



Pseudoporpoloma pes-caprae (Tricholomataceae): A new record for the mycota of Türkiye

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Received : 30.01.2023
Accepted : 21.02.2023
Online : 01.03.2023

Pseudoporpoloma pes-caprae (Tricholomataceae): Türkiye mikotası için yeni bir kayıt

Abstract: Basidiocarps of *Pseudoporpoloma pes-caprae* (Fr.) Vizzini & Consiglio were collected from Trabzon. Main morphological characters were noted, photographs were taken and the flora of the collection site was determined at the field. Basidiocarps were sectioned under binocular research microscope, treated with ammonia solution and subsequently examined under Zeiss Axio Imager A2 Research microscope. The collection has conical to bell-shaped, convex, generally umbonate, 50-85 mm, fibrillose, greyish or ocher-brown pileus; whitish, cream or pale grey, emarginate adnate to nearly free lamellae; cylindrical, tapering based, solid, longitudinally fibrillose and whitish stipe; subglobose to ellipsoid, smooth, hyaline and about $6-8 \times 4-6 \mu\text{m}$ sized basidiospores.

Key words: Agaric, microscopy, taxonomy, Türkiye

Özet: *Pseudoporpoloma pes-caprae* (Fr.) Vizzini & Consiglio'nun bazidiyokarları Trabzon'dan toplandı. Arazide ana morfolojik karakterler not edildi, fotoğraflar çekildi ve toplama sahasının florası belirlendi. Bazidiyokarlardan binoküler araştırma mikroskobu altında kesitler alındı, amonyak çözeltisi ile muamele edildi ve daha sonra Zeiss Axio Imager A2 araştırma mikroskobu altında incelendi. Toplanan örnek konik ve/veya çan şeklinde, dışbükey, genellikle tepe çıkıntılı, 50-85 mm, lifli, grimsi veya koyu sarı-kahverengi şapka; beyazımsı, krem veya soluk gri, saptan hafif ayrık veya hemen hemen serbest lamellere; silindirik, tabana doğru sivri, dolu, uzunlamasına lifli ve beyazımsı sapa; elipsoid, pürüzsüz, şeffaf ve yaklaşık $6-8 \times 4-6 \mu\text{m}$ büyüklüğünde bazidiyosporlara sahiptir.

Anahtar Kelimeler: Agarik, mikroskopi, taksonomi, Türkiye

Citation: Sesli E (2023). *Pseudoporpoloma pes-caprae* (Tricholomataceae): A new record for Türkiye. Anatolian Journal of Botany 7(1): 29-31.

1. Introduction

The genus *Pseudoporpoloma* Vizzini & Consiglio was erected by Vizzini et al. (2016) to host *Agaricus pes-caprae*, a relatively small, grassland species. This monotypic genus is morphologically distinguished with a tricholomoid habit, a conical, radially fibrillose pileus; parallel to subparallel and cylindrical celled pileipellis; ellipsoid to oblong, smooth, thin walled and amyloid basidiospores. *Pseudoporpoloma* seems to be close to *Pseudotricholoma* (Singer) Sánchez-García & Matheny or *Tricholoma* (Fr.) Staude.

Before Vizzini et al. (2016), *Pseudoporpoloma pes-caprae* was known with different names such as *Agaricus pes-caprae* Fr., *Tricholoma pes-caprae* (Fr.) Quél., *Gyrophila pes-caprae* (Fr.) Quél., *G. aggregata* f. *pes-caprae* (Fr.) Quél., *Agaricus pes-caprae* var. *multiformis* (Schaeff.) Cooke, *Tricholoma pes-caprae* var. *multiforme* (Schaeff.) Masee, *Porpoloma pes-caprae* (Fr.) Singer, *P. pes-caprae* var. *multiforme* (Schaeff.) Bon or *Agaricus multiformis* Schaeff. A taxon with any of the above names was not collected from Turkey before the present study (Vizzini et al., 2016; Sesli et al., 2020).

The collecting site is a meadow surrounded by some woodland and bushes. Main trees and shrubs of the area are

Alnus glutinosa (L.) Gaertn., *Carpinus betulus* L., *C. orientalis* Mill., *Corylus avellana* Thunb., *Picea orientalis* (L.) Peterm., *Quercus hartwissiana* Steven, *Rosa canina* L., *Rubus fruticosus* Pollich and *Smilax excelsa* L.

