

Three coprinoid macrofungi taxa, new to Turkey

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Abstract: Three coprinoid macrofungi taxa, *Coprinus xerophilus* Bogart (Agaricaceae), *Coprinellus heterothrix* (Kühner) Redhead, Vilgalys & Moncalvo, and *Coprinopsis stercorea* (Fr.) Redhead, Vilgalys & Moncalvo (Psathyrellaceae), are given as new records for Turkey.

Key words: New record, Agaricaceae, Psathyrellaceae, Turkey

Türkiye için yeni üç coprinoid makrofungus taksonu

Özet: Üç coprinoid makrofungus taksonu, *Coprinus xerophilus* Bogart (Agaricaceae), *Coprinellus heterothrix* (Kühner) Redhead, Vilgalys & Moncalvo ve *Coprinopsis stercorea* (Fr.) Redhead, Vilgalys & Moncalvo (Psathyrellaceae) Türkiye için yeni kayıt olarak verilmiştir.

Anahtar sözcükler: Yeni kayıt, Agaricaceae, Psathyrellaceae, Türkiye

Introduction

Coprinoid macrofungi, also called inky caps, are very interesting mushrooms, and are mainly characterised by liquefying gills, at least partially, of the mature fruit bodies. During the liquefying process, which starts from the bottom of the gills and goes up, the shape of the cap changes from more or less oval to broadly bell-shaped or flat, or it peels up substantially.

The members of the coprinoid macrofungi were compiled in the genus *Coprinus*, with about 200 different species, until the beginning of this century (Naumann et al., 2007). Some questions arose about this grouping when Hopple et al. (1999) found that the genus was not monophyletic. As a result of additional molecular phylogenetic studies carried out by Readhead et al. (2001) and Moncalvo et al. (2002) the coprinoid taxa were divided into 4 new genera in

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the families Agaricaceae (*Coprinus*) and Psathyrellaceae (*Coprinellus*, *Coprinopsis*, and *Parasola*).

According to the available literature (Solak et al., 2007; Sesli and Denchev, 2009), *Coprinus xerophilus*, *Coprinellus heterothrix*, and *Coprinopsis stercorea* have not been recorded before from Turkey.

The study aims to make a contribution to the mycobiota of Turkey by adding new records.

Materials and methods

Macrofungi samples were collected from Adıyaman and Bingöl provinces in 2006 and 2009. Morphological and ecological features were noted during field trips and digital photographs were taken. Macroscopic and microscopic investigations were carried out in the fungarium. Identification was performed with the help of related literature (Bogart, 1976; Breitenbach & Kränzlin, 1995; Jordan, 1995; Keirle et al., 2004).

The samples are kept in Adıyaman University Education Faculty, Adıyaman, and Yüzüncü Yıl University Science and Arts Faculty, Van, Turkey.

Results

Systematics of the identified taxa is in accordance with Kirk et al. (2008). Short descriptions, localities, collection dates, collection numbers (K: Kaya; UB: Uzun Bingöl), and photographs of the taxa are given.

Agaricaceae

Coprinus xerophilus Bogart

Cap 20-45 mm across, subglobose when young, soon rounded conic and broadly campanulate when mature, somewhat striate along the margin, white at first, becomes black starting from the margin except at the centre where covered by the universal veil. Flesh thin and membranous. Lamellae pale at first then becomes black, adnexed. Stipe 50-75 × 3-6 mm, enlarging up to 11-12 mm toward the base, bulbous at the base and covered with a volvate structure (Figure 1a). Basidiospores 17-22 × 10-15 μm, broadly ellipsoid to obovoid, smooth, germ pore eccentric and broad, up to 3 μm in diameter (Figure 1b). Basidia clavate, 17-23 × 40-55 μm, 4-spored.

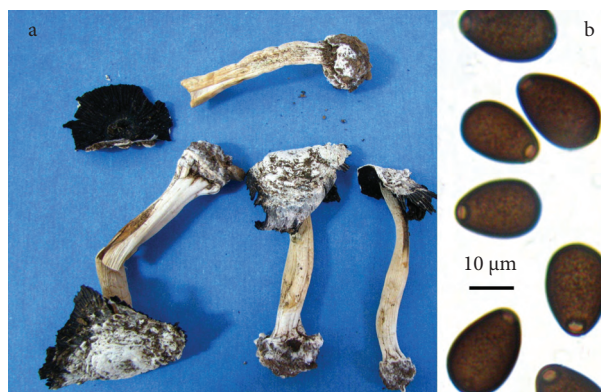


Figure 1. *Coprinus xerophilus*, a. Basidiocarps, b. Basidiospores.

Specimen examined: Bingöl, Solhan, Arakonak village, among grass under *Populus* sp., 38°56' .532"N, 41°08' .794"E, 1654 m, 27.05.2006, U.B. 2.

