Geliş(Recevied) :18/12/2018
Kabul(Accepted) :21/02/2019

Araştırma Makalesi/Research Article
Doi:10.30708mantar.498766

A New *Elaphomyces* Record for Turkey

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Abstract: The hypogeous Ascomycete species, *Elaphomyces septatus* Vittad. was recorded for the first time from Turkey. Short description of the species was provided together with its photographs related to its macro and micromorphology.
Key words: Biodiversity, *Elaphomyces,* hypogeous fungi, new record, Turkey

Türkiye İçin Yeni Bir *Elaphomyces* Kaydı

Öz: Toprakaltı Askomiset türü olan *Elaphomyces septatus* Vittad. Türkiye'den ilk kez kaydedilmiştir. Türe ait kısa betim, türün makro ve mikromorfolojisine ilişkin fotoğrafları ile birlikte verilmiştir.
Anahtar kelimeler: Biyoçeşitlilik, *Elaphomyces,* toprakaltı mantarlar, yeni kayıt, Türkiye

Introduction

Elaphomyces Nees is a macrofungus genus in the family *Elaphomycetaceae.* Most members of the genus are hypogeous, developing their sporocarps beneath the soil, although some are emergent or epigeous. Species of the genus are characterized by a globose to subglobose or irregular hypogeous ascomata, fleshy to leathery peridium, a single chamber gleba, a more or less powdery spore mass, globose to subglobose 1-8 spored asci, subglobose to globose spores (Trappe, 1979; Castellano et al. 2012; Castellano and Stephens, 2017; Castellano et al., 2016; Castellano et al., 2018).

Elaphomyces species have a cosmopolitan distribution, and occur in forest habitats ranging from tropics to temperate and subarctic conifer forests. They form ectomycorrhizal associations with roots of many trees and shrubs (Castellano et al., 2018).

Although many members of *Elaphomyces* have worldwide distribution (Castellano et al., 2018), only three species, *Elaphomyces granulatus* Fr., *E. leucocarpus* Vittad. and *E. muricatus* Fr., have so far been reported from Turkey (Türkoğlu et al., 2015; Uzun and Kaya, 2019). According to the current checklists (Sesli and Denchev, 2014; Solak et al., 2015) and the latest contributions (Kaya et al., 2016; Işık and Türkekul, 2017; Kaşık et al., 2017; Keleş and Oruç, 2017; Türkekul 2017; Uzun et al. 2017; Uzun and Acar, 2018; Sadullahoğlu and Demirel, 2018; Sesli, 2018; Uzun et al., 2018 a,b), *Elaphomyces septatus* Vittad. hasn't been previously reported from Turkey.

The study aims to make a contribution to Turkish mycobiota.

Materials and Methods

Elaphomyces samples were collected from Beykoz (Polonezköy) district of İstanbul province in 2018. Macro photos of the fruit bodies were taken in the field and necessary morphological and ecological characteristics were recorded. Then the collected specimens were brought to the fungarium within paper bags, for further investigations. Microscopic studies were carried out on dried specimens through a Nikon Eclipse Ci trinocular light microscope from the specimens mounted in water and Melzer's reagent. The samples were identified with the help of Vittadini (1831), Lange (1956), Montecchi and Sarasini (2000), Vidal (2000), Rubio et al. (2006), Paz et al. (2012) and Paz et al. (2017). The specimens are kept at Karamanoğlu Mehmetbey University, Kamil Özdağ Science Faculty, Department of Biology.

Results

Elaphomyces septatus was presented with a brief description, habitat, locality and voucher number. The systematics of the species is given in accordance with Kirk et al. (2008) and the Index Fungorum (www.indexfungorum.org; accessed 15 December 2018).

Ascomycota Caval.-Sm.

Eurotiales G.W. Martin ex Benny & Kimbr.

Elaphomycetaceae Tul. ex Paol.

Elaphomyces Nees

Elaphomyces septatus Vittad.

Macroscopic and microscopic features: Ascomata 18-35 mm in diameter, hypogeous, globose, subglobose or pyriform, with several depressions, without basal protuberance, blackish-brown. Cortex hard, dark brown, 350-700 µm. Peridium thick, 1.5-2 mm, dark brown, similar to cortex in structure. Gleba white when young, cream with pinkish tones when mature. Ascospores 22-35 µm in diameter, spherical, gray, grayish yellow or yellow, covered with rather fine delicate spines of up to 33.5 µm in height.

Ecology: *Elaphomyces septatus* grows in deciduous montane forests, under *Quercus* L., *Fagus* L., *Carpinus* L. (Vittadini,1831; Vidal, 2000).

Specimen examined: İstanbul, Beykoz, Polonezköy Nature Park, *Fagus, Quercus, Pinus* L., and *Tilia* L. mixed forest, around *Fagus* tree, under soil and plant debris, 41°06′N-29°11′E, 200 m, 05.03.2018, Yuzun 6279.

Discussions

Elaphomyces septatus was reported for the first time from Turkey, and general characteristics of the specimen are generally in agreement with those given in literature. This species produces an ascoma similar to *E. maculatus* Vittad., but differs with pale spore coloration until the end of maturation and the absence of green mycelium and base protrusion, the presence of nodules in the capillitium, and the smaller spores. *Elaphomyces leucosporus* Vitt. also presents pale spores, but differs from *E. septatus* by its smaller size, greenish mycelial layer around the ascoma, and the smaller spores of 18-20 µm (Vidal, 2000).

The fruit body had a very slight soft odor but it was not distinctly recognizable. Though Rubio et al. (2006) mentions about a pleasant and slightly menthol odor, we could not recognize it distinctly.

With the addition of *E. septatus*, current taxa number of the genus *Elaphomyces* in Turkey increased to four (Türkoğlu et al., 2015; Uzun and Kaya, 2019).

Figure 1. *Elaphomyces septatus*: a. ascocarps, b-e. ascospores (bars 20 µm) (b in water, c-e in Melzer)

Acknowledgement

The authors would like to thank Ömer UZUN for his kind help during field study.

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