Anatolian Journal of Botany
5(1): 19-22 (2021)
Researh article *doi:10.30616/ajb.826640*

Hymenoscyphus caudatus, a new ascomycete record for the mycobiota of Turkey

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Received : 16.11.2020
Accepted : 17.12.2020
Online : 09.01.2021

Hymenoscyphus caudatus, Türkiye mikobiyotası için yeni bir askomiset kaydı

Abstract: *Hymenoscyphus caudatus* (P. Karst.) Dennis is given as new record for the mycobiota of Turkey. The macro and micromorphological characters of the species are provided together with the localities of collection, collector numbers and the photographs related to its macro and micromorphologies.

Key words: Biodiversity, macrofungi, new record, *Helotiaceae*

Özet: *Hymenoscyphus caudatus* (P. Karst.) Dennis Türkiye için yeni kayıt olarak verilmiştir. Türün makro ve mikromorfolojik karakterleri, toplanma lokaliteleri, toplayıcı numaraları ve makro ve mikromorfolojilerine ait fotoğrafları ile birlikte verilmiştir.

Anahtar Kelimeler: Biyoçeşitlilik, makromantarlar, yeni kayıt, *Helotiaceae*

Citation: Çetinkaya A, Uzun Y (2021). *Hymenoscyphus caudatus*, a new ascomycete record for the mycobiota of Turkey. Anatolian Journal of Botany 5(1): 19-22.

1. Introduction

Hymenoscyphus Gray is a widespread genus within the family *Helotiaceae* (*Ascomycota*) with more than 800 species (Kirk et al., 2008). The members of the genus are generally characterized by their stipitate to sessile discoid apothecia; white to yellowish hymenial surface and subellipsoid, fusoid, or scutuloid ascospores. Species of the genus are normally saprophytic on plant debris, such as wood, twigs, fruits, leaves, and herbaceous stems. Though the known species are mainly reported from America, Asia and Europe, it is a cosmopolitan one.

Hymenoscyphus fructigenus (Bull.) Gray was the first species of the genus *Hymenoscyphus* to be reported in Turkey (Aktaş et al., 2006). Between the years 2009 and 2019, twelve members of the genus (*H. calyculus* (Fr.) W. Phillips, *H. epiphyllus* (Pers.) Rehm ex Kauffman, *H. fagineus* (Pers.) Dennis, *H. herbarum* (Pers.) Dennis, *H. immutabilis* (Fuckel) Dennis, *H. kathiae* (Korf) Baral, *H. lepismoides* Baral & Bemmann, *H. lutescens* (Hedw.) W. Phillips, *H. robustior* (P. Karst.) Dennis, *H. scutula* (Pers.) W. Phillips, *H. serotinus* (Pers.) W. Phillips, *H. umbilicatus* (Le Gal) Dumont) have also been presented (Kaya, 2009; Kaya et al., 2009; Doğan and Aktaş, 2010; Öztürk et al., 2010, 2016; Uzun et al., 2010, 2014; Akata et al., 2014; Işık and Türkekul, 2018; Keleş, 2019a), increasing the current taxa number of the genus to 14 in Turkey.

During routine field trips in Yeşildere district of Karaman, some stipitate discoid ascomycete samples were collected. As a result of field and laboratory investigation they were identified as *H. caudatus*. Tracing the current checklists on Turkish macromycota (Sesli and Denchev, 2014; Solak et al., 2015) and the latest contributions (Berber et al., 2019; Kaya et al., 2019; Keleş, 2019b; Sesli, 2019; Türkekul and Işık, 2019; Yıldız et al., 2019; Acar et al., 2020; Akçay, 2020; Çelik et al., 2020; İleri et al., 2020), it was noticed that the taxon has not been recorded from Turkey before.

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

2. Materials and Method

Hymenoscyphus samples were collected from Yeşildere village of Karaman province. The fruit bodies were photographed at their natural habitat and notes were taken about the morphological and ecological characteristics of them. Then the specimens were carried to the fungarium and dried in an air conditioned room. Microscopic studies were performed on dried specimens under a Nikon Eclipse Ci-S trinocular light microscope. The specimens were mounted in water and Melzer reagent. The samples were identified with the help of Kimbrough and Atkinson (1972), Dumort and Carpenter (1982), Zhuang and Korf (1989), Zhuang (1995), Ellis and Ellis (1997). The collected specimens are kept at Karamanoğlu Mehmetbey University, Kamil Özdağ Science Faculty, Department of Biology, Karaman, Turkey.

3. Results

Fungi R.T. Moore

Ascomycota Caval.-Sm.

Helotiales Nannf. ex Korf & Lizoň

Helotiaceae Rehm

Hymenoscyphus caudatus (P. Karst.) Dennis, Persoonia 3(1): 76 (1964)

Syn: [*Helotium caudatum* (P. Karst.) Velen.; *Helotium scutula* var. *caudatum* (P. Karst.) P. Karst., *Peziza caudata* P. Karst.**]**

Macroscopic and microscopic features: Apothecia 0.5-2 mm in diameter, scutellate, whitish-cream, disc flat to concave, hymenium white to pale yellow when young, straw-yellow to pale yellow-orange when dry; stipe

cylindrical, broader above and tapering slightly toward the base, concolorous with the outer surface of the receptacle, some hairy at the base (Fig. 1). Asci 100-120 × 9-12.5 µm, cylindrical to clavate, eight-spored, walls outlined blue in Melzer's reagent, especially at the apex. Paraphyses filiform, equal or slightly exceeding the asci, some branched at the base, septate (Fig. 2a). Ascospores 15-24 × 4-5.5 µm, ellipsoid, subfusoid to ovoid, hyaline, smooth, aseptate or rarely l-septate, generally with two large, irregular guttules and several smaller guttules (Fig. 2b).

