

***Rhizodiscina* Hafellner, a new genus record for Turkish Dothideomycetes**

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Abstract: The genus *Rhizodiscina* Hafellner, was given as new record for the mycobiota of Turkey based on the collection of *Rhizodiscina lignyota* (Fr.) Hafellner from Ardeşen district of Rize Province. A brief description of the taxon is given together its photographs related to its macro and micromorphologies.

Keywords: New record, Macrofungi, *Rhizodiscina*, *Patellariaceae*, Turkey.

Introduction

Dothideomycetes O.E. Erikss. & Winka is a large class within the phylum *Ascomycota* Whittaker and possibly the most diverse one phylogenetically. The class is mainly characterized by bitunicate asci with fissitunicate dehiscence (Kirk et al., 2008; Schoch et al., 2009; Hyde et al., 2013). Members of the *Dothideomycetes* occur in terrestrial, freshwater and marine habitats in almost every part of the world, and often are found as pathogens, endophytes or epiphytes of living plants and also as saprobes degrading cellulose and other complex carbohydrates in dead or partially digested plant matter in leaf litter or dung (Schoch et al., 2006). *Dothideomycetes* comprise 19010 species, 1302 genera, 90 families and 11 orders, including *Patellariales* D. Hawksw. & O.E. Erikss (Kirk et al., 2008).

Rhizodiscina Hafellner is a genus of the family *Patellariaceae* Corda within the order *Patellariales*. Though Kirk et al. (2008) have reported the genus to comprise only one species, Index Fungorum (accessed at 16.10.2017) lists two conformed species. The members of the genus are characterized by apothecial ascomata; bitunicate, clavate, long pedicellate asci; irregularly arranged, obovoid to oblong and 1-septate ascospores. *Rhizodiscina* members are saprobic generally on oak trees and on basidimata of *Aphylllophorales* Rea in terrestrial habitats (Yacharoen et al., 2015).

Some *Rhizodiscina* samples were collected from Ardeşen district of Rize province, during routine field trips, and identified as *Rhizodiscina lignyota* (Fr.) Hafellner. Tracing the current checklists on Turkish

mycota (Sesli and Denchev, 2014; Solak et al., 2015) and the latest contributions (Akata et al., 2016; Akçay and Uzun, 2016; Demirel and Koçak, 2016; Demirel et al., 2016; Dengiz and Demirel, 2016; Güngör et al., 2016; Kaya et al., 2016; Öztürk et al., 2016; Sesli and Topçu Sesli, 2016; Uzun and Acar, 2016; Akata and Uzun, 2017; Allı et al., 2017; Işık and Türkekül, 2017; Öztürk et al., 2017; Sesli and Topçu Sesli, 2017; Sesli and Vizzini, 2017; Uzun and Demirel, 2017; Uzun et al., 2017a, b, c), it was found that the taxon has not been reported from Turkey before.

The present study aims to make a contribution to the mycobiota of Turkey, to describe the new record according to its macroscopic and microscopic features and to indicate both its ecology and its distribution in Turkey.

Materials and Methods

Rhizodiscina samples were collected from Ardeşen district of Rize province in 2016. During field study, the samples were photographed at their natural habitats and necessary ecologic and morphologic characteristics for identification were noted. Then the samples were brought to the fungarium and prepared as fungarium materials. Microscopic investigations were carried out under Nikon Eclipse Ci trinocular light microscope. Photographs, related to micromorphology, were obtained through a DS-Fi2 digital camera. Identification of the samples were performed with the help of the relevant literature (Butler, 1940; Breitenbach and Kränzlin, 1984; Yacharoen et al., 2015; Chacón and Tapia, 2016). The studied samples are kept at Karamanoğlu Mehmetbey University, Kamil



Figure 1. Ascocarps of *Rhizodiscina lignyota*.



Figure 2. Asci, paraphyses (a) and ascospores (b) of *Rhizodiscina lignyota*.

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Results

Systematic of the taxon was given in accordance with Kirk et al. (2008) and speciesfungorum.org (accessed at 16.10.2017). Description of macroscopic and microscopic characters, ecology, and the distribution of the species are provided, and discussed briefly.

Ascomycota Whittaker

Dothideomycetes O.E. Erikss. & Winka

Patellariales D. Hawksw. & O.E. Erikss.

Patellariaceae Corda

Rhizodiscina Hafellner, Beih.

Rhizodiscina lignyota (Fr.) Hafellner

Synonym: [*Arthonia melaspermella* Nyl., *Buellia lignyota*

(Fr.) E. Müll., *Karschia lignyota* (Fr.) Sacc., *Patellaria lignyota* (Fr.) Fr., *Peziza lignyota* Fr.].

Macroscopic features: Apothecia 0.5-1 mm in diameter, circular to irregular, globose at first with a conspicuous or incurved irregular margin, then flat or slightly convex, with a little crenulated or almost disappearing margin, sessile, brown-black to olivaceous coffee when young, becoming black with age (Fig. 1), smooth, cartilaginous, softening when moist.

Microscopic features: Asci 50-55 × 10-13 µm, claviform, asymmetric, widest in the apical region, tapering towards the base and ending in a short stipe, eight spored, spores biseriate to irregularly arranged (Fig. 2a). Paraphyses, filiform with rounded apices, slightly enlarged towards the apex, hyaline, multiseptate. Ascospores 11-13 × 3.5-

4.5 µm, elliptical claviform, with a non-centered transverse septum, rounded at the ends, some slightly constricted at the septum, smooth, yellowish to olive brown to brown (Fig. 2b).

Ecology: *Rhizodiscina lignyota* was reported to grow on damp barkless rotten wood (Breitanbach and Kränzlin, 1984) and dead woods such as *Abies* Miller, *Acer* L., *Betula* L., *Carpinus* L., *Quercus* L. and *Ulmus* L. sp., in forest as solitary or gregariously (Butler, 1940; Van Vooren, 2010; Sen-Irlett et al., 2012; Yacharoen et al., 2015).

Specimen examined: Rize-Ardeşen, Gündoğan village, mixed forest, on dead *Alnus* Miller sp. twigs, 41°09'N-41°04'E, 580 m, 09.10.2016, Yuzun 5282.

Discussion and Conclusions

Rhizodiscina lignyota is characterized mainly by the color of the hymenium (brown-black or olive coffee) and the form of the ascospores (elliptical claviform) (Chacón and Tapia, 2016). It is similar *Poetschia andicola* (Speg.) Hafellner in some characteristics such as shape and size of asci and spores, epithecium and hyphal structure, but the massive exciple in *R. lignyota*, which is nearly half of the ascoma, distinguishes it from the latter species (Kutorga & Hawksworth, 1997). *R. lignyota* resembles *Buellia stygia* (Berk. & Br.) E. Müller, in terms of morphology, but *B. stygia* has larger asci (60-68 × 12-15 µm) and ascospores (16-20 × 4.5-5.5 µm) (Chacón and Tapia, 2016). Macroscopically it could also be confused with *Patellaria atrata* (Hedw.) Fr. However, larger asci, hyaline, clavate, and larger ascospores up to 45-50 µm with 5-10 septa and branched paraphyses of *P. atrata* easily differentiate it from *R. lignyota*.

Though some members of the genera within the family *Patellariaceae* have so far been recorded from Turkey, *Rhizodiscina lignyota* is the first member of the genus *Rhizodiscina* in Turkey.

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