

Contribution to the knowledge of the genus *Phlebia* in Italy

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Abstract: The presence of two corticioid taxa belonging to the genus *Phlebia* (*Basidiomycota*), collected from Sicily, Italy is reported. A macro- and micromorphological descriptions of *P. acanthocystis* and *P. nothofagi* added of ecological and distributional data are here provided. *P. acanthocystis* is reported as new for Italy.

INTRODUCTION

During field investigations in natural Sicilian areas, two uncommon taxa belonging to the genus *Phlebia* Fr. have been collected: *Phlebia acanthocystis* Gilb. & Nakasone, and *P. nothofagi* (G. Cunn.) Nakasone.

The genus *Phlebia* includes wood inhabiting corticioid species. Nakasone (1997) after detailed micromorphological and culture studies, and with support from preliminary sequence data formalized the synonymy of *Mycoacia* Donk with *Phlebia*.

The species belonging to *Phlebia* are morphologically different, mostly are resupinate, subgelatinous-ceraceous in the living state and corneous when dry, with smooth to toothed hymenophores. Hyphal system is normally monomitic with clamps; hyphae thin- to thick-walled, smooth or encrusted, tightly agglutinated or more rarely loosely interwoven, with or without a gelatinous matrix. Cystidia absent or present; basidia usually narrowly clavate, in a dense palisade. Basidiospores are hyaline, smooth, thin-walled, allantoid to ellipsoid, non-amyloid, acyanophilous.

MATERIALS AND METHODS

Descriptions of basidiomes are based on fresh and dried specimens. The macroscopic descriptions were carried out on fresh basidiomata while the microscopic features were observed, under an Olympus BH-2, on dried specimens using a 0.3% KOH solution and 0.1% cotton blue in lactic acid. The spore measurements are based on 50 observations on fresh and dried samples. Studied specimens are deposited in MCVE.

PHLEBIA ACANTHOCYSTIS Gilb. & Nakasone (Fig. 1) Basidioma effused, 1×3 cm wide, subceraceous, cream to pale brown, odontoid. Aculei conical to cylindrical, sometimes not distinctly separated towards the base or with conspicuous smooth hymenium between them, rarely apically fimbriate. Margin not particularly differentiated.

Hyphal system monomitic; hyphae thin to slightly thick-walled, hyaline, with clamps, rarely encrusted, 2–5 µm wide; distinct and parallel in the centre of the aculei, closely agglutinate and more or less parallel next the substrate. Hyphae densely joined in the subhymenium, loosely intertwined into a more open texture in adjacent subiculum. Cystidia infrequent, 40–48 µm, variously projecting, thin-walled, subfusiform, attenuated towards the apex that shows short and thin protrusions resembling those of acanthocystidia. Basidia cylindrical to strictly clavate, 16–28×4–4.4 µm, tetrasporic, with basal clamps. Basidiospores narrowly ellipsoid or less often cylindrical, thin-walled, smooth, hyaline, mostly with some small guttule, 3.4–4.8 (5.4)×2–2.6 µm, inamyloid.

Specimen examined: Italy, Sicily, Monte Petroso, Palermo, 550 m a.s.l., mixed oak wood, on fallen branch of *Quercus ilex* L., 16 Oct 2011, coll. A. Saitta (MCVE 27791).

PHLEBIA NOTHOFAGI (G. Cunn.) Nakasone (Fig. 2, Fig. 3)

Basidioma resupinate, at first orbicular, ceraceous, hydroid or somewhat irpicoid. Hymenial surface whitish-cream to ochraceous and finally dark brown, sometimes with grey-violaceous tint towards the base of aculei. Aculei up to 8 mm

long. Margine white, fimbriate, sometimes not particularly differentiated. Smell typical, penetrating, with ammoniacal component. Hyphal system monomitic, hyphae with clamps, 2–4 μm wide, thin to slightly thick-walled, hyaline to very pale yellowish-brown; parallel in the centre of the aculei, where sometimes from a clamp origins a slightly thick-walled hypha with pseudoskeletal aspect up 200–300 μm long, and covered with abundant crystals.

Cystidia abundant, metuloid, projecting, fusiform to cylindrical, more or less thick-walled, often with secondary septa, 40–70 \times 3.5–7.2 μm . Basidia strictly clavate, tetrasporic, 16–25 \times 4–4.8 μm . Basidiospores cylindrical to ellipsoidal, smooth, hyaline, thin-walled, 4–6 \times 2.2–3 μm , inamyloid.

Specimen examined: Italy, Sicily, Fontana, Palermo, 750 m a.s.l., mixed wood of *Fraxinus angustifolia* Vahl, *Quercus suber* L. and *Quercus cerris* L. var. *gussonei*

Borzi, on fallen trunks of *Q. cerris* var. *gussonei*, 08 Dec 2013, 29 Nov 2013, coll. A. Saitta (MCVE 27792, 27793).

