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SHORT COMMUNICATION

The first report of *Pleuroflammula ragazziana* in Poland

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Abstract

The first locality of *Pleuroflammula ragazziana* (Bres.) E. Horak in Poland, found in 2017 in Debrza Nature Reserve (Tarnów District), is reported herein. The global distribution of this species was mapped. The morphology of this species, based on the specimens from Poland, is presented.

Keywords

Basidiomycota; Crepidotaceae; distribution; new country report

Introduction

The genus *Pleuroflammula* Singer (Agaricales, Crepidotaceae) consists of only a few species, most of which are known from the Americas, Africa, and Asia [1,2]. The only species reported from Europe is *Pleuroflammula ragazziana* (Bres.) E. Horak, where it is known from Portugal (including the Azores) [1,3], Ireland [4], Spain [5–9], and France [10]. It was described by Bresadola on the basis of the specimens collected in Ethiopia (Fikre Gimb Forest) [11–13], and is also known from Tristan da Cunha [14], South Africa (Cape of Good Hope) [3,15], Kenya [16], the Canary Islands [17–20], the United States of America (Virginia) [21], and Canada [22,23]. Horak [1] has also mentioned collections from Somalia and “Ghambia”, with the annotations “type” and “holotype”, respectively. This is probably a mistake, as these localities were not included in the papers cited by Horak. Both collections refer to the same type location in Ethiopia. Horak [1] probably assigned the type location Fikre Gimb Forest (also called Fecherie Ghamb Forest) to Somalia instead of to Ethiopia, where it is currently placed.

Pleuroflammula ragazziana is rare and known from single localities in each country, except for Spain, where it has been found four times (Fig. 1). It is considered that the natural distribution range of this species covers (sub)tropical areas and that it probably spreads or is introduced to other regions [1,24,25]. *Pleuroflammula ragazziana* produces small pleurotoid basidiocarps, growing on the wood of various trees: *Acer pseudoplatanus* L. [5,9], *Eucalyptus globulus* Labill. [6], *Eucalyptus* sp. [1], *Fraxinus* sp. [10], *Laurus azorica* (Seub.) Franco [17], *Ocotea foetens* (Aiton) Baill. [17], *Quercus garryana* Douglas ex Hook. [22,23], *Quercus rotundifolia* Lam. [7], and *Tilia europaea* L. [4].

In current paper, the first finding of *P. ragazziana* in Poland is reported. The morphological description is based on Polish specimens. The fungal names have been cited according to Knudsen and Vesterholt [26], and the plant names according to The International Plant Name Index [27]. The microcharacters were studied under a light microscope (Bresser Science TRM 301). Aqueous ammonia (10%) and Congo red in ammonia were used for preparing the microscope specimens. All measurements were made directly through the light microscope under an oil immersion objective (×100).



Fig. 1 World distribution of *Pleuroflammula ragazziana* (Bres.) E. Horak: black circles – known localities; red circles – new locality; blue circles – doubtful data.

The spore dimensions were established from measurements of 50 randomly selected well-formed spores (deformed or atrophied spores were excluded from analysis). The 95% confidence intervals of the means were calculated and the lower and upper values are given. For other structures, the extreme size values are presented, which were obtained after measuring 25 elements. Dried specimens are deposited in the private fungarium of B. Gierczyk.

Pleuroflammula ragazziana (Bres.) E. Horak (Fig. 2–Fig. 4)

Basidiomata small, 0.5–1.5 cm in diameter, pleurotoid, laterally attached or with a strongly eccentric reduced stem. Cap margin decurved. Cap surface fibrillose to rimose, ocher to pale yellowish brown, with small rusty adherent scales (in young basidiocarps, indistinct and covered by a veil). Veil scanty, white, fibrillose, and present on the cap and stipe of young basidiocarps. Gills narrow, medium spaced, ocher, and adnexed, with a paler serrated edge. Spore print rusty brown. Flesh yellowish. Basidia two-spored, $30\text{--}45 \times 6\text{--}9 \mu\text{m}$. Spores $8.5\text{--}11 \times 5.5\text{--}7.5 \mu\text{m}$, broadly ovoid to ellipsoid, smooth, pale brown, with thickened walls (up to $0.9 \mu\text{m}$), without a germ pore but sometimes with a rudimentary callus or apical wall thinning. Cheilocystidia distinct, $40\text{--}65 \times 6\text{--}7.5 \mu\text{m}$, variable, almost cylindrical, narrowly clavate to narrowly lageniform or utriform, and often with an enlarged apex. Pleurocystidia similar, very sparse, present only near the lamellar edge, and often with an indistinct apical appendix. Caulocystidia and pileocystidia absent. Pileipellis a cutis, composed of interwoven slender hyphae up to $6 \mu\text{m}$ wide. Pigment intracellular, yellow-brown, and extractable by KOH solution. Veil elements delicate and thin. Clamps present. **Specimens studied:** ATPOL: EF67, UTM: DA94, Poland, Małopolska Province, north part of Tarnów City, Debrza Nature Reserve; a dozen basidiocarps on a dead branch of *Tilia* sp. in *Tilio-Carpinetum*; 2017-08-21; leg. R. Kubiński, det. B. Gierczyk; specimen preserved in the private herbarium of B. Gierczyk, No. BGF0002420. **Additional specimens studied for comparison:** *Simocybe haustellaris* (Fr.) Watling; ATPOL: BC98, UTM: XU21, Poznań, Poznań District, near Lutycka Street; a few basidiocarps on a branch of *Betula pendula* in a mixed forest; 2014-07-12; leg. P. Wietrzyński, det. B. Gierczyk; specimen preserved in the private herbarium of B. Gierczyk, No. BGF/BF/PW/140712/0001.



