

Mycetozoa of Turkey (checklist)

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Abstract

In this study, 286 myxomycetes species identified to date in Turkey are presented. While there were 263 species in the 2016 published checklist, today the number of species has reached to 286 after adding new records and removing synonyms. There were 6 orders, 13 families and 45 genera in Turkey. The richest genus in terms of the number of species was *Physarum* and the proportion of myxomycete species in each taxonomic order was the largest order based on the number of species is the Physarida. Species/genus (S/G) value indicating the richness of myxomycetes in one place, the S/G ratio was 6.35 in Turkey. This ratio shows that Turkey is not poor of myxobiota but the study of Myxomycetes is still inadequate in Turkey. The names were arranged alphabetically. For each species, references were cited. An index of synonyms, based on literature records from Turkey was appended.

Keywords: Myxomycetes diversity, Turkey.

Introduction

The situation of Turkey is a meeting place of two continents Asia and Europe, three phytogeographical regions, Euro-Siberian, Mediterranean and Irano-Turanian. Turkey's location, mountains, and its encirclement by three seas have resulted in high terrestrial, fresh water and marine biodiversity. The country has retained an astonishing amount of biodiversity and hosts 10.000 taxa of higher plants (Öztürk *et al.*, 2010). Along with three overlapping phytogeographical regions, the presence of glacial refugia and a wide elevational range (sea level to 5137 m), this diverse topography has produced various macro and microclimates and vegetation types (Atalay, 1994).

Myxomycetes (plasmodial slime molds) or Myxogastrea (in the phylum Amoebozoa), are a group of amoeboid eukaryotes with unicellular and coenocytic phagotrophic phases, live predatory on other micro-organisms in terrestrial habitat. The life cycle of a myxomycete includes two different trophic stages, one consisting of uninucleate amoebae, with or without flagella, and the other consisting of a distinctive multinucleate structure, the plasmodium (Martin *et al.*, 1983). Their life cycle includes myxamoebae, swarm cells, multinucleate plasmodia, microcysts, sclerotia and spore-bearing fruit bodies. The myxamoebae and plasmodia feed on other microorganisms (Martin and Alexopoulos, 1969). Under favourable conditions, the plasmodium gives rise to one or more fruiting bodies which contain spores. The spores complete the life cycle by germinating to produce the amoeboid cells. Temperature, moisture, pH, and the availability of decomposing plant material appear to represent the principal factors that determine the patterns of occurrence of myxomycetes in nature.

There are six orders currently recognized in the Myxomycetes, Echinosteliales, Liceales, Trichiales, Physarales, and Stemonitales. The Ceratiomyxales is an order recognized in older texts, but is now placed in the Class Protostelia due to the presence of an externallyborne spore (Spiegel *et al.*, 2004). Myxomycetes consists of 15 family, 63 genus and 1017 species worldwide (Lado, 2019). They have been known for more than 350 years based on Pankow's description of *Lycogala epidendrum* (L.) Fr. in 1654 (Martin and Alexopoulos, 1969). The first records of myxomycetes from Turkey were published by Lohwag (1957). Checklists of the Turkish myxomycetes have been compiled by Ergül and Dülger, (2000), Sesli and Denchev (2005, 2008, 2016; Dülger (2007). Now in Turkey there are 13 family, 45 genus and 286 species (Baba *et al.*, 2013; Baba, 2015; Baba and Zümre, 2015; Süerdem *et al.*, 2015; Alkan *et al.*, 2016; Dülger *et al.*, 2016; Ergül *et al.*, 2016; Baba *et al.*, 2016; Sesli *et al.*, 2016; Baba and Arslan, 2017; Baba and Özyiğit, 2017; Baba and Er, 2018; Ocak and Konuk, 2018).

List of myxomycetes

Mycetozoa
Protostelia
Protostelida

Ceratiomyxaceae

Ceratiomyxa fruticulosa (O.F. Müll.) T. Macbr. (Härkönen, 1988; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005, 2006a; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba, 2015, Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba,

2017, Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Myxogastria
Echinostellida

Clastodermataceae

Clastoderma debaryanum A. Blytt (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. pachypus Nann.-Bremek. (Ergül and Dülger, 2000d; Oran *et al.*, 2006).

Echinosteliaceae

Echinostelium apitectum K.D. Whitney (Ergül *et al.*, 2005b).

E. arboreum H.W. Keller and T.E. Brooks (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b).

E. coelocephalum T.E. Brooks and H.W. Keller (Ergül and Dülger, 2000d).

E. colliculosum K.D. Whitney and H.W. Keller (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d).

E. corynophorum K.D. Whitney (Ergül and Dülger, 2000d).

E. cribrarioides Alexop. (Ergül and Dülger, 2000d).

E. elachiston Alexop. (Härkönen, 1988; Ergül and Dülger, 2000d).

E. fragile Nann.-Bremek. (Ergül and Dülger, 2000d).

E. ladoi Pando (Oran and Ergül, 2004).

E. minutum de Bary (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 1998; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005, Ergül *et al.*, 2005b; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

Liceida

Cribrariaceae

Cribraria argillacea (Pers. ex J.F. Gmel.) Pers. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a; Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Baba *et al.*, 2016; Baba *et al.*, 2018).

C. aurantiaca Schrad. (Ergül and Dülger, 2000d; Ergül *et al.*, 2005a; Oran *et al.*, 2006; Yağız and Afyon, 2006a).

C. cancellata (Batsch) Nann.-Bremek. (Ergül and Gücin, 1993; Ergül and Dülger, 1998; Ergül and Dülger, 2000d; Yağız *et al.*, 2002; Ocak and Hasenekoğlu, 2003a, 2005; Yağız and Afyon, 2006a; Ergül *et al.*, 2005a, 2005b; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Eroğlu and

Kaşık, 2013a; Baba and Zümre, 2015, Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. confusa Nann.-Bremek. and Y. Yamam (Ergül *et al.*, 2005b).

