

Lichenized and lichenicolous fungi of Gevne Valley (Konya, Antalya)

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Abstract: The lichen and lichenicolous fungi of Gevne Valley in the provinces of Konya and Antalya are presented. From 47 localities, 215 lichen and 18 lichenicolous fungi are reported for a total 233 infrageneric taxa. Four taxa are new records for Turkey: *Lecanora flowersiana* H.Magn., *L. invadens* H.Magn., *Psora cerebriformis* W.A.Weber, and *Rinodina colobinoides* (Nyl.) Zahlbr. Detailed information on these 4 taxa is provided along with photographs.

Key words: Ascomycota, biodiversity, lichens

1. Introduction

Lichenological research in Turkey has improved remarkably in the last decades (Güvenç, 2002; Breuss and John, 2004; John and Breuss, 2004; Karabulut et al., 2004; Halıcı et al., 2005; Tufan et al., 2005; Güvenç et al., 2006; Halıcı and Aksoy, 2006; John and Türk, 2006; Halıcı et al., 2007; Candan and Türk, 2008; Halıcı and Güvenç, 2008; Yazıcı et al., 2008; Halıcı and Aksoy, 2009; Kınalıoğlu, 2009; Kocakaya et al., 2009; Kınalıoğlu, 2010; Yazıcı et al., 2010; Kınalıoğlu and Aptroot, 2011; Karagöz and Aslan, 2012; Oran and Öztürk, 2012; Çobanoğlu et al., 2013), but it is still far from being fully satisfactory.

The lichenicolous fungi of Turkey have started to receive more attention during the last 5 years. Halıcı (2008a) published a key to the 117 known taxa of lichenicolous Ascomycota (including mitosporic fungi) of Turkey; since that publication, studies on lichenicolous fungi have continued (Candan and Halıcı, 2008; Halıcı, 2008b, 2008c; Halıcı and Candan, 2009; Halıcı et al., 2009; Candan et al., 2010; Halıcı et al., 2010; Candan and Halıcı, 2011; Halıcı and Candan, 2011) and the number of lichenicolous fungal taxa known from Turkey has reached 177 (Halıcı et al., 2012). Additionally, the lichenicolous fungus *Zwackhiomyces turcicus* Kocakaya, Halıcı & Aksoy on *Physcia magnussonii* has been described from Gevne Valley (Kocakaya et al., 2011).

There was no record of any lichen or lichenicolous fungi taxa before this study was started in Gevne Valley, located in Konya and Antalya provinces. It is known that

this valley is very rich in terms of endemism of flowering plants (Duman et al., 2000). For the doctorate thesis authored by M.Kocakaya [Lichenised and Lichenicolous Fungi of Gevne Valley (Konya-Antalya)], numerous lichens and lichenicolous fungi were collected from the study area and the full list of lichenized and lichenicolous fungi of the area is presented here.

2. Materials and methods

The specimens were collected from 47 localities between 2009 and 2011. Those localities were selected in terms of altitude (some localities in the valley, some localities in the summit of the study area), vegetation type in the forest zone, and mother rock types (serpentine or limestone). Specimens are stored in the Lichen Herbarium of the Department of Biology of Bozok University, Yozgat. The taxa are listed in alphabetical order followed by the collection locality numbers and substrata. Comments on some species are provided in the list.

The specimens were examined with an Olympus SZX7 and SZX16 stereomicroscope and an Olympus BX53 light microscope. Microphotographs were taken with an Olympus DP 72 digital microscope camera with c-mount interface and with a 5 megapixel CCD. Specimens were examined in water, 10% KOH, and Lugol's solution. In general, spot tests were made to determine the compounds in the lichens that are necessary for identification. Thin layer chromatography was carried out to determine some of the compounds in Solvent System C (Orange et al.,

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2001) when the results of spot tests were inconclusive. The collecting localities are given in the Table and the distributions of these localities are shown in Figure 1.

3. Study area

Gevne Valley is a deep valley between the provinces of Konya and Antalya within the boundaries of the Alanya and Taşkent districts, where the Mediterranean Region and Central Anatolia Region intersect. The altitude of the valley starts from 1100 m and reaches 2200 m. The width of the valley ranges from 500 to 1000 m and it has a length of about 25 km. Beyreli village and Tosmur, İshaklı, and Elikesik plateaus are situated in the Gevne Valley. The Gevne River flows through the base of the valley. According to climate data distributed by the Turkish State Meteorological Service Office from the stations around the study area, the study area is under the influence of the Mediterranean climate, which is characterized by dry summers and high temperatures.

In addition to forest vegetation, steppe and rock vegetation has also been observed in Gevne Valley. Although the valley covers a small area, it is very significant in terms of endemic and rare plants (Duman et al., 2000). Conifer trees such as *Abies cilicica* (Ant. & Kotschy) Carrière, *Cedrus libani* A.Rich., *Pinus nigra* J.F.Arnold, *P. brutia* Ten., *Juniperus drupacea* Labill., *J. oxycedrus* L., and *J. excelsa* M.Bieb. have been observed. Members of angiosperm trees such as *Platanus orientalis* L., *Quercus cerris* L., *Q. trojana* P.B.Webb, *Acer platanoides* L., and *Fraxinus angustifolia* Vahl and shrub forms such as *Berberis crataegina* DC., *Cerasus prostrata* (Labill.) Ser., and *Rubus sanctus* Schreb. are significant (Duman et al., 2000).

4. List of taxa and comments on some species

Symbols used in the list of taxa:

* New record for Turkey, ▲ Lichenicolous fungi, ☼ New record for Konya province, ● New record for Antalya province, Loc. no.: Number of localities.

Acarospora cervina (Ach.) A.Massal., Loc. no.: 1, 2, 3, 6, 8, 11, 18, 25, 26, 31, 33, 34, 40, 41, very common on calcareous rocks in the study area.

Acarospora fuscata (Schröd.) Arnold, Loc. no.: 5, 6, 13, on siliceous rocks.

Acarospora glaucocarpa (Ach.) Körb., Loc. no.: 42, on calcareous rocks.

☼ ***Acarospora heppii*** (Hepp) Körber, Loc. no.: 11, on calcareous rocks.

Acarospora laqueata Stizenb., Loc. no.: 17, on siliceous rocks.

Acarospora macrospora (Hepp) A.Massal. ex Bagl., Loc. no.: 2, 25, on calcareous rocks.

Anaptychia ciliaris (L.) Körb. ex A.Massal., Loc. no.: 5, 36, 42, on *Cedrus libani*, *Abies cilicica*.

▲☼ ***Arthonia anatolica*** Halıcı & Candan, Loc. no.: 26, lichenicolous on *Aspicilia contorta* subsp. *hoffmanniana*. This species collected from on the same host in Bakırdağ was detailed by Halıcı and Candan (2011).

▲☼ ***Arthonia clemens*** (Tul.) Th.Fr., Loc. no.: 2, lichenicolous on apothecia of *Lecanora dispersa*.

Arthonia lapidicola (Taylor) Branth & Rostr., Loc. no.: 34, on calcareous rocks.

▲ ***Arthonia molendoi*** (Heufl. ex Frauenf.) R.Sant., Loc. no.: 2, 6, lichenicolous on thalli of *Calogaya schistidii* and *Rusavskia elegans*.