Pseudoporpoloma pes-caprae is regarded as endangered in red list of countries like Austria, Germany, Poland, Sweden and Switzerland (Vizzini et al., 2016). The fact that this species has not been recorded until today, unfortunately, supports that it may be in danger of extinction in Turkey as well. It is necessary to focus on studies that reveal the abundance levels of fungi in Turkey as well as in the world.

2. Materials and Method

Basidiocarps were collected from Trabzon, Maçka, Mataracı neighborhood on 05.11.2022 (Fig. 1). Main morphological properties, such as the shape, color, texture and size of the pileus and stipe were noted, and some photographs were taken in the field. Some fruiting bodies were collected, dried, cataloged and placed in the fungarium cabinet. During the microscopic studies, thin sections were taken from the pileus surface and lamellae of the exsiccatum. After treatment with ammonia solution, they were examined under a research microscope and photographed. In order to obtain basidiospores, a piece of lamella was cut and squeezed. The width and length of 30-40 of the displayed basidiospores were measured, their arithmetic average was taken, and the lower and upper

standard deviation limits were determined. Identification of the species was made according to Breitenbach and Kränzlin (1991), Knudsen and Vesterholt (2008) and Vizzini et al. (2016). The exsiccatum is kept at a personal fungarium in Trabzon University, Fatih Faculty of Education, Biology department, Trabzon, Turkey.

3. Results

Tricholomataceae

***Pseudoporpoloma pes-caprae* (Fr.) Vizzini & Consiglio, in Vizzini, Consiglio, Ercole & Setti, Phytotaxa 243(3): 274 (2016) (Fig.1)**

Pileus broadly conical to bell shaped, convex, umbonate, extremely fragile, 40–85 mm; margin uplifted, lobed, often splitting with age; surface dry, radially fibrillose, greyish-brown to yellowish-ochre, darker at the centre and paler towards the margin. Lamellae ventricose, white, smoke color, greyish or cream, crowded to subdistant, emarginate or almost free, intervenose. Stipe cylindrical, tapering towards the base, longitudinally fibrillose, solid, whitish, smoke color, 30–85 × 5–15 mm, slightly yellowing towards the base, with a whitish ring-zone in young basidiomes. Context whitish and mild. Smell and taste farinaceous. Spore print whitish.

Basidia slenderly clavate, 25–40 × 6.5–8.5 µm, usually tetraspored and sterigmata up to 5 µm long. Hymenophoral trama, hyaline, made up of regular to subregular hyphae up to 15 µm wide. Basidiospores subglobose to ellipsoid,

smooth, hyaline, 6–8(–8.5) × 4–5(–6.5) µm, thin-walled, amyloid, usually with drops; hilar appendix long and prominent. Marginal cells rare, often basidia-like, thin-walled, versiform, flexuous, mostly bent and 20–31 × 5–8 µm. Pileipellis is a cutis of parallel to subparallel, cylindrical, variously interwoven, somewhat gelatinized, 2–6 µm wide hyphae. Subpellis consists of vesicular to largely elliptic hyphae. Clamp-connections present at all tissues.

Specimens examined: Türkiye, Trabzon, Maçka, Mataracı neighborhood, 40°50'59.28"N / 39°37'39.37"E, meadow, in groups, 05.11.2022, E. Sesli 4602.

4. Discussions

Turkish *Pseudoporpoloma pes-caprae* collection is characterized with conical to bell-shaped, convex, umbonate, fibrillose, greyish or ochre-brown pileus; whitish, cream or pale grey, emarginate adnate to nearly free lamellae; cylindrical, solid, longitudinally fibrillose and whitish stipe; subglobose to ellipsoid, smooth, hyaline and about 6–8 × 4–6 µm sized basidiospores.

Before the present study the genus *Porpoloma* Singer or *Pseudoporpoloma* have not been reported from Turkey and *Pseudoporpoloma pes-caprae* is the first record of this genus in Turkey. *Pseudoporpoloma* is a monotypic genus and the old name *Porpoloma* has included about 25 records to date in the world (Index Fungorum, 2023). The new record is close to some European *Porpoloma* species such

