PHYTOLOGIA BALCANICA
vol. 31: 37-56 • Sofia • 2025

DOI 10.3897/phytolbalcan.31.e161611

Lichens and lichenicolous fungi from Batman Province, Turkey

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Received: January 01, 2025 | **Accepted:** February 17, 2025 | **Published:** June 13, 2025

Abstract

This study is a contribution to the lichen biota of Turkey. A total of 360 taxa (324 lichens, 29 lichenicolous fungi and seven lichenicolous lichens) have been identified from 124 sites in the Batman Province of Turkey. Of these, 291 lichens, 28 lichenicolous fungi and six lichenicolous lichens are new records for the Batman Province. *Lobothallia parasitica*, a lichenicolous lichen, is new to Turkey. Seven lichens (*Candelariella oleifera, Circinaria scabridula, Clavascidium lacinulatum, Johnsheardia zwackhiana, Miriquidica leucophaea, Sarcogyne platycarpoides* and *Staurothele bacilligera*) and one lichenicolous fungus (*Lichenochora verrucicola*) have been recorded for the second time from Turkey.

Key words

Ascomycota, biodiversity, lichens, new records

Citation

Yazıcı, K. & Aslan, A. 2025. Lichens and lichenicolous fungi from Batman Province, Turkey. – Phytologia Balcanica, 31: 37-56. -- ISSN 1310-7771 (print), 1314-0027 (online).

Introduction

In recent years, the number of studies on lichens and lichenicolous fungi have has considerably increased in many regions of Turkey (John & Türk 2017; John & al. 2020; Güvenç & al. 2020).

Although approximately 2000 lichens and 250 lichenicolous fungi have been reported, still many more areas remain in need of further investigation. According to the latest records by John & Güvenç (2023), the number of species recorded from Turkey so far has been 2060 (1811 lichenized and 249 lichenicolous fungi).

Recently, many studies have been carried out on lichen biotas in the eastern and southeastern regions of Anatolia, including Batman Province (Oran & Öztürk 2007; Yazıcı & al. 2008, 2021, 2023; Şenkardeşler & Calpa 2011; Yazıcı & Aslan 2022, 2023). Previously, only 37 lichen taxa and one lichenicolous fungus (*Rhizocarpon ochroleciae*) have been reported from the Batman Province (John & Türk 2017; Oran & Öztürk 2007; Yazıcı & al. 2008, 2021, 2023; Şenkardeşler & Calba 2011; John & al. 2020; Yazıcı & Aslan 2022, 2023).

However, no comprehensive study has been carried out in the Batman Province so far, and the earlier studies do not reflect the wide-ranging lichen and lichenicolous fungus diversity of the region. Finally, a total of 41 records (one lichenicolous and 40 lichenized fungi) have been so far reported from the Batman Province (John & Güvenç 2023).

The present paper is a contribution to that checklist.

The Batman Province is located between 37°29′22″-38°31′03″N and 40°59′30″-41°43′40″E. It borders on the provinces of Muş in the north, Diyarbakır in the west, Bitlis and Siirt in the east, and Mardin in the south. The average altitude amounts to 550 m (Kılıçoğlu & al. 1986).

Most of the territory of the Batman Province, located in southeastern Anatolia, is covered with mountains. The north and northeast are high, steep and mountainous, and the south is mountainous and rugged. The southern Muş Mountains, which form the southeastern part of the Taurus Mountain complex in the north, completely encompass the Sason and Kozluk districts. The important mountains of the province are: Sason Mts (Aydınlık Mts: 2973 m), Mt Meleto (2967 m), Mt Kuşaklı (1947 m), Mt Avcı (2121 m), Mt Meydanok (2042 m), Kortepe (2082 m) and the rest in the southern part of Mt Raman (1288 m). The highest among them are Mt Sason (Aydınlık Mts, 2973 m), Zupser (2721 m) and Tanrıdağı (2044 m) (Kılıçoğlu & al. 1986).

