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First finding of *Eupezizella aureliella* (Ascomycota, Hyaloscyphaceae) in Turkey

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Summary. This study documents the first discovery of the genus *Eupezizella* in Türkiye, based on the discovery of *E. aureliella*, expanding our knowledge of the species' geographic distribution and contributing to the study of the country's fungal biodiversity. This report presents the macro- and micromorphological characteristics of *E. aureliella*, which was collected on 28 January 2025 from branches of *Pinus brutia* L. in the village of Serciler, Çanakkale Province, Türkiye. The specimens were identified based on detailed field surveys and subsequent laboratory analysis. Diagnostic morphological characters were documented using light microscopy, and microscopic illustrations were prepared using CorelDRAW.

Первая находка *Eupezizella aureliella* (Ascomycota, Hyaloscyphaceae) в Турции

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Ключевые слова: морфология, новая находка, Турция, Ascomycota, Helotiales, Hyaloscyphaceae.

Аннотация. Настоящее исследование документирует первую находку рода *Eupezizella* в Турции на основании обнаружения *E. aureliella*, расширяет известные сведения о географическом распространении вида и вносит вклад в изучение грибного биоразнообразия страны. В сообщении представлена макро- и микроморфологическая характеристика *E. aureliella*, который был собран 28 января 2025 года на ветвях *Pinus brutia* L. в деревне Серчилер провинции Чанаккале (Турция). Образцы были идентифицированы на основании детальных полевых исследований, а также последующего лабораторного изучения. Диагностически важные морфологические признаки были задокументированы с использованием световой микроскопии, а микроскопические иллюстрации подготовлены с помощью программы CorelDRAW.

Introduction

The family Hyaloscyphaceae Nannf. is one of the most diverse lineages within the order Helotiales (Leotiomyces, Ascomycota), comprising numerous genera of minute discomycetes that occur predominantly as saprotrophs on decaying wood, bark, leaves, cones and other plant remains. Members of the family are characterized by small cupulate to discoid apothecia, inoperculate asci and a wide range of microscopic features, particularly the morphology of hairs, asci, paraphyses and ascospores, which remain essential for species delimitation. Owing to their minute size and ephemeral fruiting bodies, many species are easily overlooked during field surveys, and the diversity and distribution of the family remain incompletely documented worldwide despite recent taxonomic advances (Han et al., 2014; Quijada et al., 2015; Kosonen et al., 2021; Hyde et al., 2024).

The circumscription of Hyaloscyphaceae has undergone substantial revision during the last two decades. Traditional classifications based primarily on morphological characters have been considerably refined by multilocus phylogenetic studies, resulting in the reassessment of generic boundaries and the transfer of numerous taxa among genera. Consequently, the number of accepted genera and species has changed repeatedly, reflecting the dynamic nature of the family's taxonomy (Baral et al., 2015; Baral, 2016; Kosonen et al., 2021; Hyde et al., 2024). Nevertheless, detailed morphological examination remains indispensable for identifying species because diagnostic characters are frequently expressed only at the microscopic level.

The genus *Eupezizella* Höhn. comprises inconspicuous lignicolous or corticolous fungi producing minute whitish to pale apothecia on dead woody substrates. Because of their extremely small ascomata, species of the genus are rarely collected and remain poorly represented in fungarium collections. As a result, their geographical distribution and ecological preferences are still insufficiently known. Recent phylogenetic studies have clarified the systematic position of *Eupezizella* within Hyaloscyphaceae and confirmed the placement of several species formerly assigned to other genera (Kosonen et al., 2021).

The species currently accepted as *Eupezizella aureliella* (Nyl.) Huhtinen et A. N. Mill. was originally described as *Dicocum microscopium* P. Karst. (Karsten, 1887). Subsequently, its asexual morph was treated under *Hyaloscypha aureliella* (Huhti-

nen, 1989), whereas recent phylogenetic evidence supported its transfer to *Eupezizella* (Kosonen et al., 2021). The species has been reported from several European countries on dead branches and bark of woody plants, particularly conifers, but published records remain relatively scarce, suggesting that it is either genuinely uncommon or frequently overlooked because of its minute fruiting bodies.

