

## New Records for the Myxomycetes Flora of Turkey

C. Cem ERGÜL, Başaran DÜLGER

Uludağ University, Faculty of Arts and Sciences, Department of Biology, Bursa - TURKEY

Received: 18.07.2001

Accepted: 25.01.2002

**Abstract:** Thirty myxomycetes species are new records for Turkey. Among these species, *Craterium minutum* (Leers) Fries, *Dianema repens* G.Lister & Cran., *Lindbladia tubulina* Fries and *Tubifera ferruginosa* (Batsch) J.F.Gmel. are also new genus record taxa for the myxomycetes flora of Turkey.

**Key Words:** Myxomycetes, Turkey

### Türkiye Miksomiset Florası İçin Yeni Kayıtlar

**Özet:** 30 miksomiset türü Türkiye için yeni kayıttır. Bunlardan, *Craterium minutum* (Leers) Fries, *Dianema repens* G.Lister & Cran., *Lindbladia tubulina* Fries ve *Tubifera ferruginosa* (Batsch) J.F.Gmel. Türkiye Miksomiset Florası için yeni cins kayıdır.

**Anahtar Sözcükler:** Myxomycetes, Turkey

### Introduction

About 100 myxomycetes species have been reported from Turkey (Ergül & Dülger, 2000). In recent studies, there have been some new records, and complete lists of myxomycetes species have been compiled from previous research (Harkonen & Uotila, 1983; Harkonen, 1988; Lado, 1994; Ergül & Dülger, 2000). However, myxomycetes flora research has not covered Turkey. This study provides 30 new records for the Myxomycetes flora of Turkey.

### Materials and Methods

The specimens on natural substrata and barks and debris material were collected from the field on different dates. Natural mature material was gently and directly picked from the substratum and placed in cardboard herbarium boxes. In addition, the myxomycetes' fructifications were as obtained by the moist chamber technique in the laboratory. Several kinds of plant remains and bark from living trees were kept in an incubator at a temperature of  $25 \pm 1^\circ\text{C}$ , illuminated artificially in a 12:12 h light: dark cycle. The cultures

were moistened with distilled water adjusted with KOH to pH 7. After two days, the pH of the moisture in the dishes was measured with pH sticks. The moist chambers were then examined every second or third 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 a week. All the chambers were then rewetted for another four-week period and examined as before (Gilbert & Martin, 1933; Harkonen, 1988; Nannenga-Bremekamp, 1991). The identification of the myxomycetes species was performed according to related myxomycetes literature (Martin & Alexopoulos, 1969; Farr, 1976; Nannenga-Bremekamp, 1991). The specimens are stored at the herbarium of Uludağ University (BULU) in Bursa.

### Findings

Thirty taxa belonging to 2 subclasses were recognized. Taxa indicated by asterisks in the following list were obtained using the moist chamber technique.

*Kingdom:* Myceteeae

*Division:* Gymnomycota

*Subdivision:* Plasmodiogyomycotina

Class: *Myxomycetes*

Subclass: *Myxogasteromycetidae*

Order: *Liceales*

Family: *Cribrariaceae*

*Cribraria argillacea* (Pers.) Pers., Neues Mag. Bot. 1: 91, 1794.

Syn: *Stemonitis argillacea* Pers. In J.F.Gmelin, Syst. Nat. 2: 1496, 1791.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 09.VII.1999, on decayed twig, CE 185-7

\* *Cribraria elegans* Berk. & Curt., Grevillae 2: 76, 1873.

Bartın-Arit road, alt. 60 m, 18.VII.2000, on bark of *Quercus* sp., CE 214

\* *Cribraria microcarpa* (Schrad.) Pers., Syn. Fung. 190, 1801.

Syn: *Dictydium microcarpum* Schrad., Nov. Gen. Pl.: 13, 1797.

Bartın, Kurucaşile-Çakraz road, alt. 30 m, 19.VII.2000, on bark of *Castanea sativa*, CE 218

*Cribraria tenella* Schrad., Nov. Gen. Pl. 6: 1797.

Syn: *Cribraria elata* Masee, Mon. 61, 1892.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 4 and 5, alt. 440 m, 09.IX.1999, on fallen twig, CE 189-5.

*Lindbladia tubulina* Fries, Summa Veg. Scand. 449, 1849.

Syn: *Aethalium atrum* Preuss, Linnaea 24: 141, 1851.

Kastamonu, Daday-Eflani road, alt. 1040 m, 20.VII.2000, on bark of *Quercus* sp., CE 228.

Order: *Trichiales*

Family: *Arcyriaceae*

*Arcyria affinis* (Rost.) Nann. Brem., Proc. K. Akad. Wet. C. 71: 39, 1968.