☼● ***Aspicilia candida*** (Anzi) Hue, Loc. no.: 12, 23, 33, 46, on calcareous rocks.

Aspicilia cheresina (Müll. Arg.) Hue, Loc. no.: 10, on calcareous rocks.

Aspicilia cinerea (L.) Körb., Loc. no.: 40, on calcareous rocks.

Aspicilia contorta (Hoffm.) Kremp. subsp. *contorta*, Loc. no.: 18, on calcareous rocks.

Aspicilia contorta subsp. *hoffmanniana* S.Ekman & Fröberg ex R.Sant., Loc. no.: 1, 2, 3, 5, 8, 10, 14, 18, 23, 26, 27, 31, 33, 38, 40, 41, 43, 47, on calcareous rocks.

☼ ***Aspicilia coronata*** (A.Massal.) Anzi, Loc. no.: 25, on calcareous rocks.

Aspicilia desertorum (Kremp.) Mereschk., Loc. no.: 2, 3, 4, 5, 6, 7, 13, 22, 44, 47, on calcareous rocks.

Aspicilia farinosa (Flörke) Flagey, Loc. no.: 6, 12, 36, on calcareous rocks.

☼ ***Aspicilia recedens*** (Taylor) Arnold, Loc. no.: 22, on calcareous rocks.

Athallia cerinella (Nyl.) Arup, Frödén & Söchting, Loc. no.: 35, on *Pinus nigra*.

Athallia holocarpa (Hoffm.) Arup, Frödén & Söchting, Loc. no.: 10, 15, on calcareous rocks.

Bagliettoa calciseda (DC.) Gueidan & Cl.Roux, Loc. no.: 5, on calcareous rocks.

Bagliettoa marmorea (Scop.) Gueidan & Cl.Roux, Loc. no.: 16, 26, 30, 37, 38, on calcareous rocks.

Blastenia crenularia (With.) Arup, Söchting & Frödén, Loc. no.: 5, 10, on calcareous rocks.

Blastenia ferruginea (Huds.) A.Massal., Loc. no.: 3, on *Juniperus excelsa*.

☼ ***Blastenia furfuracea*** (H.Magn.) Arup, Söchting & Frödén, Loc. no.: 7, on *Pinus nigra*. Prior to our study, this species was recorded for Turkey only from Sinop Province (Yıldız et al., 2002).

☼● ***Blastenia herbidella*** (Hue) Servit, Loc. no.: 8, 40, on *Pinus nigra*.

☼ ***Bryoria capillaris*** (Ach.) Brodo & D.Hawksw., Loc. no.: 7, 8, on *Pinus nigra*.

Calogaya biatorina (A.Massal.) Arup, Frödén & Söchting, Loc. no.: 2, 8, 23, 29, 31, 38, on calcareous rocks.

Table. List of collecting localities.

Locality no.	Date of collection	Coordinates	Locality name	Altitude (m)
1	25.09.2009	36°45'19"N, 32°27'69"E	Konya/Antalya, Gevne Valley, Şeker Pınarı <i>Pinus nigra</i> forest	1350
2	25.09.2009	36°50'95"N, 32°26'28"E	Konya, Gevne Valley, Keşefli village, <i>Cedrus libani</i> forest	1900
3	26.09.2009	36°49'83"N, 32°26'69"E	Konya, Gevne Valley, Beyreli plateau, <i>Juniperus</i> spp. and <i>Abies cilicica</i> forest	1700
4	26.09.2009,	36°52'09"N, 32°25'51"E	Konya, Gevne Valley, Tosmur plateau	2000
5	26.09.2009	36°53'12"N, 32°19'12"E	Konya, Gevne Valley, Tosmur plateau, <i>Cedrus libani</i> , forest	2100
6	06.08.2010	36°51'58"N, 32°25'16"E	Konya, Gevne Valley, İshaklı plateau	1821
7	06.08.2010	36°51' 23"N, 32°24'84"E	Konya, Gevne Valley, <i>Cedrus libani</i> forest	1885
8	06.08.2010	36°51'02"N, 32°24'74"E	Konya, Gevne Valley, İshaklı plateau	1925
9	06.08.2010	36°44'65"N, 32°24'11"E	Konya, Gevne Valley, Cıkçilli plateau	1885
10	06.08.2010	36° 45' 86"N, 32°25'10"E	Konya, Gevne Valley, <i>Pinus nigra</i> forest	1700
11	06.08.2010	36°46'99"N, 32°27'62"E	Konya, Gevne Valley, Orta Balçılar, <i>Pinus nigra</i> forest	1610
12	07.08.2010	36°47'02"N, 32°28'97"E	Konya, Gevne Valley, Koçlar plateau, subalpinic zone	2000
13	07.08.2010	36°47'32"N, 32°29'29"E	Konya, Gevne Valley, Yaroğlu	2095
14	07.08.2010	36°46'64"N, 32°27'60"E	Konya, Gevne Valley, around the Cirlasun bridge	1450
15	07.08.2010	36°45'98"N, 32°27'30"E	Konya, Gevne Valley, in front of the service area	1300
16	07.08.2010	36°37'79"N, 32°24'28"E	Antalya, Gevne Valley, Çayarası, <i>Quercus trojana</i> forest	1100–1200
17	07.08.2010	36°46'83"N, 32°26'97"E	Konya, Gevne Valley, Çayarası, <i>Quercus trojana</i> and <i>Pinus nigra</i> forest	1300–1400
18	07.08.2010	36°48'73"N, 32°25'99"E	Konya, Taşkent, Gevne Valley, Beyreli Village, Çamiçi, <i>Pinus nigra</i> forest	1520
19	02.10.2010	36°46'97"N, 32°23'80"E	Konya, Taşkent, Gevne Valley, İshaklı Village, Başyayla	1950
20	02.10.2010	36°47'05"N, 32°24'34"E	Konya, Taşkent, Gevne Valley, Eşekkırıldı	1850–1900
21	03.10.2010	36°47'77"N, 32°25'14"E	Konya, Taşkent, Gevne Valley, Eşekkırıldı	1530
22	28.07.2011	36°48'67"N, 32°21'63"E	Konya, Taşkent, Gevne Valley, İshaklı village	1945
23	28.07.2011	36°49'58"N, 32°23'24"E	Konya, Taşkent, Gevne Valley	1555
24	28.07.2011	36°50'43"N, 32°22'36"E	Konya, Taşkent, Gevne Valley, Beyreli village	1609
25	28.07.2011	36°51'22"N, 32°21'90"E	Konya, Taşkent, Gevne Valley, Göztaş	1558
26	29.07.2011	36°52'34"N, 32°20'74"E	Konya, Taşkent, Gevne Valley, Beyreli village	1575
27	29.07.2011	36°52'16"N, 32°20'95"E	Konya, Taşkent, Gevne Valley, Beyreli village, Güvercinlik	1560
28	30.07.2011	36°51'95"N, 32°21'47"E	Konya, Taşkent, Gevne Valley, Beyreli village, Manar	1540
29	30.07.2011	36°50'71"N, 32°22'40"E	Konya, Taşkent, Gevne Valley, Beyreli village, Güvercinlik	1490
30	30.07.2011	36°47'81"N, 32°25'08"E	Konya, Taşkent, Gevne Valley, Eşekkırıldı	1520
31	30.07.2011	36°47'20"N, 32°25'84"E	Konya, Taşkent, Gevne Valley	1406
32	30.07.2011	36°41'58"N, 32°27'11"E	Antalya, Alanya, Gevne Valley, on the road to Sarıveliler village	1225
33	30.09.2011	36°43'26"N, 32°28'06"E	Antalya, Alanya, Gevne Valley	1240
34	30.09.2011	36°45'20"N, 32°27'44"E	Antalya, Alanya, Gevne Valley, side of the stream	1300
35	30.09.2011	36°46'33"N, 32°27'07"E	Konya, Taşkent, Gevne Valley	1300
36	01.10.2011	36°34'34"N, 32°22'10"E	Antalya, Alanya, Gevne Valley, on the road to Alanya	1275
37	01.10.2011	36°36'22"N, 32°23'52"E	Antalya, Alanya, Gevne Valley, on the road to Alanya	1140
38	01.10.2011	36°37'40"N, 32°24'23"E	Antalya, Alanya, Gevne Valley, Gödüredi plateau	1100
39	01.10.2011	36°39'06"N, 32°24'24"E	Antalya, Alanya, Gevne Valley, side of the Göksu stream, Kerimoluğu	1125

