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Four New Records of Myxomycetes from Turkey

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Research Note

Four New Records of Myxomycetes from Turkey

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Abstract: Four species of myxomycetes are recorded for the first time from Turkey: *Licea variabilis* Schard., *Licea synsporos* Nann.-Brem., *Oligonema schweinitzii* Martin, and *Didymium iridis* (Ditmar) Fries. Furthermore, *Oligonema* Rost. is a new genus record for Turkey.

Key Words: Myxomycetes, Turkey, new records.

Türkiyeden Dört Yeni Myxomycetes Kayıdı

Özet: Dört myxomycetes türü Türkiye için ilk defa kaydedilmiştir: *Licea variabilis* Schard., *Licea synsporos* Nann.-Brem., *Oligonema schweinitzii* Martin, *Didymium iridis* (Ditmar) Fries. Ayrıca *Oligonema* Rost. Türkiye için yeni myxomycete genus kaydıdır.

Anahtar Sözcükler: Myxomycetes, Türkiye, yeni kayıtlar

Introduction

The number of known myxomycete species in the world is about 750 (Stephenson & Stempen, 2000). However, the myxomycete flora of Turkey has not been fully explored. The first extensive studies in Turkey were carried out by Finnish scientists (Harkonen & Uotila, 1983; Harkonen, 1987). On the other hand, a major checklist of the myxomycetes of the Mediterranean region including Turkish records was published (Lado, 1994). So far, however, only 103 species have been reported in Turkey (Ergül & Dülger, 2000, 2002). Four species of myxomycetes are recorded here for the first time from Turkey: *Licea variabilis* Schard., *Licea synsporos* Nann.-Brem., *Oligonema schweinitzii* Martin, and *Didymium iridis* (Ditmar) Fries.

Materials and Methods

Between 1999 and 2000 the bark of living trees, as well as decaying bark, wood, leaves and litter were collected from Erzurum, Bayburt, Gümüşhane, Trabzon and Giresun provinces and cultured in moist chambers. Species grown on these materials were diagnosed and described. The material examined has been deposited in the herbarium of Kazım Karabekir Faculty of Education, Atatürk University, Erzurum, Turkey.

Description of Taxa

Liceales

Liceaceae

Licea variabilis Shard., Nov. Gen. Pl. 18. 1797.

Syn: *Licea flexuosa* Pers., Syn. Fung. 197. 1801. *Trichia variabilis* (Schrad.) Poir., in Lam. Encyc. 8: 131. 1808. *Tubulina flexuosa* (Pers.) Poir., in Lam, Encyc. 8: 131. 1808. *Licea alutacea* Wallr., Fl. Crypt. Germ. 2: 344. 1833.

Fructification mostly consists of branched and elongated plasmodiocarps, irregular pulvinate, 0.2-0.7 mm diameter, 0.2-2.2 mm long, yellowish brown or brown; peridium double, with the inner layer membranous, transparent and the outer layer thick, dark, opaque; dehiscence irregular; columella absent; capillitium absent; spores reddish brown in mass, pale yellow in transmitted light, globose, thick-walled, minutely spinulose, 13-14.5 µm diameter (Figures 1 a, b).

Specimens examined: Trabzon, Erikbeli plateau, Sazlık and Gümüşhane, Kürtün district, on decaying wood of *Picea orientalis* L., alt. 1600 m, 24.8.2000, Ocak, 358, 394; Giresun, Kulakkaya plateau, Yaylak, on stump of

