



A New *Lycoperdon* Record for Turkish Mycobiota

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Abstract

Lycoperdon radicum Durieu & Mont. is first reported from Turkey for the first time. A short diagnosis, photographs, ecology and distribution of the species are provided and discussed briefly.

Key words: *Lycoperdon radicum*, Biodiversity, New record, Turkey

Türkiye Mikobiyotası İçin Yeni Bir *Lycoperdon* Kaydı

Özet

Lycoperdon radicum Durieu & Mont. Türkiye'den ilk defa rapor edilmiştir. Türünün kısa deskripsiyonu, fotoğrafları, ekolojisi ve yayılışı verilmiş, kısaca tartışılmıştır.

Anahtar kelimeler: *Lycoperdon radicum*, Biyoçeşitlilik, Yeni kayıt, Türkiye

Introduction

Lycoperdon is a genus of puffball mushrooms. Members of the genus have a widespread distribution and are commonly found in temperate, arid, and tropical climates. They have globose or pyriform basidiocarp which are sessile or with a pseudostipe. Exoperidium was made of sphaerocysts, endoperidium filamentosus, opening by an ostiole on the top of the basidioma, gleba pulverulent, which consists of spores, capillitium and some with paracapillitium, olive, chocolate-brown or purplish brown at maturity, subgleba cellular, spores globose, smooth or warty, with or without pedicels. They mostly grow on soil in forests and open grassy areas, rarely on wood (Pegler *et al.*, 1995; Calonge, 1998).

Previously, as the type of genus, *Lycoperdon* had been classified in the family *Lycopedaceae* of the order *Lycoperdales*. After restructuring of fungal taxonomy brought about by molecular phylogeny order *Lycoperdales* and its largest family *Lycopedaceae* are now outdated. Currently, genus *Lycoperdon* is placed in the family *Agaricaceae* of the order *Agaricales* (Cannon and Kirk, 2007; Kirk *et al.* 2008).

According to literature, 33 confirmed *Lycoperdon* species currently exist (URL) and 15 of
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them have been reported from Turkey (Sesli and Denchev, 2010) but there is no information about a record of *Lycoperdon radicum* Durieu & Mont. from Turkey (Solak *et al.*, 2007; Sesli and Denchev, 2010).

The study aims to make contribution to the Turkish mycobiota.

Materials and Methods

Basidiocarps of the specimens were collected from a *Pinus brutia* Ten. forest in Balıkesir province during routine field trips. Relevant morphological and ecological characteristics of the samples were recorded and they were photographed in their natural habitats. Then the samples were taken to the laboratory for further investigations. Necessary macroscopic and microscopic measurement data were obtained by using a ruler, light microscope and micrometers. Microphotographs were taken by using Leica DM 1000. Distillate water, 5% KOH and Congo red were used as reagents for identification. Identification was performed with the aid of literature (Pegler *et al.*, 1995; Calonge 1998). All specimens are now deposited at the fungarium of Erciyes University (Kayseri).



Results

A short diagnosis, ecology and distribution, photograph of basidiocarps, microphotographs of capillitium and basidiospores are provided.

Lycoperdon radicatatum Durieu & Mont. 1848

Syn: *Bovista radicata* (Durieu & Mont.) Vassilkov 1954, *Bovistella radicata* (Durieu & Mont.) Pat. 1889 (URL).

Basidiocarp 5-8 cm diam., globose to pyriform, rarefied toward the base, opening irregularly, star like splitting of endoperidium (figure 1). Exoperidium paler to light olive brown. Endoperidium filamentous, greyish yellow to yellow brown, old basidiocarps shiny and papery, Pseudodiaphragm present, separating gleba and subgleba, Gleba olive brown, subgleba cellular, occupying the lower space of the basidiocarp, Capillitium bovista type, brown, 4-18 μ m diam.



Figure 1. Basidiocarps of *Lycoperdon radicatatum*



Figure 3. Basidiospores of *Lycoperdon radicatatum*

(figure 2), without septa but with regular to angular pores. Basidiopores smooth under the LM (verrucose under the SEM), globose to subglobose, 4.5-5 \times 4-5 μ m, pedisels 3-10 μ m (figure 3).

Ecology: Terrestrial and was found in more or less acid grasslands, roadsides of open woodlands. Appearing from spring to autumn (Pegler *et al.*, 1995; Calonge, 1998).

Distribution: According to literature this species has been reported from warmer and continental parts of Europe, northern Africa and North America (Pegler *et al.*, 1995; Calonge, 1998).

Specimen examined: Balıkesir, Balıkesir-Balya highway, *Pinus brutia* forest, calcareous motherrock, the soil vegetation is mostly dominated by the members of lichenised fungus genus *Cladonia*, 20.07.2010, 350 m, 39° 38' 13" N, 27° 31' 49" E, leg. M. Gökhan HALICI. MGH 04913.

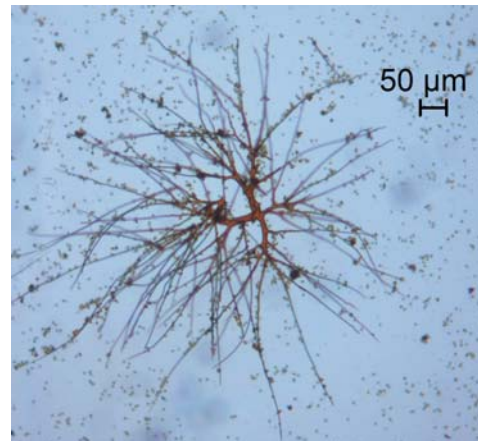


Figure 2. Capillitium of *Lycoperdon radicatatum*

Discussion

Most *Lycoperdon* members can be easily recognized in field due to their macroscopic characters, but it is not possible to identify the full range of the known species without microscopic features. *L. radicatatum* can resemble other members of the genus in terms of macroscopic features but its microscopic features are very helpful in diagnosis. Although having lycoperdon-type capillitium and columella and lack of pseudodiaphragm its characteristic features are resemble other *Lycoperdon* members. *L. radicatatum* includes bovista type capillitium and pseudodiaphragm, but columella is absent.



L. radicum can also be confused with some *Bovista* species due to their similar morphology, spore shape and having bovista type capillitium but subgleba is cellular in *L. radicum* while it is absent or compact in *Bovista* members.

In this study, *L. radicum* is recorded as a new record for Turkish mycobiota and this species will be the sixteenth species of the genus *Lycoperdon* in Turkey.

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