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Pulvinula alba, a new record for the Macromycota of Turkey

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Abstract

The pulvinuloid ascomycete taxa, *Pulvinula alba* (Velen.) Svrček, is reported for the first time from Turkey. It is the sixth member of the genus *Pulvinula* Fr. in Turkey. Short description of the newly recorded species, photographs related to its macro and micromorphologies, and a synoptic key to the existing species of the genus in Turkey were provided.

Key words: biodiversity, new record, *Pulvinula,* Trabzon, Turkey

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Pulvinula alba, Türkiye Makromikotası için yeni bir kayıt

Özet

Pulvinuloid bir askomiset taksonu olan *Pulvinula alba* (Velen.) Svrček Türkiye'den ilk kez kaydedilmiştir. Bu *Pulvinula* Fr. cinsinin Türkiye'deki altıncı üyesidir. Yeni kayıt taksonun kısa bir betimlemesi, makro ve mikromorfolojilerine ait fotoğrafları ve cinsin Türkiye'de mevcut türlerine ait bir sinoptik anahtar verilmiştir.

Anahtar kelimeler: biyoçeşitlilik, yeni kayıt, *Pulvinula,* Trabzon, Türkiye

1. Introduction

The generic name *Pulvinula* Boud. was first forwarded by Yao and Spooner in 1885 [1], reconsidered by Boudier [2] and revised by Pfister [3] on the basis of the size of the apothecia, asci and ascospores, apothecial color, the presence or absence of croziers and the type of substrate. *Pulvinula* is a widespread genus [4] whose members are mainly characterized with discoid to pulvinate apothecia, presence of carotenoid pigments, apically curved or hooked to deformed paraphyses and mostly globose ascospores [5].

Kirk et al. [4] gives the existing number of *Pulvinula* as 27, but Index Fungorum (15 October 2019) lists 41 records, 26 of which are referred as confirmed taxa. So far, five members of the genus, *Pulvinula archeri* (Berk.) Rifai, *Pulvinula carbonaria* (Fuckel) Boud., *Pulvinula convexella* (P.Karst.) Pfister, *Pulvinula johannis* Lantieri and *Pulvinula laeterubra* (Rehm) Pfister [6,7,8], have been reported from Turkey. Current checklists [9,10] and the latest contributions [11,12,13,14,15,16,17,18,19] indicate that *Pulvinula alba* hasn't been recorded from Turkey before. Here we present it as the sixth member of the genus in Turkey. The study aims to make a contribution to Turkish mycobiota.

2. Materials and methods

Pulvinula samples were collected in 2015 during a periodical field trip in Tonya district of Trabzon province. First they were photographed at their natural habitats, and notes were taken related to its ecology, morphology and geographic position etc. After collection, the fruit bodies were put in paper boxes and transferred to the fungarium.

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Microscopic investigations were carried out in fungarium. A Nikon Eclipse Ci-S trinocular microscope was used for microscopic investigation and a DS-Fi2 digital camera was used to obtain microstructural photographs. The samples were identified according to Velenovský [20] and Yao and Spooner [1]. The samples are kept at Karamanoğlu Mehmetbey University, Kamil Özdağ Science Faculty, Department of Biology.

3. Results

Ascomycota Caval.-Sm.
Pezizales J.Schröt.
Pyronemataceae Corda
Pulvinula Fr.
Pulvinula alba (Velen.) Svrček, Česká Mykol. 31(2): 70 (1977)
Synonym: *Barlaea alba* Velen.

Macroscopic and microscopic features: Apothecia 0.5-2 mm in diam., sessile, disc slightly concave, dirty white to creamy when fresh, brownish when dry (Figure 1a). Asci 220-270 × 22-26 µm, cylindrical, operculate, usually tapering towards the base, thin walled, 8-spored. Paraphyses cylindrical to filiform, 1.5-2.5 mm wide, septate, apically curved and enlarged at the apex (Figure 1b). Ascospores globose, 17-20 µm, hyaline with one large droplet (Figure 1c).

Ecology: *Pulvinula alba* grows on damp soil gregariously (Yao and Spooner, 1996).

Specimen examined: TURKEY — Trabzon: Tonya, Sayraç village, on damp soil among mosses and liverworts in *Corylus* L. garden, 40°54′N-39°14′E, 900 m, 23.07.2015, Yuzun 4390.