Table. (continued).

Locality no.	Date of collection	Coordinates	Locality name	Altitude (m)
40	01.10.2011	36°40'59"N, 32°26'48"E	Antalya, Alanya, Gevne Valley, in front of the HES, Solaklı	1175
41	01.10.2011	36°42'38"N, 32°28'39"E	Antalya, Alanya, Gevne Valley, on the road to Sariveliler	1650
42	01.10.2011	36°42'28"N, 32°27'37"E	Antalya, Alanya, Gevne Valley, Fakırçalı	1520
43	02.10.2011	36°53'13"N, 32°18'06"E	Konya, Taşkent, Gevne Valley, Tosmur Plateau	1780
44	02.10.2011	36°53'04"N, 32°18'16"E	Konya, Taşkent, Gevne Valley, Tosmur Plateau	1750
45	02.10.2011	36°53'12"N, 32°18'03"E	Konya, Taşkent, Gevne Valley, Tosmur Plateau	1760
46	02.10.2011	36°53'28"N, 32°17'28"E	Konya, Taşkent, Gevne Valley, Tosmur Plateau	1800
47	02.10.2011	36°53'36"N, 32°17'43"E	Konya, Taşkent, Gevne Valley, Tosmur Plateau	1805

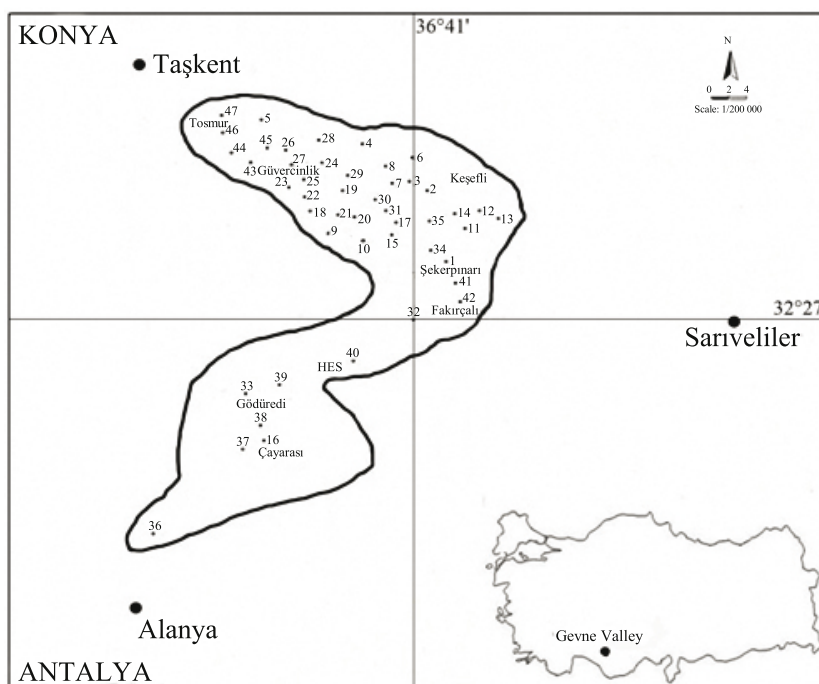


Figure. Map of study area.

● *Calogaya schistidii* (Anzi) Arup, Frödén & Söchting, Loc. no.: 1, 2, 8, 23, 26, 27, 36, 44, on mosses.

☼● *Caloplaca adelphoparasitica* Nimis & Poelt, Loc. no.: 14, 33, parasitic on aspicilioid species and *Caloplaca* sp. Due to the destruction of thallus, identification of host species was not possible.

Caloplaca albobruinosa (Arnold) H.Olivier, Loc. no.: 2, 4, 31, 36, on calcareous rocks.

Caloplaca cerina (Ehrh. ex Hedw.) Th.Fr. var. *cerina*, Loc. no.: 1, 5, 10, 15, 16, 23, 24, 35, on *Pinus nigra*, *Abies cilicica*, *Juniperus excelsa*.

☼ *Caloplaca dalmatica* (A.Massal.) H.Olivier, Loc. no.: 2, on calcareous rocks.

Caloplaca erythrocarpa (Ach.) Zwackh, Loc. no.: 33, 34, on calcareous rocks.

☼ *Caloplaca exsecuta* (Nyl.) Dalla Torre & Sarnth., Loc. no.: 13, on calcareous rocks. Prior to our study, this species was recorded for Turkey only from Gümüşhane Province (Breuss & John, 2004).

☼ *Caloplaca haematites* (Chaub. ex St.-Amans) Zwackh., Loc. no.: 3, 10, 16, 26, 35, 38, on *Ulmus*, *Quercus cerris*.

☼ *Caloplaca inconnexa* (Nyl.) Zahlbr., Loc. no.: 1, 2, 6, 13, 17, 18, 26, 29, 31, 34, 41, parasitic on *Aspicilia* sp., *Acarospora cervina*, *Pyrenodesmia variabilis*. Very common on crustose lichens in the study area.

☼ *Caloplaca insularis* Poelt, Loc. no.: 23, lichenicolous on *Aspicilia* sp.

☼● *Caloplaca irrubescens* (Arnold) Zahlbr., Loc. no.: 4, 40, on calcareous rocks.

☼● *Caloplaca monacensis* (Lederer) Lettau, Loc. no.: 1, 3, 7, 16, on *Pinus nigra*. Prior to our study, this species was recorded for Turkey only from Van Province (Şoun et al., 2011).

☼ *Caloplaca percrocata* (Arnold) J.Steiner, Loc. no.: 3, 8, on calcareous rocks.

☼ *Caloplaca pollinii* (A.Massal.) Jatta, Loc. no.: 24, on *Pinus nigra*. Prior to our study, this species was recorded for Turkey only from Hatay Province (John and Nimis, 1998).

☼ *Caloplaca sororicida* M.Steiner & Poelt, Loc. no.: 22, parasitic on *Caloplaca transcaspica*.

☼● *Caloplaca stillicidiorum* (Vahl) Lynge, Loc. no.: 1, 17, on mosses.

☼● *Caloplaca transcaspica* (Nyl.) Zahlbr., Loc. no.: 1, 2, 3, 5, 11, 12, 19, 22, 23, 28, 47, on calcareous rocks.