C. costata Dhillon and Nann.-Bremek (Baba *et al.*, 2016).

C. elegans Berk. and M.A. Curtis (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Baba *et al.*, 2013; Baba *et al.*, 2018).

C. intricata Schrad. (Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b).

C. languescens Rex (Yağız and Afyon, 2006a, 2006c, 2007a; Baba and Tamer, 2008a; Baba and Arslan, 2017b).

C. macrocarpa Schrad. (Ocak and Hasenekoğlu, 2005; Baba *et al.*, 2013b).

C. microcarpa (Schrad.) Pers. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba *et al.*, 2013; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. minutissima Schwein. (Ergül and Dülger, 2000d; Baba *et al.*, 2013; Baba and Arslan, 2017b).

C. mirabilis (Rostaf.) Massee (Yağız and Afyon, 2007b; Demirel *et al.*, 2010; Ocak, 2015).

C. oregana H.C. Gilbert (Eroğlu and Kaşık, 2013b).

C. persoonii Nann.-Bremek. (Yağız and Afyon, 2005, 2006a; Baba *et al.*, 2016).

C. piriformis Schrad. (Yağız and Afyon, 2007b; Baba and Tamer, 2008a; Demirel *et al.*, 2010; Baba *et al.*, 2013; Baba *et al.*, 2016; Baba and Arslan, 2017b).

C. purpurea Schrad. (Baba, 2015).

C. tenella Schrad. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a).

C. violacea Rex (Härkönen and Uotila, 1983; Ergül and Dülger, 1998; Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. vulgaris Schrad. (Oran and Ergül, 2004; Demirel *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba, 2012; Baba *et al.*, 2013, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba and Doğan, 2018)

Lindbladia tubulina Fr. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Baba and Arslan, 2017b).

Dictydiaethaliaceae

Dictydiaethalium plumbeum (Schumach.) Rostaf ex Lister (Baba *et al.*, 2008, 2013; Baba, 2012; Baba, 2015; Baba *et al.*, 2018).

Liceaceae

Licea belmontiana Nann.-Bremek. (Oran and Ergül, 2004; Ergül *et al.*, 2005b; Yağız and Afyon, 2006a).

L. biforis Morgan (Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2006a; Baba, 2012; Baba *et al.*, 2013; Baba, 2015; Baba and Zümre, 2015; Baba *et al.*, 2016; Baba, 2017; Ocak and Konuk, 2018; Baba *et al.*, 2018).

L. castanea G. Lister (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba *et al.*, 2018).

L. denudescens H.W. Keller and T.E. Brooks (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a).

L. inconspicua T.E. Brooks and H.W. Keller (Oran and Ergül, 2004; Ergül *et al.*, 2005b).

L. kleistobolus G.W. Martin (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013; Baba, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

L. marginata Nann.-Bremek. (Yağız and Afyon, 2007b; Demirel *et al.*, 2010).

L. minima Fr. (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

L. operculata (Wingate) G.W. Martin (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Yağız and Afyon, 2006a).

L. parasitica (Zukal) G.W. Martin (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Eroğlu and Kaşık, 2013a).

L. pedicellata (H.C. Gilbert) H.C. Gilbert (Ergül and Dülger, 2000d; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013; Baba *et al.*, 2018).

L. perexigua T.E. Brooks and H.W. Keller (Oran and Ergül, 2004).

L. pescadorensis Chao H. Chung and C.H. Liu (Baba and Arslan, 2017).

L. punctiformis G.W. Martin (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Oran *et al.*, 2006).

L. pusilla Schrad. (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Demirel *et al.*, 2006; Baba, 2012; Eroğlu and Kaşık, 2013a).

L. pygmaea (Meyl.) Ing (Ergül and Dülger, 1998, 2000d).

L. scyphoides T.E. Brooks and H.W. Keller (Ergül *et al.*, 2005b).

L. synsporos Nann.-Bremek. (Ocak and Hasenekoğlu, 2003b; Ocak and Konuk, 2018).

L. tenera E. Jahn (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Baba *et al.*, 2013; Baba, 2015; Ocak and Konuk, 2018).

L. testudinacea Nann.-Bremek. (Eroğlu *et al.*, 2015).

L. tuberculata G.W. Martin (Ocak and Hasenekoğlu, 2003a).

L. variabilis Schrad. (Ocak and Hasenekoğlu, 2003b; Baba and Tamer, 2008a; Baba, 2012a; Ocak and Konuk, 2018).

Reticulariaceae

Lycogala epidendrum (L.) Fr. (Lohwag 1957, 1964; Selik, 1964; Härkönen, 1988; Gücin *et al.*, 1996b; Ergül and Dülger, 1998, 2000d; Kaya and Demirel, 1998, Pekşen and Karaca, 2000, 2003; Türkekul 2003; Demirel *et al.*, 2004; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba *et al.*, 2018).

L. exiguum Morgan (Oran and Ergül, 2004; Ocak and Hasenekoğlu, 2005; Ergül and Akgül, 2011; Eroğlu and Kaşık, 2013a).

L. flavofuscum (Ehrenb.) Rostaf. (Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b).

Reticularia intermedia Nann.-Bremek. (Baba and Özyiğit 2017).

R. jurana Meyl. (Ergül *et al.*, 2005b; Eroğlu and Kaşık, 2013a).

R. liceoides (Lister) Nann.-Bremek. (Ergül and Oran 2005).

R. lycoperdon Bull. (Demirel and Uzun, 2002; Kaya and Demirel, 1998; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Ocak, 2015).