Syn: *Arcyria incarnata* (Pers.) Pers. var. *fulgens* G.Lister, Mycet. 2: 242, 1911.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 25.VIII.2000, on decaying wood, CE 198-7.

*Arcyria ferruginea* Sauter, Flora 24: 316, 1841.

Syn: *Arcyria ornata* Widder, Verh. Zool. Bot. Ges. Wien. 73: 160, 1923.

Bursa, Görükle campus area, alt. 155 m, 25.IV.2001, on bark of *Quercus* sp., CE 233-1.

*Arcyria gulielmae* Nann. Brem., K. Ned. Akad. Wet. Proc. C. 74: 352-365, 1971.

Syn: *Arcyria carnea* G.Lister, J. Bot. 59: 92, 1921.

Bursa, Görükle campus area, alt. 155 m, 05.VI.1998, on fallen twig, CE 174-2.

*Arcyria stipata* (Schw.) A.Lister, Mycet: 189, 1894.

Syn: *Leangium stipatum* Schw., Trans. Am. Phil. Soc. II, 4: 258, 1832.

Bursa-Eskişehir road, Mezit valley, between Mezit 4 and 5 bridges, alt. 440 m, 09.IX.1999, on decaying wood, CE 189-9.

Family: *Trichiaceae*

*Dianema repens* G.Lister & Cran., Mycet. 3: 255, 1925.

Bursa, Uludağ-Kirazlıyayla, alt. 1450 m, 17.IX.1999, on decayed wood, CE 191-5.

*Trichia affinis* de Bary, Jahrb. Nass. Ver. Nat. 23-24: 336, 1870.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 09.IX.1999, on decayed wood, CE 190-4; 25.VIII.2000, on fallen twig, CE 198-3; 01.IX.2000, on decayed wood, CE 200-6.

Order: *Physarales*

Family: *Physaraceae*

*Craterium minutum* (Leers) Fries, Syst. Myc. 3: 151, 1829.

Syn: *Peziza minuta* Leers, Fl. Herborn, 277, 1775.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 09.IX.1999, on fallen twig, CE 190-1.

*Badhamia capsulifera* (Bull.) Berk., Tans. Linn. Soc. 21: 153, 1853.

Syn: *Badhamia varia* Masee, Mon. 319, 1892.

Bartın, İnkum, alt. 60 m, 04.IX.1999, on decayed wood, CE 187-1.

*Fuligo candida* Pers., Obs. Myc. 1: 92, 1796.

Syn: *Fuligo septica* var. *candida* (Pers.) R.E.Fries, Sv. Bot. Tidsk. 6: 744, 1912. Bursa, Görükle campus area, alt. 155 m, 19.X.2000, on bark of *Platanus* sp., BD 51. Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 01.IX.2000, on decayed wood, CE 200-6.

*Physarum flavicomum* Berk., Lond. J. Bot. 4: 66, 1873.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 3 and 4, alt. 410 m, 09.IX.1999, on fallen twig, CE 188-3.

\* *Physarum notabile* Macbr., N. Am. Slime-Moulds, 2, 80, 1922.

Syn: *Didymium connatum* Peck, Ann. Rep. N.Y. State Mus. 26: 74, 1874.

Bartın, Abdipaşa-Ulus road, alt. 120 m, 18.VII.2000, on bark of *Platanus* sp., CE 215.

*Physarum ovisporum* G.Lister, Jour. Bot. 59: 90, 1921.

Bursa, Görükle Campus area, alt. 155 m, 09.IX.2000, on fallen twig, BD 50.

Family: *Didymiaceae*

*Diderma testaceum* (Schrad.) Pers., Syn. Fung. 167, 1801.

Syn: *Didymium testaceum* Schrad., Nov. Gen. Plant. 25, 1797.

Bartın-Amasra road, alt. 250 m, 12.VIII. 1998, on fallen twig, CE 195.

\* *Didymium bahiense* Gottsberger, Nova Hedw. 16: 365, 1968.

Kastamonu, Daday-Azdavay road, Ballıdağı gate, alt. 1245 m, 20.VII.2000, on bark of *Creatagus* sp., CE 227.

\* *Didymium eximium* Peck, Ann. Rep. N.Y. State Mus. 31: 1897.

Bartın, İnkum, alt. 60 m, 27.VII.2000, on bark of *Ulmus* sp., CE 232.

*Didymium nigripes* (Link) Fries, Syst. Myc. 3: 119, 1829.

Syn: *Physarum nigripes* Link, Ges. Nat. Freunde Berlin Mag. 3: 119, 1809.