Psathyrellaceae

Coprinellus heterothrix (Kühner) Redhead, Vilgalys & Moncalvo

Basionym: *Coprinus heterothrix* Kühner

Cap 10-18 mm across, ovoid when young, conic-campanulate to expanded when old with an umbo, sulcate almost to the centre, reddish-brown when young and moist, dark grey to light grey when old, disc remains reddish-brown to ochre. Flesh thin, grey, odour and taste not distinct. Lamellae whitish when young, grey-beige to blackish when old, broad, narrowly adnate (Figure 2a). Stipe 20-50 × 1-2 mm, cylindrical, whitish, slightly enlarged at the base and white pubescent. Basidiospores 8-10 × 5-6 μm, elliptical to ovoid, smooth, sometimes with eccentric germ pores (Figure 2b). Basidia clavate, 15-25 × 5.2-9 μm.

Specimen examined: Adıyaman: Altınşehir district, on mossy damp soil with wood pieces on a pathside in *Pinus brutia* forest, 37°44'30"N, 38°14'15"E, 630 m, 25.11.2009, K. 6781.

Coprinopsis stercorea (Fr.) Redhead, Vilgalys & Moncalvo

Syn: *Agaricus stercorarius* Bull., *Coprinus stercorarius* (Bull.) Fr., *Coprinus stercoreus* Fr., *Fungus stercorarius* (Fr.) Kuntze.

Cap 2-6 mm, ovoid when young, later campanulate finally plane with usually a split margin,

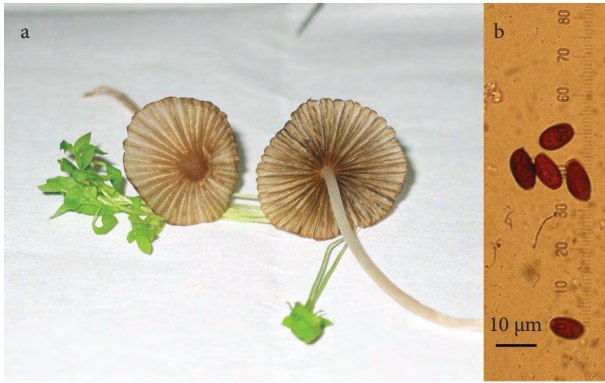


Figure 2. *Coprinellus heterothrix*, a. Basidiocarps, b. Basidiospores.

surface covered with small, white remnants on light background when young, glabrescent when mature (Figure 3a). Flesh grey, membranous. Lamellae white when young, brown to blackish when old, adnately attached to the stipe. Stipe 10-40 × 0.5-1 mm, cylindrical, hollow, fragile, surface white-pubescent when young, glabrous and translucent white when mature. Basidiospores elliptical, smooth, dark reddish-brown, 7.5-9.2 × 4.2-5 µm (Figure 3b). Basidia clavate, 12-19 × 6-7.5 µm, 4-spored.



Figure 3. *Coprinopsis stercorea*, a. Basidiocarp, b. Basidiospores.

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Specimen examined: Adıyaman: Örenli village, on horse dung, 37°48'06"N, 38°18'18"E, 640 m, 18.10.2009, K. 6416.

Discussion

A check of the current literature (Solak et al., 2007; Sesli and Denchev, 2009; Aktaş et al., 2009; Kaya, 2009a; Kaya, 2009b; Kaya et al., 2009) revealed that 41 coprinoid taxa (6 *Coprinus*, 13 *Coprinellus*, 17 *Coprinopsis*, and 5 *Parasola*) have been reported from Turkey until the end of 2009.

Coprinus alopecia, *C. comatus*, *C. digitalis*, *C. patouillardii*, *C. silvaticus*, and *C. sterquilinus* are the current recorded taxa from Turkey, belonging to the genus *Coprinus*. Existing Turkish *Coprinellus* taxa are *Coprinellus angulatus*, *C. congregatus*, *C. deliquescens*, *C. dilectus*, *C. disseminatus*, *C. domesticus*, *C. ephemerus*, *C. flocculosus*, *C. impatiens*, *C. micaceus*, *C. radians*, *C. truncorum*, and *C. xanthothrix*. Likewise, the presented Turkish *Coprinopsis* taxa are as follows: *Coprinopsis atramentaria*, *C. cinerea*, *C. cothurnata*, *C. echinospora*, *C. episcopalis*, *C. extinctoria*, *C. friesii*, *C. gonophylla*, *C. lagopides*, *C. lagopus*, *C. macrocephala*, *C. nivea*, *C. picacea*, *C. radiata*, *C. radicans*, *C. romagnesiana*, and *C. stangliana*.

With the addition of *Coprinus xerophilus*, *Coprinellus heterothrix*, and *Coprinopsis stercorea*, the existing taxa of each of these genera increased by 1, and the total number of Turkish coprinoid taxa increased to 44.

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