R. splendens Morgan (Ergül, 1995; Gücin *et al.*, 1996b; Ergül and Dülger, 2000d; Gücin and Dülger, 2007; Ergül and Akgül, 2011).

Tubifera ferruginosa (Batsch) J.F. Gmel. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2006a; Ergül and Akgül, 2011; Baba *et al.*, 2016).

Trichiida

Arcyriaceae

Arcyodes incarnata (Alb. and Schwein.) O.F. Cook (Yağız and Afyon, 2006a, 2006c, 2007a; Eroğlu and Kaşık, 2013a; Yıldız and Dülger 2015).

Arcyria affinis Rostaf. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a; Yağız and Afyon, 2006a; Baba *et al.*, 2013, 2015; Baba and Doğan, 2018).

A. annulifera G. Lister and Torrend (Oran and Ergül, 2004; Ocak, 2015; Oskay and Tüzün, 2015).

A. cinerea (Bull.) Pers. (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and

Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005a, 2005b; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba and Zümre, 2015, Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

A. denudata (L.) Wettst. (Härkönen, 1988; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba *et al.*, 2018).

A. ferruginea Saut. (Ergül and Dülger, 2002c; Oran *et al.*, 2006; Baba *et al.*, 2013; Ocak, 2015; Oskay and Tüzün, 2015).

A. globosa Schwein. (Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005, 2006a; Demirel *et al.*, 2006; Baba and Tamer, 2008a; Eroğlu and Kaşık, 2013a; Oskay and Tüzün, 2015; Baba *et al.*, 2018).

A. imperialis (G. Lister) Q. Wang and Yu Li (Oran and Ergül, 2004; Yağız and Afyon, 2007b).

A. incarnata (Pers. ex J.F. Gmel.) Pers. (Ergül and Dülger, 2000d; Yağız *et al.*, 2002; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005, 2006a, 2006c; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba and Zümre, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

A. insignis Kalchbr. and Cooke (Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba and Doğan, 2018).

A. magna Rex (Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006).

A. major (G. Lister) Ing (Yağız and Afyon, 2005).

A. minuta Buchet (Ergül and Dülger, 2000b, 2000d, 2002c; Oran *et al.*, 2006; Baba, 2012; Baba, 2015; Baba *et al.*, 2013, 2015; Ocak, 2015; Baba *et al.*, 2016; Baba and Doğan, 2018; Baba *et al.*, 2018).

A. nigella Emoto (Ocak and Hasenekoğlu, 2005; Oskay and Tüzün, 2015).

A. obvelata (Oeder) Onsberg (Ergül and Dülger, 1998, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2005, 2006a, 2007b; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba *et*

al., 2018).

A. occidentalis (T. Macbr.) G. Lister (Dülger *et al.*, 2005).

A. oerstedii Rostaf. (Dülger *et al.*, 2006; Yağız and Afyon, 2006a, 2006c).

A. pomiformis (Leers) Rostaf. (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005a; Demirel *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

A. stipata (Schwein.) Lister (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a; Demirel *et al.*, 2006; Baba *et al.*, 2013).

A. versicolor W. Phillips (Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Oran *et al.*, 2006; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015).

Perichaena chrysosperma (Curr.) Lister (Ergül and Dülger, 1998, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005, 2006a; Oran *et al.*, 2006; Baba and Tamer, 2008a; Eroğlu and Kaşık, 2013a; Baba, 2015; Ocak and Konuk, 2018).

P. corticalis (Batsch) Rostaf. (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

P. depressa Lib. (Yağız and Afyon, 2007b; Demirel *et al.*, 2010; Baba, 2012; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba and Zümre, 2015; Baba and Doğan, 2018; Baba *et al.*, 2018).

P. pedata (Lister and G. Lister) G. Lister ex E. Jahn (Baba, 2015; Ocak and Konuk, 2018).

P. tessellata G. Lister (Oran and Ergül, 2004; Ergül *et al.*, 2005b).

P. vermicularis (Schwein.) Rostaf. (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

Dianemataceae

Calomyxa metallica (Berk.) Nieuwl. (Ergül and Dülger, 2000d; Oran *et al.*, 2006).

Dianema corticatum Lister (Ocak and Hasenekoğlu, 2005).

D. harveyi Rex (Ergül *et al.*, 2005b).

D. repens G. Lister and Cran (Ergül and Dülger, 2002c; Ergül and Akgül, 2011).

Trichiaceae

Hemitrichia abietina (Wigand) G. Lister (Baba and Tamer, 2008b; Baba *et al.*, 2013).

H. calyculata (Speg.) M.L. Farr (Ergül and Dülger, 2000d, 2002a; Ergül *et al.*, 2005a, 2005b; Oran *et al.*, 2006; Yağız and Afyon, 2007b; Baba and Arslan, 2017b).

H. clavata (Pers.) Rostaf. (Härkönen, 1988; Ergül and Dülger, 2000d; Yağız and Afyon, 2007b; Baba *et al.*, 2013; Baba *et al.*, 2018).

H. leiocarpa (Cooke) Lister (Oran and Ergül, 2004; Yağız and Afyon, 2007b).

H. minor G. Lister (Oran and Ergül, 2004; Ergül *et al.*, 2005b; Yağız and Afyon, 2007b).

H. montana (Morgan) T. Macbr. (Baba *et al.*, 2016).

H. pardina (Minakata) Ing (Baba *et al.*, 2013b; Baba *et al.*, 2018).

Metatrichia floriformis (Schwein.) Nann.-Bremek. (Oran and Ergül, 2004).

