



New additions to Turkish *Tricholomataceae*

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Türkiye *Tricholomataceae*'lerine yeni ilaveler

Abstract: Four macrofungi species, *Arrhenia lilacinicolor* (Bon) P.-A. Moreau & Courtec., *Cellypha goldbachii* (Weinm.) Donk, *Resupinatus taxi* (Lév.) Thorn, Moncalvo & Redhead and *Rimbachia neckerae* (Fr.) Redhead, within the family *Tricholomataceae* were recorded for the first time from Turkey. Short descriptions of the species are provided together with the photographs related to their macro and micromorphologies.

Key words: Macrofungi, new record, Gaziantep, Turkey

Özet: *Tricholomataceae* familyası içinde yer alan dört makromantar türü, *Arrhenia lilacinicolor* (Bon) P.-A. Moreau & Courtec., *Cellypha goldbachii* (Weinm.) Donk, *Resupinatus taxi* (Lév.) Thorn, Moncalvo & Redhead ve *Rimbachia neckerae* (Fr.) Redhead Türkiye'den ilk kez kaydedilmiştir. Türlerle ait kısa betimlemeler, türlerin makro ve mikromorfolojilerine ait fotoğrafları ile birlikte verilmiştir.

Anahtar Kelimeler: Makromantar, yeni kayıt, Gaziantep, Türkiye

1. Introduction

Tricholomataceae Lotsy is the largest family of the *Agaricales* Underw. with more than 100 genera. The family is usually known as not having any definite distinguishing characters from other families. But white or pale flesh, white to pale pink or lilac spore print and attached gills can be assumed as some common properties of *Tricholomataceae*. The genera *Arrhenia* Fr., *Cellypha* Donk, *Resupinatus* Nees ex Gray and *Rimbachia* Pat. are also regarded as the members of *Tricholomataceae* (Kirk et al., 2008).

Though more than 750 European species of *Tricholomataceae* have been determined, only 171 members belonging to 20 genera have been recorded from Turkey (Sesli and Denchev, 2014; Solak et al., 2015). Of the determined 171 taxa, 10 species belong to *Arrhenia* (Pilát, 1933; Aktaş et al., 2003; Doğan et al., 2000; Türkekul, 2003; Kaya, 2006; Kaya et al., 2008; Alkan et al., 2010; Demirel et al., 2010; Solak et al., 2015), three species belong to *Resupinatus* (Sümer, 1982; Kaşık et al., 2003) and one species belong to *Rimbachia* (Kaya et al., 2013).

In this paper, one member of each of the genera *Arrhenia*, *Cellypha*, *Resupinatus* and *Rimbachia*, which were collected from Gaziantep and determined as *Arrhenia lilacinicolor* (Bon) P.-A. Moreau & Courtec., *Cellypha goldbachii* (Weinm.) Donk, *Resupinatus taxi* (Lév.) Thorn, Moncalvo & Redhead and *Rimbachia neckerae* (Fr.) Redhead, and are reported as new records for Turkey, since they have not been reported from Turkey before (Sesli and Denchev, 2014; Solak et al., 2015; Demirel et al., 2016; Sesli et al., 2016; Acar and Uzun 2017; Akata and Uzun, 2017; Allı et al., 2017; Demirel et al., 2017; Işık and Türkekul, 2017; Kaşık et al., 2017; Öztürk et al., 2017; Sesli and Sesli, 2017; Türkekul, 2017; Uzun and Demirel, 2017; Uzun et al., 2017a; 2017b).

The study aims to make a contribution to the mycobiota of Turkey.

2. Materials and Method

Macrofungi samples were collected from suitable habitats within the boundaries of Gaziantep province between 2014 and 2015. During field studies necessary ecological and morphological characteristics of the samples were recorded and they were photographed in their natural habitats. The collected specimens were transferred to the lab within paper bags. Studies related to micromorphology were carried out under Nikon Eclipse Ci trinocular light microscope. Identification were performed with the help of Moser (1983), Courtecuisse and Duhem (1995), Gerault (2005), Gibson (2007), Winkel (2009) and Gonou-Zagou et al. (2011). The samples are kept at Karamanoğlu Mehmetbey University, Kâmil Özdağ Science Faculty, Department of Biology.

3. Results

The systematics of the taxa are given in accordance with Cannon and Kirk (2007), Kirk et al. (2008), and the Index Fungorum (www.indexfungorum.org; accessed 15 April 2017). The taxa are presented in alphabetical order with a brief description, habitat, locality, collection date, and accession numbers.

Basidiomycota R.T. Moore

Agaricales Underw.

Tricholomataceae Lotsy

Arrhenia Fr

Arrhenia lilacinicolor (Bon) P.-A. Moreau & Courtec.

Syn: [*Omphalia galericolor* Romagn., *Omphalina galericolor* (Romagn.) Bon, *Omphalina galericolor* (Romagn.) Bon, var. *galericolor*, *Omphalina galericolor* var. *lilacinicolor* (Bon) Kuyper, *Omphalina lilacinicolor* Bon].

Macroscopic and microscopic features: Basidiocarp 5-20 mm in diameter, slightly infundibuliform, surface smooth, pinkish, pinkish ocher, lilac beige, cream ocher when dry, sometimes slightly grooved towards the thinner and crenulate margin. Flesh thin, concolorous. Lamellae decurrent (Figure 1a), sometimes interveined, concolorous beige. Stipe 10-40 × 2-4 mm, cylindrical, concolorous with the pileus or paler, somehow woolly towards the base. Basidia cylindrical, tapered toward the base, four spored (Figure 1b). Basidiospores 6,5-8 × 6-7 μm, elliptical, smooth (Figure 1c).