Knowledge of the family Hyaloscyphaceae in Türkiye remains limited despite the increasing number of studies on discomycetes published during the last decade. A comprehensive checklist of the Turkish mycobiota was presented by Sesli et al. (2020), and subsequent taxonomic studies have considerably expanded the known diversity of Ascomycota in the country (Acar, 2021, 2023, 2026; Acar, Quijada, 2022; Acar, Uzun, 2022; Akçay et al., 2023; Acar et al., 2024, 2026; Acar, Karabıyık, 2024a, b; Keleş et al., 2024; Akata et al., 2025). However, only a limited number of representatives of Hyaloscyphaceae have so far been reported from Türkiye, indicating that the diversity of the family remains incompletely documented. During mycological surveys conducted in Çanakkale Province, northwestern Türkiye, specimens referable to *Eupezizella aureliella* were collected on dead branches of *Pinus brutia* Ten. Morphological examination demonstrated that these collections represent the first record of the genus *Eupezizella* in Türkiye, based on *E. aureliella*.

Materials and Methods

Fresh specimens of *Eupezizella*, forming the basis of this study, were collected on 28 January 2025 from dead branches of *Pinus brutia* in a *Pinus brutia*–*Quercus coccifera* forest near the cemetery of Serçiler Village, approximately 25 km from central Çanakkale. Since macrofungi change their color and shape after drying, it is very important to photograph the fresh mushroom sample in the field in the best way to properly carry out systematic studies. After removing the dust and plant particles around the branch fragment, which was quite moist, it was photographed and documented from many angles. After the photographing process was completed, the specimen's collection location, collection date, substrate, and geographical coordinates were noted in the field notebook. The collected macrofungus samples were transported to the fungarium. All samples transported to the laboratory were subjected to drying under appropriate conditions. The dried samples were placed in sealed polyethylene bags and

labelled. Since the fungarium material was smaller than 1 mm, the samples were sectioned under a Motic SMZ-171 stereo zoom microscope (China). Microscopic preparations were made in water for general observations, whereas Melzer's reagent was used to examine amyloid reactions of the asci and other diagnostic microscopic structures. The preparations were examined under a Leica DM500 (Germany) light microscope using 40×, 100×, 400×, and 1000× objectives. To obtain reliable measurements of microscopic structures (hairs, asci, ascospores, paraphyses, and excipular elements), Leica Application Suite (version 3.4.0) was used, and at least 30 measurements were taken for each character.

The specimens were identified as *Eupezizella aureliella* based on the methods described by Karsten (1887), Huhtinen (1989), and Quijada et al. (2017). Microcharacters observed under the microscope were illustrated using CorelDRAW (64-bit) software for clarity. The examined specimens were deposited in the fungarium of Van Yüzüncü Yıl University, Faculty of Science, Department of Biology (VANF).

Results

This study documents the first record of the genus *Eupezizella* in Türkiye based on *E. aureliella* and

provides a detailed description, habitat photographs, micrographs, and illustrations of its diagnostic microcharacters.

Eupezizella aureliella (P. Karst.) T. Kosonen, Huhtinen et K. Hansen: "Türkiye. Çanakkale Province: Serçiler Village, near the cemetery, 40°03'02"N, 26°35'35"E, 115 m a. s. l., on a branch of *Pinus brutia*. 28 I 2025. İ. Acar. 2059" (VANF).

Description (Figs. 1–3)

Apothecia up to 0.5 mm, subsessile, gregarious to subgregarious, whitish, cream–pinkish brown when fresh, pink-white to pale orange-yellow when dry, margin hairy. **Hairs** (14–)22–35(–42) × (2–)2.5–3.5(–4) µm at the base × 1–1.8 µm at the apex, hyaline, 0–1(–2)-septate, conical, straight to rarely slightly curved, tapering to a broad, blunt apex, rarely solidified, surface usually smooth, occasionally bearing a few scattered warts confined to the upper part, especially near the apex. **Asci** 33–45(–55) × (4.6–)5.5–7(7.5) µm, (n = 30), cylindrical, two-rowed, or clustered towards the apex, ascus apex turns blue in Melzer's reagent, 8-spored, with croziers. **Ascospores** (6–)6.4–8.3(–8.7) × (1.7)2–2.8 µm, (n = 30), hyaline, thin-walled, without drops or with tiny droplets at both ends, cylindrical, cylindri-



Fig. 1. Ascomata of *Eupezizella aureliella*. Scale bar: 0.5 mm for (a) (photo by İsmail Acar).

