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Two New Records for Turkish Macromycota from Diyarbakır (Hani) Province

İsmail Acar[1]*, Ayşenur Kalmer[2]

[1] Department of Organic Agriculture, Başkale Vocational High School, Van Yüzüncü Yıl University, 65080, Van, Turkey
[2] Department of Molecular Biology and Genetics, Van Yüzüncü Yıl University, 65080, Van, Turkey
*Corresponding author e-mail: iacar2011@gmail.com

Abstract: *Cortinarius* is the largest genus of ectomycorrhizal fungi worldwide and shows a high grade of morphological variability. The present study was carried out to identify two new *Cortinarius* species from Diyarbakır (Hani) province using morphological methods. *Cortinarius armeniacus* and *Cortinarius stemmatus* were identified as new records for the Turkish mycota. These specimens were collected and photographed between 2009 and 2010. Characters of pileus, stipe, lamellae, marginal cells and spores were measured and compared with current taxonomic literature. Macroscopic and microscopic features were described and illustrated.
Key words: *Cortinarius*, Hani (Diyarbakır), Macrofungi, New record

Diyarbakır İlinden Türkiye Makromikotası için İki Yeni Kayıt

Öz: *Cortinarius*, dünya çapında en büyük ektomikorizal mantar cinsidir ve yüksek morfolojik çeşitlilik gösterir. Bu çalışma, Diyarbakır (Hani) ilinden iki yeni *Cortinarius* türünün morfolojik yöntemlerle tanımlanması amacıyla yapılmıştır. *Cortinarius armeniacus* ve *Cortinarius stemmatus*, Türkiye mikotası için yeni kayıtlar olarak tanımlanmıştır. Bu örnekler 2009-2010 yılları arasında toplanmış ve fotoğraflanmıştır. Şapka, sap, lamel, marjinal hücreler ve spor karakterleri ölçülmüş ve mevcut taksonomik literatür ile karşılaştırılmıştır. Makroskopik ve mikroskopik özellikler açıklanmış ve gösterilmiştir.
Anahtar kelimeler: *Cortinarius*, Makromantarlar, Yeni kayıt, Hani (Diyarbakır)

Introduction

Cortinarius (Pers.) Gray is a complex genus within the Agaricales. A considerable number of species occur in the temperate areas of the Southern Hemisphere (Liimatainen, 2013). This genus characterized by small to large, convex then expanded, often umbonate, glutinosus or dry, smooth or fibrillose, rarely scaly pileus, brown to rusty brown and ornamented basidiospores, a fugacious veil forming cortina. The lamellae are emarginate to adnate, variously coloured, soon becoming brownish from mature. The color of young lamellae is an important character for identification of the species (Ammirati et al. 1985). *Cortinarius* is an ectomycorrhizal macrofungus so it has an ecological importance (Stefani et al. 2014).

According to the literature (Sesli and Denchev 2014; Akata et al. 2015; Güngör et al. 2015; Sesli and Moreau 2015; Sesli et al. 2015; Sesli et al. 2016; Sesli, 2018; Sesli and Liimatainen 2018), 116 species of the genus *Cortinarius* have been reported from Turkey up to now but there is not any record of *Cortinarius armeniacus* (Schaeffer: Fries) Fries and C*ortinarius stemmatus* Fr.

Cortinarius armeniacus and *Cortinarius stemmatus* were reported from Hani in this study. Hani is a district of Diyarbakır province and located in the South-East Anatolian part of Turkey. The district has continental climate and during the year, annual temperature average is

15.8 ºC while average precipitation amount is 474.9 mm (Anonymous, 2017).

The aim of current study is to contribute to Turkish mycobiota by description of two new records *Cortinarius* species collected from Hani district of Diyarbakır.

Materials and Methods

Macrofungi samples were collected from Hani (Diyarbakır) district between 2009 and 2010. Morphological and ecological features of the samples were recorded and they were photographed in the field. Collected samples were taken to the fungarium, spore prints were obtained and macroscopic and microscopic measurements were carried out. Some reagents (distillate water, 5% KOH, Congo red etc.) were used for identification. The samples were identified with the help of Breitenbach and Kränzlin (2000), Buczacki, (1989), and Noordeloos et al. (2005). Identified samples were deposited in the Fungarium of Van Yüzüncü Yıl University, Department of Biology (VANF).

Results

Short descriptions, localities, collection dates, fungarium numbers (A: ACAR), and illustrations of the identified taxa are given in the below.

