



This article is cited as: Uzun, Y. & Kaya, A. (2023). *Leucoglossum leucosporum*, A New Record for Turkish Mycobiota, *Mantar Dergisi* 14(2) 92-95

Geliş(Received) :11.08.2023

Kabul(Accepted) :12.09.2023

Research Article

Doi: 10.30708.mantar.1341288

## *Leucoglossum leucosporum*, A New Record for Turkish Mycobiota

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**Abstract:** *Leucoglossum leucosporum* (Benkert & Hardtke) Arauzo is reported as a new record from Türkiye, based on the identification of the samples collected from Pazar district of Rize province. It is the first member of the genus *Leucoglossum* S. Imai determined in Türkiye. A brief description of the species is provided together with the photographs, related to the macroscopy and microscopy.

**Keywords:** Biodiversity, New record, *Geoglossaceae*, Türkiye

### *Leucoglossum leucosporum*, Türkiye Mikobiyotası İçin Yeni Bir Kayıt

**Öz:** *Leucoglossum leucosporum* (Benkert & Hardtke) Arauzo Rize'nin Pazar ilçesinden toplanan örneklerin teşhis edilmesiyle, Türkiye'den yeni kayıt olarak rapor edilmiştir. Bu *Leucoglossum* S. Imai cinsinin Türkiye'de belirlenen ilk üyesidir. Türün kısa bir betimlemesi, makroskopi ve mikroskobisine ilişkin fotoğrafları ile birlikte verilmiştir.

**Anahtar kelimeler:** Bıyoçeşitlilik, Yeni kayıt, *Geoglossaceae*, Türkiye

#### Introduction

*Leucoglossum* S. Imai is a small genus of Geoglossaceae family. It was first erected by Imai (1942). The members of the genus are characterized by dark coloured setose ascomata and the ascospores which remain hyaline till the late maturity (Imai, 1942; Fedosova and Kovalenko, 2015). Members of the genus resemble some *Trichoglossum* Boud. species. Due to this similarity they have been regarded as the members of *Trichoglossum* for a long time, till the reuse of the generic name, *Leucoglossum*, by Arauzo and Iglesias (2014), depending on the results of morphological and phylogenetic studies. The genus comprises only two species, *L. durandii* (Teng) S. Imai and *L. leucosporum* (Benkert & Hardtke) Arauzo (IndexFungorum, 2023). Though some geoglossoid, *Geoglossum lineare* Hakeliev (Güngör et al., 2013), *G. umbratile* Sacc. (Güngör et al.,

2015a), *Trichoglossum hirsutum* (Pers.) Boud (Akata and Kaya, 2013), *T. variabile* (E.J. Durand) Nannf. (Güngör et al., 2015b), *T. walteri* (Berk.) E.J. Durand (Uzun, 2021), cudonioid, *Cudonia circinans* (Pers.) Fr. (Pilát, 1937), and spathularioid, *Spathularia flavida* Pers. (Sesli, 1998), *S. nigripes* (Qué.) Sacc. (Uzun, 2021) and *Spathulariopsis velutipes* (Cooke & Farl.) Maas Geest. (Akata and Kaya, 2013), fungi have so far been reported from Türkiye, any member of the genus *Leucoglossum* were presented before (Sesli et al., 2020; Akçay et al., 2023).

The study aims to make a contribution the mycobiota of Türkiye.

#### Material and Method

Ascomata of the *Leucoglossum leucosporum* were collected from Pazar district of Rize province, in 2022,



during a field survey. Photographs of the ascomata were taken at their natural habitats, and notes were taken related to their morphology, ecology and geography. Then the samples were put in a paper bag and transferred to the fungarium. Macromorphological characteristics of the collection were observed in fresh material while micromorphological structures were observed in dried material. A Nikon Eclipse Ci-S trinocular light microscope was used for microscopic investigation, and a DS-Fi2 digital camera and a Nikon DS-L3 displaying apparatus were used to obtain images related to micromorphology. The sample was identified with the help of Benkert and Hardtke (1988), Arauzo and Iglesias (2014), Fedosova and Kovalenko (2015) and Kučera et al. (2021).

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

## Results

### *Ascomycota*

### *Geoglossomycetes*

### *Geoglossales*

### *Geoglossaceae*

*Leucoglossum leucosporum* (Benkert & Hardtke) Arauzo, in Arauzo & Iglesias, *Errotari* 11: 186 (2014)

**Syn:** [*Trichoglossum leucosporum* Benkert & Hardtke]

### Macroscopic and microscopic features:

Ascomata 17-35 mm tall, geoglossoid in appearance, clavate, stipitate, without a distinct transition zone between fertile part and stipe, black. Hymenial part forms 1/3 to 1/2 of the total length of the fruit body, lanceolate to clavate, laterally compressed, with a groove, setose. Stipe cylindrical to somewhat compressed and enlarged towards the fertile part, somewhat darker, setose, seta much more noticeable.

Asci 140–165 × 14–16,5 µm, clavate, with somewhat fusiform apex, with euamyloid apical apparatus, 8-spored. Paraphyses filiform, pigmented, slightly enlarged towards the apex (up to 7.5 µm), apical cells sometimes slightly swollen, straight, declinate or hooked. Ascospores (39)42–52.3 (56) × 5–6 (7) µm, cylindrical, slightly curved, rarely straight, some slightly tapering towards one end, aseptate when young, hyaline, become 1-2 septate (rarely 3-7), with one or several lipid drops. Setae up to 360 × 12 µm, simple, straight, thick walled, dark brown to blackish.

*Leucoglossum leucosporum* was reported to grow on soil among grass and mosses, in meadow, pasture, forest road border and cave (Benkert & Hardtke, 1988; Arauzo & Iglesias, 2014; Fedosova and Kovalenko, 2015; Kučera et al., 2021).



