

## New Records for the Myxobiota of Turkey

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**Abstract:** Twenty-two *Myxomycetes* species are new records for Turkey. *Protophysaraceae* Castillo, Illana & Moreno is a new family record and among these species *Collaria arcyronema* (Rost.) Hertel is also a new genus record for the myxobiota of Turkey.

**Key Words:** Myxobiota, *Myxomycetes*, Turkey

### Türkiye Miksobiyotası için Yeni Kayıtlar

**Özet:** 22 miksomiset türü Türkiye için yeni kayıttır. *Protophysaraceae* Castillo, Illana & Moreno yeni bir familya kayıdır ve *Collaria arcyronema* (Rost.) Hertel aynı zamanda yeni bir cins kayıdır.

**Anahtar Sözcükler:** Myxobiota, *Myxomycetes*, Turkey

### Introduction

Although studies on myxomycetes have been continuing for nearly 3 centuries around the world, the myxomycetes of Turkey have not been researched effectively. There is a great need for an increase in the frequency of taxonomical studies. The number of known myxomycetes species in the world is about 1000 (Lado, 2001). To date, studies have been carried out first by Finnish scientists, and then by Turkish scientists and some new taxa have been identified and recorded (Lado, 1994). Only about 150 taxa have been reported using the moist chamber technique (Härkönen, 1983; Ergül & Dülger, 2000; Ergül & Dülger, 2002; Ocağ & Hasenekoğlu, 2003). This study adds 22 new records to the Turkish myxobiota.

### Materials and Methods

The Specimens on natural substrata and barks and debris material were collected from the field on different dates. Natural mature fructifications were gently and directly collected from the substratum and placed in cardboard herbarium boxes. In addition, the fructifications of myxomycetes were as obtained from the

moist chamber culture in the laboratory. The cultures were moistened with distilled water. The moist chambers were examined every day under a dissecting microscope. When developing myxomycetes were found, the moist chamber was allowed to dry slowly and the myxomycetes were then dried for 1 week. The same chambers were then rewetted for another 4 week period and examined as before (Gilbert & Martin, 1933; Härkönen, 1988; Nannenga-Bremekamp, 1991). The identification of the myxomycetes species was performed according to relevant myxomycetes literature (Martin & Alexopoulos, 1969; Farr, 1976; Nannenga-Bremekamp, 1991).

### Findings

Twenty-two taxa belonging to 9 families were identified. Taxa indicated by an asterisk in the following list were obtained using the moist chamber technique.

Kingdom: Mycetae

Division: Gymnomycota

Subdivision: Plasmodiogyomycotina

Class: Myxomycetes

Subclass: Myxogasteromycetidae

Order: Liceales

Family : Liceaceae

\**Licea belmontiana* Nann.-Brem., Proc. K. Ned. Akad. Wet. Proc. C. 69 (3): 337. 1966.

İstanbul - Belgrad Forests, Yazılı Kayın District, alt. 135 m, from bark of *Castanea sativa*, 12.II.2002, ORAN 6-1; Neşet Suyu District, alt. 110 m, from bark of *Quercus* spp., 20.V.2002, ORAN 34-1; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 141-2; Topkoru Stream District, alt. 140 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 142-5; Kömürcü Aqueduct District, alt. 150 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 150-6; between Kurtkemer District and Bahçeköy District, alt. 80 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 153-3; between Kemberburgaz District and Bahçeköy District, 3 km, alt. 70 m, from bark of *Cupressus* sp., 10.II.2003, ORAN 224-2; Avlat Aqueduct District, alt. 80 m, from bark of *Quercus* spp., 10.II.2003.

\**Licea inconspicua* Brooks & Keller, Mycologia 69(4): 671. 1977.

İstanbul - Belgrad Forests, between Kemberburgaz District and Bahçeköy District, 4 km, alt. 60 m, from bark of *Quercus* spp., 26.II.2002, ORAN 22; Neşet Suyu District, alt. 110 m, from bark of *Quercus* spp., 20.V.2002, ORAN 34-1; Dikçatı District, alt. 110 m, from bark of *Quercus* spp., 20.V.2002, ORAN 36-5; Falih Rıfki Atay Picnic Site, alt. 80 m, from bark of *Quercus* spp., 12.III.2003, ORAN 254-1.

\**Licea perexigua* Brooks & Keller, Mycologia 69(4): 674. 1977.

İstanbul - Belgrad Forests, Binbaşı Fountain District, alt. 55 m, from bark of *Quercus* spp., 10.II.2003, ORAN 214-4.

Family: Cribrariaceae

*Cribraria vulgaris* Schrad. Nov. Gen. Pl. 5. 1797.

