseudoplatanus*, but a few

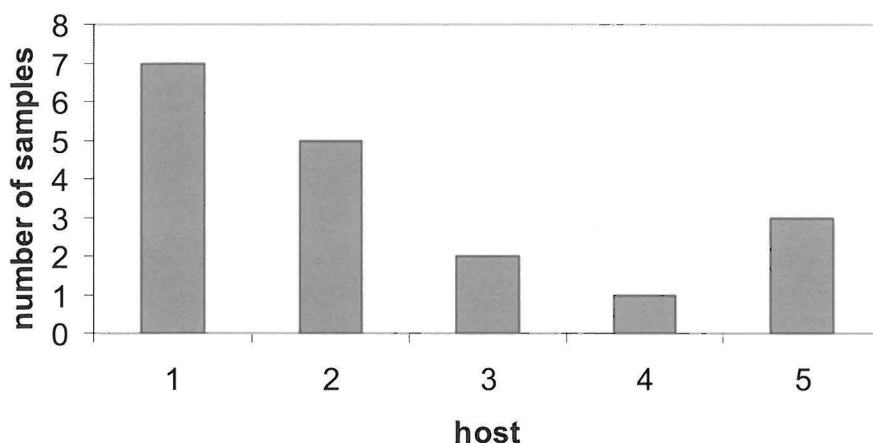


Fig. 2. Host spectrum for *Polyporus alveolaris* (DC. : Fr.) Bondartsev & Singer in Poland. – 1) *Fraxinus excelsior*, 2) *Acer platanoides*, 3) *Quercus rubra*, 4) *Syringa vulgaris*, 5) unidentified deciduous tree.

further specimens were collected, e.g., on ash (*Fraxinus* sp. and *F. angustifolia* ssp. *danubialis*) and lilac (*Syringa vulgaris*).

Polyporus alveolaris grew both in synanthropic, natural and semi-natural habitats. The sites affected by humans were parks and green belts. In such environments the fungus has been found four times, once in Szczecin (Friedrich & Orzechowska 2002) and three times in Tarnów. Natural forests were mostly classified as the *Tilio cordatae*-*Carpinetum betuli* association, and rarely mesic herb-rich alder forests with the dominance of *Fraxinus excelsior* or semi-natural forest with the dominance of *F. excelsior* and *Quercus rubra*. In natural and semi-natural habitats *P. alveolaris* favoured fairly humid and sunny places.

Polyporus alveolaris started to form basidiomes already in May: from this month the number of collections is relatively high. However, the main fruiting period was in September. In other months the number of specimens is smaller, and for instance in June no collections were made.

In Europe *Polyporus alveolaris* shows a sub-mediterranean type of distribution with maximal occurrence in the Mediterranean region, extending to the southern parts of Germany (Krieglsteiner 1991), the Czech Republic and Slovakia (Kotłaba 1984). In the light of the present study the occurrence of *P. alveolaris* in Tarnów at the northern border of the Carpathians (Fig. 3) is an isolated outlier, including one locality in the Panieńska Góra Reserve, 16 km south-west of Tarnów. The