M. vesparia (Batsch) Nann.-Bremek. ex G.W. Martin and Alexop. (Ergül and Gücin, 1993; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a; Yağız and Afyon, 2005, 2007b; Oran *et al.*, 2006; Baba and Arslan, 2017b).

Oligonema flavidum (Peck) Peck (Ocak, 2015).

O. schweinitzii (Berk.) G.W. Martin (Ocak and Hasnekoğlu 2003b; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a).

Prototrichia metallica (Berk.) Masee (Baba 2008).

Trichia affinis de Bary (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a; Oran *et al.*, 2006).

T. alpina (R.E. Fr.) Meyl. (Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and Konuk, 2018).

T. botrytis (J.F. Gmel.) Pers. (Ergül and Dülger, 2000d; Ocak and Hasnekoğlu, 2003a, 2005; Ergül *et al.*, 2005a; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b).

T. contorta (Ditmar) Rostaf. (Härkönen and Uotila, 1983; Ergül and Gücin, 1995; Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2016; Ocak and Konuk, 2018).

T. crateriformis G.W. Martin (Baba and Tamer, 2008a; Ergül and Akgül, 2011).

T. decipiens (Pers.) T. Macbr. (Härkönen, 1988; Ergül and Dülger, 2000d; Yağız *et al.*, 2002; Ocak and Hasnekoğlu, 2003a, 2005; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2005, 2006a, 2007b; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

T. erecta Rex (Ocak and Hasnekoğlu, 2005; Baba *et al.*, 2013; Baba and Zümre, 2015).

T. favoginea (Batsch) Pers. (Härkönen, 1988; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a; Ocak and

Hasnekoğlu, 2005; Yağız and Afyon, 2005; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2016; Baba and Doğan, 2018).

T. flavicoma (Lister) Ing (Yağız and Afyon, 2006a).

T. lutescens (Lister) Lister (Gücin and Öner 1986; Ergül and Dülger, 2000d; Demirel *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013; Baba and Zümre, 2015; Baba and Arslan, 2017b; Baba and Doğan, 2018).

T. munda (Lister) Meyl. (Baba *et al.*, 2013; Baba and Doğan, 2018; Baba *et al.*, 2018).

T. persimilis P. Karst. (Baba *et al.*, 2015; Baba and Doğan, 2018).

T. scabra Rostaf. (Baba, 2015; Baba and Arslan, 2017b).

T. subfusca Rex (Oran and Ergül, 2004).

T. varia (Pers. ex J.F. Gmel.) Pers. (Gücin and Öner, 1986; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2005; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Doğan, 2018; Baba *et al.*, 2018).

T. verrucosa Berk. (Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Physarida

Didymiaceae

Diachea leucopodia (Bull.) Rostaf. (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Oran *et al.*, 2006; Baba *et al.*, 2015).

Diderma carneum Nann.-Bremek. (Baba and Tamer, 2008b; Baba *et al.*, 2013, 2015).

D. chondrioderma (de Bary and Rostaf.) G. Lister (Ergül, 1992; Ergül and Dülger, 1998, 2000d; Ergül *et al.*, 2005b).

D. cinereum Morgan (Oran and Ergül, 2015).

D. crustaceum Peck (Dülger, 2008b).

D. deplanatum Fr. (Baba, 2012; Ocak and Konuk, 2018).

D. donkii Nann.-Bremek. (Ocak and Konuk, 2018).

D. effusum (Schwein.) Morgan (Süerdem *et al.*, 2015).

D. hemisphaericum (Bull.) Hornem. (Ergül and Dülger, 2000d; Ocak and Hasnekoğlu, 2005; Baba *et al.*, 2013, 2015; Ocak, 2015; Ocak and Konuk, 2018; Baba *et al.*, 2018).

D. niveum (Rostaf.) E. Sheld. (Ergül *et al.*, 2005b).

D. radiatum (L.) Morgan (Baba *et al.*, 2013).

D. testaceum (Schrad.) Pers. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Ocak, 2015).

D. umbilicatum Pers. (Oran and Ergül, 2015).

Didymium anellus Morgan (Ocak and Hasnekoğlu, 2005; Baba *et al.*, 2013; Baba *et al.*, 2018).

D. annulisporum H.W. Keller and Schokn. (Eroğlu and Kaşık, 2013a).

D. bahiense Gottsb. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Baba and Tamer, 2008a; Baba *et al.*,

2013, 2015; Baba *et al.*, 2018).

D. balearicum Ing (Ocak and Konak 2018).

D. clavus (Alb. and Schwein.) Rabenh. (Baba, 2015).

D. crustaceum Fr. (Ocak and Hasenekoğlu, 2003a).

D. difforme (Pers.) Gray (Ergül and Dülger, 2000d; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba, 2012; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

D. dubium Rostaf. (Baba *et al.*, 2013; Ergül *et al.*, 2016; Baba *et al.*, 2018).

D. eximium Peck (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Baba, 2015).

D. floccosum G.W. Martin, K.S. Thind and Rehill (Ergül and Dülger, 1998, 2000d; Dülger *et al.*, 2006).

D. iridis (Ditmar) Fr. (Ocak and Hasenekoğlu, 2003b; Baba and Tamer, 2008a).

D. karstensis Nann.-Bremek. (Demirel and Kaşık, 2012; Eroğlu and Kaşık, 2013a).

D. lenticulare K.S. Thind and T.N. Lakh. (Oran and Ergül, 2015).

D. megalosporum Berk and M.A. Curtis (Baba, 2012; Baba *et al.*, 2013, 2015; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

D. melanospermum (Pers.) T. Macbr. (Baba *et al.*, 2008, 2013, 2015; Baba, 2012; Baba *et al.*, 2016).

D. minus (Lister) Morgan (Ergül and Dülger, 2000d).

D. nigripes (Link) Fr. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005).

D. quitense (Pat.) Torrend (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Ocak and Konuk, 2018).

D. squamulosum (Alb. and Schwein.) Fr. (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Baba and Tamer, 2008a; Baba, 2012; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

D. sturgisii Hagelst. (Ergül *et al.*, 2005b).

D. trachysporum G. Lister (Demirel and Kaşık, 2012; Baba *et al.*, 2013, 2014; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2018).