In terms of tectonic location, Batman is set on the Arabian Plate just southwards of the Bitlis-Zağros Suture Belt (BZK). The Bitlis-Zağros Suture Zone is the zone where the Eurasian and Arabian plates were brought together by collision. It has the features of a thrust fault and is one of the three most important faults in Turkey, along with the North Anatolian Fault Zone and the East Anatolian Fault Zone.

Geological characteristics of the Batman Province feature sliced metamorphic and ophiolitic rocks belonging to the Eurasian Plate in the north of BZK. In the south of that belt, deformed, folded and faulted sedimentary rocks of the Arabian Platform crop out. In the immediate vicinity of the Batman Province, six different rock groups could be seen (Eren 2023).

The rocks outcrops around Batman were warped and with folded, faulted and cracked structure due to the formation of the Bitlis-Zağros Suture Zone and subsequent compressional movements. Structurally, the largest structures in the region were folded, oriented in the east-west and northwest-southeast directions.

These folded structures trended west and northwest-southeast. Ramandağ Anticline, Beşiri Synclinorium and Yanarsudağı Anticline were the largest folded structures (Eren 2023).

The Bitlis-Zağros Suture Zone (Southeastern Anatolian Thrust) around the Baykan-Kozluk-Sason passes in the north of the region is the most important fault of the region in terms of structure. Faults of significant length run parallel to it in the immediate vicinity of Batman. The most important of these are the Hasankeyf Fault and the Yanarsu Mountain Fault. Apart from them, there are vertical slip faults around Oymataş and southwards of Danalı (Eren 2023).

Batman is mostly covered with steppes. Plant species include various herbs, shrubs and trees. In that region, in addition to steppe plants, small *Quercus* tree communities can be found in the mountainous areas. The natural vegetation consists of *Quercus*, *Juniperus*, *Pinus,* and *Pistacia* mixed forests on the higher elevations, steppe plants on the lower elevations, and *Populus* and *Salix* trees along the rivers (Baytop & Denizci 1963).

Batman Province has Mediterranean climate with hot and dry summers and relatively warm and rainy winters. Precipitation is in the form of snow in the highlands and rain in the plains. The average annual temperature is 16°C and the mean annual precipitation is 552 mm (Akman 1999).

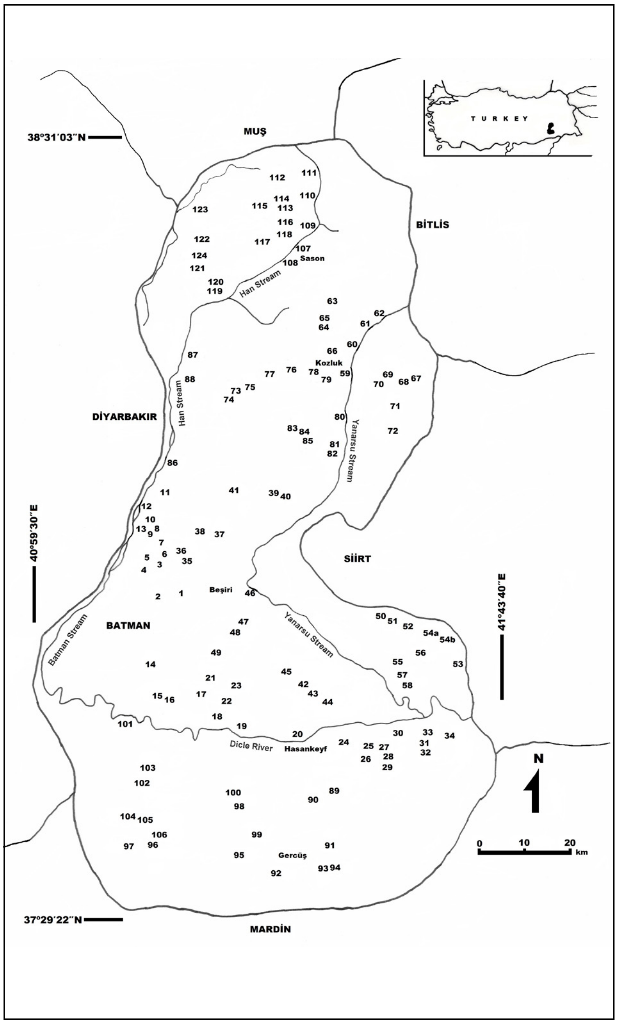

Fig. 1. Map of Turkey showing the Batman Province and the number of collecting sites.

