www.biodicon.com BIOLOGICAL DIVERSITY AND CONSERVATION

ISSN 1308-8084 Online ISSN 1308-5301 Print

Research article/Araştırma makalesi
DOI: 14745/biodicon.2023.1227860
16/1 (2023) 70-74

Pseudoboletus parasiticus (Bull.) Šutara, a New Record for Turkish Mycobiota

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Abstract

The boletoid species, *Pseudoboletus parasiticus,* is reported as a new record for Türkiye, based on the identification of the sample collected from Trabzon province. This species is the first member of the genus *Pseudoboletus* in Türkiye. A brief description of the species is provided together with the suggested Turkish name, and the photographs, related to the macroscopy and microscopy.

Key words: Biodiversity, Boletaceae, New record, Türkiye

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Pseudoboletus parasiticus (Bull.) Šutara, Türkiye Mikobiyotası İçin Yeni Bir Kayıt

Özet

Boletoid bir tür olan *Pseudoboletus parasiticus,* Trabzon'dan toplanan örneklerin teşhis edilmesiyle, Türkiye için yeni kayıt olarak rapor edilmiştir. Bu tür, *Pseudoboletus* cinsinin Türkiye'deki ilk üyesidir. Türün kısa bir betimlemesi, önerilen Türkçe ismi ve makroskobi ve mikroskobisine ilişkin fotoğraflarıyla birlikte verilmiştir.

Anahtar kelimeler: Biyoçeşitlilik, Boletaceae, Yeni kayıt, Türkiye

1. Introduction

Pseudoboletus Šutara is a genus of the family Boletaceae, and characterized by the fruit bodies growing parasitically on carpophores of *Scleroderma* Pers. spp., filamentous trichoderm, sterile stipe surface, basidiospores similar to those *Boletus* and *Xerocomus,* and scattered, smooth and thin-walled cystidia without incrustation. The genus has two species (*Pseudoboletus astraeicola* (Imazeki) Šutara, *P. parasiticus* (Bull.) Šutara) worldwide [1].

During a field study in Trabzon province, a boletoid fruit body growing on a *Scleroderma* sp. fruit body was collected. Upon required investigation, it was identified as *Pseudoboletus parasiticus.* The survey of the current checklist on Turkish macrofungi [2] and the latest contributions [3-16] indicated that, any member of the genus has been reported from Türkiye before.

The study aims to make a contribution to the mybiota of Türkiye.

2. Materials and methods

The fruit body of *Pseudoboletus parasiticus* was collected from Trabzon province in 2022, during a routine field study. Fruit bodies were photographed at its natural habitat, and necessary notes were taken related to its ecological characteristics and geographic position. Microscopic structures were investigated from the sections obtained

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 Received: 01.01.2023; Published: 15.04.2023 BioDiCon. 1075-010123

from fresh material. A Leica DM500 trinocular light microscope was used for microscopic investigations and an Omax A3550U camera, equipped with Topview software, was used to obtain photographs related to micromorphology. Identification was performed by comparing the obtained data with Philips [17], Breitenbach and Kränzlin [18], Šutara [19-20], Hansen and Knudsen [21], Kibby [22], McKnight and McKnight [23], Knudsen and Vesterholt [24], Bessette et al. [25].

The specimen is kept at Karamanoğlu Mehmetbey University, Science Faculty, Department of Biology.

3. Results

Fungi R.T. Moore
Basidiomycota R.T. Moore
Boletales E.-J. Gilbert
Boletaceae Chevall.
Pseudoboletus parasiticus (Bull.) Šutara, Česká Mykol. 45(1-2): 2 (1991)

Syn: [*Boletus parasiticus* Bull., *Boletus parasiticus* f. *peylii* Kavina, *Boletus parasiticus* var. *piperatoides* J. Blum, *Ceriomyces parasiticus* (Bull.) Murrill, *Pseudoboletus parasiticus* f. *peylii* (Kavina) Blanco-Dios, *Pseudoboletus parasiticus* f. *piperatoides* (J. Blum) Blanco-Dios, *Pseudoboletus parasiticus* var. *piperatoides* (J. Blum) C. Hahn, in Guthmann & Hahn, *Suillus parasiticus* (Bull.) Kuntze, *Versipellis parasitica* (Bull.) Quél., *Xerocomus parasiticus* (Bull.) Quél., *Xerocomus parasiticus* f. *piperatoides* (J. Blum) R. Mazza.]

Macroscopic and microscopic features

Cap 20-60 mm across, convex when young, broadly convex at maturity, surface smooth to velvety or suedelike, some becoming cracked in age, yellowish brown to olive brown, sometimes bruising reddish to brownish, margin incurved to somewhat inrolled when young. Hymenophore porous, surface yellow, becoming olive yellow to yellowish brown or reddish brown in age, adnate to somewhat depressed around the apex of the stem. Flesh pale yellowish. Odor and taste not distinctive. Stem 35-75 × 10-19 mm, cylindrical to somewhat ventricose, usually curved toward the base, more or less concolorous with the cap, somewhat lighter toward the base, solid, pruinose or covered with fine brownish aggregations of fibrils (Fig.1).

