

A new genus record for Turkey and West Asia, *Cistella dentata*, collected at Bingöl

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Key words: *Ascomycota*, *Helotiales*, *Hyaloscyphaceae*. – Mycobiota of Turkey.

Zusammenfassung: Die Gattung *Cistella* wird zum ersten Mal für Westasien und die Türkei beschrieben, basierend auf morphologischen Daten einer Kollektion aus der Provinz Bingöl, identifiziert als *Cistella dentata*.

Abstract: The genus *Cistella* is recorded for the first time for West Asia and Turkey based on morphological data from a collection made in Bingöl province, identified as *Cistella dentata*.

The order *Helotiales*, which has a fairly large number of species, namely more than 3880 (KIRK & al. 2008), belongs to the class *Leotiomycetes* of the phylum *Ascomycota*. The order *Helotiales* can be divided into four groups (BARAL & al. 2015): Group A (sclerotiniaceous and encoelioid taxa), Group B (helotiaceous taxa), Group C (mollisiaceous taxa), and Group D (hyaloscyphaceous taxa). Group D includes the families *Arachnopezizaceae*, *Lachnaceae*, *Hyaloscyphaceae* and *Pezizellaceae*. *Hyaloscyphaceae* in its wider sense is a fairly large family, represented by 933 species and 74 genera (KIRK & al. 2008). It has a cosmopolitan distribution with species living as saprotrophs, or infrequently as parasites, on various dead wood and plant substrates. The family is especially characterized by apothecia with well-differentiated hairs and inoperculate asci (HAN & al. 2014, QUIJADA & al. 2015). Generally, it has smooth and cylindrical paraphyses (RAITVIIR 2004). Our study sample, *Cistella dentata* (PERS.) QUÉL., is in Group D. The genus *Cistella* QUÉL. has ca. 45 species (JAKLITSCH & al. 2016). It is characterized by hairs with acyanophilous spines or warts to cyanophilous needle-like spines and it can be identified due to conspicuously growing on wood (HUHTINEN & SÖDERHOLM 1997, QUIJADA & al. 2015).

Studies on *Ascomycetes* in our country have gained quite a momentum in recent years (e.g. UZUN & al. 2014, 2017a, b, c; GÜNGÖR & al. 2015a, b; ACAR & UZUN 2016; AKATA & al. 2016; AKÇAY & UZUN 2016; ÇOLAK & KAYGUSUZ 2017; ACAR & al. 2018, 2020; IŞIK & TÜRKEKUL 2018a, b; KAYA & UZUN 2018; UZUN & KAYA 2018, 2019, 2020; KAYA & al. 2018; KABAKTEPE & al. 2019; SADULLAHOĞLU & UZUN 2020).

