

## *Lasiobelonium lonicerae* (Alb. & Schwein.) Raitv. : A Novel Record for Türkiye

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### ABSTRACT

In this study, *Lasiobelonium* specimen collected from Genç (Bingöl) district in 2021 is discussed. By the data obtained as a result of field and fungarium studies, it was identified as macro-micromorphological characters and recorded as a new record for *Lasiobelonium* members in Türkiye (*Lasiobelonium lonicerae*). In this text, the micro- and macromorphological characters of *L. lonicerae* are described and illustrated. In addition, the micro characters were illustrated by drawing to make them more distinct and clearer. The *L. lonicerae* studied in this study will contribute to the *Ascomycota* diversity of Türkiye and the distribution of the genus *Lasiobelonium* in the country.

**Key words:** *Solenopeziceae*, mycobiota, new record, Türkiye.

## *Lasiobelonium lonicerae* (Alb. & Schwein.) Raitv. : Türkiye için Yeni Bir Kayıt

### ÖZ

Bu çalışmada, 2021 yılında Genç (Bingöl) ilçesinden toplanan *Lasiobelonium* örneği ele alınmıştır. Saha ve fungaryum çalışmaları neticesinde elde edilen veriler doğrultusunda makro-mikromorfolojik karakterlerle tanımlanmış ve Türkiye'deki *Lasiobelonium* üyeleri için yeni bir kayıt olarak (*Lasiobelonium lonicerae*) kaydedilmiştir. Bu metinde *L. lonicerae*'nin mikro ve makromorfolojik özellikleri betimlenmiş ve resmedilmiştir. Ayrıca mikro karakterler daha belirgin ve net olması açısından çizilerek gösterilmiştir. Çalışmada konu edilen *L. lonicerae*, Türkiye'nin *Ascomycota* çeşitliliğine ve *Lasiobelonium* cinsinin ülkedeki dağılımına katkıda bulunacaktır.

**Anahtar kelimeler:** *Solenopeziceae*, mikobiyota, yeni kayıt, Türkiye.

### INTRODUCTION

Helotiales is one of the apothecial *Ascomycetes* groups with 29 families, usually a few mm in diameter, 3000-4000 taxa, and the highest species diversity (Baral, 2016; Hosoya, 2021). The genera *Geniculospora*, *Graddonia*, *Halenospora*, *Lasiobelonium*, *Mycofalcella*, *Trichopeziza*, *Trichopezizella*, *Tricladium* and *Solenopezia* in these 29 Helotial families were found to form a monophyletic branch close to *Helotiaceae* and *Lachnaceae* by Ekanayaka et al. (2019). Previously, Jaklitsch et al. (2016) suggested that the genera *Trichopeziza*, *Trichopezizella* and *Solenopezia* need a family of their own based on excipulum and plumage characteristics and the absence of an apothecial species. These genera are genetically closely related to each other, form a monophyletic branch and are located far from the family *Lachnaceae* (Guatimosim et al., 2016; Pärtel, 2016). Therefore, taking into account the literature and our phylogenetic analysis results, Ekanayaka et al. (2019) grouped the genera *Geniculospora*, *Graddonia*, *Halenospora*, *Lasiobelonium*, *Mycofalcella*, *Trichopeziza*, *Trichopezizella*, *Tricladium* and *Solenopezia* under the family *Solenopeziceae* (*Helotiales/Leotiomyces*), which they named as a new family. However, Johnston et al. (2019) showed that the genera *Mycofalcella* and *Tricladium* are phylogenetically distant from the genera *Trichopeziza*, *Trichopezizella* and *Lasiobelonium*. Later, Johnston and Baschien (2020)

created a new family for genera with aquatic hypophomycete-like asexual morphs and/or a sexual morph with glabrous apothecia. This family was named *Tricladaceae* and included the genera *Cudoniella*, *Geniculospora*, *Graddonia*, *Halenospora*, *Mycofalcella*, *Spirosphaera* and *Tricladium*. Johnston and Baschien (2020) restricted the family *Solenopezaceae* to the genera *Lasiobelonium*, *Solenopezia*, *Trichopeziza* and *Trichopezizella*, all of which have a sexual morph with apothecia with smooth-walled hairs.