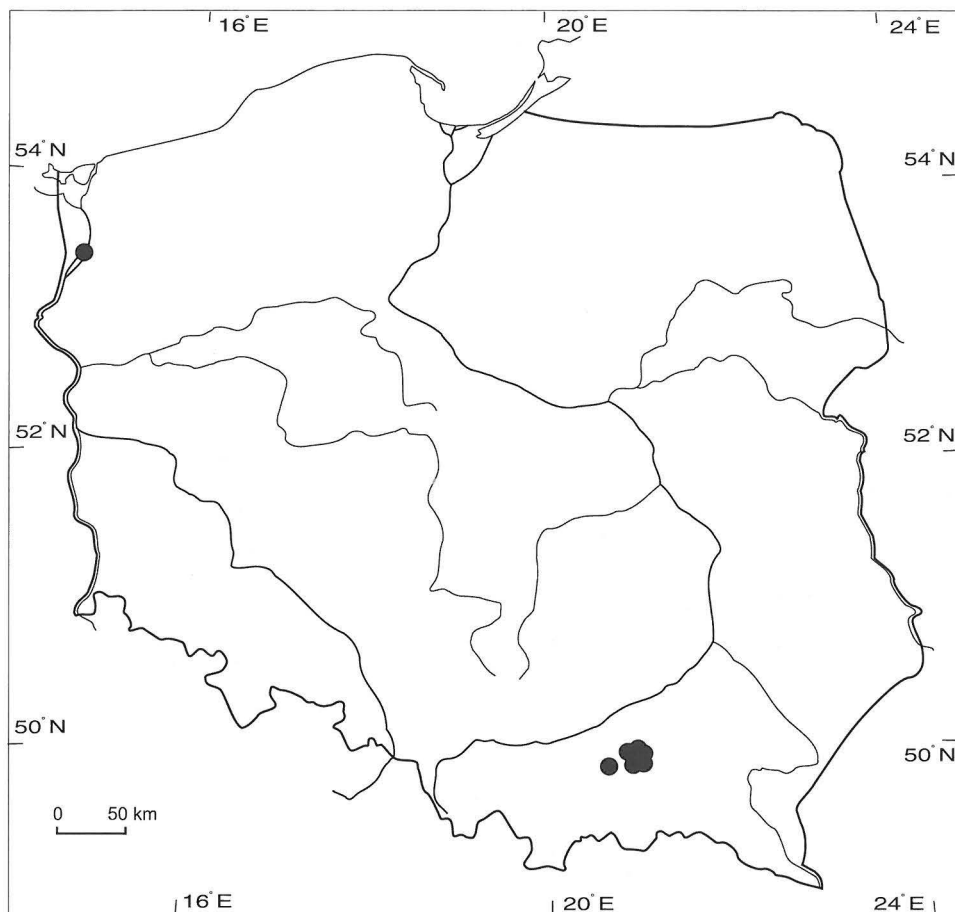


Fig. 3. Distribution of *Polyporus alveolaris* (DC. : Fr.) Bondartsev & Singer in Poland.

localities in Tarnów are mostly in northern and southern parts of the city in natural and semi-natural forest complexes, while only two localities are in the parks and green belt in central part of the city (Fig. 4). The closest locality to these lays about 80 km south in eastern Slovakia on the southern slopes of the Carpathian chain. *P. alveolaris* has in southern Poland a limited occurrence; the species has not been found in Cracow, 80 km west from Tarnów, despite this city is well explored mycologically (Wojewoda 1991, 1996).

In Szczecin (Fig. 3) *Polyporus alveolaris* was found only once (Friedrich & Orzechowska 2002). This locality is very isolated from the others in

southern Germany and Poland, and hence it is very interesting. A similar isolated locality is known in northern Germany far from the main range of the species (Kriegelsteiner 1991).

The number of basidiomes of *Polyporus alveolaris* varied greatly between the localities. Most abundant it was in Góra Świętego Marcina, where it formed numerous basidiomes from May to September. It was less frequent in other natural or semi-natural places, for instance in the Lasy Krzyskie in northern Tarnów or in the PanieDska Góra Reserve. In man-influenced places only single basidiomes were seen. However, it is hard to evaluate the red-list status of this fungus accord-

