



New macrofungi records to the Turkish mycobiota

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Abstract

Clitocybe leucodiatreta Bon, *Peziza echinospora* P. Karst. and *Psathyrella sacchariolens* Enderle were recorded for the first time from Turkey. The new reported taxa are described and illustrated.

Key words: New macrofungi records, *Peziza*, *Psathyrella*, *Clitocybe*, Turkey

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Türkiye mikotası için yeni makrofungus kayıtları

Özet

Clitocybe leucodiatreta Bon, *Peziza echinospora* P. Karst. ve *Psathyrella sacchariolens* Enderle Türkiye'den ilk defa kaydedilmiştir. Yeni kayıt taksonlar tanımlanmış ve resimleri verilmiştir.

Anahtar kelimeler: Yeni makrofungus kayıtları, *Peziza*, *Psathyrella*, *Clitocybe*, Türkiye

1. Introduction

Antalya is a province located in southern part of Turkey near Mediterranean Sea and possesses a Mediterranean climate. Especially *Pinus brutia* Ten., *P. nigra* J.F. Arnold, *P. pinea* L., *Cedrus libani* A. Rich., *Abies cilicica* Carr., *Cupressus sempervirens* L., *Juniperus excelsa* M. Bieb., *J. oxycedrus* L., *J. foetidissima* Willd., *Quercus* L. spp. are very common in the region. Muğla Province is located in southwest Turkey and possesses same climate with Antalya. Vegetation cover is especially maquis. However *P. brutia*, *P. pinea*, and *Quercus* L. spp. are common trees of the region. In addition to rich vegetation covers, Antalya and Muğla also have many preserved areas as national parks. Because of the suitable climate and the type of vegetation, Antalya and Muğla Provinces have a natural habitat for a number of fungus (Gezer, 2000; Kaşık et al., 2003; Öztürk et al., 2003; Allı et al., 2011; Solak et al., 2014).

Many studies on Turkish mycobiota are being conducted especially last 20 years. In these studies many macrofungi taxa were recorded for the first time in Turkey (Akata, 2012; Akata et al., 2012; Demirel and Kaşık, 2012). All these studies contribute Turkey's biological diversity. Also the aim of this study is to contribute Turkey's mycobiota by new macrofungal records.

2. Materials and methods

In the present study, macrofungi samples were collected from different localities of Antalya and Muğla Provinces between 2005 and 2009. The field studies were conducted mostly in autumn and spring, because of the suitable climatic conditions for growth of fungi. In field studies morphological and ecological characteristics of the specimens were recorded and photographed. Macroscopic and microscopic measurement data were obtained using a ruler, light microscope, and micrometers. Microphotographs were taken using a Leica EC3. Some reagents (NH₄OH 10%, FeSO₄ 10%, KOH 10%, distillate water, Melzer's reagent, KOH 5%, Congo red etc.) were used for identification.

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Specimens were identified with the literature on macrofungi by (Dennis, 1981; Breitenbach and Kranzlin, 1984-1995; Hansen and Knudsen, 2000; Knudsen and Vesterholt, 2008). The identified specimens are kept at the fungarium of Muğla Sıtkı Koçman University.

3. Results

After an investigation in the fungarium *C. leucodiatreta*, *P. echinospora* and *P. sacchariolens* were identified. According to literature on Turkish macrofungi all of them are new records for Turkey (Doğan et al., 2005; Solak et al., 2007; Demirel et al., 2010; Kaya, 2010; Allı, 2011; Sesli and Denchev, 2013; Solak et al., 2014).

3.1 Pezizales J. Schröt.

3.1.1 Pezizaceae Dumort.

3.1.1.1 *Peziza echinospora* P. Karst. (Figure 1).

Syn: *Aleuria echinospora* (P. Karst.) Boud.

Aleuria umbrina (Boud.) Gillet

Aleuria umbrina (Boud.) Gillet var. *umbrina*

Galactinia echinospora (P. Karst.)

Fruiting body 3-10 cm, cup-to irregularly saucer shaped, stalkless, solitary, connected with each other's or clustered, margin inrolled when young, hymenium smooth, yellowish brown to dark brown, outer surface whitish to light brown, furfuraceous to scurfy. Flesh dandified brown. Spores hyaline, elliptical with warts, $14-17 \times 7-8 \mu\text{m}$. Asci cylindrical, $250-275 \times 11-12 \mu\text{m}$, eight spored. Paraphyses cylindrical to filiform, somewhat swollen at the apex, septate. In pine forest, in burned places (Dennis, 1981; Breitenbach and Kranzlin, 1984; Hansen and Knudsen, 2000).

Antalya, Manavgat, Pelitdibi village, in pine forest, in burned place, $37^{\circ} 07' 43 \text{ N} - 31^{\circ} 12' 03 \text{ E}$, 2.12.2006, Solak 2911.