Fig. 2 Basidiomata of *Pleuroflammula ragazziana* (Bres.) E. Horak from Debrza Nature Reserve. Photography by R. Kubiński.

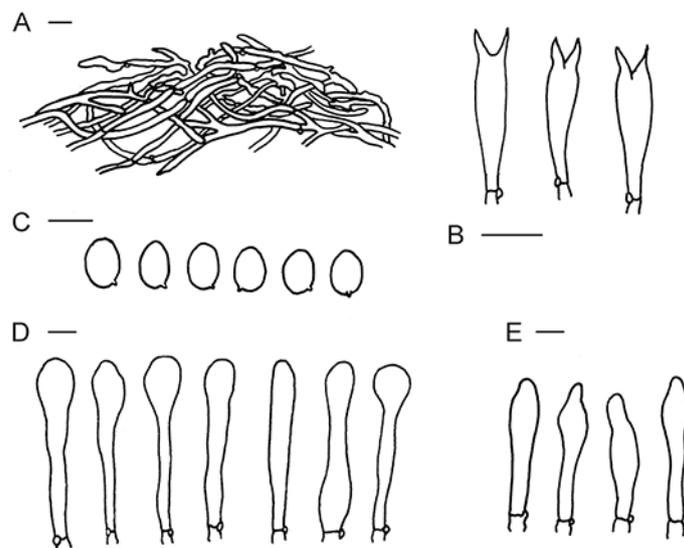


Fig. 3 Microcharacters of *Pleuroflammula ragazziana* (Bres.) E. Horak from Debrza Nature Reserve: (A) pileipellis structure; (B) basidia; (C) basidiospores; (D) cheilocystidia; (E) pleurocystidia. Scale bars: 10 μ m.

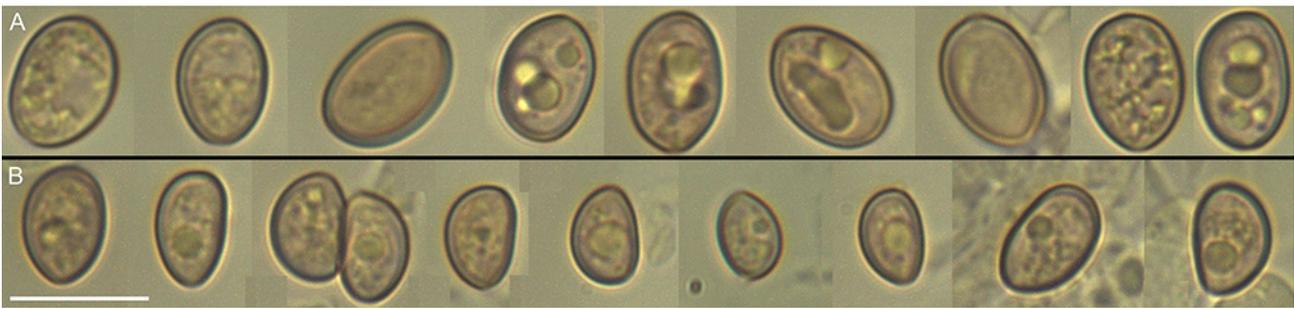


Fig. 4 Spores of *Pleuroflammula ragazziana* (Bres.) E. Horak (A) and *Simocybe haustellaris* (Fr.) Watling (B). Scale bar: 10 μ m.

Comments

The morphology of the specimens collected in Poland has shown good agreement with the morphology of *P. ragazziana* given in the literature [1,24–26]. The rusty scales mentioned by other authors [1,11,24] have not been prominent, as the specimens observed were young and covered by veil remains. The substratum inhabited by *P. ragazziana* in Debrza Nature Reserve is the same as reported previously in Ireland [4]. The species may be confused with other small, dark-spored, pleurotoid fungi, especially with *Crepidotus* species or *Simocybe haustellaris* [17,28]. However, the European representatives of *Crepidotus* produce four-spored basidia and different, often ornamented, spores. *Simocybe haustellaris* produces narrower, more elongated, ellipsoid-to-ovoid, thin-walled spores with a germ pore and a tapering apex (Fig. 4) and has distinct pileocystidia.

Analysis of the global distribution of *P. ragazziana* suggests that its subtropical or tropical origin, as proposed by some authors, may be incorrect. Most of its locality is concentrated in the Mediterranean and temperate regions, and the Ethiopian stand is located at a high altitude. The scant amount of mycological data from tropical Africa makes the determination of the ecological preferences and origin of the species difficult.

Further localities of *P. ragazziana* could be expected in Poland, especially in lime-tree woods that are rich in dead wood. The threat category of this species depends on its status in the Polish biota. If the statement of its subtropical origin [1,24,25] is accepted, as not native taxon, it should be classified under the NA (not applicable) IUCN category in Poland [29]; however, as it is possible that *P. ragazziana* is a widely distributed but rare taxon and its European (and Polish) localities are natural, further studies are needed to check the possibility of the presence of this species in other localities. In such case, the category should be DD (data deficient).

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