Figure 1. Ascocarps of *Hymenoscyphus caudatus*

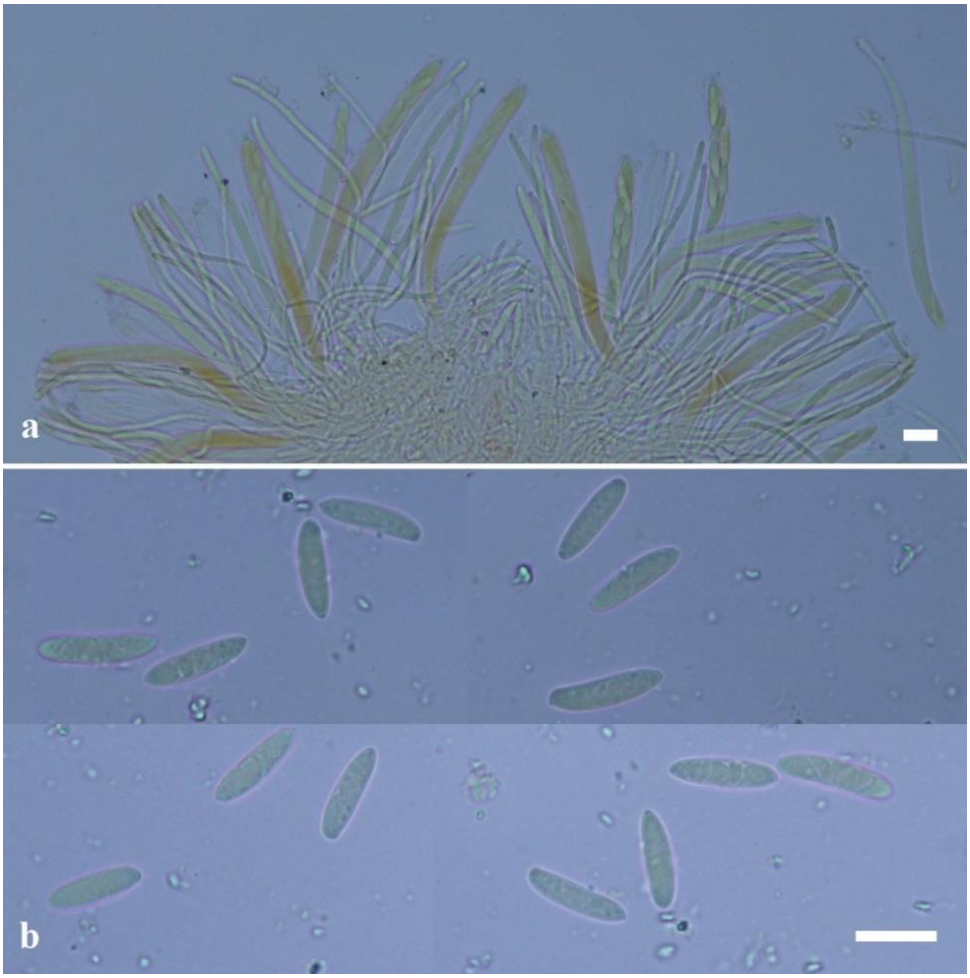

Figure 2. Asci and paraphyses (a), and ascospores of *Hymenoscyphus caudatus* (b) (bars: 10 µm) (a: Melzer; b: water)

Hymenoscyphus caudatus grows on decaying leaves and leaf parts of many trees such as the members of *Acer*, *Aesculus*, *Alnus*, *Betula*, *Castanea*, *Carpinus*, *Corylus*, *Crataegus*, *Fagus*, *Fraxinus*, *Pinus*, *Platanus*, *Populus*, *Prunus*, *Quercus*, *Robinia*, *Salix*, *Tilia*, *Ulmus*, and rarely on herbaceous stem (Kimbrough and Atkinson, 1972; Ellis and Ellis, 1997; Zhuang, 1995).

Specimens examined: Karaman, Yeşildere village, on decaying leaves and twigs of *Populus* sp., 37°09′N-33°29′E, 1160 m, 07.05.2015, AÇK. 223.

4. Discussions

Hymenoscyphus caudatus was given as new record for Turkish mycobiota as the fourteenth member of the genus *Hymenoscyphus*. In general, macro and micromorphology are in agreement with those given in literature.

Hymenoscyphus caudatus was reported to be common on leaf litter and grow on decaying leaves and leaf parts of deciduous trees (Kimbrough and Atkinson, 1972; Ellis and Ellis, 1997; Zhuang, 1995). Zhuang and Korf (1989) reported on roots of a grass. Beside rotting leaf litter, our samples were also collected on rotting *Populus* twigs.

Hymenoscyphus caudatus may easily be confused with *H. hyaloexcipulus* H.D. Zheng & W.Y. Zhuang in terms of morphology, but it differs from the latter species in having much narrower ectal excipular cells, and narrower ascospores (Zheng and Zhuang, 2013).

Conflict of Interest

Authors have declared no conflict of interest.

Authors' Contributions

The authors contributed equally.

Acknowledgments

The authors would like to thank Karamanoğlu Mehmetbey University Research Fund (09-YL-15) for its financial support.

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