D. vaccinum (Durieu and Mont.) Buchet (Eroğlu *et al.*, 2015).

D. verrucisporum A.L. Welden (Ergül *et al.*, 2016).

Mucilago crustacea F.H. Wigg. (Ergül and Dülger, 2000d, 2002a).

Physaraceae

Badhamia affinis Rostaf. (Härkönen and Uotila, 1983; Ergül *et al.*, 2005b; Yağız and Afyon, 2005).

B. capsulifera (Bull.) Berk. (Ergül and Dülger,

2002c; Yağız and Afyon, 2005, 2006a; Baba *et al.*, 2016).

B. dubia Nann.-Bremek. (Dülger, 2008c; Baba *et al.*, 2013, 2015; Baba *et al.*, 2018).

B. foliicola Lister (Härkönen and Uotila, 1983; Ergül and Dülger, 1998, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005b; Yağız and Afyon, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba and Doğan, 2018; Baba *et al.*, 2018).

B. goniospora Meyl. (Ergül *et al.*, 2005b; Yağız and Afyon, 2006a; Ocak and Konuk, 2018).

B. iowensis T. Macbr. (Eroğlu and Kaşık, 2013b).

B. macrocarpa (Ces.) Rostaf. (Gücin and Öner 1986; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Demirel *et al.*, 2006; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2018).

B. melanospora Speg. (Dülger, 2008b; Eroğlu and Kaşık, 2013a).

B. nitens Berk. (Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Zümre *et al.*, 2013).

B. panicea (Fr.) Rostaf. (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Demirel *et al.*, 2006; Yağız and Afyon, 2006a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2018).

B. papaveracea Berk. and Ravenel (Ergül *et al.*, 2005b).

B. populina Lister and G. Lister (Ergül *et al.*, 2005b; Baba and Tamer, 2008a).

B. utricularis (Bull.) Berk. (Oran and Ergül, 2004; Dülger and Gönüz 2005; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba, 2015; Baba *et al.*, 2016).

B. versicolor Lister (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Oran *et al.*, 2006).

B. viridescens Meyl. (Ergül, 1992; Ergül and Dülger, 2000d).

Badhamiopsis ainoae (Yamash.) T.E. Brooks and H.W. Keller (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Eroğlu and Kaşık, 2013a).

Craterium concinnum Rex (Ocak and Hasenekoğlu, 2005; Eroğlu and Kaşık, 2013a).

C. dictyosporum (Rostaf.) H. Neubert, Nowotny and K. Baumann (Baba and Er, 2018).

C. leucocephalum (Pers. ex J.F. Gmel.) Ditmar (Ergül and Oran, 2005; Eroğlu and Kaşık, 2013a; Baba and Doğan, 2018).

C. minutum (Leers) Fr. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a).

Fuligo cinerea (Schwein.) Morgan (Ocak, 2015).

F. septica (L.) F.H. Wigg. (Ergül and Gücin, 1994; Ergül and Dülger, 2000d, 2002c; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*,

2006; Yağız and Afyon, 2007b; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Eroğlu and Kaşık, 2013a; Ocak, 2015; Baba, 2017; Baba and Doğan, 2018).

Leocarpus fragilis (Dicks.) Rostaf. (Ergül and Dülger, 1998, 2000d; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005; Ergül and Akgül, 2011; Ocak, 2015).

Physarum albescens Ellis ex T. Macbr. (Baba and Gelen 2014; Baba *et al.*, 2018).

Ph. album (Bull.) Chevall. (Ergül and Dülger, 1998, 2000d; Yağız *et al.*, 2002; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Baba, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Ph. auripigmentum G. W. Martin. (Alkan *et al.*, 2016).

Ph. auriscalpium Cooke (Härkönen, 1988; Ergül *et al.*, 2005b; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba, 2015).

Ph. bitectum G. Lister (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Baba, 2015; Ocak and Konuk, 2018).

Ph. cinereum (Batsch) Pers. (Härkönen, 1988; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba and Doğan, 2018; Baba *et al.*, 2018).

Ph. citrinum Schumacher. (Ergül *et al.*, 2016).

Ph. compressum Alb. and Schwein. (Ergül and Dülger, 2000d; Baba and Tamer, 2008a; Baba, 2015; Baba *et al.*, 2013, 2015; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Ph. confertum T. Macbr. (Baba, 2008, 2015; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Baba *et al.*, 2018).

Ph. contextum (Pers.) Pers. (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Baba *et al.*, 2013, 2015; Baba, 2015; Baba and Doğan, 2018; Baba *et al.*, 2018).

Ph. decipiens M.A. Curtis (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Yağız *et al.*, 2002; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Yağız and Afyon, 2005; Dülger *et al.*, 2006; Baba, 2015).

Ph. didermoides (Pers.) Rostaf. (Demirel and Kaşık, 2012; Eroğlu and Kaşık, 2013a; Baba, 2015).

Ph. famintzinii Rostaf. (Eroğlu *et al.*, 2014, 2015; Baba, 2015).

Ph. flavicomum Berk. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a; Oran *et al.*, 2006; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba, 2015).