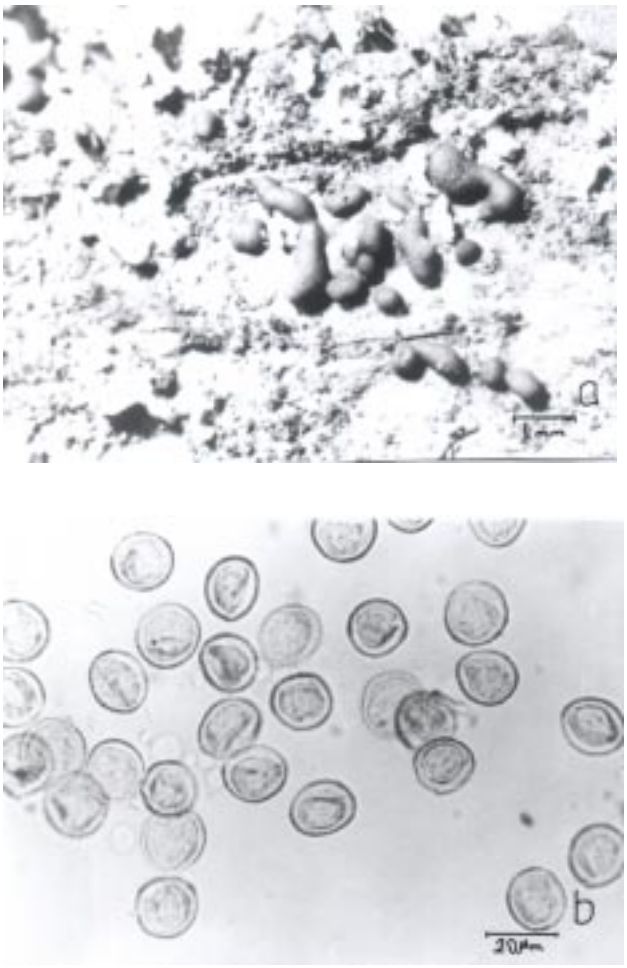

Figure 1. a) Stereomicroscopic image of the sporangia of *Licea variabilis* Shard. b) Spores of *Licea variabilis* Shard..

Picea orientalis, alt. 1500 m, 27.8.1999, Ocak 226; Trabzon-Gümüşhane road, about 50 km from Trabzon, on bark of *Pinus sylvestris* L. alt. 1980 m, 28.8.1999, Ocak 286; Erzurum, Oltu district, Taşlıköy village fruit garden, on bark of *Salix* L. sp., alt. 1000 m, 2.7.2000, Ocak 550.

Distribution: Europe; Nova Scotia, Pennsylvania, west to Washington, Oregon; Arizona (Martin & Alexopoulos, 1969).

Licea synsporos Nann.- Brem., Proc. Kon. Ned. Akad. Wetensch., Ser. C. 71: 42. 1968.

Fructification sessile, scattered or gregarious, globose, shiny, black, dehiscence irregular, 0.5-1.5 mm diameter; peridium single, thin, pale brown; columella absent; capillitium absent; spores clustered, adhering together in regular groups of 10, spores black in mass, purple brownish in transmitted light, warted, subglobose, 10-12.2 x 9-10 µm diameter (Figures 2 a, b).

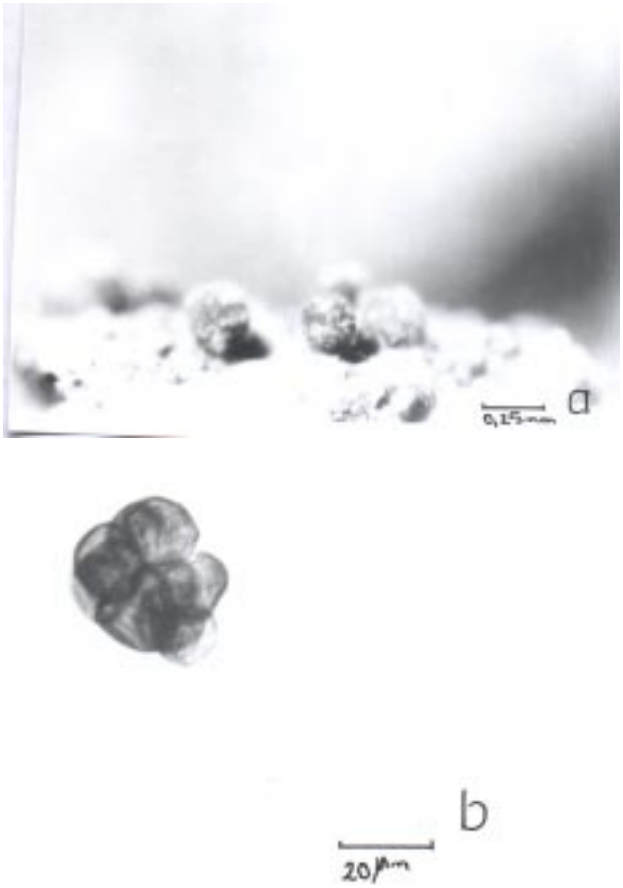

Figure 2. a) Stereomicroscopic image of the sporangia of *Licea synsporos* Nann.- Brem. b) Spores of *Licea synsporos* Nann.- Brem.

Specimens examined: Trabzon, Maçka-Torul road, 20 km from Maçka, on dead wood of *Picea orientalis*, alt. 1100 m, 28.8.1999, Ocak 280, 282; Gümüşhane, Akçakale district, roadside, on bark of *Salix* sp., alt. 1457 m, 28.8.1999, Ocak 294.

Distribution: Europe; Scotland, Northern Ireland (BMS).

Trichiales

Trichiaceae

Oligonema schweinitzii (Berk.) Martin, Mycologia 39: 460. 1947.

Syn: *Trichia nitens* Libert, Pl. Crypt. Ard. Fasc.3. 277. 1834. *Physarum schweinitzii* Berk.,Grevillea 2: 66. 1873. *Oligonema nitens* (Libert.) Rost., Mon. 291. 1875. *Trichia kickxii* Rost., Mon. App. 40. 1876. *Trichia bavarica* Thüm., Myc. Univ. 1497. 1879. *Trichia pusilla* Schroet., Krypt.-Fl. Schles. 3(1): 114. 1885. *Oligonema bavaricum* (Thüm) Balf. & Berl., in Sacc., Syll. Fung. 7: 437. 1888. *Cornuvia nitens* (Libert.) Rost., in Lister, Mycet. 173. 1894.

