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Agaricus brunneofibrillosus, A New Record for Turkish Mycobiota

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Abstract: *Agaricus brunneofibrillosus* Kerrigan is reported as a new record from Türkiye, based on the identification of the samples collected from Çamlıdere (Ankara) district. A brief description of the species is provided together with the photographs, related to the macroscopy and microscopy.

Keywords: Agaricaceae, Biodiversity, New record, Türkiye

Agaricus brunneofibrillosus, Türkiye Mikobiyotası İçin Yeni Bir Kayıt

Öz: *Agaricus brunneofibrillosus* Kerrigan Çamlıdere (Ankara)'den toplanan örneklerin teşhis edilmesiyle, Türkiye'den yeni kayıt olarak rapor edilmiştir. Türün kısa bir betimlemesi, makroskobi ve mikroskobisine ilişkin fotoğrafları ile birlikte verilmiştir.

Anahtar kelimeler: *Agaricaceae,* Biyoçeşitlilik, Yeni kayıt, Türkiye

Introduction

Agaricus L. is a large genus with more than 500 species within seven subgenera and 24 sections (Bashir et al., 2021; Ortiz-Santana et al., 2021; Suwannarach et al., 2022). It is a saprophytic fungal genus occurring in a wide variety of habitats, from urban and disturbed areas to deserts, alpine ecosystems, and deep forests (Karunarathna et al., 2016; Tarafder et al., 2022). Members of the genus are characterized mainly by umbrella shaped carpophores, fleshy cap, free gills, chocolate-brown spores and partial veil which often forms a ring or annulus on the stem. Besides the nutritional species, like *A. bisporus,* the genus also contains medicinal and poisonous species (Bau et al. 2014; Saini et al. 2018).

About 6000 records currently exist in Index Fungorum (Index Fungorum, 2023) with the name "*Agaricus*". Fifty six records, related to the genus *Agaricus*, were also traced from the published data about the macromycetes of Türkiye. But Sesli et al. (2020) list the names of 35 *Agaricus* species while Acar and Dizkırıcı (2023) give the existing number of *Agaricus* species in Türkiye as 45, exluding *A. micromegethus* Peck. The current Turkish fungal checklist (Sesli et al., 2020; Solak and Türkoğlu, 2022) and the latest contributions (Acar et al., 2021; Demirak and Türkekul, 2021; Doğan et al., 2021; Kaygusuz et al., 2022; Polat and Keleş, 2022; Sesli, 2023) revealed that *Agaricus brunneofibrillosus* Kerrigan has not been reported from Türkiye before.

The work aims to make a contribution to the macrofungal biodiversity of Türkiye.

Material and method

The fruit body of *Agaricus brunneofibrillosus* was collected from Çamlıdere district of Ankara province, in 2022 during a routine field study. First, it was photographed at its natural habitat, and the characteristics related to its ecology, morphology and geopraphy were noted. Then the samples were transferred to the fungarium and dried in an air conditioned room. Specimen for microscopic investigation were obtained from dry sample, and micromorphological investigations were performed under a trinocular light microscope. Photographs related to micromorphology were taken with the aid of a digital camera. Identification was performed by comparing the obtained data with Desjardin et al. (2014), Kerrigan (2016), Siegel and Schwarz (2016) and Kuo (2017).

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

Results

Fungi R.T. Moore

Basidiomycota R.T. Moore

Agaricales Underw.

Agaricus brunneofibrillosus Kerrigan, Mem. N. Y. Bot. Gdn 114: 228 (2016)

Macroscopic and microscopic features: Pileus 40-60 mm in diameter, first rounded to hemispherical with somewhat inrolled to incurved margin, then convex, broadly convex to plano-convex, innately appressed-fibrillose, usually with patches of white veil tissue near margin, pale brown to brown. Flesh white, becoming red in a short time when sliced. Taste mild, odor mushroomy. Lamellae free, close, at first whitish to pale grayish, then pinkish to light brown, finally dark brown, become reddish if damaged. Stipe 50-70 × 15-20 mm, cylindrical, more or less equal, whitish, becoming somewhat grayish- brown to light brown in age, smooth, becomes red upon rubbing, context white, become red quickly when cut. Partial veil subapical to almost apical, generally pendent (Fig 1).

Basidia 19-20 × 6-8 µm, cylindrical to clavate, predominantly 4 spored. Cheilocystidia cylindrical to clavate, rare. Basidiospores 4.7-6.5 × 3.5-4.2 µm, ellipsoid, smooth (Fig 2).