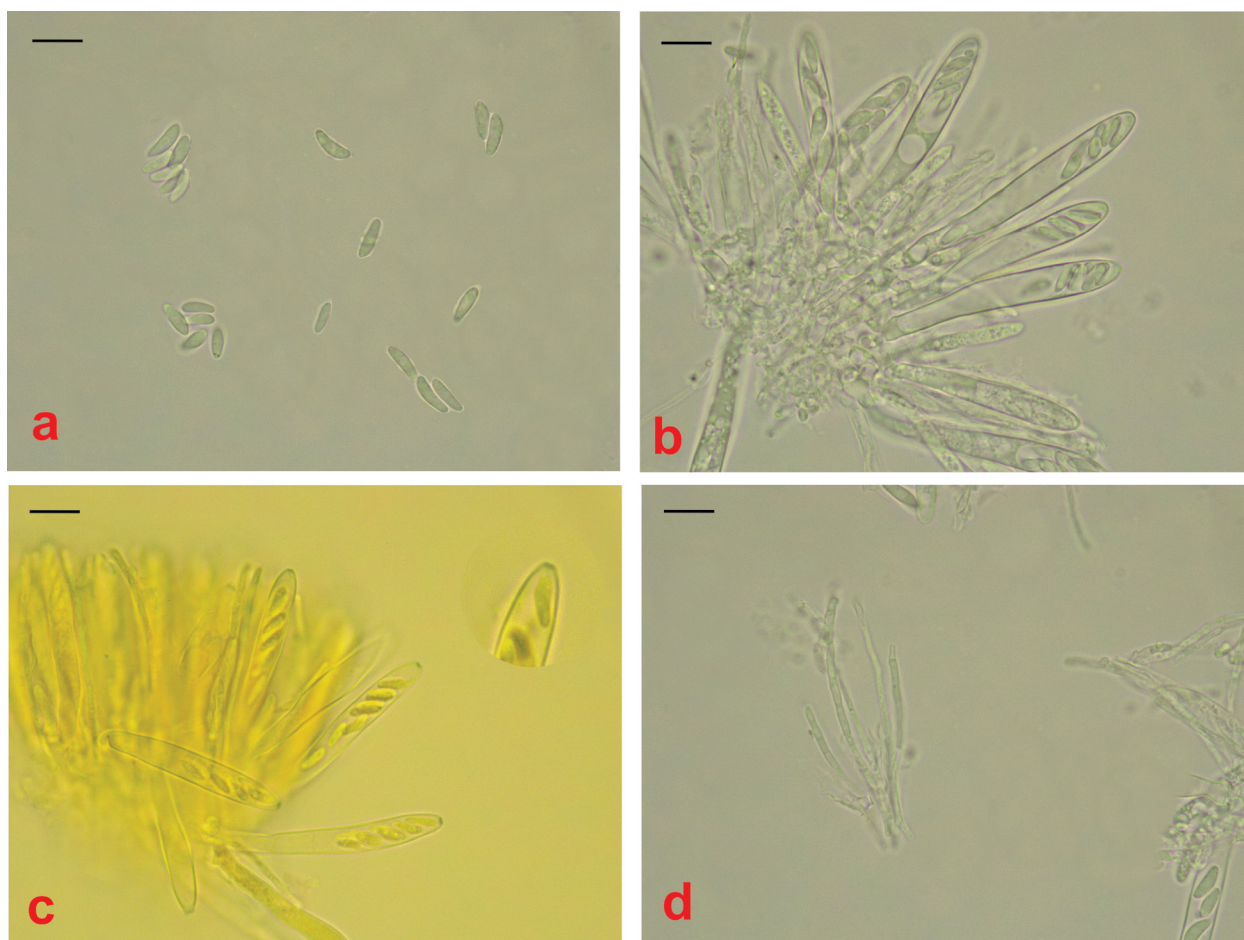


Fig. 2. Structure of *Eupezizella aureliella*: a – spores; b – asci (in water); c – asci (in Melzer); d – paraphyses. Scale bar: 10 μm (photo by İsmail Acar).

cal to clavate, smooth to slightly curved (allantoid), non-septate. **Paraphyses** terminal cell $13\text{--}25 \times 1.5\text{--}2.5 \mu\text{m}$, cylindrical, sometimes very slightly swollen at the apex, 2–3 septate, the cell below $6\text{--}9\text{--}(10.5) \times 1\text{--}2 \mu\text{m}$, thin-walled, simple to bifurcate near the base, non-guttulate. **Ectal excipulum** $10.5\text{--}14 \times 4.5\text{--}6.5\text{--}(7.8) \mu\text{m}$, texture globular-angular to prismatic texture, hyaline, non-gelatinised, non-crystalline but with golden yellow resinous exudate.