Materials and methods

The lichenized and lichenicolous fungi were collected at 124 different localities between 21.06.2018 and 24.08.2020 (Table 1, Fig. 1).

Microscopical examination of the hand-cut sections was performed in water (including all measurements). Air-dried samples were observed and studied under a Zeiss Stemi 2000-c stereomicroscope and a Zeiss Axio Imager A2 light microscope. The lichens were identified by consulting the relevant literature (Esslinger 1997; Etayo & Calatayud 1998; Brodo & al. 2001; Giralt 2001; Calatayud & al. 2002; Blanco & al. 2004; Dobson 2005; Galloway & Moberg 2005; Navarro-Rosinés & al. 2009; Smith & al. 2009; Nordin & al. 2010; Arup & al. 2013; Darmostuk 2016). Specimens were deposited in the Herbarium of the Biology Department, Faculty of Science, Karadeniz Technical University, Turkey (KTUB).

Table 1. List of collecting localities in the Batman Province.

No	Localities	Coordinates	Altitudes (m)	Date
1.	Center: Kayatepe (Beşiri)-Kayabağı villages, crossroads, south of Kayatepe village	37°54′52.56″N 41°13′42.02″E	78	19.07.2022
2.	Center: between Kayabağı-Aydınkonak villages, southwest of Kayabağı village	37°54′44.19″N 41°11′34.74″E	743	19.07.2022
3.	Center: west of Kırmataş village	37°56′26.95″N 41°11′40.55″E	749	19.07.2022
4.	Center: between Güvercin-Kanatlı villages west of Güvercin village	37°55′56.36″N 41°09′59.62″E	671	19.07.2022
5.	Center: west of Demirlipınar village	37°57′41.76″N 41°10′14.90″E	664	19.07.2022
6.	Center: south of Yeşilöz village	37°57′55.30″N 41°12′06.04″E	836	19.07.2022
7.	Center: Yeşilöz village, northwest part	37°58′29.80″N 41°11′54.60″E	856	19.07.2022
8.	Center: east of Yolağzı village	37°59′00.60″N 41°10′38.33″E	660	19.07.2022
9.	Center: northwest of Bayraklı village	37°59′57.97″N 41°10′43.08″E	664	19.07.2022
10.	Center: west of Doluca village	38°01′00.58″N 41°11′02.35″E	655	19.07.2022
11.	Center: southeast of Çarıklı village	38°02′38.07″N 41°12′00.53″E	609	19.07.2022
12.	Center: south of Şerbetli village	38°01′52.86″N 41°10′33.28″E	581	19.07.2022
13.	Center: Selamet village, roadside	38°00′15.55″N 41°09′34.14″E	577	19.07.2022
14.	Center: Recepler village, roadside, south part	37°49′22.14″N 41°09′57.17″E	707	20.07.2022
15.	Center: between Recepler-Çayüstü villages, 4 km from Recepler village to Çayüstü, north of Çayüstü village	37°47′23.27″N 41°10′04.19″E	913	20.07.2022
16.	Center: 1 km to Çayüstü village, north part	37°45′16.94″N 41°10′44.96″E	656	20.07.2022
17.	Center: 1 km after Demirbilek village, south east, roadside	37°46′44.15″N 41°15′14.25″E	734	20.07.2022
18.	Center: 3 km after Demirbilek village, southeast part, 3 km to Suçeken village, roadside	37°44′47.18″N 41°16′31.76″E	642	20.07.2022
19.	Center: Suçeken village, east part	37°44′25.60″N 41°17′39.45″E	555	20.07.2022
20.	Center: 200 m to Hasankeyf, west part	37°44′10.82″N 41°24′06.10″E	657	20.07.2022
21.	Center: Yolveren village, West part, on the road of Yakıtlı village, roadside	37°48′15.54″N 41°15′34.76″E	788	20.07.2022
22.	Center: West of Yakıtlı village, roadside	37°46′17.96″N 41°17′15.18″E	1137	20.07.2022
23.	Center: Raman location, north of Yakıtlı village	37°47′25.47″N 41°18′06.58″E	911	20.07.2022
24.	Hasankeyf: northeast of Üçyol village, roadside, 1.5 km to Kavacık village crossroads	37°42′34.65″N 41°28′53.51″E	589	21.07.2022
25.	Hasankeyf: Bayırlı village, after 1 km from crossroads, towards Bayırlı village, west of Saklı village, north of Bayırlı village, roadside	37°42′02.59″N 41°31′15.07″E	704	21.07.2022
26.	Hasankeyf: 500 m to Bayırlı village, north part	37°41′15.85″N 41°31′01.59″E	869	21.07.2022
27.	Hasankeyf: exit of Saklı village, east part, streamside	37°41′59.53″N 41°32′23.54″E	628	21.07.2022
28.	Hasankeyf: exit of Akalın village, south part, roadside	37°41′26.54″N 41°33′19.45″E	791	21.07.2022