Ph. galbeum Wingate (Dülger, 2008a; Baba, 2015).

Ph. globuliferum (Bull.) Pers. (Ergül *et al.*, 2005b; Baba, 2015).

Ph. gyrosom Rostaf. (Demirel and Kaşık, 2012; Eroğlu and Kaşık, 2013a; Baba, 2015).

Ph. javanicum Racib. (Baba *et al.*, 2013b; Baba *et al.*, 2018).

Ph. leucophaeum Fr. (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Ph. leucopus Link (Ocak and Hasenekoğlu, 2003a; Baba, 2015).

Ph. licheniforme (Szabó ex Schwein.) Lado (Baba *et al.*, 2012; Baba, 2015; Baba *et al.*, 2018).

Ph. luteolum Peck (Oran and Ergül, 2004; Baba, 2015).

Ph. melleum (Berk. and Broome) Massee (Dülger *et al.*, 2016).

Ph. murinum Lister (Baba and Özyiğit 2017).

Ph. notabile T. Macbr. (Ergül and Dülger, 2002c; Ocak and Hasenekoğlu, 2003a; Ergül *et al.*, 2005b; Baba and Tamer, 2008a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba, 2015; Ocak, 2015; Ocak and Konuk, 2018; Baba *et al.*, 2018).

Ph. nudum T. Macbr. (Eroğlu and Kaşık, 2013b; Ocak, 2015).

Ph. oblatum T. Macbr. (Ergül and Dülger, 2000d; Baba and Tamer, 2008a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba *et al.*, 2018).

Ph. ovisporum G. Lister (Ergül and Dülger, 2002c; Baba *et al.*, 2013; Baba, 2015).

Ph. perfectum M. Peck (Dülger and Duman 2010; Baba, 2015).

Ph. psittacinum Ditmar (Baba *et al.*, 2016).

Ph. pulcherrimum Berk. and Ravenel (Ergül and Oran 2005; Baba, 2015).

Ph. pusillum (Berk. and M.A. Curtis) G. Lister (Ergül and Dülger, 1998, 2000d; Yağız *et al.*, 2002; Ocak and Hasenekoğlu, 2003a; Dülger *et al.*, 2006; Oran *et al.*, 2006; Baba, 2015; Ocak and Konuk, 2018).

Ph. robustum (Lister) Nann.-Bremek. (Yağız and Afyon, 2007b; Demirel *et al.*, 2010; Baba, 2015).

Ph. schroeteri Rostaf. (Baba and Özyiğit 2017).

Ph. serpula Morgan (Oran and Ergül, 2015; Ocak and Konuk, 2018).

Ph. tropicale T. Macbr. (Baba and Gelen 2014; Baba *et al.*, 2018).

Ph. vernum Sommerf. (Oran and Ergül, 2004; Baba, 2015).

Ph. viride (Bull.) Pers. (Ergül and Dülger, 1998, 2000d; Ergül *et al.*, 2005a; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba *et al.*, 2018).

Protophysarum phloiogenum M. Blackw. and Alexop. (Oran and Ergül, 2004).

Willkommlangea reticulata (Alb. and Schwein.) Kuntze (Baba and Tamer, 2008b)

Stemonitida

Stemonitidaceae

Amaurochaete atra (Alb. and Schwein.) Rostaf. (Sümer, 1982; Abatay, 1989; Ergül and Dülger, 2000d; Yağız and Afyon, 2007b; Baba and Tamer, 2008a).

A. comata G. Lister and Brândză (Eroğlu and Kaşık, 2013b).

A. tubulina (Alb. and Schwein.) T. Macbr. (Oran and Ergül, 2015).

Collaria arcyriomena (Rostaf.) Nann.-Bremek. ex Lado (Oran and Ergül, 2004; Ergül *et al.*, 2005b; Baba and Arslan, 2017b; Baba and Doğan, 2018).

C. lurida (Lister) Nann.-Bremek. (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Demirel *et al.*, 2006; Baba and Tamer, 2008a; Baba, 2012; Baba, 2015; Baba *et al.*, 2013, 2015; Oskay and Tüzün, 2015; Baba, 2017; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. rubens (Lister) Nann.-Bremek. (Härkönen, 1988; Ocak, 2015).

Comatricha alta Preuss (Eroğlu and Kaşık, 2013b).

C. elegans (Racib.) G. Lister (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2005; Baba and Tamer, 2008a; Baba, 2012; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Baba and Doğan, 2018).

C. ellae Härk. (Ergül and Dülger, 2000d; Yağız and Afyon, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba, 2012; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. laxa Rostaf. (Härkönen and Uotila, 1983; Ergül and Dülger, 1998, 2000d; Ergül *et al.*, 2005b; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba, 2015; Baba and Zümre, 2015; Baba *et al.*, 2016; Baba *et al.*, 2018).

C. longipila Nann.-Bremek. (Oran and Ergül, 2015).

C. nigra (Pers. ex J.F. Gmel.) J. Schröt. (Härkönen and Uotila, 1983; Ergül and Dülger, 1998, 2000d; Yağız *et al.*, 2002; Ocak and Hasenekoğlu, 2003a, 2005; Ergül *et al.*, 2005b; Demirel *et al.*, 2006; Dülger *et al.*, 2006; Oran *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba, 2015; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

C. pulchella (C. Bab.) Rostaf. (Ergül and Dülger, 2002b; Yağız *et al.*, 2002; Ocak and Hasenekoğlu,

2005; Demirel *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba, 2015; Baba and Zümre, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018).