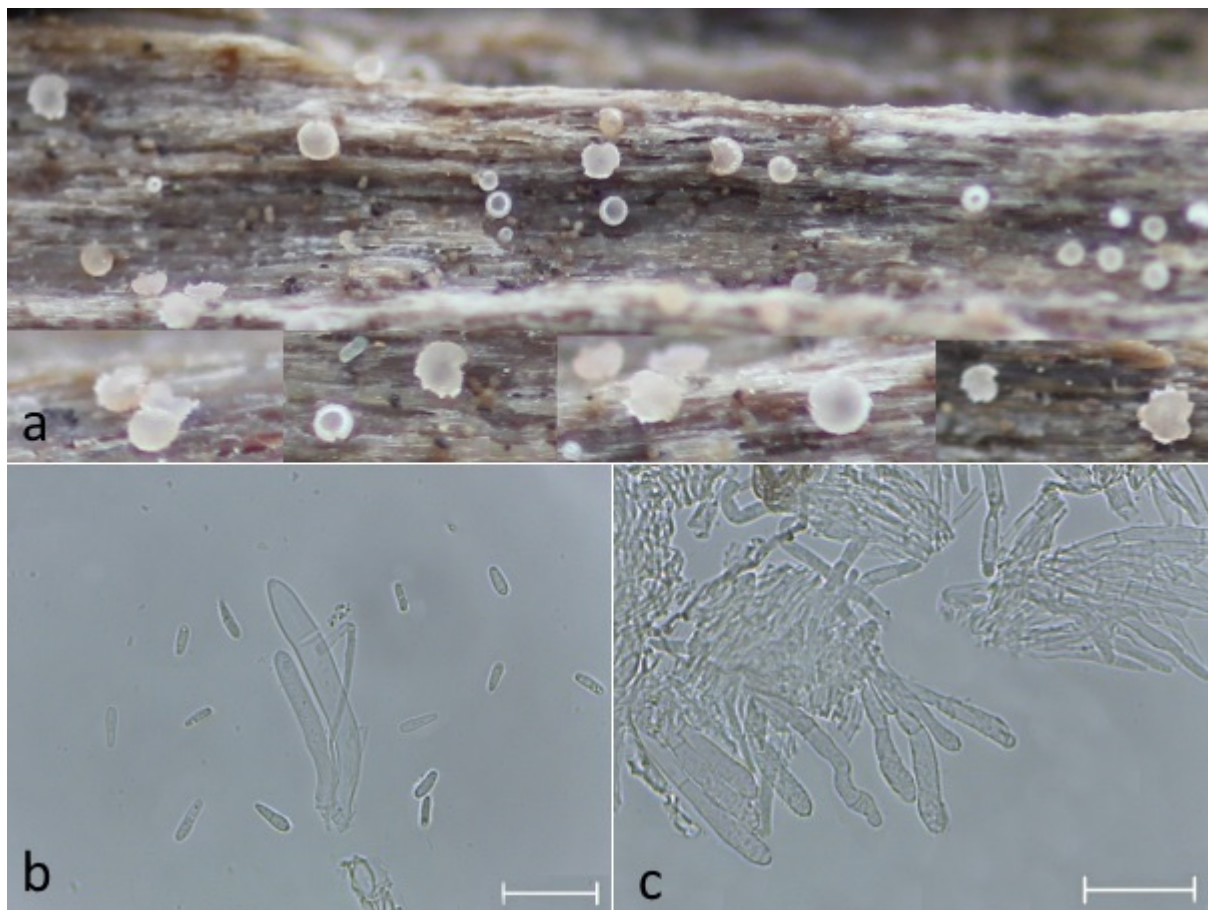


Fig. 1. *Cistella dentata* (VANF – ACAR 1118): a apothecia; b ascospores and ascus; c hairs. Bars: 20 μm .

The checklist of Turkish fungi (SESLI & DENCHEV 2014) and the above-mentioned recent studies conducted in the country do not contain previous records of the genus *Cistella*. Thus, our record of *Cistella dentata* is a new addition to the mycota of Turkey and West Asia.

Materials & methods

Fresh *Cistella* ascomata were collected from Bingöl province in Turkey in 2019. The samples were photographed with a Canon (EOS 60D) camera equipped with a Tokina 100 mm macro lens in the field. Macroscopic characters were recorded using fresh materials. Microscopic characters were observed on herbarium specimen in distilled water, IKI and MELZER's reagent solution with a Leica DM500 research microscope under oil immersion. At least 30 ascospores, 20 paraphyses, asci, and hairs from species samples were measured using the Leica Application Suite (version 3.4.0) program and described based on QUIJADA & al. (2015). The specimen is deposited in the Fungarium of Van Yüzüncü Yıl University (VANF).

***Cistella dentata* (PERS.) QUÉL., Enchir. fung. (Paris): 319 (1886). (Figs. 1, 2)**

Macroscopic characters: Apothecia $0.3\text{--}0.8 \times 0.2\text{--}0.5$ mm diam., discoid, gregarious to subgregarious, greyish yellow to yellow-grey, with broad adherence, margin whitish, obviously toothed due to groups of hairs holding together. Hairs cylindrical to slightly clavate, straight to flexuous, 2- or 3-septate, the apical parts densely spiny, basal parts smooth, $25\text{--}53 \times 2.4\text{--}4.3$ μm ($n = 20$). Ascospores $(5.2\text{--})6\text{--}10.3 \times$

1.8–2.8 μm ($n = 30$); cylindrical-clavate, smooth, non or sometimes septate, hyaline, thin-walled. Asci 40–50 $\times$ 5–7.5 μm ($n = 20$) μm , 8-spored, spores 2-seriate, cylindrical to clavate, when treated with MELZER's reagent and IKI asci apex turning blue, tapering towards the base, usually croziers present (measurements were made with dried samples). Paraphyses 25–62 $\times$ 2–4 μm ($n = 20$), shorter, equal or longer than asci, cylindrical to obtusely subanceolate, hyaline, 2–3 septate, with scant guttules in terminal cell.

Specimen examined: Turkey: Bingöl, Genç, Tarlabası village, on stump of *Populus* sp. (*Salicaceae*), 38° 41' 568" N, 40° 29' 2 5" E, 1157 m s. m., 3. May 2019, I. ACAR 1118 (VANF).