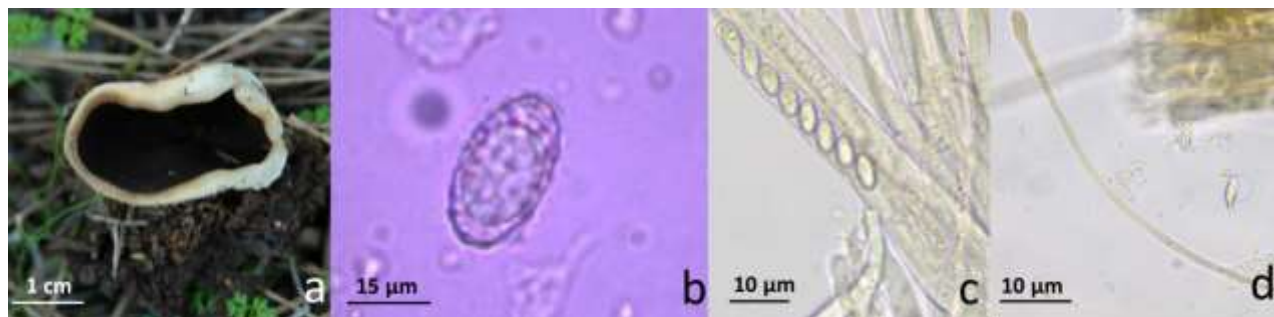


Figure 1. *Peziza echinospora* a. fruit body, b. ascospore, c. ascus, d. paraphyses

3.2 Agaricales Underw.

3.2.1 *Psathyrellaceae* Vilgalys, Moncalvo & Redhead

3.2.1.1 *Psathyrella sacchariolens* Enderle (Figure 2).

Syn: *Psathyrella suavissima* Ayer

Pileus 2-4 cm in diameter, convex to plane, expanded when old, yellow-ocher to reddish-brown when moist, surface hygrophanous dull to satiny, covered primarily when young with concentrically to irregularly distributed, well-developed, white fibrillose scales, glabrescent when old, margin somewhat striate when moist, appendiculate for a long time. Flesh whitish to watery brown, thin, odor sweetish, taste mild. Lamellae cream-colored when young, later gray-brown to dark lilac-brown, ascending and broadly adnate, edges whitish-ciliate. Stipe 3-4 \times 0.3-0.5 cm, cylindrical, somewhat enlarged toward the base, rigid, hollow, surface strongly white-fibrillose-scaly on a white background, rarely with ring when young, white-powdered on a white background above the annular zone, glabrescent when old. Spores 6.5-9 \times 4.5-5 μm , elliptical, smooth, red-brown, with a germ pore. Spore print purple-black. Basidia clavate, 15-25 \times 7-9 μm . Cheilocystidia lageniform to utriform, 30-45 \times 7-11 μm (Breitenbach and Kranzlin, 1995; Knudsen and Vesterholt, 2008)

Muğla, Fethiye, Arpacık village, Gedre district, Akçaoluk location, in *Citrus* L. orchard, $36^{\circ} 50' 30 \text{ N} - 29^{\circ} 07' 12 \text{ E}$, 4.11.2006, Solak 3109.



Figure 2. *Psathyrella sacchariolens* a. fruit bodies, b- basidiospores

3.2.2 Tricholamataceae R. Heim ex Pouzar

3.2.2.1 *Clitocybe leucodiatreta* Bon (Figure 3).

Pileus 4-7 cm in diameter, convex when young, later plane, somewhat infundibuliform and undulating when old, surface smooth, dull, hygrophanous, when moist pink-brown, beige when dry, margin acute. Flesh gray-brown to whitish, thin, fragile, odor unpleasant, taste mild. Lamellae grey-white, broad, broadly adnate to subdecurrent edges smooth. Stipe 4-5 × 0.5-1 cm, cylindrical to conic, rarely eccentric and enlarged toward the apex, surface ochre-to pink-brown, longitudinally white fibrillose apex sometimes with a whitish collar near the attachment of the lamellae, solid. Spores elliptical, smooth, hyaline, containing drops, 5-6 × 2.5-3 µm, cream colored. Basidia clavate, 20-25 × 4-5 µm. On sandy, mineral- rich soils such as river and stream alluvia and sand dunes, in bare or grassy places (Breitenbach and Kranzlin, 1991).

Muğla, Fethiye, Arpacık village, Gedre district, Defneli location, in meadows, 36° 50' 03 N- 29° 07' 59 E, 11.11.2006, Solak 2774.



Figure 3. *Clitocybe leucodiatreta* a. fruit bodies, b. basidiospores

4. Conclusions

This study presents three macrofungi, which were recorded for the first time in Turkey: *P. echinospora*, *P. sacchariolens* and *C. leucodiatreta*.

It is conspicuous that the difference of dark brown inner surface and the lighter outer surface is not same colored all of the *P. echinospora* specimens. However it is one of the common species of the burned areas (Breitenbach and Kranzlin, 1984). Although this species is closely related to *P. petersii* Berk with spined spores and similar habitat, but *P. petersii* has greyish brown hymenium with bluish tinge. Also *P. petersii* has smaller spores, which have two guttules.

P. sacchariolens is easily recognized in the field since its conspicuous veil and striking odor. This species can be confused with *P. pervelata* Kits van Wav., which occurs in similar habitat. But latter species differs from former species by lacking a smell, absence of caulocystidia, and with larger spores (Breitenbach and Kranzlin, 1995).

C. leucodiatreta is close to *C. diatreta* (Fr.: Fr.) Kumm., which is described as having a cream-pink to red spores deposit and as growing on needle litter or dead leaves. So it grows quite different habitats from this species. Also *C. leucodiatreta* has a similar hymenium color with *C. bresadoliana* Singer and *C. sinopica* (Fr.) P. Kumm., but they are not hygrophanous (Breitenbach and Kranzlin, 1991).

Acknowledgements

We would like to thank TÜBİTAK (the Scientific and Technical Research Council of Turkey) for supporting this project (TBAG-104T236) financially.

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(Received for publication 29 July 2014; The date of publication 15 December 2014)