C. pulchelloides Nann.-Bremek. (Eroğlu and Kaşık, 2013a).

C. rigidireta Nann.-Bremek. (Eroğlu and Kaşık, 2013a).

C. suksdorfii Ellis and Everh. (Dülger *et al.*, 2007).

C. tenerrima (M.A. Curtis) G. Lister (Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba, 2012; Baba *et al.*, 2013; Baba, 2015).

Diacheopsis minuta Nann.-Bremek. and Y. Yamam. (Ocak, 2015).

Enerthenema papillatum (Pers.) Rostaf. (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Yağız and Afyon, 2005, 2006a; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba, 2015; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

Lamproderma arcyrioides (Sommerf.) Rostaf. (Härkönen, 1988; Ergül and Dülger, 2000d; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba *et al.*, 2016; Baba *et al.*, 2018).

L. columbinum (Pers.) Rostaf. (Oran and Ergül, 2004).

L. laxum H. Neubert (Baba *et al.*, 2013).

L. scintillans (Berk. and Broome) Morgan (Ocak and Hasenekoğlu, 2005; Baba *et al.*, 2013, 2015; Baba *et al.*, 2018).

Macbrideola cornea (G. Lister and Cran) Alexop. (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Ergül *et al.*, 2005b; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005, 2006a; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013; Baba, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Ocak and Konuk, 2018; Baba *et al.*, 2018).

M. decapillata H.C. Gilbert (Ergül and Dülger, 2000d; Yağız *et al.*, 2002; Ergül *et al.*, 2005b; Dülger *et al.*, 2006; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013b; Baba and Zümre, 2015; Baba *et al.*, 2018).

M. dubia Nann.-Bremek. and Y. Yamam. (Ergül *et al.*, 2005b; Ocak, 2015; Ocak and Konuk, 2018).

M. macrospora (Nann.-Bremek.) Ing (Yağız and Afyon, 2006a, 2006c, 2007a; Baba *et al.*, 2013b).

M. martinii (Alexop. and Beneke) Alexop. (Oran and Ergül, 2004; Baba and Tamer, 2008a).

M. oblonga Pando and Lado (Ocak and Konuk, 2018).

M. scintillans H.C. Gilbert (Ergül and Dülger, 2002c; Ergül *et al.*, 2005b).

M. synsporos (Alexop.) Alexop. (Ergül and Dülger,

2000d; Ergül *et al.*, 2005b; Baba and Tamer, 2008a; Ergül and Akgül, 2011; Ocak, 2015).

Meriderma cribrarioides (Fr.) Mar. Mey. and Poulain (Baba, 2012).

Paradiacheopsis acanthodes (Alexop.) Nann.-Bremek. (Ergül and Dülger, 2000a; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006).

P. cribrata Nann.-Bremek. (Oran and Ergül, 2004).

P. erythropodia (Ing) Nann.-Bremek. (Ocak and Konuk, 2018).

P. fimbriata (G. Lister and Cran) Hertel ex Nann.-Bremek. (Härkönen and Uotila, 1983; Härkönen, 1988; Ergül and Dülger, 2000d; Oran *et al.*, 2006; Baba and Tamer, 2008a).

P. longipes Hooff and Nann.-Bremek. (Zümre and Baba, 2015).

P. microcarpa (Meyl.) D.W. Mitch. ex Ing (Oran and Ergül, 2004; Ocak and Konuk, 2018).

P. rigida (Brândză) Nann.-Bremek. (Ergül and Dülger, 2000a; Oran and Ergül, 2004; Ergül and Akgül, 2011; Baba *et al.*, 2013).

P. solitaria (Nann.-Bremek.) Nann.-Bremek. (Ergül and Dülger, 2000a; Oran *et al.*, 2006; Ergül and Akgül, 2011).

Stemonaria irregularis (Rex) Nann.-Bremek., R. Sharma and Y. Yamam. (Ergül and Dülger, 2002c; Yağız and Afyon, 2007b).

Stemonitis axifera (Bull.) T. Macbr. (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Demirel *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba, 2015; Baba *et al.*, 2013, 2015; Ocak, 2015; Baba *et al.*, 2016; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

S. flavogenita E. Jahn (Härkönen and Uotila, 1983; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba, 2015; Baba *et al.*, 2013, 2015; Ocak, 2015; Baba *et al.*, 2016).

S. foliicola Ing (Baba, 2008, 2012; Baba *et al.*, 2013; Eroğlu and Kaşık, 2013a).

S. fusca Roth (Härkönen and Uotila, 1983; Ergül and Dülger, 1998, 2000d; Ergül *et al.*, 2005a; Ocak and Hasenekoğlu, 2005; Yağız and Afyon, 2005; Dülger *et al.*, 2006; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Eroğlu *et al.*, 2014; Baba and Zümre, 2015; Ocak, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba and Doğan, 2018; Baba *et al.*, 2018).

S. herbatica Peck (Ergül and Dülger, 2002c; Yağız *et al.*, 2002; Ergül *et al.*, 2005a, 2005b; Ocak and Hasenekoğlu, 2005; Oran *et al.*, 2006; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2016; Ocak and Konuk, 2018).

S. inconspicua Nann.-Bremek. (Oran and Ergül, 2015).

S. mediterraneensis H.H. Doğan and Eroğlu (Doğan and Eroğlu 2014).

S. pallida Wingate (Ergül and Dülger, 2002c; Ergül

et al., 2005a, 2005b; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Eroğlu and Kaşık, 2013a; Baba *et al.*, 2016; Baba and Doğan, 2018).

S. splendens Rostaf. (Gücin and Öner, 1986; Ergül and Dülger, 2000d; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2005; Baba *et al.*, 2013; Baba, 2015; Baba and Arslan, 2017b; Baba *et al.*, 2018).