☼● *Candelariella aggregata* M.Westb., Loc. no.: 1, on mosses. The species was detailed by Halıcı et al. (2012).

Candelariella aurella (Hoffm.) Zahlbr., Loc. no.: 1, 3, 11, 14, 25, 28, 33, 34, 36, 38, 41, 47, on calcareous rocks.

☼● *Candelariella medians* (Nyl.) A.L.Sm., Loc. no.: 3, 5, 41, on calcareous rocks.

☼ *Candelariella viae-lactae* G.Thor & V.Wirth, Loc. no.: 3, on *Juniperus excelsa*.

Candelariella vitellina (Ehrh.) Müll. Arg., Loc. no.: 3, 5, 15, on calcareous rocks.

Candelariella xanthostigma (Pers. ex Ach.) Lettau, Loc. no.: 1, 3, 5, 8, 16, 26, on *Pinus nigra*.

▲☼● *Cercidospora caudata* Kernst., Loc. no.: 13, lichenicolous on the thallus of *Pyrenodesmia chalybaea*.

▲● *Cercidospora epicarphinea* (Nyl.) Grube & Hafellner, Loc. no.: 1, 13, lichenicolous on the thallus of *Pyrenodesmia variabilis*.

▲ *Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros., Loc. no.: 5, 13, lichenicolous on the thallus of *Protoparmeliopsis muralis*.

Circinaria caesiocinerea (Nyl. ex Malbr.) A.Nordin, S.Savić & Tibell, Loc. no.: 5, 31, on calcareous rocks.

Circinaria calcarea (L.) A.Nordin, S.Savić & Tibell, Loc. no.: 1, 2, 3, 5, 8, 9, 11, 12, 13, 14, 25, 33, 34, 43, on calcareous rocks.

Cladonia fimbriata (L.) Fr., Loc. no.: 39, on mosses.

Cladonia pyxidata (L.) Hoffm., Loc. no.: 16, 26, 37, on mosses.

Collema cristatum (L.) Weber ex F.H.Wigg., Loc. no.: 41, on calcareous rocks.

☼ *Collema furfuraceum* (Arnold) Du Rietz, Loc. no.: 6, 7, 16, on calcareous rocks.

☼ *Collema fuscovirens* (With.) J.R.Laundon, Loc. no.: 2, on calcareous rocks.

● *Collema polycarpon* Hoffm., Loc. no.: 27, 40, on calcareous rocks.

● *Collema subflaccidum* Degel., Loc. no.: 16, on calcareous rocks.

Collema tenax (Sw.) Ach., Loc. no.: 3, 31, on calcareous rocks.

● *Collema undulatum* Laurer ex Flot., Loc. no.: 36, on calcareous rocks.

Dermatocarpon intestiniforme (Körb.) Hasse, Loc. no.: 9, 22, 27, on calcareous rocks. The species was collected on hard calcareous rocks between 1500 and 2000 m in the study area.

Dermatocarpon miniatum (L.) W.Mann, Loc. no.: 3, 6, 7, 9, 26, 45, on calcareous rocks.

Diplotomma alboatrum (Hoffm.) Flot., Loc. no.: 3, 13, 39, on *Juniperus excelsa*.

Diplotomma epipolium (Ach.) Arnold, Loc. no.: 2, 11, 12, 23, 26, 33, on calcareous rocks.

▲ *Endococcus rugulosus* (Borrer ex Leight.) Nyl., Loc. no.: 5, 13, lichenicolous on the thallus of *Acarospora fuscata*.

● *Evernia divaricata* (L.) Ach., Loc. no.: 36, on *Abies cilicica*.

● *Farnoldia hypocrita* (A.Massal.) Fröberg, Loc. no.: 41, on calcareous rocks.

Farnoldia jurana (Schaer.) Hertel, Loc. no.: 42, on calcareous rocks.

● *Flavoparmelia caperata* (L.) Hale, Loc. no.: 5, on *Cedrus libani*.

☼ *Flavoplaca citrina* (Hoffm.) Arup, Frödén & Söchting, Loc. no.: 46, on calcareous rocks.

☼ *Glypholecia scabra* (Pers.) Müll. Arg., Loc. no.: 13, on calcareous rocks.

☼ *Gyalidea lecideopsis* var. *kurdistanica* (J.Steiner) Vězda, Loc. no.: 14, on calcareous rocks. This variety was described from Elazığ Province by Steiner (1921) and reported subsequently by Candan and Türk (2008) from Adıyaman, Elazığ, and Malatya provinces.

Gyalolechia flavorubescens (Huds.) Söchting, Frödén & Arup, Loc. no.: 3, 15, 38, on *Juniperus excelsa*, *Prunus*, *Quercus trojana*.

Gyalolechia flavovirescens (Wulfen) Söchting, Frödén & Arup, Loc. no.: 2, 3, 5, 18, on calcareous rocks.

Gyalolechia fulgens (Sw.) Söchting, Frödén & Arup, Loc. no.: 1, on mosses.

Hypogymnia tubulosa (Schaer.) Hav., Loc. no.: 40, on *Pinus nigra*.

▲● *Intralichen christiansenii* (D.Hawksw.) D.Hawksw. & M.S.Cole, Loc. no.: 1, in the hymenium on *Caloplaca transcaspica*.

Lecania cyrtella (Ach.) Th.Fr., Loc. no.: 10, on calcareous rocks.

☼ *Lecania inundata* (Hepp ex Körb.) M.Mayrhofer, Loc. no.: 9, 46, on calcareous rocks.

● *Lecania rabenhorstii* (Hepp) Arnold, Loc. no.: 16, on calcareous rocks.

☼ *Lecania turicensis* (Hepp) Müll. Arg., Loc. no.: 26, on calcareous rocks.

● *Lecanora agardhiana* Ach., Loc. no.: 2, 3, 10, 20, 33, 42, on calcareous rocks.

☼ *Lecanora albescens* (Hoffm.) Branth & Rostr., Loc. no.: 14, on calcareous rocks.

● *Lecanora allophana* (Ach.) Nyl., Loc. no.: 32, on *Pinus nigra*.

Lecanora argentata (Ach.) Malme, Loc. no.: 26, on *Fraxinus angustifolia*.

● *Lecanora bolcana* (Pollich) Poelt, Loc. no.: 16, 23, 38, on siliceous rocks.

Lecanora campestris (Schaer.) Hue, Loc. no.: 11, 26, on *Pinus nigra* and *Fraxinus angustifolia*.

Lecanora carpinea (L.) Vain., Loc. no.: 11, on *Pinus nigra*.

Lecanora chlarotera Nyl., Loc. no.: 3, 5, 7, 16, 26, 33, 38, 40, on *Juniperus excelsa*, *Prunus*, *Ulmus*, *Quercus cerris*, *Fraxinus angustifolia*.

☼ *Lecanora circumborealis* Brodo & Vitik., Loc. no.: 3, on *Abies cilicica*.

Lecanora crenulata Nyl., Loc. no.: 18, on calcareous rocks.

Lecanora dispersa (Pers.) Röhl., Loc. no.: 1, 2, 3, 6, 13, 15, 19, 23, 28, 33, 34, 38, 40, 45, on calcareous rocks, on *Juniperus excelsa*.