Macroscopic and microscopic features

Cortinariaceae R. Heim ex Pouzar

Cortinarius armeniacus (Schaeffer: Fries) Fries (Figure 1)

Pileus, 30-80 mm across, conical when young and soon flattened convex and umbonate, surface smooth, velvety, bright orange-brown color, soft and slippery when moist, dark-yellowish-reddish when dry, margin curved when young. Flesh, whitish to light brownish color, thin, odor weak, taste mild. Lamellae, light ocher-brown when young, later rusty-brown, broad, covered by a white cortina when young. Stipe, 50-80 × 7-13 mm, solid, flexible, fibrillose and whitish, hairless when mature, cylindrical, clubbing base. Spores, 7.5-10 x 4.5-6.5 µm, ellipsoid, oval, dark reddish-yellowish, slightly spotted. Spores print, rusty brownish. Marginal cells, clavate, 12-25 × 7-10 µm, pleurocystidia not seen.

Specimen examined: Okur village, Bafez field, on the ground, 38° 22'239"K, 40° 24'556"D, 857 m, 16.04.2010, A. 147.

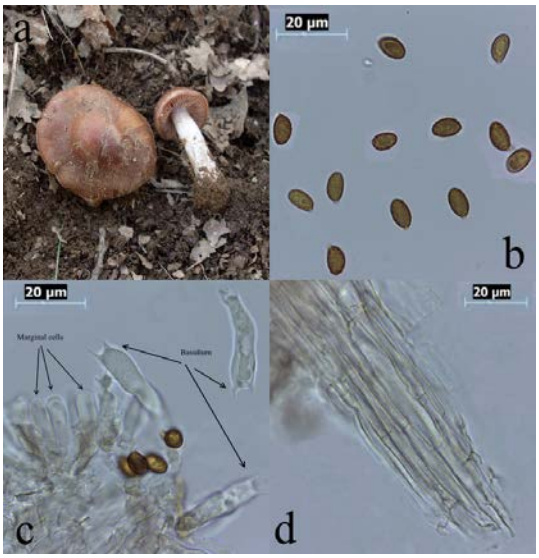

Figure 1. *Cortinarius armeniacus* a.Basidiocarp, b. Basidiospores, c. Basidia and Marginal cells, d. Hyphae.

Cortinarius stemmatus Fr. (Figure 2)

Pileus, 10-35 mm, bell-shaped, convex, expanded, slightly flattened when mature, slightly umbonate, surface smooth, dark reddish-brown when moist, light brownish when dry, velum remains flat and white in edges especially when young. Flesh, light to dark brown, thin, odor faint, not distinctive, taste mild. Lamellae, light brownish when young later rusty-brown, broad, flat or slightly geared edges. Stipe, 30–50 × 3–5 mm, cylindrical, solid, fragile, surface covered

with whitish veil when young, later the veil forming an membranous annulus with white bands or zig zags below the annulus. Spores, 7-9 x 4-6 µm, ellipsoid, light yellowish-reddish, slightly warty. Spores print, not seen. Marginal cells, clavate, 15-27 × 6-12 µm, pleurocystidia not seen.

Specimen examined: Serenköy, under *Quercus* sp., 38° 24'240"K, 40° 30'352"D, 860 m, 16.04.2010, A. 107.

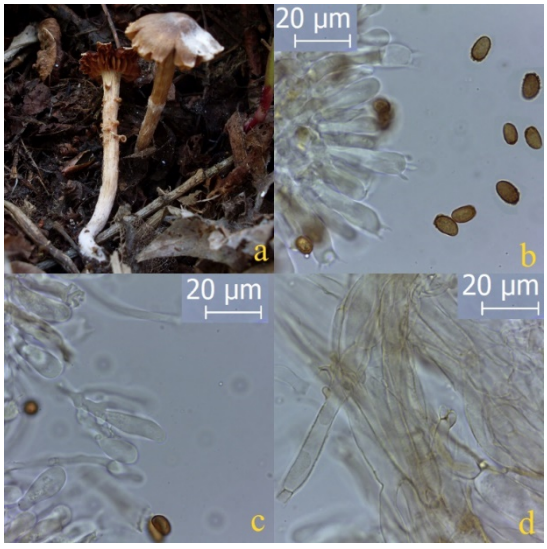

Figure 2. *Cortinarius stemmatus* a. Basidiocarps b. Basidia and basidiospores c. Basidiole d. Hyphae

Discussion

Cortinarius is a large and complex genus of Agaricales and identification of the species is difficult. For correct identification, detailed macroscopic and microscopic analyses is required. Species of the genus generally found under conifer trees and they have mycorrhizal association with trees. So, they have ecological important and correct identification is very important.

In this study, identification of *Cortinarius armeniacus* and *C. stemmatus* were given detailed. *Cortinarius armeniacus* and *C. stemmatus* were described as new records from Hani district of Diyarbakır and their detailed macroscopic and microscopic analyses were carried. *Cortinarius armeniacus* characterized by bright orange-brown pileus and white stipe and this species is easily recognized in the field. *Cortinarius stemmatus* is differentiated from other speies by dark pileus and white bands or zig zags on the stipe.

The number of *Cortinarius* species present in Turkey was recorded as one hundred sixteen and this total number increases to one hundred eighteen by this study.

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