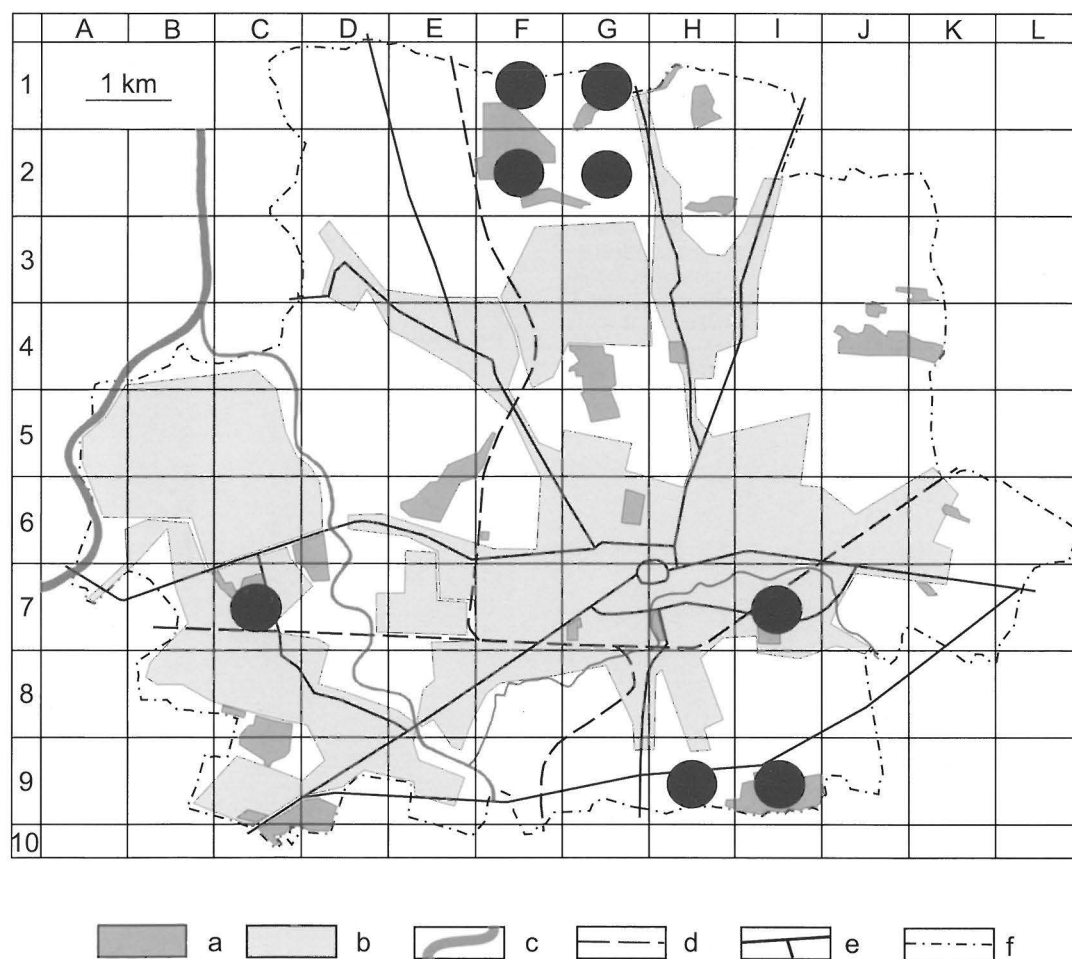


Fig. 4. Distribution of *Polyporus alveolaris* (DC. : Fr.) Bondartsev & Singer in Tarnów town. – a) forests and parks, b) built-up area, c) rivers, d) railway, e) roads, f) town border.

ing to the criteria of IUCN (2001) before long-term observations on the populations are available. Eleven species of *Polyporus* are known in Poland. Of these, common or rather common are *P. brumalis* (Pers.) Fr., *P. ciliatus* Fr. : Fr., *P. squamosus* (Huds.) Fr., and *P. varius* (Pers.) Fr., while others are rarely reported: *P. arcularius* (Batsch) Fr., *P. badius* (Pers.) Schwein., *P. melanopus* (Pers.) Fr., and *P. umbellatus* (Pers.) Fr. The remaining ones are very rare: *P. alveolaris*, *P. rhizophilus* (Pat.) Sacc. and *P. tuberaster* (Jacq.) Fr.

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