* *Lecanora flowersiana* H.Magn. (Figure 2). Loc. no.: 15, on *Prunus*. The species was detailed by Śliwa (2007). It is characterized by reddish brown apothecial discs and white distinctly cracked apothecial margin. Asci 8-spored, ascospores are 10.5–18 × 4–6 µm. The species occurs in central and western North America (Śliwa, 2007). The species is a new record for Turkey.

Lecanora hagenii (Ach.) Ach. var. *hagenii*, Loc. no.: 3, on *Juniperus excelsa*.

Lecanora intumescens (Rebent.) Rabenh., Loc. no.: 8, 20, on *Pinus nigra*.

* *Lecanora invadens* H.Magn. (Figure 2), Loc. no.: 40, The species is parasitic on *Aspicilia contorta* subsp. *hoffmanniana*. It was detailed by Śliwa (2007). The species is a new record for Turkey. It often grows overgrowing or parasitic on other lichens, e.g., *Aspicilia* spp., *Lecanora* spp., and *Verrucaria* spp. Ascospores broadly ellipsoid, 9–12 × 6–8 µm. The species occurs in Europe, Asia, and North America (Śliwa, 2007).

☼ *Lecanora persimilis* (Th.Fr.) Arnold, Loc. no.: 15, on *Prunus*.

Lecanora polytropa (Ehrh. ex Hoffm.) Rabenh., Loc. no.: 10, 16, on siliceous rocks.

Lecanora rupicola (L.) Zahlbr., Loc. no.: 10, on calcareous rocks.

Lecidea atrobrunnea (DC.) Schaer., Loc. no.: 6, on siliceous rocks.

Lecidea fuscoatra (L.) Ach, Loc. no.: 6, on siliceous rocks.

☼ *Lecidea sarcogynoides* Körb., Loc. no.: 10, on calcareous rocks.

☼ *Lecidella anomaloides* (A.Massal.) Hertel & H.Kiliyas, Loc. no.: 1, on calcareous rocks.

Lecidella carpathica Körb., Loc. no.: 10, 38, on calcareous rocks.

Lecidella elaeochroma (Ach.) Hazsl., Loc. no.: 3, 5, 7, 8, 15, 16, 26, 35, 38, 39, 40, on *Juniperus excelsa*, *Quercus trojana*, *Prunus*, *Pinus nigra*, *Fraxinus angustifolia*, *Abies cilicica*. Very common on both deciduous trees and evergreen trees.

☼● *Lecidella patavina* (A.Massal.) Knoph & Leuckert, Loc. no.: 2, 3, 6, 34, on calcareous rocks.

Lecidella stigmatae (Ach.) Hertel & Leuckert, Loc. no.: 1, 2, 3, 5, 9, 10, 11, 12, 23, 41, 47, on calcareous rocks.

☼ *Lecidoma demissum* (Rutstr.) Gotth. Schneid. & Hertel, Loc. no.: 2, on soil.

Leproplaca cirrochroa (Ach.) Arup, Frödén & Söchting, Loc. no.: 27, on calcareous rocks.

Leproplaca xantholyta (Nyl.) Hue, Loc. no.: 16, 39, on calcareous rocks.

☼ *Leptogium cyanescens* (Rabenh.) Körb., Loc. no.: 9, on mosses.

Leptogium gelatinosum (With.) J.R.Laundon, Loc. no.: 36, 37, on mosses.

☼ *Leptogium lichenoides* (L.) Zahlbr., Loc. no.: 17, on calcareous rocks.

Letharia vulpina (L.) Hue, Loc. no.: 5, on *Abies cilicica*.

Lobothallia alphoplaca (Wahlenb.) Hafellner, Loc. no.: 16, on calcareous rocks.

Lobothallia radiosa (Hoffm.) Hafellner, Loc. no.: 2, 3, 5, 18, 25, 31, 38, 40, on calcareous rocks.

Megaspora verrucosa (Ach.) Hafellner & V.Wirth, Loc. no.: 1, 3, on mosses, *Fraxinus angustifolia*, *Acer platanoides*. This species grows on both deciduous trees and mosses in the Mediterranean region.

Melanohalea exasperata (De Not.) O.Blanco et al., Loc. no.: 20, on *Pinus nigra*.

Melanohalea exasperatula (Nyl.) O.Blanco et al., Loc. no.: 7, on *Pinus nigra*.

▲☼ *Muellerella erratica* (A.Massal.) Hafellner & V.John, Loc. no.: 2, 12, lichenicolous on thalli of *Aspicilia contorta* subsp. *hoffmanniana* and *Caloplaca transcaspica*.

▲ *Muellerella pygmaea* (Körb.) D.Hawksw., Loc. no.: 2, 9, 12, 13, 19, lichenicolous on thalli of *Gyalolechia flavovirescens*, *Lecidella stigmatae*, *Caloplaca* sp., *Circinaria calcarea*, *Aspicilia farinosa*, and *Caloplaca transcaspica*.

▲ *Muellerella ventosicola* (Mudd) D.Hawksw., Loc. no.: 10, lichenicolous on thalli of *Aspicilia contorta* subsp. *hoffmanniana*.

Mycobilimbia lurida (Ach.) Hafellner & Türk, Loc. no.: 42, on soil.

Ochrolechia pallescens (L.) A.Massal., Loc. no.: 30, 33, 40, on *Quercus trojana*, *Juniperus excelsa*.