No	Localities	Coordinates	Altitudes (m)	Date
29.	Hasankeyf: 500 m to Büyükdere village, northeast, roadside	37°40′47.53″N 41°32′58.63″E	956	21.07.2022
30.	Hasankeyf: İncirli-Öğütlü villages junction, roadside	37°42′53.58″N 41°34′37.02″E	631	21.07.2022
31.	Hasankeyf: exit of Öğütlü village, south part	37°42′13.66″N 41°36′15.82″E	672	21.07.2022
32.	Hasankeyf: 1 km to Soğucak village, northern part, roadside	37°41′34.56″N 41°36′30.08″E	819	21.07.2022
33.	Hasankeyf: exit of Yolüstü, east part, roadside	37°42′46.72″N 41°36′41.35″E	732	21.07.2022
34.	Hasankeyf: 1.5 km to Palamut village, west part, roadside	37°42′49.23″N 41°39′15.01″E	607	21.07.2022
35.	Beşiri: Alıçlı village, west of İnpınar village	37°56′31.75″N 41°13′40.44″E	909	07.07.2021
36.	Beşiri: Doğankavak village	37°57′31.15″N 41°12′35.20″E	908	07.07.2021
37.	Beşiri: west of Uğurca village, 2-3 km to Bilek village, on the road	37°59′04.28″N 41°18′03.05″E	691	07.07.2021
38.	Beşiri: Bilek village	37°59′25.77″N 41°15′53.43″E	759	07.07.2021
39.	Beşiri: Bahçeli village, South part, Örensu village road	38°01′12.21″N 41°23′16.95″E	722	07.07.2021
40.	Beşiri: Bahçeli village (east), Örensu village road	38°01′35.15″N 41°24′14.20″E	704	07.07.2021
41.	Beşiri: Dayılar village road	38°02′27.99″N 41°18′37.37″E	728	07.07.2021
42.	Beşiri: road of Alaca village, exit of Kesiktaş village	37°46′43.77″N 41°26′29.09″E	958	08.07.2021
43.	Beşiri: road of Alaca village, 2-3 km to Alaca village	37°46′02.31″N 41°27′32.86″E	925	08.07.2021
44.	Beşiri: on the road of Alaca village (exit of Onbaşı village)	37°45′58.67″N 41°27′48.09″E	947	08.07.2021
45.	Beşiri: exit of Oğuz village	37°47′18.68″N 41°24′41.92″E	977	08.07.2021
46.	Beşiri: center, south exit, side of Yanarsu stream	37°54′54.96″N 41°20′11.32″E	538	08.07.2021
47.	Beşiri: between Yontukyazı-Deveboynu villages	37°52′37.13″N 41°19′20.36″E	809	08.07.2021
48.	Beşiri: between Deveboynu-Yarımtaş villages	37°51′43.63″N 41°18′47.52″E	818	08.07.2021
49.	Beşiri: Çevrimova village	37°50′08″N 41°16′30″E	745	08.07.2021
50.	Beşiri: on Beşpınar road, 1-2 km inland	37°53′02.77″N 41°32′35.94″E	716	09.07.2021
51.	Beşiri: on Beşpınar road, roadside	37°52′30.21″N 41°33′23.89″E	715	09.07.2021
52.	Beşiri: Beşpınar village, on the road	37°51′30.07″N 41°35′10.56″E	794	09.07.2021
53.	Beşiri: Beşpınar-Yalınca-Doğanpazarı road, 7-8 km to Doğanpazarı village, north part	37°48′54.41″N 41°41′14.10″E	879	09.07.2021
54.	Beşiri: 2-3 km ahead from Kayatepe village, on the road, east part	a. 37°50′27.70″N 41°37′44.41″E b. 37°49′42.51″N 41°41′00.35″E	a.889 b.922	a. 09.07.2021 b. 09.07.2021
55.	Beşiri: Çakıllı village	37°48′47.34″N 41°35′02.41″E	635	09.07.2021
56.	Beşiri: Güvercinlik village, north part, 1 km to Güvercinlik village	37°49′42″N 41°37′04″E	828	09.07.2021