Figure 1. Basidiocarps of *Pseudoboletus parasiticus*

Basidia 40-50(56) × 4.8-7.2 µm, subclavate with 4 sterigmata (Fig. 2a). Cheilocystidia 35-55 x 7-14 µm, fusiform to somewhat clavate. Pleurocystidia 40-65 x 8-13 µm, cylindrical to ventricose-fusiform or lageniform, with a long neck, smooth (Fig. 2b). Basidiospores 11-15.5 x 4-4.5 µm, subfusiform to fusiform, smooth with usually a large central, and some with small polar guttules (Fig. 2c). Pileipellis a trichoderm with long cylindrical hypha. Stipitipellis a trichoderm with 3-8 µm wide, smooth and elongated elements (Fig. 2d,e). Caulohymenium not observed.

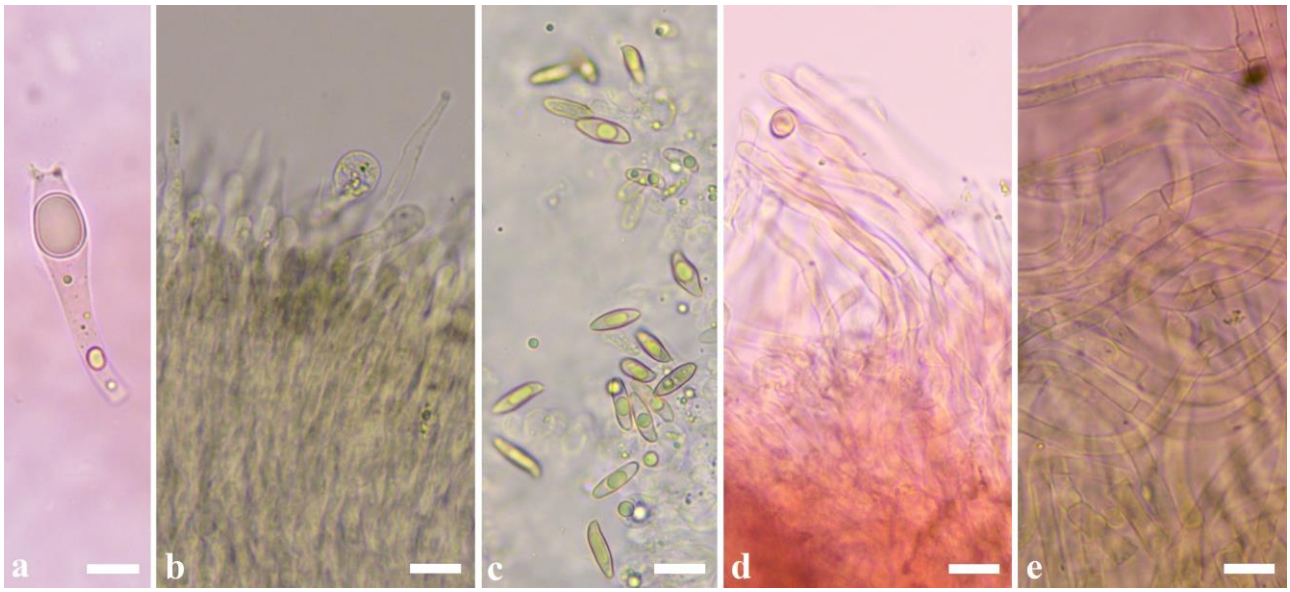

Figure 2. Basidia (a), Cystydia (b) and basidiospores (c) and pileipellis (d,e) of *Pseudoboletus parasiticus* (bars- a-e: 10 µm) (a,d,e in Congo-Red; b,c in water)

Pseudoboletus parasiticus was reported to grow as a parasite on carpophores of gasteromycetes such as *Scleroderma* or *Astraeus* [20] especially on *Scleroderma citrinum* [18, 19, 22, 25-29].

Specimen examined: Trabzon, Pelitli, Kavala village, on *Scleroderma* sp. fruiting body growing around moss covered decaying *Carpinus betulus* L. roots, 40°58′2″N, 39°47′33″E, 370 m, 06.09.2022, Faruk Yeşilyurt-1.

Suggested Turkish name for the presented species is “Parazit Yalancıçörek”.

4. Conclusions and discussion

Pseudoboletus parasiticus was added as a new record for the mycobiota of Türkiye. This species is the first member of the genus *Pseudoboletus* in Türkiye. General characteristics of the studied collection are in agreement with Philips [17], Breitenbach and Kränzlin [18], Šutara [19,20], Hansen and Knudsen [21], McKnight and McKnight [23], Knudsen and Vesterholt [24], Bessette et al. [25]. A small difference was observed in basidium lenght. Breitenbach and Kränzlin [18], Šutara [19], and Kuo [30], give the basidium lenght up to 50 µm, but our sample bares basidia up to 57 µm.

In terms of macromorphology, *Pseudoboletus parasiticus* is very similar to xerocomoid boletes. But the infertile stipe surface and the growth on a gasteromycete differs it from other members of Boletaceae. A considerable majority of the members of Boletaceae are mycorrhizal, and a few species are saprophitic. Except the members of *Pseudoboletus*, it contains no mycoparasitic member. Though there are many other examples of mycoparasitic mushrooms, *Pseudoboletus parasiticus* is the only example of the case where a bolete parasitizes an earthball [30]. *Pseudoboletus astraeicola* (Imazeki) Šutara, the other member of the genus *Pseudoboletus*, is also a fungicolous mushroom but it grows on *Astraeus hygrometricus* (Pers.) Morgan [31].

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