DISCUSSION

P. acanthocystis is characterized by its odontoid light-colored basidioma, the little ellipsoid spores and its characteristic cystidia, not always easily observed (Nakasone & Gilbertson, 1998). Our collection of *P. acanthocystis* confirms the rarity of cystidial elements in the microscopical structure.

The distribution of *P. acanthocystis* is limited to Hawaii (Nakasone & Gilbertson, 1998; Hjortstam & Ryvar den, 2007), Japan (Maekawa et al., 2003), Chile (Gorjón & Hallenberg 2012), and recently it was collected from the Island de la Réunion (Duhem, 2008). The record of *P. acanthocystis* from Italy can be considered the



Fig. 1. Basidiome and microscopical structures of *Phlebia acanthocystis*.



Fig. 2. Basidiome of *Phlebia nothofagi*.

first European record considering the collection from Ile de la Réunion not European.

Macroscopically *P. nothofagi* is very close to *P. fuscoatra* (Fr.) Nakasone, but the shorter size of the aculei represents a good differential character (Hjortstam et al., 1981, as *Mycoacia*). Furthermore on the base of microscopical observations *P. nothofagi* and *P. fuscoatra* are easily recognizable for the different shape of cystidia. We have noticed that the very intensive smell, unpleasant with ammonia component, can easily help to individuate this taxon on fresh specimens. The smell of *P. nothofagi* has been previous described as soap-flavour (Reid, 1963), sweetish and nauseating (Martini, 1988) and like *Antrodia xantha* (Fr.: Fr.) Ryvar den (Losi, 1999).

P. nothofagi is widely distributed in Europe but for its limited presence to restricted areas can be considered as an uncommon species. The distribution of *P. nothofagi* in Italy is limited to Veneto (Losi, 1999), Emilia Romagna and Sardinia (Bernicchia & Gorjón, 2010).

These new collections of uncommon or rare species from Sicily confirm the Sicilian territory as “hotspot” of corticioid species in the Mediterranean area (Saitta et al., 2011).

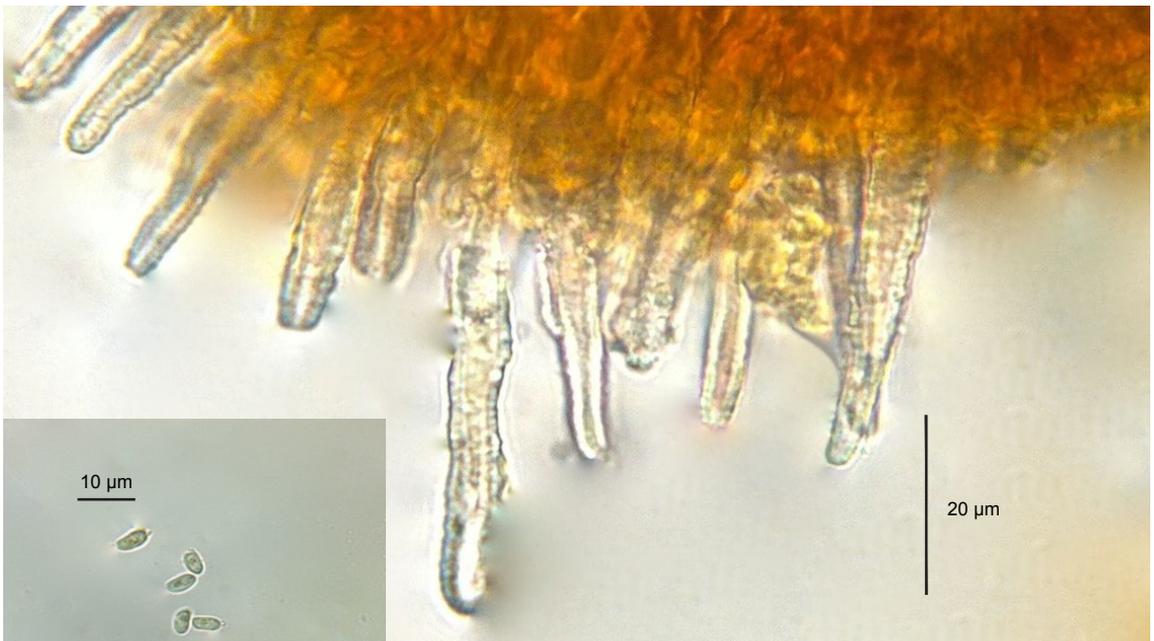


Fig. 3. Cystidia and spores of *Phlebia nothofagi*.

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