No	Localities	Coordinates	Altitudes (m)	Date
57.	Beşiri: 2-3 km ahead of Başarı village, northeast	37°47′11.07″N 41°34′54.73″E	549	09.07.2021
58.	Beşiri: exit of Başarı village, (east) 3-4 km	37°46′44.72″N 41°35′04.93″E	561	09.07.2021
59.	Kozluk: center, Alıçlı dam road, 1-2 km ahead, towards Alıçlı dam, 300 m to Köprübaşı village	38°11′03.56″N 41°30′54.05″E	725	10.06.2021
60.	Kozluk: Alıçlı dam road, Alıçlı village 3-4 ahead	38°13′35.06″N 41°31′46.09″E	792	10.06.2021
61.	Kozluk: Alıçlı barajı kenarı, Yazılı village, north part	38°15′13.16″N 41°33′06.30″E	874	10.06.2021
62.	Kozluk: Yenidoğan village, towards the end of Asi dam, the edge of dam, towards Akçalı village	38°15′47.48″N 41°34′29.80″E 38°16′09.62″N 41°34′08.59″E	834 858	10.06.2021
63.	Kozluk: Geçitaltı village, streamside, in the forest	38°17′13.83″N 41°29′08.47″E 38°16′59.90″N 41°29′08.78″E	1344 1280	11.06.2021
64.	Kozluk: Armutlu village entrance,	38°15′19.28″N 41°28′37.67″E	1223	11.06.2021
65.	Kozluk: exit of Armutlu village, Geçitaltı village road, opposite the primary school	38°15′41.43″N 41°28′43.79″E	1252	11.06.2021
66.	Batman, Kozluk: Tosunpınar village, roadside	38°13′55.77″N 41°28′25.94″E	951	11.06.2021
67.	Kozluk: Tuzlagözü: Yazpınarı village, South part	38°10′47.60″N 41°37′35.68″E	853	12.06.2021
68.	Kozluk: Tuzla gözü-Yazpınarı road, 1-2 km ahead of Beşkonak crossroads, streamside	38°10′26.66″N 41°36′47.12″E	730	12.06.2021
69.	Kozluk: Tuzlagözü, center, north part	38°10′58.77″N 41°34′21.59″E	895	12.06.2021
70.	Kozluk: Tuzlagözü, south part	38°10′38.42″N 41°34′02.51″E	788	12.06.2021
71.	Kozluk: Tuzlagözü, South part, Uzunyazı village	38°08′58.20″N 41°35′35.89″E	877	12.06.2021
72.	Kozluk: Tuzlagözü, south part, Taşlık village	38°07′15.69″N 41°35′10.05″E	979	12.06.2021
73.	Kozluk: Ulaşlı village, southeast part	38°10′14.76″N 41°19′37.93″E	763	24.06.2021
74.	Kozluk: Bekirhan village	38°09′46.94″N 41°19′09.41″E	734	24.06.2021
75.	Kozluk: Seyitler village	38°10′37.95″N 41°21′21.48″E	758	24.06.2021
76.	Kozluk: Gündüzlü village	38°11′44.46″N 41°24′48.65″E	886	24.06.2021
77.	Kozluk: Aşağı Kıratlı village	38°11′35.36″N 41°22′.54″E	864	24.06.2021
78.	Kozluk: Yolaltı village	38°11′30.41″N 41°26′47.46″E	987	25.06.2021
79.	Kozluk: Pınarbaşı village	38°10′38.92″N 41°27′29.62″E	875	25.06.2021
80.	Kozluk: Kumlupınar village	38°08′04.28″N 41°29′54.47″E	647	25.06.2021
81.	Kozluk: Yapaklı village	38°05′44.31″N 41°29′14.26″E	640	25.06.2021
82.	Kozluk: Yıldızlı village	38°05′16.01″N 41°29′11.91″E	697	25.06.2021
83.	Kozluk: Pınarhisar village, east part	38°06′41.82″N 41°25′06.68″E	677	26.06.2021