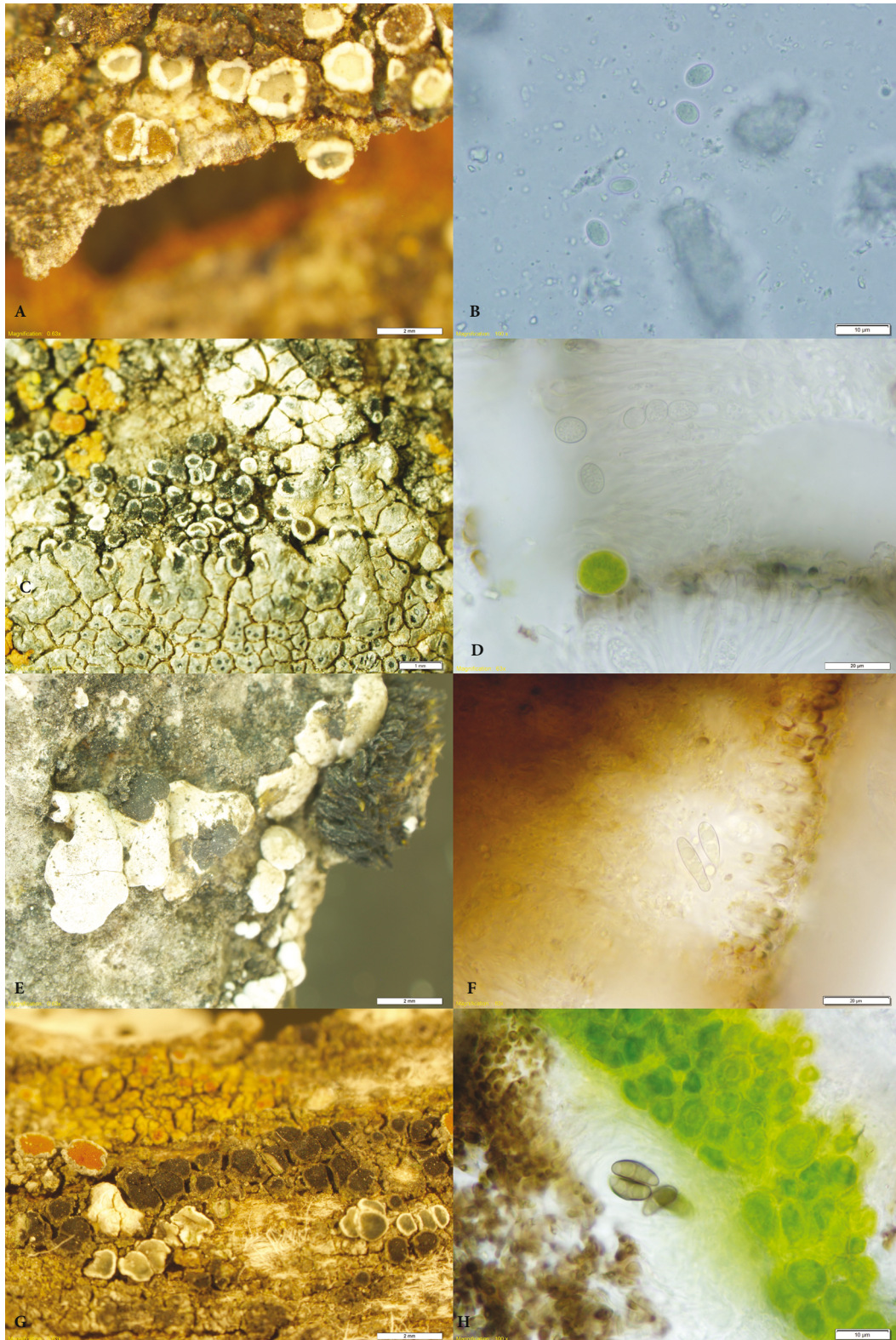


Figure 2. **A-** Thallus of *Lecanora flowersiana*. **B-** Ascospores of *L. flowersiana*. **C-** Thallus of *Lecanora invadens*. **D-** Ascospores of *L. invadens*. **E-** Thallus of *Psora cerebriformis*. **F-** Ascospores of *P. cerebriformis*. **G-** Thallus of *Rinodina colobinoides*. **H-** Ascospores of *R. colobinoides*. Scale bars: A = 2 mm, B = 10 µm, C = 1 mm, D = 20 µm, E = 2 mm, F = 20 µm, G = 2 mm, H = 10 µm.

Parabagliettoa dufourii (DC.) Gueidan & Cl.Roux, Loc. no.: 1, on calcareous rocks.

Parmelia saxatilis (L.) Ach., Loc. no.: 30, on *Pinus nigra*.

• ***Parmelina pastillifera*** (Harm.) Hale, Loc. no.: 30, 40, on *Pinus nigra*.

Parmelina tiliacea (Hoffm.) Hale, Loc. no.: 16, 38, 40, on *Quercus trojana*.

☼ ***Peltigera monticola*** Vitik., Loc. no.: 8, 16, 19, on mosses. The genus *Peltigera* is considered one of the richest genera of lichenized fungus in terms of harboring lichenicolous fungi (Hawksworth, 1980), but on this species, no lichenicolous fungus was observed.

Pertusaria albescens (Huds.) M.Choisy & Werner, Loc. no.: 37, on *Quercus trojana*.

Physcia adscendens (Fr.) H.Olivier, Loc. no.: 3, 7, 15, 16, 38, on *Juniperus excelsa*, *Prunus*, *Cedrus libani*.

Physcia aipolia (Ehrh. ex Humb.) Hampe ex Fűrnr., Loc. no.: 5, 15, 16, on *Abies cilicica*, *Pinus nigra*.

☼ ***Physcia clementei*** (Turner) Lynge, Loc. no.: 15, on *Quercus trojana*.

Physcia leptalea (Ach.) DC., Loc. no.: 15, on *Pinus nigra*.

Physcia magnussonii Frey, Loc. no.: 6, 10, on siliceous rocks.

Physcia stellaris (L.) Nyl., Loc. no.: 3, 7, 16, 20, 40, on *Abies cilicica*, *Juniperus excelsa*, *Cedrus libani*, *Pinus nigra*.

• ***Physcia tenella*** (Scop.) DC., Loc. no.: 3, 5, 26, on *Juniperus excelsa*, *Ulmus*.

☼ ***Physcia tribacia*** (Ach.) Nyl., Loc. no.: 10, on calcareous rocks.

Physconia distorta (With.) J.R.Laundon, Loc. no.: 16, 26, 30, 35, 40, on *Quercus trojana*.

Physconia muscigena (Ach.) Poelt, Loc. no.: 37, on mosses.

Physconia perisidiosa (Erichsen) Moberg, Loc. no.: 16, on *Quercus trojana*.

☼ ***Placidium lachneum*** (Ach.) de Lesd., Loc. no.: 3, on soil.

Placidium rufescens (Ach.) A.Massal., Loc. no.: 3, on calcareous rocks.

Placidium squamulosum (Ach.) Breuss, Loc. no.: 17, on soil.

Placocarpus schaereri (Fr.) Breuss, Loc. no.: 9, on calcareous rocks.

☼ ***Placopyrenium fuscillum*** (Turner) Gueidan & Cl.Roux, Loc. no.: 9, on calcareous rocks.

Placynthium nigrum (Huds.) Gray, Loc. no.: 34, on calcareous rocks.

Platismatia glauca (L.) W.L.Culb. & C.F.Culb., Loc. no.: 36, 38, on *Quercus trojana*, *Abies cilicica*.

Pleurosticta acetabulum (Neck.) Elix & Lumbsch, Loc. no.: 16, 30, on *Quercus trojana*.

Polycauliona candelaria (L.) Frödén, Arup & Søchting, Loc. no.: 35, on *Quercus trojana*.

☼ ***Porpidia crustulata*** (Ach.) Hertel & Knoph, Loc. no.: 4, on calcareous rocks.

Porpidia macrocarpa (DC.) Hertel & A.J.Schwab, Loc. no.: 8, 18, 23, on calcareous rocks.

☼ ***Porpidia speirea*** (Ach.) Kremp., Loc. no.: 17, on calcareous rocks.

☼ ***Porpidia superba*** (Körb.) Hertel & Knoph, Loc. no.: 13, on calcareous rocks.

☼ ***Protoblastenia calva*** (Dicks.) Zahlbr., Loc. no.: 1, on calcareous rocks.

☼ ***Protoblastenia rupestris*** (Scop.) J.Steiner, Loc. no.: 11, on calcareous rocks.

Protoparmeliopsis muralis (Schreb.) M.Choisy, Loc. no.: 5, 6, 9, 13, 17, 18, 23, 34, 38, on calcareous rocks.

Pseudevernia furfuracea (L.) Zopf var. *furfuracea*, Loc. no.: 5, 40, on *Pinus nigra*.

Pseudevernia furfuracea var. *ceratea* (Ach.) D.Hawksw., Loc. no.: 37, on *Pinus nigra*.