Considering the literature studies, the paraphyses of the genus *Lasiobelonium*, currently included in the family *Solenopezaceae*, are pointed, cylindrical or distinctly lanceolate. At the same time, the hairs are mostly brown-walled at the base or in the middle, hyaline in the apical parts, rarely completely hyaline (Šandová, 2015). One of the most important characteristic features of the genus is the excipulum structure (Raitviir, 1980).

Two species belonging to the genus; *Lasiobelonium horridulum* var. *capitatum* Dougloud by Kaya et al. (2015) and *Lasiobelonium variegatum* (Fuckel) Raitv. by Uzun et al. (2017) were described based on morphological data. Sesli et al. (2020) and Solak and Türkoğlu (2022) checklists and recent studies (Acar and Quijada, 2022; Acar and Uzun, 2022; Allı, 2022; Dizkirici and Acar, 2022; Acar, 2023; Akata et al., 2023; Akçay et al., 2023; Şahin et al., 2023; Uzun and Kaya, 2023; Acar et al., 2024; Akata et al., 2024; Aslan et al., 2024; Terman et al., 2024), *L. loniceræ* is a new record for Türkiye. The study aims to describe another species of the genus *Lasiobelonium*, *L. loniceræ* (Alb. & Schwein.) Raitv. based on macro- and micromorphological data, to contribute to the country's mycobiota and to determine the distribution of the genus in the country.

## Materials and Methods

Macrofungus samples were collected in Genç (Bingöl) district in 2021. After being photographed in the research area, their morphological characteristics were recorded in the field notebook. Then, they were taken to the laboratory, dried and turned into fungarium material. Separate preparations were carefully prepared in water and IKI for microscopic data analyses. The preparations were examined under a Leica DM2500 (Germany) research microscope. Pictures of the microscopic characters (ascus, ascospores, hairs and paraphyses) were taken. They were then measured at least 20 times using the Leica Application Suite (version 4.8) programme. Macro- and micromorphological data obtained from field and laboratory studies were compiled and a description was created. The description of the specimen was carried out following the methods described in the literature (Raitviir, 1980; Baral and Marson, 2005; Ribes and Pancorbo, 2010). Microscopic drawings were prepared using CorelDRAW (64-bit) (Canada). These drawings provided accuracy and clarity in depicting the observed microscopic features of *Lasiobelonium*.

## RESULTS and DISCUSSION

**Ascomycota** Caval.-Sm.

**Leotiomyces** O.E. Erikss. & Winka

**Helotiales** Nannf.

**Solenopezaceae** Ekanayaka & K.D. Hyde

**Lasiobelonium** Ellis & Everh.

**Lasiobelonium loniceræ** (Alb. & Schwein.) Raitv.

(Figure 1., 2.)

**Apothecia** 0.3 – 1 mm, short-stalked or sessile, cup-shaped, whitish to pinkish cream in colour, rim and outer surface covered with tufts of grouped pale brown hairs, often with water droplets on the outer side. **Hymenium** pale coloured. **Asci** 50 – 68 × 5 – 6.8 µm, hyaline, cylindrical-clavate, spores usually biserial, amyloid, with croziers. **Ascospores** 10 – 16(18) × 2 – 3.5(3.7) µm, smooth, fusoid, cylindrical or allantoid, with 1 – 3 septa, usually with drops. **Hairs** 60 – 180 × 3 – 5 µm, septate, brown at base and hyaline at apex. **Paraphyses** about 10 µm longer than ascus, 1.9 – 2.7 µm wide, septate, cylindrical or slightly lanceolate, sometimes forked at base. **Ectal excipulum** cell 6 – 9 µm diam., textura globulosa, outer brownish.

**Specimen examined:** Bingöl, Genç, Tarlaşası village, on branch fragment of *Quercus* sp., 38° 41'568"N, 40° 29'205"E, 1156 m, 11.04.2021, Acar 1200.