Specimen examined: Ankara, Çamlıdere, Aluçdağı Nature Park, among needle litter in pine forest, 40°29′N-32°33′E, 1480 m, 17.07.2022, K.15738.

Suggested Turkish name for this species is “Tüylü kızıl”.

Figure 1. Basidiocarp of *Agaricus brunneofibrillosus*

Discussions

Agaricus brunneofibrillosus was reported as new record for Türkiye. General characteristics of Turkish collection are generally in aggreement with those presented before (Desjardin et al., 2015; Kerrigan, 2016; Siegel and Schwarz, 2016).

The brown appressed-fibrillose cap and and the tissues that turn red immediately after exposure help to distinguish are the main distinguishing characteristics of this species. Two other *Agaricus* species, *A. pattersoniae* and *A. benesii,* growing in similar habitats, also have red-staining structures. But the finely scaly cap (rather than an appressed fibrillose one), starchier stature, and larger spores of *A. pattersoniae* (Desjardin et al., 2015), and the whitish cap of *A. benesii* (Breitenbach and Kranzlin, 1995; Siegel and Schwarz, 2016) differ them from *A. brunneofibrillosus*.

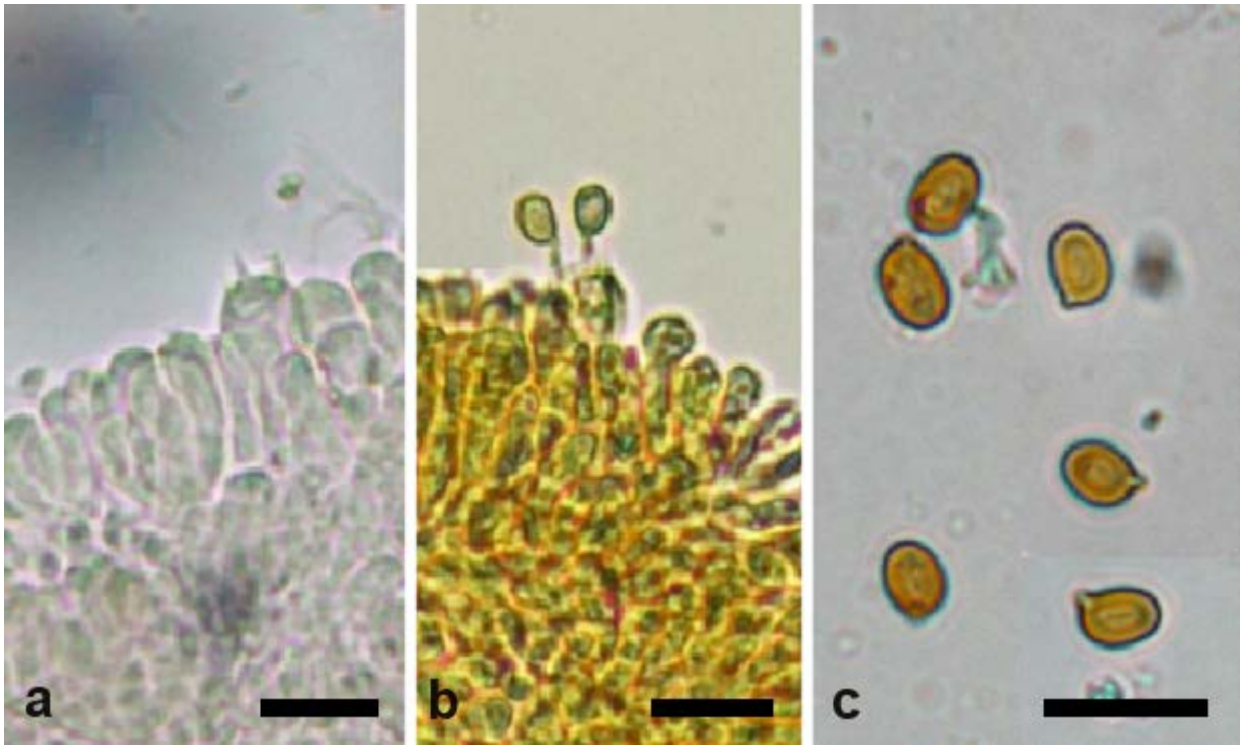

Figure 2. Basidia (a,b), and basidiospores (c) of *Agaricus brunneofibrillosus* (bars: 10 µm).

Author contributions

The authors have equal contribution.

Conflicts of interest

The authors declare no competing interests.

Ethical Statement

It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited (Ayşe Merve ASLAN, Yasin UZUN, Abdullah KAYA)

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