* ***Psora cerebriformis*** W.A.Weber (Figure 2), Loc. no.: 2, on calcareous rocks at 1900 m altitude. Squamules 4 to 8 mm. Upper surface gray, partly pruinose. Apothecia up to 2 mm, black, epruinose. Ascospores simple, ellipsoid, 10–17 × 6–8 µm. Thallus K (KOH) + yellow, contains atranorin. Only known in western North America in the world (Timdal, 1986; Brodo et al., 2001). See Timdal (1986) for detailed information. The species is a new record for Turkey.

Psora decipiens (Hedw.) Hoffm., Loc. no.: 17, 36, on soil.

Pyrenodesmia alociza (A.Massal.) Arnold, Loc. no.: 11, 13, 14, 36, on calcareous rocks.

Pyrenodesmia chalybaea (Fr.) A.Massal., Loc. no.: 11, 13, 33, on calcareous rocks.

Pyrenodesmia erodens (Tretiach, Pinna & Grube) Søchting, Arup & Frödén, Loc. no.: 2, on calcareous rocks. This species grows on hard calcareous rocks.

Pyrenodesmia variabilis (Pers.) A.Massal., Loc. no.: 1, 2, 3, 5, 6, 9, 13, 14, 23, 25, 31, 33, 34, 38, 40, 42, very common on calcareous rocks.

Ramalina farinacea (L.) Ach., Loc. no.: 16, 38, on *Quercus trojana*.

Ramalina fastigiata (Pers.) Ach., Loc. no.: 16, on *Quercus trojana*.

• ***Ramalina polymorpha*** (Lilj.) Ach., Loc. no.: 40, on *Quercus trojana*.

Rhizocarpon geminatum Körb., Loc. no.: 10, on siliceous rocks.

Rhizocarpon geographicum (L.) DC., Loc. no.: 5, 8, 10, 16, 23, on siliceous rocks.

Rhizocarpon lecanorinum Anders, Loc. no.: 6, 10, on siliceous rocks.

☼ *Rhizocarpon macrosporum* Räsänen, Loc. no.: 17, on siliceous rocks.

Rhizocarpon viridiatrum (Wulfen) Körb., Loc. no.: 8, on siliceous rocks.

Rimularia insularis (Nyl.) Rambold & Hertel, Loc. no.: 5, lichenicolous lichen on *Lecanora rupicola*.

● ***Rinodina albana*** (A.Massal.) A.Massal., Loc. no.: 16, on *Pinus nigra*.

Rinodina bischoffii (Hepp.) A.Massal., Loc. no.: 1, 2, 3, 10, 34, on calcareous rocks.

Rinodina calcarea (Arnold) Arnold, Loc. no.: 3, 8, 13, on calcareous rocks.

☼ *Rinodina castanomela* (Nyl.) Arnold, Loc. no.: 1, 11, 23, 38, on calcareous rocks.

* *Rinodina colobinoides* (Nyl.) Zahlbr. (Figure 2), Loc. no.: 3, on *Juniperus excelsa*. This species is characterized by its blastidiate white-gray thallus, K (KOH) + purple-rose reaction in apothecial tissues and *Pachysporaria*-type ascospores. Ascospores are 15–20 × 7–10 µm. On bark of *Juniperus excelsa* at 1700 m altitude. See Giralt (2001) for detailed information. The species is a new record for Turkey.

Rinodina gennarii Bagl., Loc. no.: 6, on calcareous rocks.

☼ *Rinodina guzzinii* Jatta, Loc. no.: 1, 2, 3, 5, 10, 14, 23, on calcareous rocks.

Rinodina immersa (Körb.) Arnold, Loc. no.: 5, 11, 14, 25, 33, 42, 43, 45, on calcareous rocks.

Rinodina lecanorina (A.Massal.) A.Massal., Loc. no.: 13, 33, 34, 41, 47, on calcareous rocks.

● *Rinodina luridata* (Körb.) H.Mayrhofer, Scheid. & Sheard, Loc. no.: 41, on calcareous rocks.

☼ *Rinodina parasitica* H.Mayrhofer & Poelt, Loc. no.: 43, parasitic on *Aspicilia contorta* subsp. *hoffmanniana*.

Rinodina pyrina (Ach.) Arnold, Loc. no.: 15, on *Prunus*.

Rinodina sophodes (Ach.) A.Massal., Loc. no.: 5, on *Cedrus libani*.

☼ ***Rinodinella controversa*** (A.Massal.) H.Mayrhofer & Poelt, Loc. no.: 18, on calcareous rocks.

Rufoplaca arenaria (Pers.) Arup, Söchting & Frödén, Loc. no.: 9, on calcareous rocks.

☼ *Rufoplaca subpallida* (H.Magn.) Arup, Söchting & Frödén, Loc. no.: 3, calcareous rocks. Prior to our study, this species was recorded for Turkey only from Hatay Province (John, 1996).

Rusavskia elegans (Link) S.Y.Kondr. & Kärnefelt, Loc. no.: 4, 6, 9, 13, 31, 47, on calcareous rocks.

☼ ***Sarcogyne fallax*** H.Magn., Loc. no.: 3, on calcareous rocks.

☼ *Sarcogyne magnispora* K.Knudsen & Halıcı, Loc. no.: 13, 20, 45, on calcareous rocks. Prior to our study, this species was recorded for Turkey only from Sivas Province (Knudsen et al., 2009).

Squamarina cartilaginea (With.) P.James, Loc. no.: 15, on calcareous rocks.

Squamarina gypsacea (Sm.) Poelt, Loc. no.: 1, on calcareous rocks.

Staurothele hymenogonia (Nyl.) Th.Fr., Loc. no.: 2, on calcareous rocks.

▲☼ ***Stigmatidium squamariae*** (B. de Lesd.) Cl. Roux & Triebel, Loc. no.: 6, lichenicolous on thalli and apothecia of *Protoparmeliopsis muralis*.

☼ ***Toninia opuntioides*** (Vill.) Timdal, Loc. no.: 18, on mosses.

Toninia physaroides (Opiz) Zahlbr., Loc. no.: 1, on mosses.

☼● *Toninia rosulata* (Anzi) H.Olivier, Loc. no.: 6, 18, 40, on mosses.

Toninia sedifolia (Scop.) Timdal, Loc. no.: 1, on mosses.

☼ *Toninia taurica* (Szatala) Oxner, Loc. no.: 23, on mosses.

☼ ***Variospora aurantia*** (Pers.) Arup, Frödén & Söchting, Loc. no.: 23, 27, on calcareous rocks.

Variospora flavescens (Huds.) Arup, Frödén & Söchting, Loc. no.: 2, on calcareous rocks.

Variospora velana (A.Massal.) Arup, Söchting & Frödén, Loc. no.: 2, 13, 23, 33, 42, 45, 47, on calcareous rocks.

☼ ***Verrucaria compacta*** (A.Massal.) Jatta, Loc. no.: 23, on calcareous rocks.

☼ *Verrucaria macrostoma* Dufour ex DC., Loc. no.: 14, on calcareous rocks.

Verrucaria muralis Ach., Loc. no.: 11, 12, on calcareous rocks.

Verrucaria nigrescens Pers., Loc. no.: 1, 2, 3, 5, 8, 10, 14, 22, 33, 34, 40, 45, 47, on calcareous rocks.

☼ *Verrucaria pinguicula* A.Massal., Loc. no.: 27, on calcareous rocks.

Verruculopsis lecideoides (A.Massal.) Gueidan & Cl. Roux, Loc. no.: 3, 5, 34, on calcareous rocks.