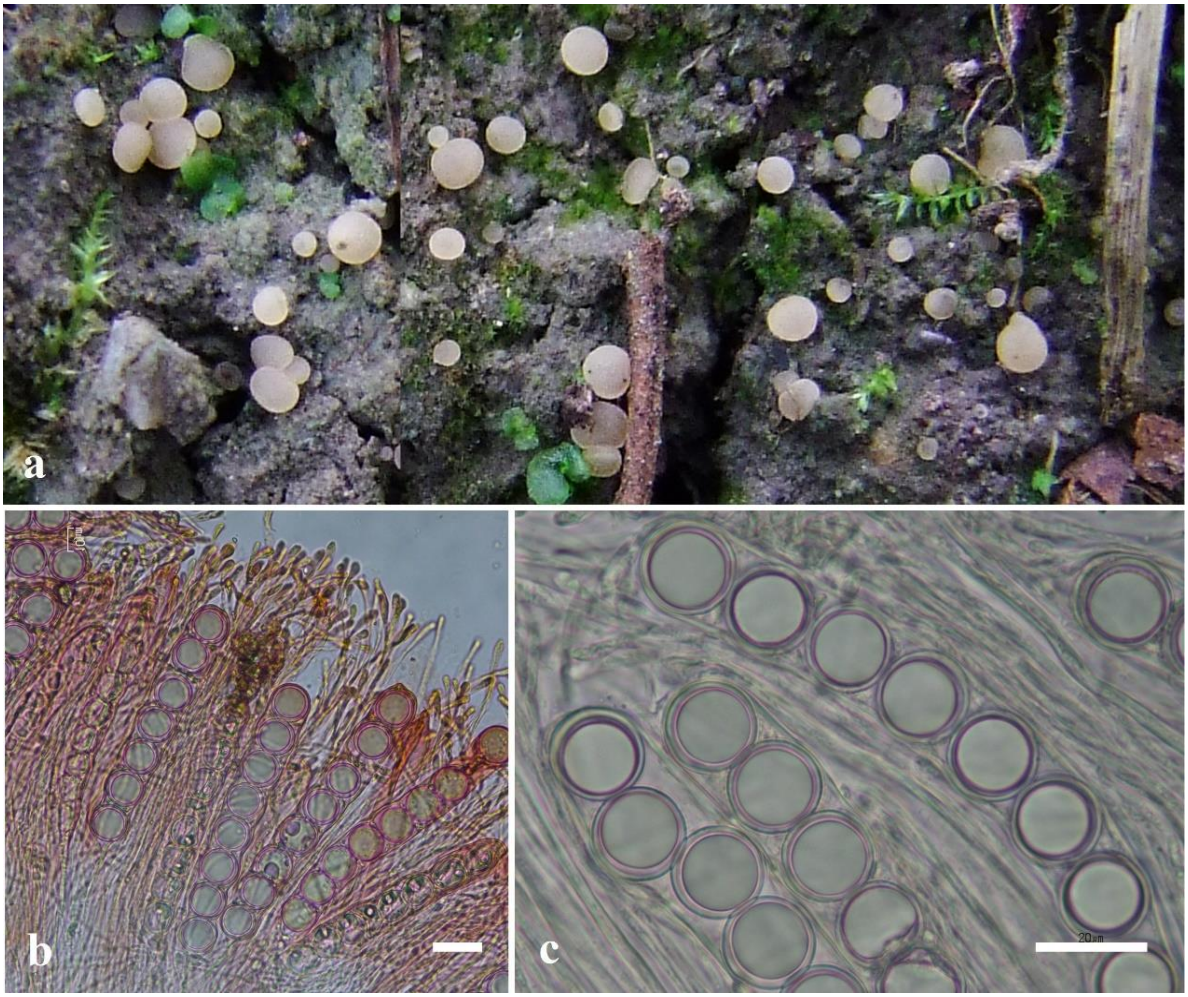

Figure 1. *Pulvinula alba*: a. ascocarps, b. asci and paraphyses, c. ascospores (bars: µm 20)

Key to Turkish species of *Pulvinula*:

1. Disc white to creamy white when fresh---------- *alba*
1. Disc orange to red, or pink when fresh ---------- 2
2. Ascocarps grow on ash ----------*carbonaria*
2. Ascocarps grow on soil or other substrates ---------- 3
3. Spore size 9-11 µm---------- 4
3. Spore size 11-18.5 µm---------- 5
4. Asci up to 150 µm in lenght, paraphyses apices branched ----------*archeri*
4. Asci more than 150 µm in lenght, paraphyses apices not branched---------- *johannis*
5. Spore size 11-14 µm, asci up to 180 µm in lenght----------*laeterubra*
5. Spore size 14-18.5 µm, asci more than 220 µm in lenght ----------*convexella*

4. Conclusions and discussion

Pulvinula alba was added as new record for the mycobiota of Turkey. This is the sixth member of the genus to be reported in Turkey. It is also the first member of the genus with whitish fruit bodies. In general the macro and micromorphologic characteristics of our collection are in agreement with Yao and Spooner [1]. But the samples of Velenovský [20] seems to have somewhat bigger ascospores. Though Yao and Spooner [1] mentions about some collections of *P. alba*, other than British collections, to have sometimes very finely rugulose ornamentation under oil immersion in cotton-blue, Pfister [3] reports ascospores of all members of the genus as smooth. Ascospores of our samples are smooth.

In terms of fruit body color, *P. alba* may be confused with some other white or whitish *Pulvinula* species, such as *P. globifera* (Berk. & M.A. Curtis) Le Gal, *P. lacteoalba* J. Moravec and *P. niveoalba* J. Moravec. But the distinct difference in spore size (larger spores) of *P. alba* distinguishes it from the others [1,3,21,22]. Four-spored asci of *P. lacteoalba* is another distinguishing character between *P. alba* and *P. lacteoalba* [21].

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