Figure 1. Ascocarps of *Leucoglossum leucosporum*

**Specimen examined:** Rize, Pazar, Suçatı village, 41°06'N-40°52'E, 475 m, 11.12.2022. Yuzun 7332.

### Discussions

*Leucoglossum leucosporum* is easily recognizable by the presence of setae and the ascospores remaining aseptate or few septate and hyaline for a long period up to maturation. Macro and microscopic characteristics of Turkish collection generally coincide with previous descriptions (Benkert & Hardke, 1988; Arauzo & Igleasis, 2014; Fedosova and Kovalenko, 2015; Kucera et al., 2021), except the spore length of Russian collection. Fedosova and Kovalenko (2015) reported the length of ascospores up to 77.9 µm, but the measured spore length of our collection reached up to 56 µm. The brownish colour and 9-15 septation of over-mature spores were also not observed.

*Leucoglossum leucosporum* has so far been reported from Austria, Czech Republic, Germany,

Netherlands, Russia, Slovakia, Spain and Switzerland (Benkert and Hardtke 1988; Arauzo and Iglesias 2014; Fedosova and Kovalenko 2015; Kucera et al., 2020).

With this study *Leucoglossum leucosporum* was added to the mycobiota of Türkiye as the first member of the genus *Leucoglossum*.

### Author Contributions

All authors have equal contribution.

### Conflict of Interest

There is no conflict of interest with any institution or person.

**Ethical Statement:** It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited (Yasin UZUN, Abdullah KAYA).

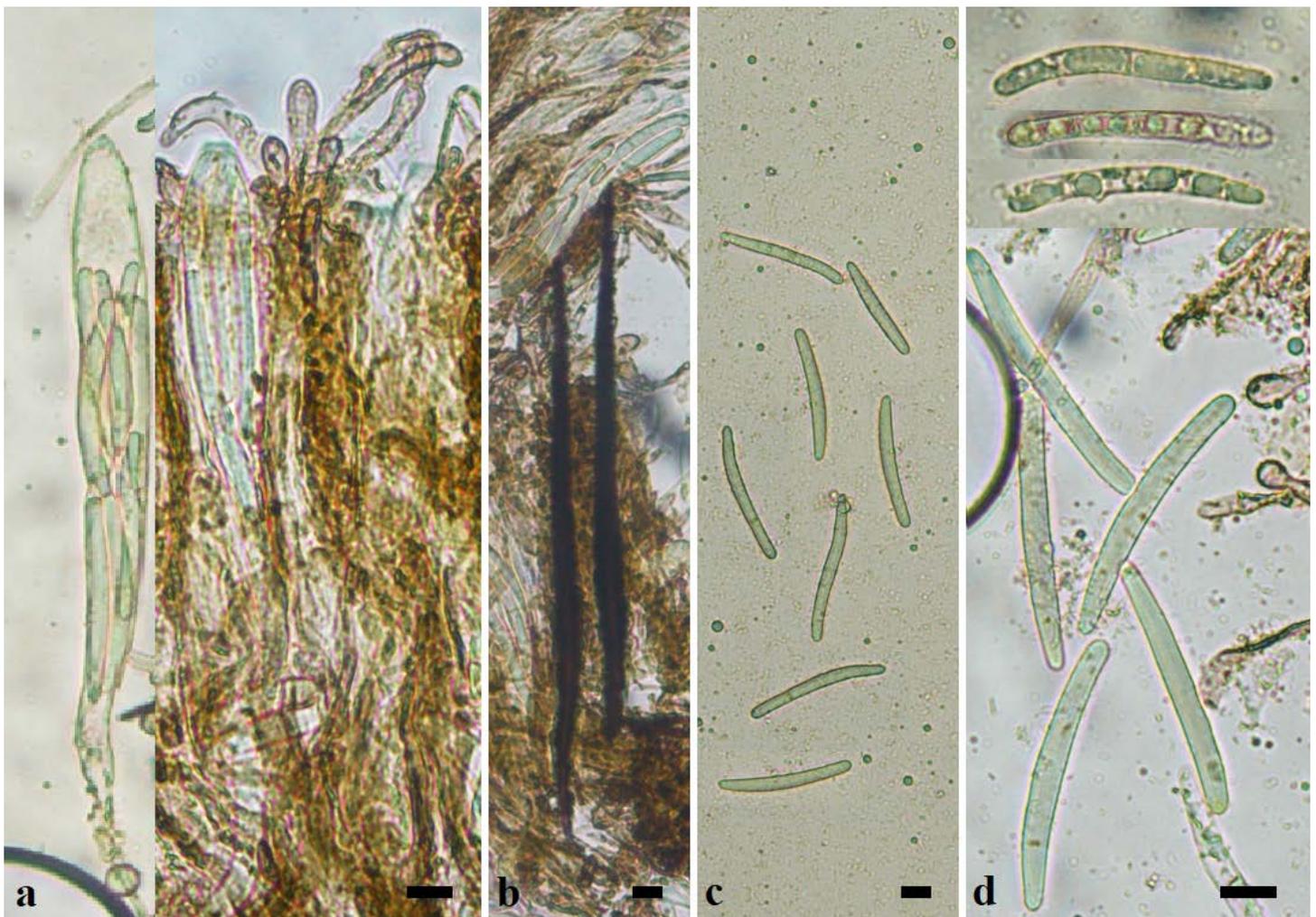


Figure 2. Asci and paraphyses (a), setae (b), ascospores (c-d) of *Leucoglossum leucosporum* (bars: 10 µm) (a-d: Melzer)

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