☼ ***Xanthocarpia crenulatella*** (Nyl.) Frödén, Arup & Söchting, Loc. no.: 3, 8, 14, 36, 42, on calcareous rocks.

☼● *Xanthocarpia ferrarii* (Bagl.) Frödén, Arup & Söchting, Loc. no.: 1, 2, 28, 40, 43, 44, on calcareous rocks.

☼● *Xanthocarpia interfulgens* (Nyl.) Frödén, Arup & Söchting, Loc. no.: 1, 6, 9, 25, 33, 38, lichenicolous on *Pyrenodesmia variabilis*.

Xanthocarpia lactea (A.Massal.) A.Massal., Loc. no.: 2, 3, 25, 26, 34, 47, on calcareous rocks.

☼● *Xanthocarpia marmorata* (Bagl.) Frödén, Arup & Söchting, Loc. no.: 3, 9, 40, on calcareous rocks.

☼● *Xanthocarpia tominii* (Savicz) Frödén, Arup & Söchting, Loc. no.: 1, on calcareous rocks. Prior to our study, this species was recorded for Turkey only from Van Province (Vondrák et al., 2012).

☼ ***Xanthomendoza fulva*** (Hoffm.) Söchting, Kärnefelt & S. Y.Kondr., Loc. no.: 15, 24, on *Quercus trojana*.

Xanthoparmelia pulla (Ach.) O. Blanco et al., Loc. no.: 16, 38, calcareous rocks.

Xanthoria parietina (L.) Th. Fr., Loc. no.: 16, 38, on *Quercus trojana*.

▲☀ *Zwackhiomyces cervinae* Calat., Triebel & Pérez-Ortega, Loc. no.: 3, on lichenicolous thalli of *Acarospora cervina*.

▲☀ *Zwackhiomyces coepulonus* (Norman) Grube & R. Sant., Loc. no.: 9, lichenicolous on thalli of *Rusavskia elegans*.

▲☀ *Zwackhiomyces lecanorae* (Stein) Nik. Hoffm. & Hafellner, Loc. no.: 14, lichenicolous on thalli of *Lecanora albescens*.

▲☀ *Zwackhiomyces lithoicae* (de Lesd.) Hafellner & V. John, Loc. no.: 18, lichenicolous on thalli of *Gyalolechia flavovirescens*.

▲ *Zwackhiomyces sphinctrinoides* (Zwackh) Grube & Hafellner, Loc. no.: 6, lichenicolous on thalli of *Rusavskia elegans*.

▲☀ *Zwackhiomyces turcicus* Kocakaya, Halıcı & Aksoy, Loc. no.: 10, lichenicolous on thalli of *Physcia magnussonii*.

5. Discussion

This list includes 233 taxa including 215 lichenized and 18 lichenicolous fungal taxa. Of these, 80 taxa from the province of Konya and 34 taxa from the province of Antalya are reported for the first time from these provinces. In addition 4 taxa, namely *Lecanora flowersiana* H. Magn., *Lecanora invadens* H. Magn., *Psora cerebriiformis* W. A. Weber, and *Rinodina colobinoides* (Nyl.) Zahlbr., are reported from Turkey for the first time.

Blastenia furfuracea, *Caloplaca exsecuta*, *C. monacensis*, *C. pollinii*, *C. subpallida*, *Gyalidea lecidopsis* var. *kurdistanica*, *Xanthocarpia tominii*, and *Sarcogyne magnispora* are reported from Turkey for the second time.

In Gevne Valley, the genera represented by the most intraspecific taxa are *Lecanora* (18 taxa), *Caloplaca* (16 taxa), *Rinodina* (13 taxa), *Aspicilia* (9), and *Physcia* (8 taxa).

When we analyze the substrata on which the lichen species grow, it is obvious that the saxicolous species are the most common in the area, accounting for 54% (50% on calcareous rocks and 4% on siliceous rocks). Calcareous rocks are especially predominant in the study area. The species on bark and wood of both deciduous and evergreen trees are the second most common group, accounting for 26% (19% on evergreen trees and 7% on deciduous trees), while 8% of the species are found directly on soil or mosses.

Some species was grown on lichens, such as *Caloplaca inconnexa* (on *Pyrenodesmia variabilis*, *Acarospora cervina*, and aspicilioid species), *Caloplaca adelphoparasitica*

(on *Caloplaca* sp. and aspicilioid species), *Caloplaca sororicida* (on *Caloplaca transcaspica*), *Caloplaca insularis* (on aspicilioid species), *Placocarpus schaeferi* (on *Protoparmeliopsis muralis*), and *Rimularia insularis* (on *Lecanora rupicola*). These are known as “lichenicolous lichens” apart from lichenicolous fungi (Lawrey and Diederich, 2003).

The most common species on calcareous rocks are *Aspicilia contorta* subsp. *hoffmanniana* (15 localities); *Acarospora cervina*, *Circinaria calcarea*, and *Lecanora dispersa* (14); *Verrucaria nigrescens* (13); *Pyrenodesmia variabilis* and *Candelariella aurella* (12); *Lecidella stigmatae* (11); *Circinaria desertorum* and *Caloplaca transcaspica* (10); *Lobothallia radiosa*, *Protoparmeliopsis muralis*, and *Rinodina immersa* (8); and *Rinodina guzzinii* (7). All of these species are common and have a wide distribution in Europe (Purvis et al., 1992; Wirth, 1995).

Siliceous rocks are not common in the study area. The common species on siliceous rocks are *Acarospora laqueata*, *Blastenia crenularia*, *Lecanora bolcana*, *Lecanora polytropa*, *Lecidea atrobrunnea*, *L. fuscoatra*, *Physcia magnussonii*, *Rhizocarpon geminatum*, *R. geographicum*, *R. lecanorinum*, *R. macrosporum*, and *R. viridiatrum*. All of these species are common and have a wide distribution in Europe (Purvis et al., 1992; Wirth, 1995).

The most common species on the bark of trees are *Lecidella elaeochroma* (11 localities), *Lecanora chlarotera* (8), *Caloplaca haematites* (6), *Candelariella xanthostigma* (6), and *Physcia adscendens*, *Physcia stellaris*, and *Physconia distorta* (5).

The species on the soil are *Lecidoma demissum*, *Mycobilimbia lurida*, *Placidium lachneum*, *P. rufescens*, *P. squamulosum*, and *Psora decipiens*. The number of terricolous lichen is quite low. The reason for this is thought to be livestock activities in the study area. The species on mosses are *Calogaya schistidii*, *Caloplaca stillicidiorum*, *Cladonia fimbriata*, *C. pyxidata*, *Gyalolechia fulgens*, *Leptogium cyanescens*, *Megaspora verrucosa*, *Peltigera monticola*, *Toninia opuntioides*, *T. physaroides*, *T. rosulata*, *T. sedifolia*, and *T. taurica*.

In all, 18 species of lichenicolous fungi were identified. The richest genera were *Zwackhiomyces* (6 taxa); *Arthonia*, *Cercidospora*, and *Muellerella* (3 taxa); and *Endococcus*, *Intralichen*, and *Stigmatidium* (1 taxa). The crustose lichen genera *Aspicilia*, *Caloplaca*, and *Lecanora* harbor most of the lichenicolous species, as they are predominant in the study area.

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