İstanbul - Belgrad Forests, between Falih Rıfki Atay Picnic Place and Topuz Aqueduct, alt. 90 m, on decaying pole, 21.IX.2002, ORAN 86-1.

Family: Reticulariaceae

*Lycogala exiguum* Morgan, Jour. Cinc. Soc. Nat. Hist. 15: 134. 1893.

Syn: *Lycogala epidendrum* var. *exiguum* (Morgan) G. Lister, in Minakata, Bot. Mag. Tokyo 27: 415. 1913.

İstanbul - Belgrad Forests, Neşet Suyu District 3 km, alt. 175 m, on decaying log of *Carpinus* sp., 16.IV.2002, ORAN 26-1.

Order: Echinosteliales

Family: Echinosteliaceae

\**Echinostelium ladoi* Pando, Mycotaxon 64: 343. 1997

İstanbul - Belgrad Forests, Neşet Suyu District, alt. 110 m, from bark of *Tilia* sp., 25.XII.2002, ORAN 148-4; Kurtkemer District 3 km, alt. 150 m, from bark of *Quercus* spp., 10.II.2003, ORAN 235-2.

Order: Trichiales

Family: Arcyriaceae

*Arcyria annulifera* G. Lister & Torrend, Broteria 7: 42. 1908.

İstanbul - Belgrad Forests, between Falih Rıfki Atay Picnic Site and Topuz Aqueduct, alt. 90 m, on decaying pole, 30.XII.2002, ORAN 167-2; Kirazlı Aqueduct District, alt. 60 m, underside of wooden picnic table, 30.XII.2002, ORAN 168-3; Yeni Aqueduct District, alt. 110 m, underside of wooden picnic table, 01.II.2003, ORAN 204-2.

\**Perichaena tessellata* G. Lister, Jour. Bot. 69: 298. 1931.

İstanbul - Belgrad Forests, Dikçatı District, alt. 110 m, from bark of *Quercus* spp., 20.V.2002, ORAN 36-7; Neşet Suyu District, alt. 110 m, from bark of *Quercus* spp., 26.II.2002, ORAN 146-9; Kurtkemer District 3 km, alt. 150 m, from bark of *Quercus* spp., 10.II.2003, ORAN 223-2; Avlat Aqueduct District, alt. 80 m, from bark of *Quercus* spp., 10.II.2003, ORAN 234-6; Kirazlı Aqueduct District, alt. 60 m, from bark of *Quercus* spp., 10.II.2003, ORAN 237-5; Sultan Valide Aqueduct District, alt. 130 m, from bark of *Quercus* spp., 12.III.2003, ORAN 252-3.

Family: Trichiaceae

**Hyporhamma imperialis** (G. Lister) Lado. Cuad. Trab. Fl. Mic. Iberica 16 : 47. 2001.

Syn: *Hemitrichia imperialis* G. Lister, Trans. Brit. Mycol. Soc. 14: 226. 1929.

İstanbul - Belgrad Forests, between Falih Rifkî Atay Picnic Site and Topuz Aqueduct, alt. 90 m, on decaying pole, 21.IX.2002, ORAN 78-1.

**Hyporhamma leiocarpa** (Cooke) Lado, Cuad. Trab. Fl. Mic. Iberica 16: 47. 2001.

Syn: *Hemiarcyria leiocarpa* Cooke, Ann. Lyc. N.Y. 11: 405. 1877.

İstanbul - Belgrad Forests, Bahçeköy District, alt. 100 m, on decaying log of *Carpinus betulus*, 21.IX.2002, ORAN 57-1, between Falih Rifkî Atay Picnic Site and Topuz Aqueduct, alt. 90 m, on decaying pole, 21.IX.2002, ORAN 77-1; Topkoru Stream District, alt. 120 m, on decaying wood of *Fagus orientalis*, 23.IX.2002, ORAN 93-1; Topkoru Stream District alt. 120 m, on decayed log of *Fagus orientalis*, 23.IX.2002, ORAN 99-1.

\***Hyporhamma minor** (G. Lister) Lado, Cuad. Trab. Fl. Mic. Iberica 16: 48. 2001

Syn : *Hemitrichia minor* G. Lister, Jour. Bot. 49: 62. 1911.

İstanbul - Belgrad Forests, Topuz Aqueduct District, alt. 120 m, from bark of *Quercus* spp., 26.II.2002, ORAN 14-2; Falih Rifkî Atay Picnic Site, alt. 80 m, from bark of *Quercus* spp., 26.II.2002, ORAN 16-3; Falih Rifkî Atay Picnic Site, alt. 80 m, from bark of *Quercus* spp., 26.II.2002, ORAN 17; Kirazlı Aqueduct District, alt. 60 m, from bark of *Quercus* spp., 10.II.2003, ORAN 237-4; Falih Rifkî Atay Picnic Site, alt. 80 m, from bark of *Quercus* spp., 12.III.2003, ORAN 254-2.

