



## *Conocybe anthracophila*, A new record for the Turkish mycobiota

Mustafa Emre AKÇAY<sup>1\*</sup>, Yusuf UZUN<sup>2</sup>, Sedat KESİCİ<sup>1</sup>

<sup>1</sup> Van Yuzuncu Yıl University, Faculty of Science, Department of Biology, Van, Turkey

<sup>2</sup> Van Yuzuncu Yıl University, Faculty of Pharmacy, Van, Turkey

\*memreakcay@gmail.com

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## *Conocybe anthracophila*, Türkiye mikobiyotası için bir yeni kayıt

**Abstract:** A new bolbitoid species, *Conocybe anthracophila* Maire & Kühner ex Kühner & Watling belonging to the family *Bolbitiaceae*, is given as new record for the mycobiota of Turkey from Sarıkamış Allahukeber Mountains National Park (Kars/Erzurum). A brief description of the taxon is given together with its photographs related to macro and micromorphologies.

**Key words:** *Conocybe anthracophila*, *Bolbitiaceae*, new record, Sarıkamış Allahukeber Mountains National Park, Turkey.

**Özet:** *Bolbitiaceae* familyasına ait bir bolbitoid tür olan *Conocybe anthracophila* Maire & Kühner ex Kühner & Watling Sarıkamış Allahuekber Dağları Milli Parkı'ndan (Kars/Erzurum) Türkiye mikobiyotası için yeni kayıt olarak verilmiştir. Taksonun kısa betimlemesi makro ve mikromorfolojisine ait fotoğraflarla birlikte verilmiştir.

**Anahtar Kelimeler:** *Conocybe anthracophila*, *Bolbitiaceae*, yeni kayıt, Sarıkamış Allahuekber Dağları Milli Parkı, Türkiye.

### 1. Introduction

*Conocybe* Fayod is a bolbitoid genus within the family *Bolbitiaceae* Singer (Agaricales, Agaricomycetes, Basidiomycota) and can be differentiated from the other genera of the family by lecythiform cheilocystidia with a round capitellum and pileal margin not plicate-sulcate. It is characterized by its fragile basidiocarps which are small to medium sized with conical-thimble shaped cap usually of rust-brown, yellow-brown, rarely grey or flesh-reddish colours. Spores rust-brown, smooth, with distinct germination pore (Moser, 1983; Singer, 1986; Pegler (1977; 1983; 1986; Amandeep et al., 2015).

Though Kirk et al. (2008) recognized 200 species of *Conocybe* the world over, only 28 conformed members of the genus *Conocybe* have so far been recorded from Turkey (Sesli and Denchev, 2014; Solak et al., 2015).

During routine field studies in Sarıkamış Allahuekber Mountains National Park (Kars/Erzurum) some basidiomes were collected. *Conocybe anthracophila* Maire & Kühner ex Kühner & Watling, was described as a new record according to the current checklists on Turkish macromycota (Sesli and Denchev, 2014; Solak et al., 2015) and the latest contributions to the basidiomycetous macrofungi of Turkey (Demirel et al., 2016; Akata and Sesli, 2017; Akata and Uzun, 2017; Allı et al., 2017; Demirel et al., 2017; Işık and Türkekul, 2017; Kaşık et al., 2017; Kaya and Uzun, 2017; Keleş et al., 2017; Keleş and Şelem, 2017; Özkazanç et al., 2017; Öztürk et al., 2017; Sesli and Topcu Sesli, 2017; Türkekul, 2017; Türkekul and Işık 2017; Uzun et al., 2017a,b; Işık and Türkekul, 2018a,b; Sadullahoğlu and Demirel, 2018; Sesli and Liimatainen, 2018; Uzun et al., 2018a,b; Sesli, 2018; Uzun and Acar, 2018; Uzun and Kaya, 2018a,b).

The present study aims to make a contribution to the macrofungi of Turkey.

### 2. Materials and Method

Specimens were collected from Kızılcıbuk village, Sarıkamış (Kars-Turkey) at Allahuekber Mountains

National Park in 2014. Morphological and ecological characteristics of the samples were recorded during the field study and they were photographed in their natural habitats. Then, they were taken to the laboratory and microscopic investigations were carried out on them.

Microscopic investigation of the samples were done by using a Leica DM500 light microscope mounted Leica ICC50 HD camera. Reagents such as 5 % KOH and Congo red were used. Identification was performed with the aid of the relevant literature (Moser, 1983; Hausknecht et al., 2005; Knudsen and Vesterholt, 2008).

### 3. Results

*Basidiomycota* R.T. Moore

*Agaricales* Underw.