No	Localities	Coordinates	Altitudes (m)	Date
84.	Kozluk: Çamlıca village	39°06′27.38″N 41°26′22.81″E	762	26.06.2021
85.	Kozluk: Yankılı village	39°06′01.51″N 41°27′25.59″E	664	26.06.2021
86.	Kozluk: Yağmurlu village, west part	38°04′42.98″N 41°13′08.37″E	630	19.07.2022
87.	Kozluk: Taşlıdere village, southeast, roadside	38°12′36.48″N 41°15′55.65″E	764	19.07.2022
88.	Kozluk: Eskice village, West part	38°11′31.01″N 41°15′39.16″E	705	19.07.2022
89.	Gercüş: Akyar village	37°38′49.61″N 41°27′27.43″E	876	17.06.2021
90.	Gercüş: Gürbüz village	37°38′07.15″N 41°25′46.04″E	941	17.06.2021
91.	Gercüş: Özler village	37°34′41.39″N 41°26′25.13″E	1063	17.06.2021
92.	Gercüş: 2-3 km to Yolağzı village	37°32′41.37″N 41°21′40.93″E	1086	17.06.2021
93.	Gercüş: 400 m before the crossroad before going to Yamanlar village	37°32′58.36″N 41°27′01.59″E	1123	17.06.2021
94.	Gercüş: 200 km to Yamanlar village	37°33′10.46″N 41°27′22.39″E	1131	17.06.2021
95.	Gercüş: Kırkat village	37°33′47.68″N 41°17′55.76″E	1016	18.06.2021
96.	Gercüş: Doruk village	37°35′11.23″N 41°09′42.55″E	1145	18.06.2021
97.	Gercüş: 1 km west from Tepecik village	37°35′25.86″N 41°07′28.12″E	1112	18.06.2021
98.	Gercüş: 2 km northwest from Karalan village, on Boğazköy road	37°37′29.82″N 41°18′35.22″E	885	18.06.2021
99.	Gercüş: 4- km to Karalan village, roadside, southwest of Yüceköy	37°35′37.20″N 41°19′16.59″E	866	18.06.2021
100.	Gercüş: North of Boğazköy, east of Aydınlı village	37°39′07.45″N 41°18′27.92″E	1000	18.06.2021
101.	Gercüş: 2 km North from Kantar village	37°44′47.81″N 41°08′25.01″E	592	19.06.2021
102.	Gercüş: on the Kantar village road, Haydarpaşa junction	37°39′29.31″N 41°08′29.56″E	986	19.06.2021
103.	Gercüş: Seyrantepe	37°41′12.11″N 41°08′59.52″E	854	19.06.2021
104.	Gercüş: Yayladüzü village, roadside	37°37′16.30″N 41°08′18.97″E	1004	19.06.2021
105.	Gercüş: after Bağözü village, Ardıçlı village	37°37′13.73″N 41°08′50.94″E	1044	19.06.2021
106.	Gercüş: 4-5 km ahead from Kayapınar checkpoint, 1 km to Bağözü village	37°35′33.78″N 41°10′34.99″E	1217	19.06.2021
107.	Sason: Ergünü village	38°21′49″N 41°27′00″E	898	01.06.2021
108.	Sason: between Çayırlı-Ergünü villages	38°21′07.40″N 41°25′57.89″E	949	01.06.2021
109.	Sason: 1-2 km to Yolüstü village	38°22′35.44″N 41°28′03.98″E	896	01.06.2021
110.	Sason: opposite of Meşeli village, (towards Derince villlage)	39°24′47.73″N 41°28′14.13″E	952	01.06.2021