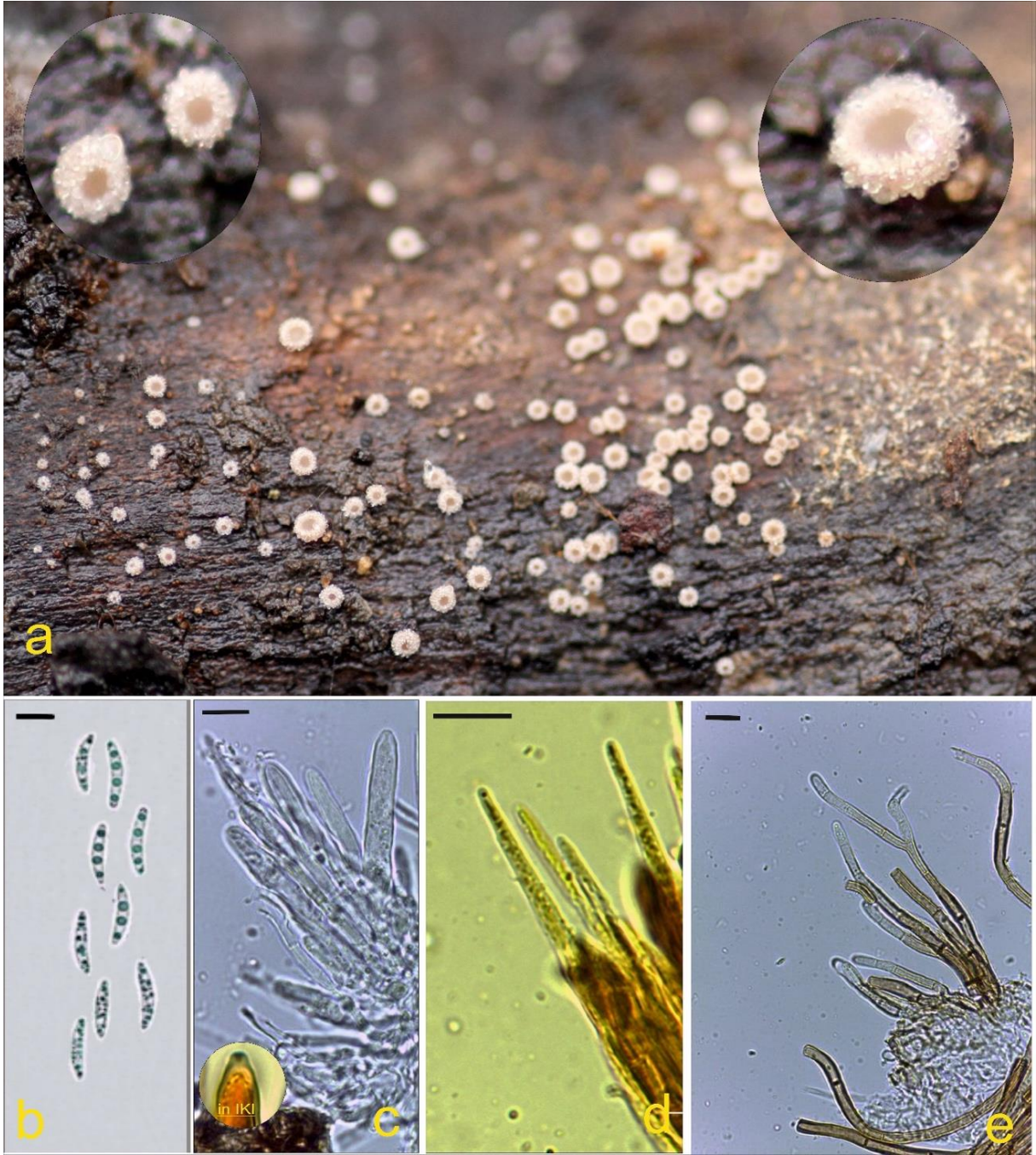


Figure 1. *Lasiobelonium lonicerae* a. Apothecia, b. Ascospores, c. Asci, d. Paraphyses (in IKI), e. Hairs