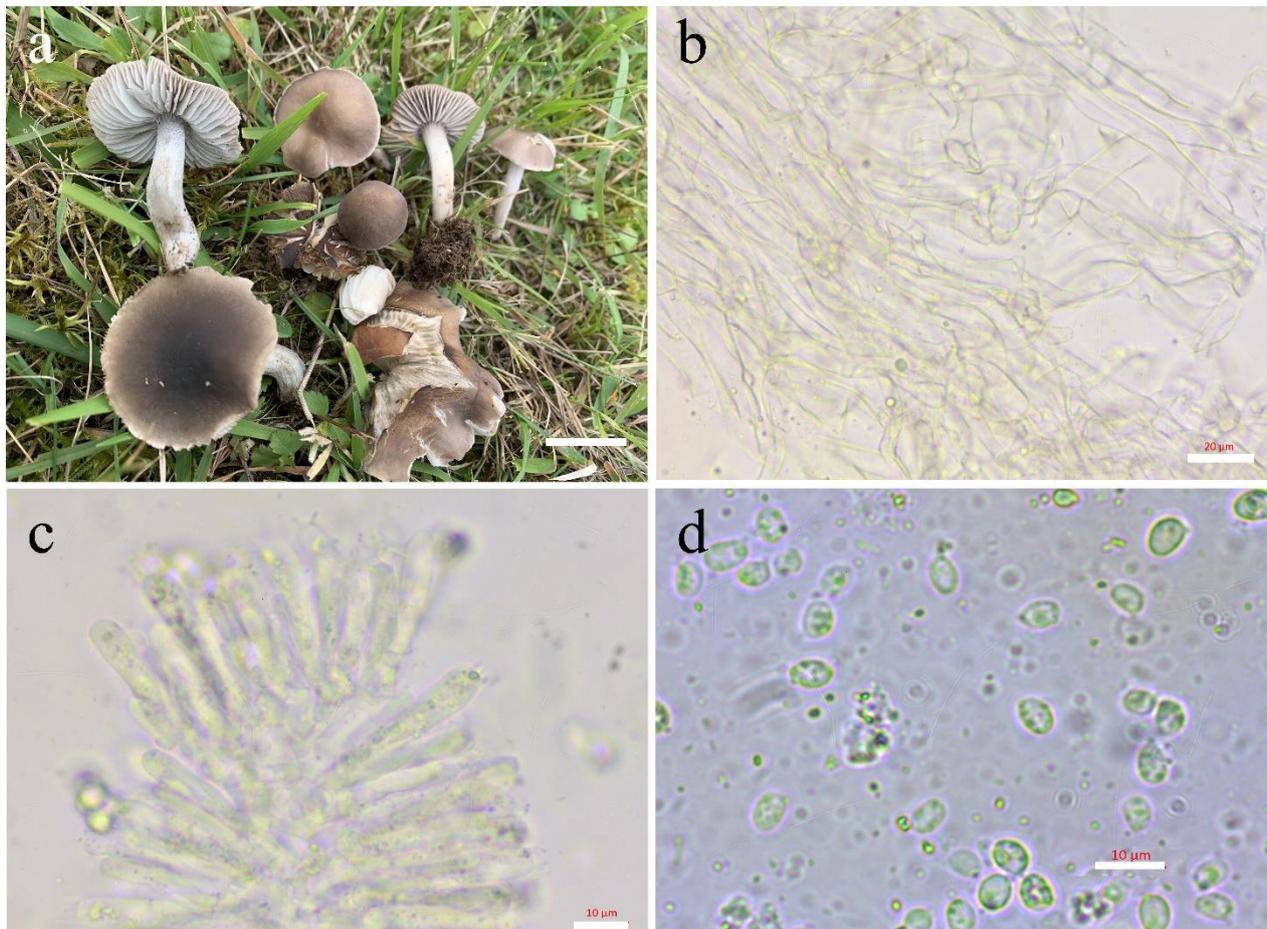


Figure 1. *Pseudoporpoloma pes-caprae*: a- Basidiocarps, b- Pileipellis, c- Basidia, d- Basidiospores (Scale bars: a: 40 mm, b: 20 µm, c and d: 10 µm)

as *P. spinulosum* (Kühner & Romagn.) Singer and *P. metapodium* (Fr.) Singer. *Porpoloma spinulosum* differs from *Pseudoporpoloma pes-caprae* with strongly yellowing stipe, aromatic smell, larger (40-120 mm), viscid and dark greyish brown pileus; crowded, cream colored or pale yellowish lamellae; smaller (4-6 × 3-4 µm) basidiospores and longer (25-50 µm) marginal cells. Another close but different species, *P. metapodium* has slightly reddening, pale to dark greyish brown, larger (40-100 mm) pileus; brownish grey lamellae, pale brownish

grey stipe and narrow (3-4 µm) basidiospores (Breitenbach and Kränzlin, 1991; Knudsen and Vesterholt, 2008; Vizzini et al., 2016).

Conflict of Interest

There is no conflict of interest with any institution or person.

Acknowledgements

This study was funded by Trabzon University Scientific Research Projects Coordination Unit (TAP: 20TAP00123).

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