Kastamonu, Ilgaz National Park, alt. 1660 m, 20.VII.2000, on bark of *Abies* sp., CE 223.

Family: *Enteridiaceae*

*Tubifera ferruginosa* (Batsch) J.F.Gmel., Syst. Nat. 2: 1472, 1791.

Syn: *Tubulina speciosa* Speg., Att. Soc. Critt. Ital. 3: 62, 1881.

Bursa, Uludağ-Kirazlıyayla, alt. 1450 m, 24.IX.1999, on fallen twig, CE 192-5.

Subclass: *Stemonitomycetidae*

Order: *Stemonitales*

Family: *Stemonitaceae*

\* *Macbrideola scintillans* H.C.Gilbert, Univ. Iowa Stud. Nat. His. 16: 156, 1934.

Bartın-Arit road, alt. 60 m, 18.VII.2000, on bark of *Salix* sp., CE 214.

***Stemonitis axifera*** (Bull.) Macbr., N. Am. Slime-Moulds 120, 1889.

Syn: *Trichia axifera* Bull., Hist. Champ. Fr. 118, 1791.

Bursa, Görükle campus area, alt. 155 m, 05.VI.1998, on fallen twig, CE 174-2.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 4 and 5, alt. 440 m, 09.VII.1999, on fallen twig, CE 184-4; between Mezit bridges 7 and 8, alt. 650 m, 25.VIII.2000, on decayed wood, CE 198-5.

***Stemonitis herbatica*** Peck, Ann. N.Y. State Mus. 26: 75, 1874.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 7 and 8, alt. 650 m, 01.IX.2000, on fallen twig, CE 198-5.

***Stemonitis pallida*** Wingate, N. Am. Slime-Moulds: 123, 1899.

Syn: *Stemonitis carolinensis* Macbr., N. Am. Slime-Moulds 122, 1899.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 4 and 5, alt. 440 m, 11.VI.1999, on fallen twig, CE 182-1.

***Stemonitis virginienensis*** Rex, Proc. Acad. Phila. 43: 391, 1891.

## References

- Ergül CC & Dülger B (2000). Myxomycetes of Turkey. *Karstenia* 40: 39-41.
- Farr ML (1976). *Flora Neotropica*. New York: The New York Botanical Garden, 304 p.
- Gilbert HC & Martin GW (1933) Myxomycetes Found on the Bark of Living Trees. *University of Iowa Studies (Natural History)*. 15(3): 3-8.
- Harkonen M & Uotila P (1983). Turkish Myxomycetes Developed in Moist Chamber Cultures. *Karstenia*, 23: 1-9.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 4 and 5, alt. 440 m, 09.VII.1999, on fallen twig, CE 184-6.

***Stemonitis smithii*** Macbr., Bull. Nat. Univ. Iowa 2: 381, 1893.

Syn: *Stemonitis microspora* A.Lister, Jour. Cinc. Soc. Nat. Hist. 16: 138, 1894.

Bursa-Eskişehir road, Mezit valley, between Mezit bridges 3 and 4, alt. 410 m, 09.IX.1999, on fallen leaves of an unidentified tree, CE 188-2.

***Stemonitopsis subcaespitosa*** (Peck) Nann. Brem., K. Ned. Akad. Wet. Proc. C., 70: 201-216, 1967.

Syn: *Comatricha subcaespitosa* Peck, Ann. Rep. N.Y. State Mus. 43: 71, 1890. Bursa, Görükle Campus area, alt. 155 m, 26.IV.1996, on fallen twig, CE 161-4.

***Stemonitopsis irregularis*** (Rex) Nann. Brem., K. Ned. Akad. Wet. Proc. C., 70: 201-216, 1967.

Syn: *Stemonitis irregularis* (Rex) Hertel, Dussenia 7: 346, 1956.

Bursa, Görükle Campus area, alt. 155 m, 25.IV.2001, on bark of *Quercus* sp., CE 233-2.

## Acknowledgement

The authors wish to thank the Uludağ University Research Fund for its financial support during our study.

- Harkonen M (1988). Some Additions to the Knowledge of Turkish Myxomycetes. *Karstenia* 27: 1-7.
- Lado C (1994). A Checklist of Myxomycetes of Mediterranean Countries. *Mycotaxon* 52 (1): 117-185.
- Martin GW & Alexopoulos CJ (1969). *The Myxomycetes*. Iowa City: Univ. Iowa Press, 560 p.
- Nannenga-Bremekamp NE (1991). *A Guide to Temperate Myxomycetes*. Bristol: Biopress Limited, 409 p.