**Metatrichia floriformis** (Schwein) Nann.-Brem., Proc. K. Ned. Akad. Wet. Ser. C. 85: 556-557, 1982.

Syn: *Craterium floriforme* Schwein, Trans. Am. Phil. Soc. II, 4: 258. 1832.

İstanbul - Belgrad Forests, between Falih Rifkî Atay Picnic Site and Topuz Aqueduct alt. 90 m, on decaying pole, 10.XI.2002, ORAN 112-1.

**Trichia subfusca** Rex, Proc. Acad. Phila. 42: 192. 1890.

Syn: *Trichia botrytis* var. *subfusca* (Rex) A.Lister, Mycet. 172. 1894.

İstanbul - Belgrad Forests, Yeni Aqueduct District, alt. 110 m, burned part of living *Carpinus betulus*, 02.XII.2002 ORAN 120-2.

Order: Physarales

Family: Protophysaraceae

**Protophysarum phloiogenum** Blackw.&Alexop., Mycologia 67: 33, 1975.

İstanbul - Belgrad Forests, Yazılı Kayın District, alt. 135 m, on decaying log, 21.IX.2002, ORAN 70-1; Yazılı Kayın District, alt. 135 m, on decaying wood, 21.IX.2002, ORAN 73-1; Topkoru Stream District, alt. 120 m, on decaying bough of *Fagus orientalis*, 21.IX.2002, ORAN 88-1, 89-1, and 92-1; Yeni Aqueduct District, alt. 110 m, underside of wooden picnic table, 02.XII.2002, ORAN 121-3, and 122-2; Yeni Aqueduct District, alt. 110 m, underside of wooden picnic table, 30.XII.2002, ORAN 161-2.

Family: Physaraceae

\***Badhamia utricularis** (Bull.) Berk., Trans. Linn. Soc. 21: 153. 1853.

Syn: *Sphaerocarpus utricularis* Bull., Hist. Champ. Fr. 128. 1791.

İstanbul -Belgrad Forests, Topkoru Stream District, alt. 110 m, from plasmodium developed from a decaying *Quercus* spp. bough in the laboratory, 18.III.2003, ORAN 260-2.

\***Physarum luteolum** Peck Ann. Rep. N.Y. State Mus. 30: 50. 1878.

İstanbul - Belgrad Forests, Topkoru Stream District, alt. 110 m, from bark of *Quercus* spp., 10.II.2003, ORAN 229-3.

**Physarum vernum** Somm., in Fries, Syst. Myc. 3: 146. 1829.

Syn: *Badhamia verna* (Somm.) Rost., Mon. 145. 1874.

Istanbul - Belgrad Forests, Yeni Aqueduct District, alt. 110 m, on decaying bark of *Quercus* spp., 01.II.2003, ORAN 205-2.

Subclass: Stemonitomycetidae

Order: Stemonitales

Family: Stemonitaceae

\**Collaria arcyronema* (Rost.) Nann.-Brem., K. Ned. Akad. Wet. Proc. C. 70: 209. 1967.

Syn: *Lamproderma arcyronema* Rost., Mon. 208. 1874.

Istanbul - Belgrad Forests, Bahçeköy District, alt. 100 m, from bark of *Acacia* sp. 20.V.2002, ORAN 28; Yeni Aqueduct District, alt. 110 m, from bark of *Platanus orientalis*, 10.II.2003, ORAN 219-2; Kurtkemer District, alt. 50 m, from bark of *Quercus* spp., 10.II.2003, ORAN 222-3; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 12.III.2003, ORAN 245-3.

\**Lamproderma columbinum* (Pers.) Rost., in Fuckel, Jahrb. Nass. Ver. Nat. 27-28: 69. 1873.

Syn: *Physarum columbinum* Pers., Ann. Bot. Usteri 15: 5. 1795.

Istanbul - Belgrad Forests, Sultan Valide Aqueduct District, alt. 130 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 144, and 145; Bahçeköy District, alt. 100 m, from bark of *Acacia* sp., 12.III.2003, ORAN 242-4; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 12.III.2003, ORAN 250-7.

\**Macbrideola martinii* (Alexop. & Beneke) Alexop., Mycologia 59: 114. 1967.

Syn: *Comatricha martinii* Alexop. & Beneke, Mycologia 46: 245. 1954.

