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First Record of *Elaphomyces decipiens* for the Mycobiota of Turkey

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Abstract: The hypogeous ascomycete species, *Elaphomyces decipiens* Vittad., is reported as a new record from Turkey, based on the identification of the samples collected from Trabzon province. A brief description and photographs, related to the macroscopy and microscopy of the species, are provided.

Key words: Biodiversity, *Elaphomycetaceae*, hypogeous, new record, Turkey

Elaphomyces decipiens'in Türkiye Mikobiyotası İçin İlk Kaydı

Öz: Toprak altı askomiset türü olan, *Elaphomyces decipiens* Vittad., Trabzon'dan toplanan örneklerin teşhis edilmesiyle, Türkiye'den yeni kayıt olarak rapor edilmiştir. Türün kısa bir betimlemesi ve makroskopi ve mikroskobisine ilişkin fotoğrafları verilmiştir.

Anahtar kelimeler: Biyoçeşitlilik, *Elaphomycetaceae*, toprak altı, yeni kayıt, Türkiye

Introduction

Elaphomyces T. Nees is a hypogeous, sequestrate genus of *Elaphomycetaceae* (*Ascomycota*). The genus is a widespread one, and occur in diverse forest habitats ranging from temperate and subarctic conifer forests to lowland tropics (Castellano et al. 2011, 2012, 2016; Castellano and Stephens, 2017; Paz et al. 2012). Members of the genus are also known as “the deer fungus” and form ectomycorrhizal associations with roots of many trees and shrubs around the world (Trappe et al., 2009, Castellano et al., 2018). Fruit bodies of *Elaphomyces* species form a part of the diet of some mycophagist animals. They release aromas to be detected by numerous mammal species that dig them up and consume. Meanwhile the animals help them to disperse the spores across the landscape (Cork and Kenagy 1989; Vernes et al., 2004; Castellano et al., 2018).

Seventy three members of the confirmed *Elaphomyces* are listed by Index Fungorum (2021). During last decade some of the members were also presented from Turkey. Uzun (2021) reports the existence of seven *Elaphomyces* species (*E. antracinus* Vittad., *E. citrinus* Vittad., *E. cyanosporus* Tul. & C.Tul.,

E. granulatus Fr., *E. leucocarpus* Vittad., *E. muricatus* Fr. and *E. septatus* Vittad.) in Turkey. But the check-list of Turkish Fungi (Sesli et al., 2020) and the latest contributions (Türkoğlu et al., 2015; Alkan et al., 2018; Doğan et al., 2018; Kaygusuz et al., 2018; Yakar et al., 2019; Uzun and Kaya, 2020a,b; Uzun, 2021) presenting hypogeous macromycetes from Turkey indicate that *Elaphomyces decipiens* Vittad. has not been reported from Turkey.

The study aims to make a contribution to the macrofungal biodiversity of the Trabzon and Turkey.

Material and method

The fruit bodies of *Elaphomyces decipiens* were collected from Arsin district of Trabzon province, in 2018, during a routine field study. First the fruit body samples were photographed at their natural habitat, and ecological characteristics and geographic position were noted. Then they were put in a paper box and transferred to the fungarium. The samples were dried in an air conditioned room and prepared as fungarium material. Microscopic investigations were carried out on dry samples. A trinocular light (Nikon Eclipse Ci-S) and a scanning electron microscope (Hitachi SU5000) was used for



microscopic investigation. Light microscopy images were obtained with the aid of a DS-Fi2 digital camera. The sample was identified with the help of Vittadini (1831), Dodge (1929) Montecchi and Sarasini (2000), Hobart (2015) and Paz et al. (2017).

The specimen is kept at Gazi University, Science Faculty, Department of Biology.

Results

Ascomycota Caval.-Sm.

Eurotiomycetes O.E. Erikss. & Winka

Eurotiales G.W. Martin ex Benny & Kimbr.

Elaphomycetaceae Tul. ex Paol.

Elaphomyces decipiens Vittad., Monogr. Tuberac. (Milano): 68 (1831).

Macroscopic and microscopic features:

Ascomata 16-18 mm in diameter, globose to spherical, surrounded by a crust like earthy remnants composed of mycelium and soil particles, grey-light ochre to ochre-brown, covered with flattened and irregular warts on a whitish to creamy background. Peridium marbled, white spotted, gray yellowish towards the outside, darker towards the inside. Mature gleba black somewhat with whitish radial interior walls (Figure 1). Smell typical deer truffle and unpleasant. Ascospores 19.7-25 µm in diameter, round, brown to blackish-brown, covered with short rod-like warts which aggregate to form isolated meshes (Figure 2).

Elaphomyces decipiens was reported to grow in neutral to sandy soil in deciduous forest, especially under oak trees (Montecchi and Sarazini, 2000).