No	Localities	Coordinates	Altitudes (m)	Date
111.	Sason: Derince village, north part	38°27′22.89″N 41°28′21.49″E	1134	01.06.2021
112.	Sason: Dörtbölük village, towards İncesu village	38°27′07.66″N 41°24′17.40″E	1468	03.06.2021
113.	Sason: Soğanlı, summit	38°24′12.48″N 41°25′05.83″E	1480	03.06.2021
114.	Sason: road of Soğanlı yolu-Karşıyaka, towards Dağçatı village	38°25′06.75″N 41°24′47.25″E	1639	03.06.2021
115.	Sason: 2 km to İncesu village	38°25′01.23″N 41°22′44.22″E	1479	03.06.2021
116.	Sason: Geçitli village	38°22′56.26″N 41°25′32.83″E	1281	03.06.2021
117.	Sason: exit of Gürgenli village	38°22′32.03″N 41°23′16.58″E	1343	03.06.2021
118.	Sason: between Yiğitler-Güvercinlik	38°21′59.21″N 41°25′34.51″E	1274	03.06.2021
119.	Sason: Alt Umurlu village, north east	38°18′08.09″N 41°18′21.64″E	835	19.07.2022
120.	Sason: Üst umurlu village, North part	38°19′17.79″N 41°18′21.72″E	966	19.07.2022
121.	Sason: South of Heybeli village	38°20′06.41″N 41°15′46.88″E	1134	19.07.2022
122.	Sason: on the road of Yücebağ village, to 1.5 km, south part of Çağlı village, northwest, West of Aydınlık village	38°22'26.86"N 41°15'58.65"E	966	19.07.2022
123.	Sason: Akçosir village, Southeast	38°24'31.67"N 41°15'56.86"E	1182	19.07.2022
124.	Sason: Çağlı village, southern part	38°21'35.88"N 41°16'31.62"E	948	19.07.2022

Results and discussion

A total of 360 taxa (324 lichens, 29 lichenicolous fungi and seven lichenicolous lichens) have been identified from 124 sites in the Batman Province of Turkey. The lichenicolous lichen, *Lobothallia parasitica*, is new to Turkey. Furthermore, 291 lichens, 28 lichenicolous fungi and six lichenicolous lichens are new records for the Batman Province. Thirty-nine species identified in this study have been recorded earlier from the Batman Province (Oran & Öztürk 2007; Yazıcı & al. 2008; Şenkardeşler & Calba 2011; Yazıcı & al. 2021, 2023; Yazıcı & Aslan 2022, 2023). Seven lichens and one lichenicolous fungus have been encountered for the second time in Turkey. The taxa are listed alphabetically. Indications: (¨) a new record for Turkey; (*) second-time sighting in Turkey; (ɸ) earlier published; (#) new record for Batman; (+) lichenicolous fungus, (Δ) lichenicolous lichen.

List of taxa

#*Acarospora bullata* Anzi – loc. 36, 59, 62, 69: on calcareous rocks.