Specimen examined: Gaziantep-İslahiye, Hanağzı village, roadside, among mosses, 37°03'N-36°36'E, 625 m, 08.11.2014, K.10523.

Cellypha Donk

Cellypha goldbachii (Weinm.) Donk.

Syn: [*Calyprella goldbachii* (Weinm.) Quél., *Calyprella lactea* (Bres.) Quél., *Calyprella ochroleuca* (Berk. & Broome) Bigeard & H. Guill., *Cellypha lactea* (Bres.)

W.B. Cooke, *Chaetocypha lactea* (Bres.) Kuntze, *Chaetocypha ochroleuca* (Berk. & Broome) Kuntze, *Chaetocypha rubi* (Fuckel) Kuntze, *Cyphella goldbachii* Weinm., *Cyphella lactea* Bres., *Cyphella lactea* Bres. var. *lactea*, *Cyphella lactea* var. *rubi* (Fuckel) Pilát, *Cyphella ochroleuca* Berk. & Broome, *Cyphella rubi* Fuckel, *Phaeocyphella ochroleuca* (Berk. & Broome) Rea, *Phaeoglabrotricha rubi* (Fuckel) W.B. Cooke].

Macroscopic and microscopic features: Basidiocarp 3-5 mm in diameter, stands stalkless on herbaceous stems, irregularly cup shaped, white, coated with clavate hairs. Hymenial surface smooth, concolorous with the outer surface (Figure 2a). Flesh white, membranous. Basidia 30-35 × 7-8 μm, cylindrical to clavate, with 2-4 sterigmata (Figure 2b). Basidiospores 12-16 × 3.3-5 μm, ellipsoid or elongated club-shaped, some slightly curved (Figure 2c).

Specimen examined: Gaziantep-Nurdağı, Hamidiye village, roadside, on decaying herbs, 37°05'N-36°53'E, 810 m, 12.12.2014, K.11017.



Figure 1. *Arrhenia lilacinicolor*: a. basidiocarps b. basidia and cystidia c. basidiospores

Resupinatus Nees ex Gray

Resupinatus taxi (Lév.) Thorn, Moncalvo & Redhead.

Syn: [*Chaetocypha taxi* (Lév.) Kuntze, *Cyphella taxi* Lév., *Stigmatolemma taxi* (Lév.).

Macroscopic and microscopic features: Basidiocarp 0.5-1 mm high and 0.5-1.2 mm wide, irregular cup shaped, whitish to cream. Hymenial surface smooth. Flesh thin, whitish. Stipe absent or greatly reduced (Figure 3a). Basidia 18-25 × 4-6 μm, cylindrical, tapering towards the base, with 2-4 sterigmata (Figure 3b). Basidiospores 4.7-5.7 × 4.5-5.2 μm, elliptical, smooth (Figure 3c).

Specimen examined: Gaziantep-Nurdağı, Hamidiye village, pine forest, on dead plant remains with moss, 37°05'N-36°53'E, 810 m, 12.12.2014, K.11040.

Rimbachia Pat

Rimbachia neckerae (Fr.) Redhead

Syn: [*Chaetocypha neckerae* (Fr.) Kuntze, *Cyphella muscicola* d *neckerae* Fr., *Cyphella neckerae* (Fr.) Fr., *Leptoglossum candidum* D.A. Reid, *Mniopetalum megalosporum* Singer, *Rimbachia neckerae* subsp. *megalospora* (Singer) Redhead, *Rimbachia neckerae* (Fr.) Redhead, subsp. *neckerae*].

Macroscopic and microscopic features: Basidiocarp 3-12 mm in diameter, urceolate, margin wavy, surface whitish to cream, sparsely pubescent or glabrous. Flesh thin, whitish to cream. Hymenium smooth, concolorous with the outer surface (Figure 4a). Stipe absent or with a rudimentary pseudostem. Basidia four spored. Basidiospores 8-12 × 4-7 μm, elliptical to almond shaped, smooth (Figure 4b).

Specimen examined: Gaziantep-İslahiye, Altınüzüm village, mixed forest clearing, on moss, 36°54'N-36°33'E, 480 m, 21.03.2015, K.11457.

4. Discussions

With this study *Arrhenia lilacinicolor* (Bon) P.A. Moreau & Courtec., *Cellypha goldbachii* (Weinm.) Donk, *Resupinatus taxi* (Lév.) Thorn, Moncalvo & Redhead and *Rimbachia neckerae* (Fr.) Redhead were added as new records for Turkey. Among them, *Cellypha goldbachii* is the first member of the genus *Cellypha* in Turkey.

Though the fruiting bodies of most of the members of *Cellypha*, *Resupinatus* and *Rimbachia* resemble the species of discomycetes, they bear their spores on basidia. Due to their disc-, tube-, or cup-shaped basidiocarps, they are referred as cyphelloid fungi and the family name *Cyphellaceae* Lotsy was used to keep most of such segregate genera together. This *Ascozymycete* look-alike

Basidiomycete group, also known as false discomycetes, is quite an artificial group of basidiomycete fungi from different sections, having in common their cupulate and hairy fruitbodies without gills.

The external appearances of *Rimbachia neckerae* and *R. bryophila* (Pers.) Redhead resemble each other. But the two species can easily be distinguished from each other with the presence of lamellar structure on the hymenial surface of *R. bryophila*. Besides its smooth hymenium, *R. neckerae* also have slightly bigger basidiospores.

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Figure 2. *Cellypha goldbachii*: a. basidiocarps b. basidia and cystidia c. basidiospores



Figure 3. *Resupinatus taxi*: a. basidiocarps b. basidia and cystidia c. basidiospores



Figure 4. *Rimbachia neckerae*: a. basidiocarps, b. basidiospores

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