Distribution and ecology

This species has a wide distribution in the Northern Hemisphere, with occurrence records reported from Europe, North America, Asia, and parts of Africa and Central America, based on data available in the “Global Biodiversity Information Facility” (GBIF. URL: <https://www.gbif.org/>) and published literature (Kosonen et al., 2021) (Fig. 4). It usually develops on softwood species (*Abies* Mill., *Juniperus* L., *Larix* Mill., *Picea* (A. Dietr.), *Pinus* L., *Pseudotsuga* Carrière and *Taxus* L.). Available records indicate that *E. aureliella* has been

collected during different seasons depending on geographic region and local climatic conditions. Most published collections originate from the frost-free period, particularly in summer and autumn (Huhtinen, 1989; Hansen, Knudsen, 2000; Raitviir, 2004; Kutorga, Raitviir, 2006), whereas records from milder regions also include winter and spring collections (Galán et al., 1994; Quijada et al., 2017; *Eupezizella aureliella*, 2026).

Discussion and Conclusion

The specimens examined in this study were identified as *Eupezizella aureliella* based on a combination of macro- and micromorphological characters observed in the apothecia, including minute sessile apothecia, hyaline to pale-coloured hairs, and inoperculate asci. These features are consistent with the circumscription of hyaloscyphaeous fungi and agree with previous taxonomic treatments of the species and related taxa within Hyaloscyphaceae (Huhtinen, 1989; Quijada et al.,

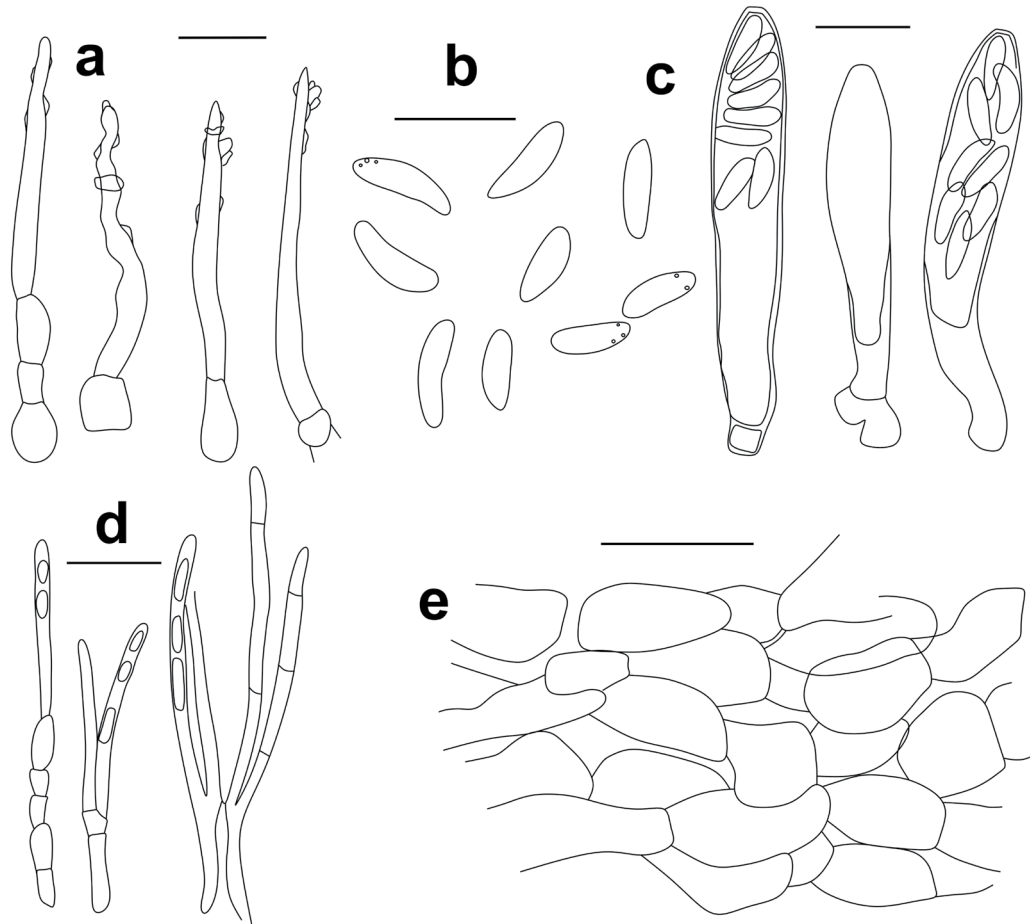


Fig. 3. Structure of *Eupezizella aureliella*: a – hairs; b – ascospores; c – asci; d – paraphyses; e – ectal excipulum. Scale bar: 10 µm (drawing by İsmail Acar).