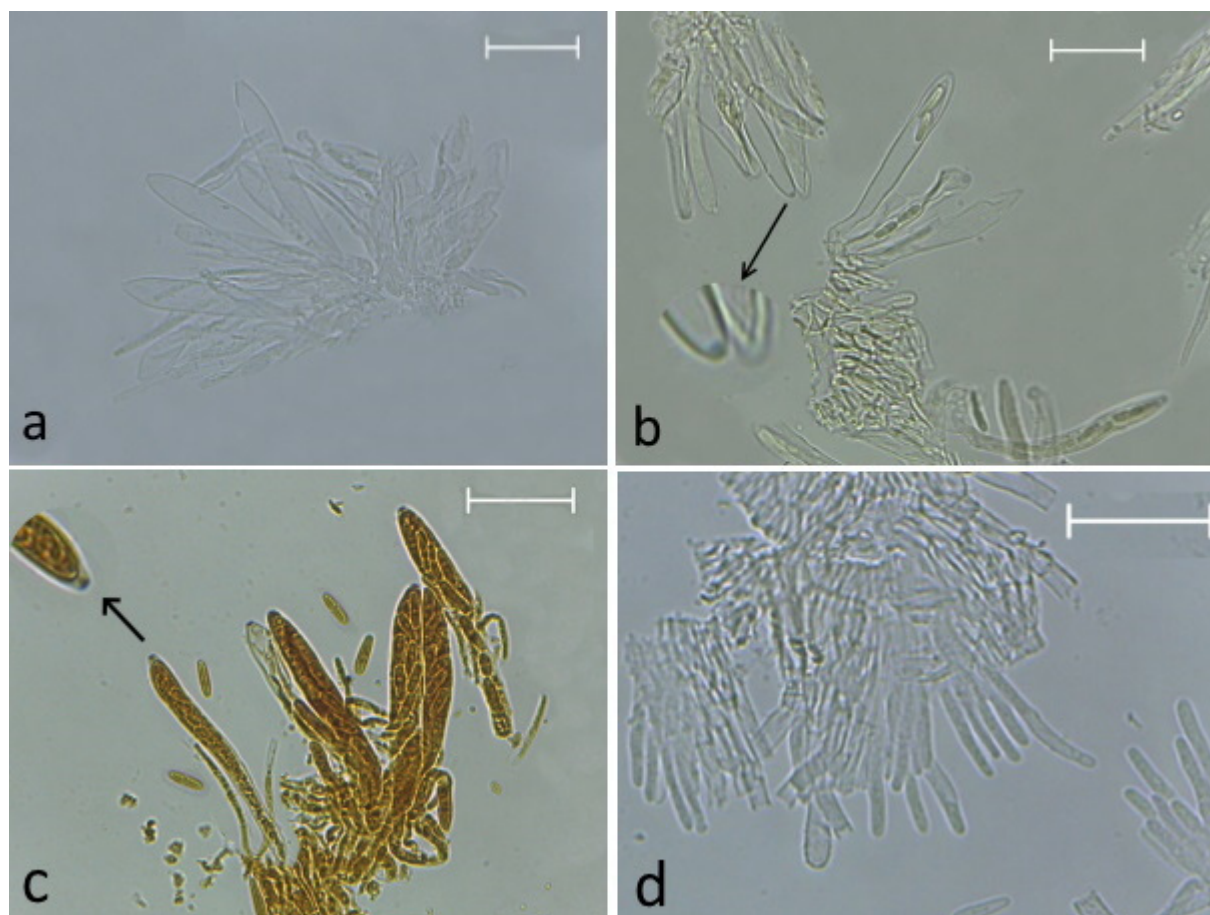


Fig. 2. *Cistella dentata* (VANF – ACAR 1118): *a* asci (in distilled water); *b* asci (in MELZER's reagent); *c* asci and ascospores (in IKI); *d* paraphyses (arrows in *b* and *c* indicate that the ends of the ascus turn blue and asci is dead state). Bars: 20 μm .

Discussion

Microscopic characters of *Peziza dentata* PERS. (PERSOON 1798), the original description of *Cistella dentata*, are given with asci 56–80 $\times$ 9–10 μm and ascospores 5–8 $\times$ 1–3 μm . QUIJADA & al. (2015) measured asci (dead state) with (43.5–)47–48.7(–51) $\times$ (4–)4.4–5.1 μm and ascospores (6.4–)7.3–8(–9.3) $\times$ (2–)2.3–2.5(–2.9) μm . Morphologically it bears resemblance to the description of *Cistella granulosa* (P. KARST.) NANNF., but the apothecia are smaller and its edges are not dentate, besides, the hairs are clavate and broad, the asci shorter and the ascospores ellipsoid (RAITVIIR 2004, QUIJADA & al. 2015).

The species was previously reported from Asia (Pakistan), North America (United States), Australia, and Europe (Spain, Canary Islands, Sweden, Norway, Germany, United Kingdom) (KANOUSE 1947, RAITVIIR 2004, QUIJADA & al. 2015). It is also known from Austria, Denmark, Slovakia (GBIF 2021, nahuby.sk 2021).

As a result of this study, *Cistella dentata* has been identified as a new genus and species record for West Asia and Turkey.

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