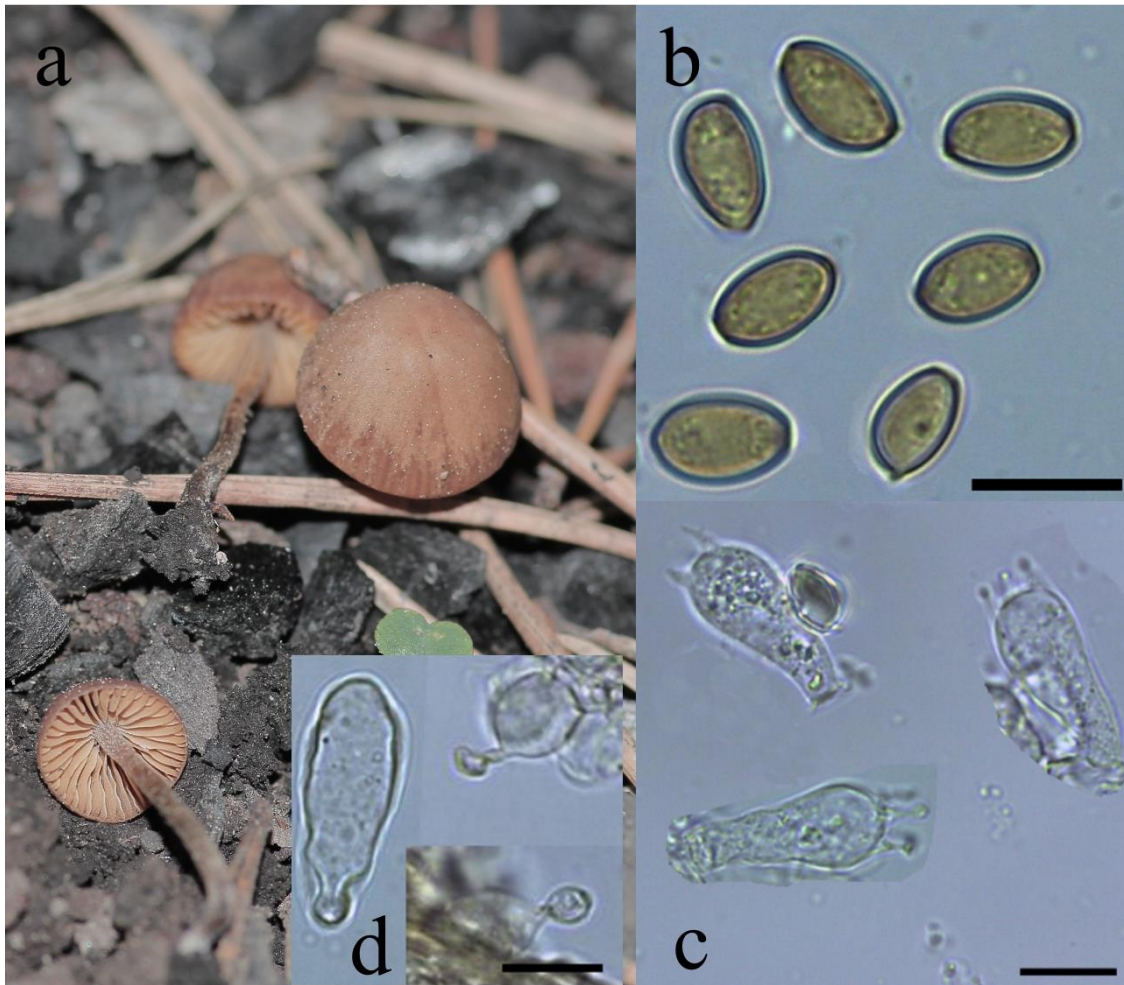
*Bolbitiaceae* Singer

*Conocybe* Fayod

*Conocybe anthracophila* Maire & Kühner ex Kühner & Watling

**Macroscopic features:** Pileus 15-40 mm in diameter, bell-shaped at first, later convex, longitudinally grooved when moist, ocher or reddish-yellow, darker in the margins and center, margins acute, slightly wavy and sometimes upwardly curved. Flesh, whitish or pale skin color, thin, taste and odour unclear. Lamellae, adnexed, ocher when young, later reddish-brown, wider in the middle, and gently toothed edges. Stipe, 35-75 x 1,5-3 mm in size, ocher or pale brownish, darker at the base, cylindrical, sometimes slightly bulbous at the base, fragile, smooth, longitudinally silvery-white fibrillose (Fig. 1a).

**Microscopic features:** Spores 10-12 × 6-7 µm, ellipsoid to egg-shaped, reddish-brown, thick walled, smooth, with distinct germination pore and small apiculus (Fig. 1b). Basidia 15-22 × 6-8 µm, cylindrical-clavate, with 2 or 4 sterigmata and a basal clamp (Fig. 1c). Cheilocystidia lecythiform, 15-25 × 7-12 µm, with 3-5 µm wided capitula (Fig. 16).



**Figure 1.** *Conocybe anthracophila*: a- basidiomata; b- basidiospores; c- basidia, d- cheliocystidia. (Bars= 10 µm)

**Specimen examined:** Kars, Sarıkamış, Allahuekber Mountains National Park, Kızılcıbuk village, on burned coals, 40° 22'745"N, 42° 30'541"E, 2388 m, 13.06.2014. MEA. 826.

#### 4. Discussions

*Conocybe anthracophila* is a member of the section *Pilosellae* and closely related to *C. velutipes* (Velen.) Hauskn. & Svrček and *C. sienophylla* (Berk. & Broome) Singer ex Chiari & Papetti. However, it has much larger fruiting bodies than the two taxa and differs from *C. velutipes* also by non lenticular broad-pressed spores. The spores are about as large as *C. sienophylla*, which is usually 9-12 × 5.5-7 microns, but have a different shape and are darker under the microscope with slightly thicker walls (Hausknecht et al., 2005).

The type of this species comes from North Africa, and all species that grew on burnt substrate were simply determined as *C. anthracophila* for a long time. Peintner

et al. (1999) and Gminder (2003) reported the species on mineral-rich sites such as compost, fertilized meadows and garden beds. Also with the material from Finland no macro- and microscopic differences could be found between the find on fire site and that on fertilized soil. It is certainly an extremely rare species, but often fruits in large numbers of individuals under suitable conditions. (Hausknecht et al., 2005).

*Conocybe anthracophila* was added to Turkish mycobiota as a new member of the genus *Conocybe*. Macro and micromorphological properties of the newly recorded taxon agree with those described by Moser (1983) and Knudsen and Vesterholt (2008).

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