Fructification sporangiate, sessile, densely aggregated, heaped, single sporangium globose, sometimes subglobose, bright deep yellow, single sporangium 0.3-0.5 mm diameter; peridium single, translucent, persistent, nearly smooth; elaters usually sparse, 3-4 µm in diameter, simple, with faint spiral markings, the tips apiculate, thick, short, pale yellow; spores deep yellow in mass, bright yellow in transmitted light, broad pitted incomplete reticulation, 15-17 µm diameter (Figures 3 a, b).

Specimens examined: Erzurum-Karayazı road, 40 km from Erzurum, on piece of branch under *Hippophae rhomnoides* L., alt. 1652 m, 08.06.2000, Ocak D-250.

Distribution: Widely distributed in Europe; New England and southern Canada to Florida, Louisiana, Texas and California; North Africa (Martin & Alexopoulos, 1969).

Physarales

Didymiaceae

Didymium iridis (Ditmar) Fries, Syst. Myc. 3: 120. 1829.

Syn: *Cionium iridis* Ditmar in Sturm, Deust. Fl. Pilze 1: 13. 1813. *Cionium xanthopus* Ditmar in Sturm, Deust. Fl. Pilze 1: 87. 1816. *Didymium xanthopus* (Ditmar) Fries, Syst. Myc. 3: 120. 1829. *Physarum xanthopus* (Ditmar) Schw., Trans. Am. Phil. Soc. II. 4: 257. 1832. *Didymium pertusum* Berk. in Smith, in Smith, Engl. Fl. 5(2): 313. 1836. *Didymium proximum* Berk. & Curt., Grevillea 2: 52. 1873. *Didymium elegantissimum* Massee, Mon. 234. 1892. *Didymium nigripes* var. *xanthopus* (Ditmar) A. Lister, Mycet. 98. 1894.

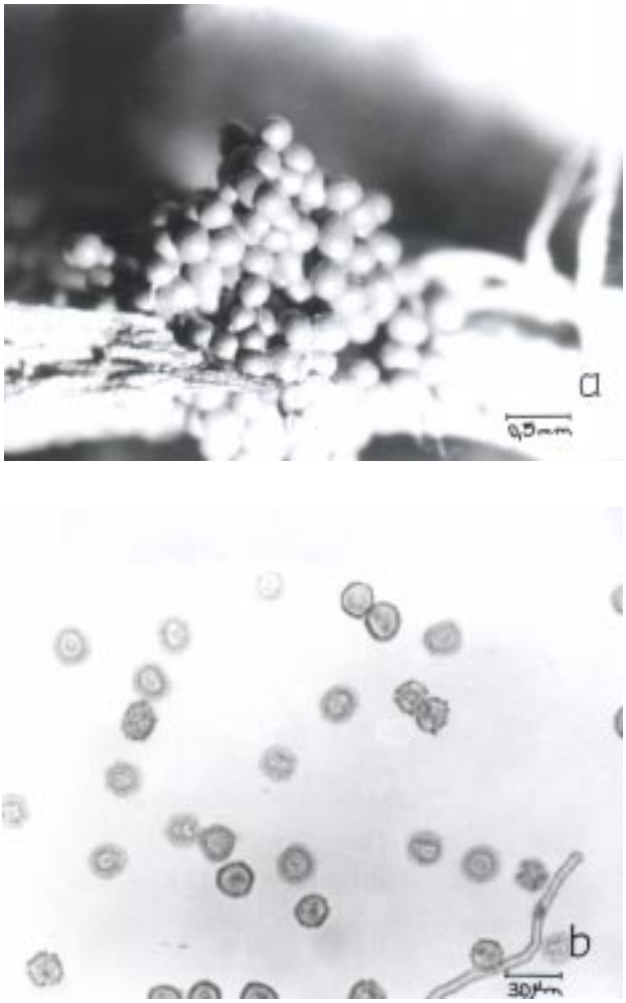

Figure 3. a) Stereomicroscopic image of the sporangia of *Oligonema schweinitzii* (Berk.) Martin b) Spores and elater of *Oligonema schweinitzii* (Berk.) Martin.

Fructification sporangiate, stalked, 0.7-0.8 mm length, sporangia gregarious, globose or some sporangia depressed, slightly umbilicate at base, white, 0.3-0.4 mm diameter; peridium single, thin, membranous, almost colourless but densely covered with white lime crystals; dehiscence irregular, columella turbinate, depressed globose; capillitium delicate, composed of pale brown, branched and anastomosed threads, hyaline at apices; spores brown in mass, pale violaceous in transmitted light, globose, fairly warted, 7-8 µm in diameter. Stalk 0.4-0.5 mm long, cylindrical, attenuate at apex, erect, longitudinally striated, yellowish brown, translucent; hypotallus confluent or rotate, concolorous (Figures 4 a, b).