Scale bar = 10 µm

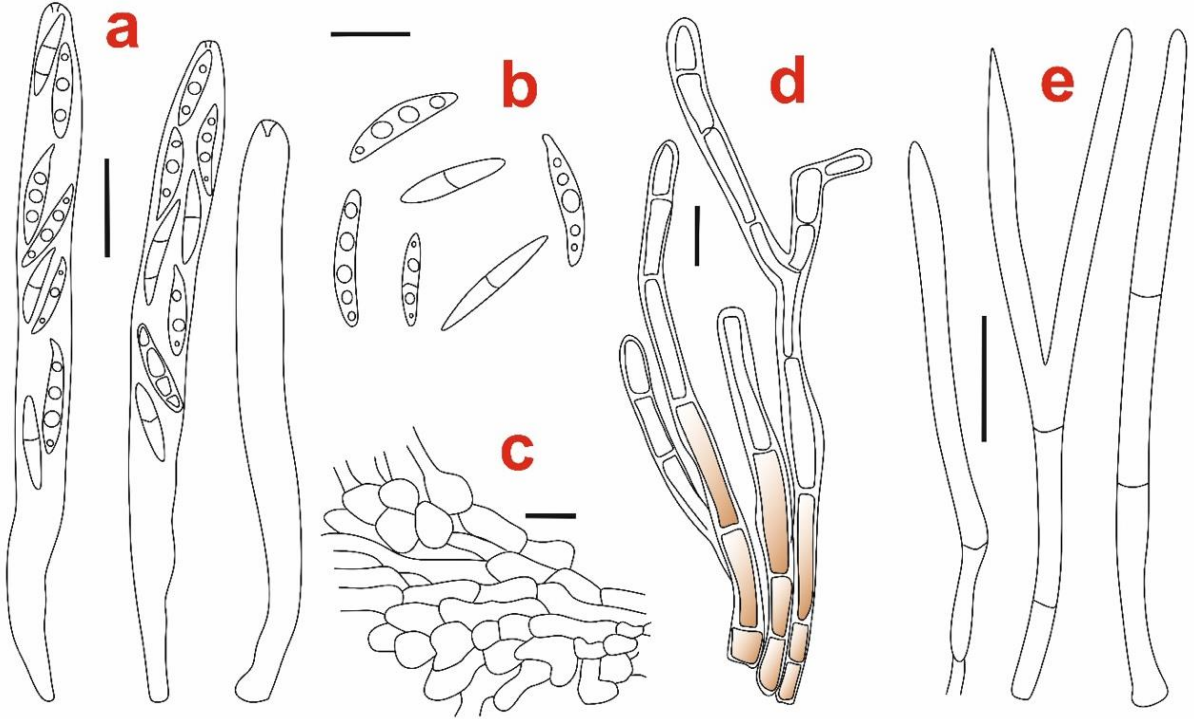


Figure 2. *Lasiobelonium lonicerae* a. Asci, b. Ascospores, c. Ectal excipilium, d. Hairs, e. Paraphyses

Scale bar = 10  $\mu$ m

The genus *Lasiobelonium* differs from other genera of the family *Solenopezziaceae* by having pointed, cylindrical or lanceolate paraphyses and hairs mostly brown-walled at the base or in the middle, hyaline at the apical parts, rarely completely hyaline (Šandová, 2015). *L. lonicerae* described with the help of related literature are morphologically similar to *L. variegatum* and *L. corticale* species.

Compared to *L. variegatum*, which was previously described in our country, the spores of *L. variegatum* are septate or non-septate, slightly narrower and have sparse, small oil droplets at the apex. It also has light coloured hymenium and dark brown hairs (Baral and Marson, 2005; Ribes and Pancorbo, 2010; Uzun et al., 2017). Another similar species, *Lachnum corticale* (Pers.) Nannf. has larger and non-septate spores (Öztürk et al., 2010; Ribes and Pancorbo, 2010).


## CONCLUSIONS


As a result, the genus *Lasiobelonium* is represented by 22 species in the world (Anonymous, 2024) and *L. variegatum* and *L. horridulum*, which were previously described based on morphological data, were recorded in our country (Sesli et al., 2020). In this study, *Lasiobelonium lonicerae* was defined as a new record for the mycobiota of Türkiye based on morphological data. Thus, the number of species of the genus *Lasiobelonium*, which is represented by two species, has been increased to three and contributed to the mycobiota of the country.

**Conflict of Interest Declaration:** The authors declare that there is no conflict of interest between them.

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