Figure 1. Ascocarps of *Elaphomyces decipiens*

Specimen examined: Trabzon, Arsin, Güneyce village, in soil under *Castanea* sp., *Fagus orientalis* and *Rhododendron ponticum*, 40°51'N, 39°54'E, 880 m, 21.02.2018., Yuzun 6200.

Discussion

The deer fungus *Elaphomyces decipiens* is reported for the first time for the mycobiota of Turkey. It is the 8th member of the genus *Elaphomyces* in Turkey

(Sesli et al., 2020; Uzun and Kaya, 2020a; Uzun, 2021). Macroscopic, microscopic and habitat characteristics of Turkish collection are generally in agreement with those presented in literature (Hobart, 2015; Montecchi and Sarazini, 2000; Paz et al., 2017).

The crust like earthy remnant, surrounding the fruit body, flattened irregular warts on the surface and the marbled appearance of fleshy layer of the peridium are the main distinguishing characteristics of *E. decipiens*.



Elaphomyces muricatus also has a marbled appearance. But the flattened and irregular surface warts and bigger

spores of *E. decipiens* differs it from *E. muricatus* (Montecchi and Sarazini, 2000; Paz et al., 2017).

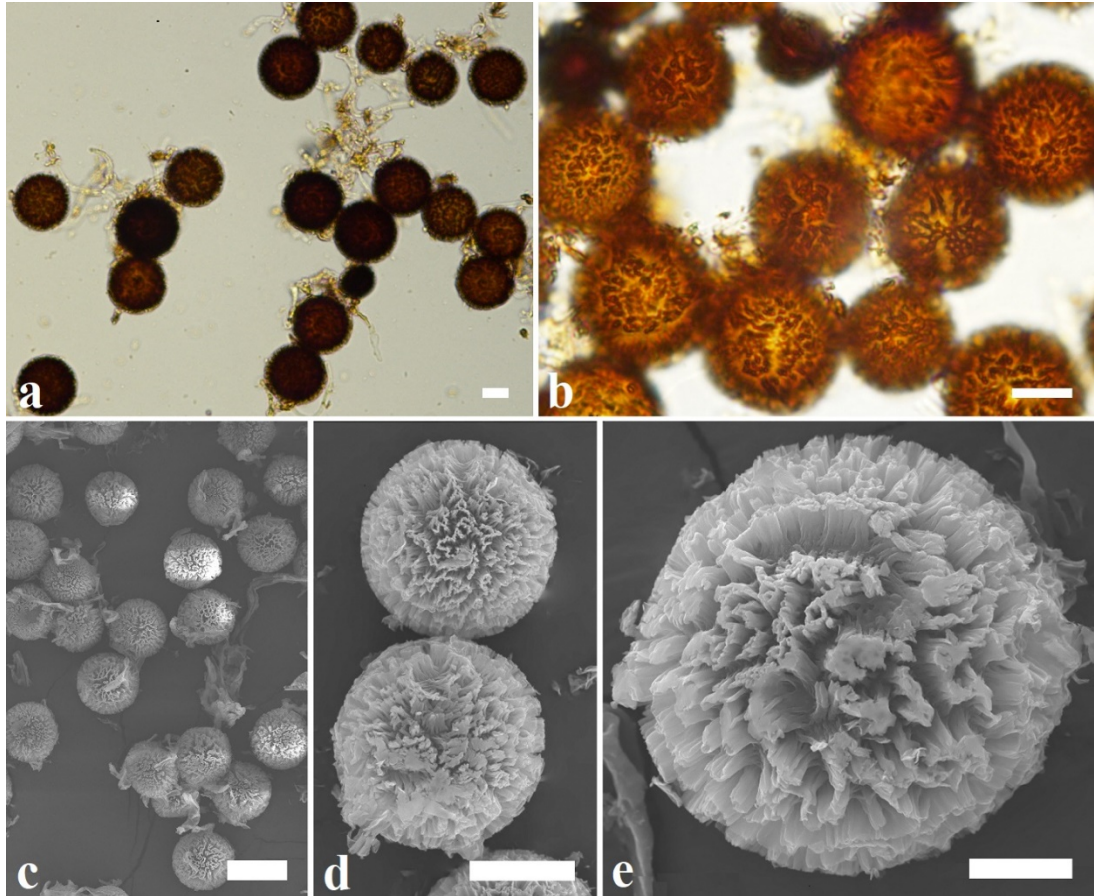


Figure 2. Light microscope (a-b) and SEM (c-e) images of ascospores of *Elaphomyces decipiens* (bars- a-b: 10 μ m, c: 20 μ m, d: 10 μ m, e: 5 μ m)

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