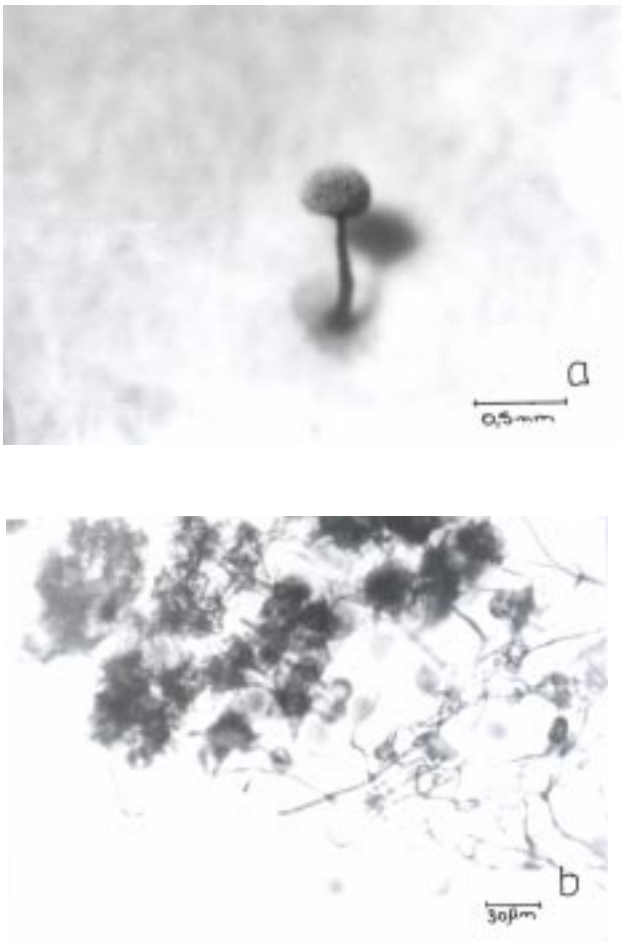

Figure 4. a) Stereomicroscopic image of the sporangia of *Didymium iridis* (Ditmar) Fries b) Spores, lime crystals and capillitium of *Didymium iridis* (Ditmar) Fries.

Specimens examined: Giresun, Old Trabzon road (Armelit Road), bark of *Juglans* L. sp., alt. 7-8 m at sea level, 07.07.1999, Ocak 26; about 25 km along Kürtün-Tirebolu road, on fallen broad leaves, alt. 950 m, 24.08.2000, Ocak 400.

Distribution: Cosmopolitan (Martin & Alexopoulos, 1969).

Results and Discussion

Licea variabilis can be distinguished from species of *Perichaena* Fries by its lack of a capillitium. It varies from other species of *Licea* Schrad by its larger, mostly plasmodiocarpous fruiting bodies with double peridia (Farr, 1983). Our samples show the same characteristics, but the fructification sizes are not up to 10 mm and the average size is 0.2-2.2 mm.

Licea synsporos have clustered spores; Keller & Brooks (1977) stated that spores of this species adhere together in regular groups of 8-12. In our samples, the spores clustered together in regular groups of 10. Most species of *Licea* are corticolous (Stephenson & Stempen, 2000; Keller & Brooks, 1977). Some of our samples are also corticolous. However, some of them were found on decaying wood.

The genus *Oligonema* and its species are not encountered frequently. However, *Oligonema schweinitzii* and *O. flavidum* (Peck) Peck are rather more widely distributed than other species of *Oligonema* (Martin et al., 1983). *Oligonema schweinitzii* is distinguished from *O. flavidum* by the small, irregular, shining, heaped sporangia and the bolder spore marking (Martin & Alexopoulos, 1969). We found only one specimen of this species in the research area. *Oligonema schweinitzii* is reported from high latitude regions such as Alaska (Stephenson & Stempen, 2000). We found this species in a rather temperate area.

Martin & Alexopoulos (1969), Lakhanpal & Mukerji (1981) and Stephenson & Stempen (2000) pointed out that *Didymium iridis* is variable in the sporangium and spore sizes. In our specimens, the fructification sizes are smaller. This species is distinguished from *Didymium nigripes* (Link) Fries by its pale columella, paler capillitium and yellow stem (Martin & Alexopoulos, 1969). Most of our samples of *Didymium iridis* were found on litter (fallen broad leaves) as pointed out by Harkonen & Ukkola (2000) and Stephenson & Stempen (2000). However, some of our samples were also found on bark.

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