Istanbul - Belgrad Forests, Falih Rifki Atay Picnic Site, alt. 80 m, from bark of *Quercus* spp., 26.II.2002, ORAN 13-2; between Kemberburgaz District and Bahçeköy District, 2 km, alt. 80 m, from bark of *Quercus* spp., 26.II.2002, ORAN 20-2; Yazılı Kayın District, alt. 135 m, from bark of *Quercus* spp., 20.V.2002, ORAN 31-1; Dikçatı District, alt. 110 m, from bark of *Quercus* spp., 20.V.2002, ORAN 36-1; Neşet Suyu District, alt. 110 m, from bark of *Quercus* spp., 26.II.2002, ORAN 146-4;

Sultan Valide Aqueduct District, from bark of *Quercus* spp., 17.I.2003, ORAN 175-2; Avlat Aqueduct District, alt. 90 m, from bark of *Quercus* spp., 17.I.2003, ORAN 178-2; Avlat Aqueduct District, alt. 90 m, from bark of *Alnus glutinosa*, 17.01.2003, ORAN 179-3; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 12.III.2003, ORAN 245-5; Sultan Valide Aqueduct District, alt. 130 m, from bark of *Quercus* spp., 10.II.2003, ORAN 220-3; Kurtkemer District, 3 km, alt. 150 m, from bark of *Quercus* spp., 10.II.2003, ORAN 235-5; Kirazlı Aqueduct District, alt. 60 m, from bark of *Quercus* spp., 10.II.2003, ORAN 237-3; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 12.III.2003, ORAN 245-5; Yeni Aqueduct District, alt. 110 m, from bark of *Platanus orientalis*, 12.III.2003, ORAN 251-3.

\**Paradiacheopsis cribrata* Nann.-Brem., Proc. K. Ned. Akad. Wet. Ser. C. 71: 47. 1968.

Istanbul - Belgrad Forests, Bahçeköy District, alt. 100 m, from bark of *Acacia* sp. 25.XII.2002, ORAN 140-4, and 140-5; Bahçeköy District, alt. 100 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 141-3; Neşet Suyu District, alt. 110 m, from bark of *Tilia* sp., 25.XII.2002, ORAN 148-6; Kurtkemer District 3 km, alt. 70 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 152-4; Kurtkemer District 5 km, alt. 80 m, from bark of *Quercus* spp., 25.XII.2002, ORAN 153-8; Büyük Aqueduct District, alt. 60 m, from bark of *Quercus* spp., 17.I.2003, ORAN 185-2; Binbaşı Fountain District, alt. 55 m, from bark of *Quercus* spp., 17.I.2003, ORAN 187-2; Yeni Aqueduct District, alt. 110 m, from bark of *Platanus orientalis*, 12.III.2003, ORAN 246-12; Sultan Valide Aqueduct District, alt. 130 m, from bark of *Quercus* spp., 12.III.2003, ORAN 252-6; Bahçeköy District, alt. 100 m, from bark of *Acacia* sp. 28.IV.2003.

\**Paradiacheopsis microcarpa* (Meyl.) Mitch. ex. Ing, Myxom. Britain & Ireland: 194. 1999.

Syn: *Comatricha laxa* var. *microcarpa* Meyl., Bull. Soc. Vaud. Sci. Nat. 53: 456. 1921.

Istanbul - Belgrad Forests, between Kemberburgaz District and Bahçeköy District, 3 km, alt. 70 m, from bark of *Quercus* spp., 17.I.2003, ORAN 181-1, and 181-2; between Kemberburgaz District and Bahçeköy District,

3 km, alt. 70 m, from bark of *Quercus* spp., 10.II.2003, ORAN 210-3; Yeni Aqueduct District, alt. 110 m, from bark of *Platanus orientalis*, 12.III.2003, ORAN 246-11.

\**Paradiacheopsis rigida* (Brandza) Nann.-Brem., in Martin & Alexop., Myxomycetes: 231. 1969.

İstanbul - Belgrad Forests, Bahçeköy District, alt. 100 m, from bark of *Acacia* sp. 25.XII.2002, ORAN 170-2;

Bahçeköy District, alt. 100 m, from bark of *Alnus glutinosa*, 10.II.2003, ORAN 218-4; Sultan Valide Aqueduct District, alt. 130 m, from bark of *Quercus* spp., 10.II.2003, ORAN 220-5; Between Kemerburgaz District and Bahçeköy District, 3 km, alt. 70 m, from bark of *Acacia* sp., 10.II.2003, ORAN 241-3; Bahçeköy District, alt. 100 m, from bark of *Acacia* sp., 12.III.2003, ORAN 243, and 249-4; Bahçeköy District, alt. 100 m, from bark of *Acacia* sp., 28.IV.2003, ORAN 264-3.

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