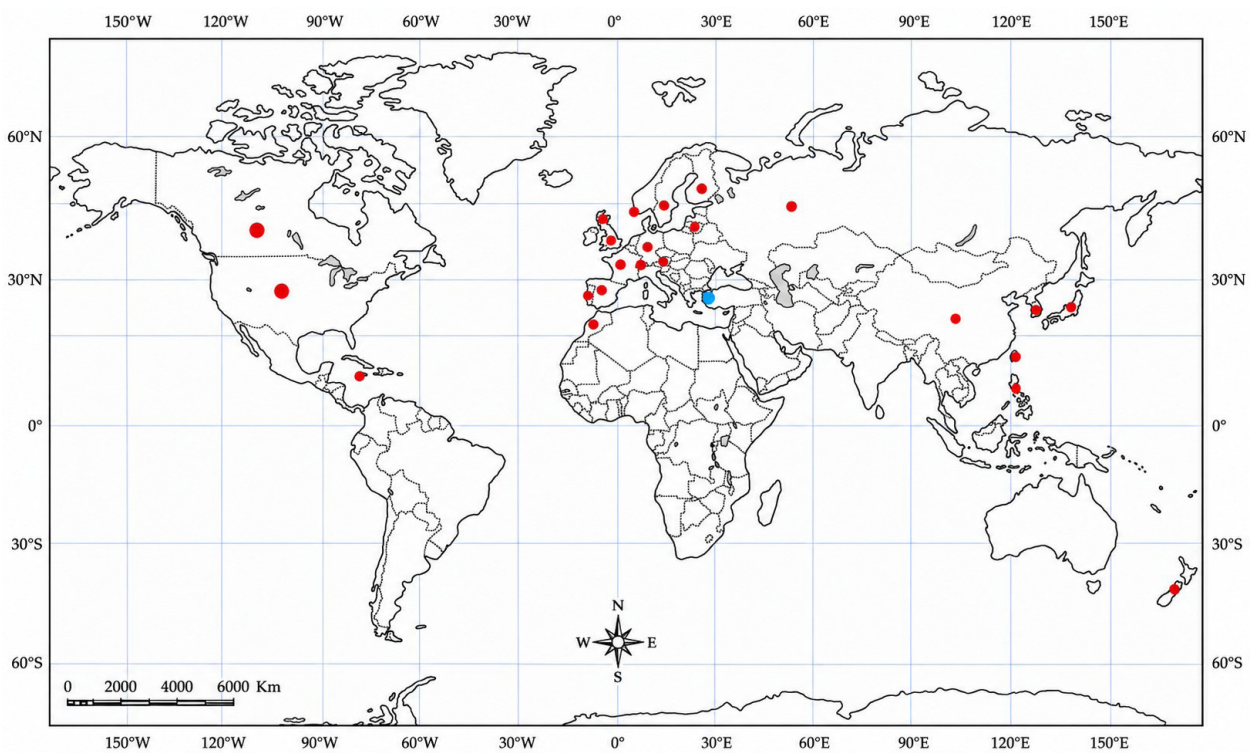


Fig. 4. Distribution of *Eupezizella aureliella* in the world.

2017). Members of Hyaloscyphaceae are predominantly saprotrophic fungi occurring on woody and herbaceous substrates and play an important role in decomposition processes in forest ecosystems (Quijada et al., 2017). The occurrence of *E. aureliella* on branches of *Pinus brutia* is consistent with the known ecological pattern of the species, as members of this group are commonly associated with lignicolous substrates in temperate regions. The taxonomic placement of *E. aureliella* within Hyaloscyphaceae is supported by morphological features typical of inoperculate discomycetes, including hair structure, ascus type, and excipular organization, which remain important diagnostic criteria despite recent advances in molecular phylogenetics (Fehrer et al., 2019).

Although the species has been reported from various regions of the Northern Hemisphere, including boreal and temperate habitats (Huhtinen, 1993), no previous record of the genus *Eupezizella* has been documented from Türkiye in the available literature and national checklists (Sesli et al., 2020 and subsequent updates). Therefore, the present study represents the first record of the genus in the coun-

try. Hyaloscyphaceae is a morphologically diverse family within Helotiales, whose classification and delimitation have undergone significant revisions with the incorporation of molecular data (Kosonen et al., 2021). Despite these advances, the diversity and distribution of the family remain insufficiently documented in many regions, including Türkiye. In this context, the present record contributes to improving current knowledge of hyaloscyphaceous fungi in the region.

In conclusion, this study documents *Eupezizella aureliella* as the first representative of the genus *Eupezizella* recorded from Türkiye and provides detailed morphological evidence supporting its identification. This finding expands the known diversity of Hyaloscyphaceae in Türkiye and adds a new genus to the Turkish mycobiota, highlighting the need for further studies on microfungal diversity in forest ecosystems.

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