S. virginiansis Rex (Ergül and Dülger, 2002c; Ergül *et al.*, 2005a, 2005b; Yağız and Afyon, 2006a; Ocak, 2015).

Stemonitopsis amoena (Nann.-Bremek.) Nann.-Bremek. (Yağız and Afyon, 2005, 2006b; Baba and Tamer, 2008a; Baba, 2012; Baba, 2015; Baba *et al.*, 2013, 2015; Eroğlu and Kaşık, 2013a; Baba and Zümre, 2015; Oskay and Tüzün, 2015; Baba *et al.*, 2016; Baba, 2017; Baba and Arslan, 2017b; Baba and Doğan, 2018; Baba *et al.*, 2018).

S. gracilis (G.Lister) Nann.-Bremek. (Yağız and Afyon, 2005, 2006b; Eroğlu and Kaşık, 2013a).

S. hyperopta (Meyl.) Nann.-Bremek. (Ergül and Dülger, 2000d; Ocak and Hasenekoğlu, 2003a, 2005; Yağız and Afyon, 2006a; Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015; Baba *et al.*, 2018).

S. microspora (Lister) Nann.-Bremek. (Ergül and Dülger, 2000c; Yağız and Afyon, 2006a).

S. reticulata (H.C. Gilbert) Nann.-Bremek. and Y. Yamam. (Baba and Tamer, 2008a; Baba *et al.*, 2013, 2015).

S. subcaespitosa (Peck) Nann.-Bremek. (Ergül and Dülger, 2002c; Oran *et al.*, 2006; Baba *et al.*, 2013, 2015, 2016; Baba *et al.*, 2018).

S. typhina (F.H. Wigg.) Nann.-Bremek. (Härkönen, 1988; Ergül and Dülger, 2000c, 2000d; Ergül *et al.*, 2005a, 2005b; Oran *et al.*, 2006; Ergül and Akgül, 2011; Baba *et al.*, 2013; Baba *et al.*, 2018).

Symphycarpus confluens (Cooke and Ellis) Ing and Nann.-Bremek. (Eroğlu and Kaşık, 2013b; Oran and Ergül, 2015).

S. flaccidus (Lister) Ing and Nann.-Bremek. (Ergül and Dülger, 1999, 2000d).

S. herbaticus Ing (Baba *et al.*, 2016).

S. impexus Ing and Nann.-Bremek. (Baba *et al.*, 2008; Baba, 2015).

S. trechispora (Berk. ex Torrend) Nann.-Bremek (Baba *et al.*, 2013).

A list of synonyms

Stemonitis smithii T. Macbr. = *Stemonitis axifera* (Bull.) T. Macbr.

Discussion

The total number of myxomycetes, recognized as occurring in Turkey is 286 (Table 1). The richest genera in terms of the number of species are *Physarum* (38 species), *Didymium* (23) *Licea* (22), *Arcyria* (19) and *Cribraria* (19). The proportion of myxomycete species in each taxonomic order is the largest order based on the number of species is the Physarida (34.6%), followed by Stemonitida

(22.6%), Trichiida (20.4%), Liceida (17.6%), and the smallest order. Echinostellida (4.2%), Protostelida (0.5 %) as the

Table 1: Diversity of myxomycetes in Turkey.

Orders	Families	Genera	Species
Protostelida	<i>Ceratiomyxaceae</i>	<i>Ceratiomyxa</i>	1
Echinostellida	<i>Clastodermataceae</i>	<i>Clastoderma</i>	2
	<i>Echinosteliaceae</i>	<i>Echinostelium</i>	10
Liceida	<i>Cribrariaceae</i>	<i>Cribraria</i>	19
		<i>Lindbladia</i>	1
	<i>Dictydiaethaliaceae</i>	<i>Dictydiaethalium</i>	1
	<i>Liceaceae</i>	<i>Licea</i>	22
	<i>Reticulariaceae</i>	<i>Lycogala</i>	3
		<i>Reticularia</i>	5
		<i>Tubifera</i>	1
Trichiida	<i>Arcyriaceae</i>	<i>Arcyodes</i>	1
		<i>Arcyria</i>	19
		<i>Perichaena</i>	6
	<i>Dianemataceae</i>	<i>Calomyxa</i>	1
		<i>Dianema</i>	3
	<i>Trichiaceae</i>	<i>Hemitrichia</i>	7
		<i>Metatrichia</i>	2
		<i>Oligonema</i>	2
		<i>Prototrichia</i>	1
		<i>Trichia</i>	16
Physarida	<i>Didymiaceae</i>	<i>Diachea</i>	1
		<i>Diderma</i>	12
		<i>Didymium</i>	23
		<i>Mucilago</i>	1
	<i>Physaraceae</i>	<i>Badhamia</i>	15
		<i>Badhamiopsis</i>	1
		<i>Craterium</i>	4
		<i>Fuligo</i>	2
		<i>Leocarpus</i>	1
		<i>Physarum</i>	38
		<i>Protophysarum</i>	1
		<i>Willkommlangea</i>	1
		Stemonitida	<i>Stemonitidaceae</i>
<i>Collaria</i>	3		
<i>Comatricha</i>	11		

		<i>Diacheopsis</i>	1
		<i>Enerthenema</i>	1
		<i>Lamproderma</i>	4
		<i>Macbrideola</i>	8
		<i>Meriderma</i>	1
		<i>Paradiacheopsis</i>	8
		<i>Stemonaria</i>	1
		<i>Stemonitis</i>	10
		<i>Stemonitopsis</i>	7
		<i>Symphytocarpus</i>	5
6 Orders	13 Families	45 Genera	286 Species

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