ɸ*Acarospora cervina* A. Massal. – loc. 1, 3, 4, 6, 7, 8, 9, 11, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 33, 34, 35, 36, 38, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 69, 70, 71, 72, 73, 74, 76, 79, 84, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 112, 113, 114, 115,116, 117, 118,119, 120, 124: on calcareous rocks (Oran & Öztürk 2007; Yazıcı & al. 2008).

ɸ*Acarospora fuscata* (Schrad.) Arnold – loc. 6, 7, 35, 36, 42, 44, 45 46, 47, 48, 59, 60, 61, 62, 63, 65, 69, 70, 71, 72, 75, 80, 81, 89, 92, 96, 98, 99, 102, 107, 108, 110, 111, 112, 113, 114, 118, 120: on siliceous rocks (Yazıcı & al. 2008).

#*Acarospora glaucocarpa* (Ach.) Arnold – loc. 38: on siliceous rock.

#Δ*Acarospora hospitans* H. Magn. – loc. 36, 44: on *Aspicilia* sp.

#*Acarospora impressula* Th. Fr. – loc. 36: on siliceous rock.

#*Acarospora laqueata* (Stizenb.) Stizenb. ex Flagey – loc. 19, 27, 31, 33, 53, 54, 84, 99: on calcareous rocks.

#*Acarospora macrospora* A. Massal. ex Bagl. – loc. 62, 69: on siliceous rocks.

#*Acarospora nitrophila* H. Magn. – loc. 97: on siliceous rock.

#*Acarospora pelioscypha* (Wahlenb.) Th. Fr. – loc. 26: on siliceous rock.

#*Acarospora privigna* (Ach.) A. Schneid. – loc. 39, 52, 81, 120: on siliceous rocks.

#*Acarospora strigata* (Nyl.) Jatta – loc. 74: on calcareous rock.

ϕ*Acarospora umbilicata* Bagl. Not found in this study (Yazıcı & al. 2008).

#*Acarospora veronensis* A. Massal. – loc. 47, 69, 89, 110: on siliceous rocks.

#*Acrocordia conoidea* (Fr.) Körb. – loc. 103: on calcareous rock.

#*Agonimia tristicula* (Nyl.) Zahlbr. – loc. 9, 27, 33, 59, 60, 61, 63, 64, 66 89, 92, 95, 96, 105, 106, 107, 108, 110, 113, 115, 116, 119, 120: on mosses.

#*Anema tumidulum* Henssen ex P.M. Jøorg., M. Schultz & Guttová – loc. 68: on calcareous rock.

#+*Arthonia clemens* (Tul.) Th. Fr. – loc. 113: on *Rhizoplaca melanopthalma.*

#*Arthonia didyma* Körb. – loc. 121: on *Quercus* sp.

#+*Arthonia hertelii* (Calat., Barreno & V.J. Rico) Hafellner & Volk. John – loc. 64, 120: on *Circinaria* sp.

#+*Arthonia protoparmeliopsidis* Etayo & Diederich – loc. 111: on *Protoparmeliopsis muralis***.**

#+*Arthonia varians* (Davies) Nyl. – loc. 112: on *Glaucomaria rupicola***.**

ϕ*Aspicilia albosparsa* (Werner) S.Y. Kondr. – loc. 21, 35, 42, 62, 63, 64, 67, 78, 79, 107, 110, 111, 113, 118: on siliceous rocks (Şenkardeşler & Calba 2011).

#*Aspicilia candida* (Anzi) Hue – loc. 31: on calcareous rock.

#*Aspicilia cinerea* (L.) Körb. – loc. 2, 6, 7, 18, 24, 29, 35, 36, 42, 44, 45, 46, 47, 48, 54, 59, 60, 62, 65, 66, 67, 69, 70, 71, 73, 80, 81, 83, 89, 91, 92, 95, 100, 103, 107, 108, 110, 111, 112, 118, 119, 120, 121, 123: on siliceous rocks.

#*Aspicilia desertorum* (Kremp.) Mereschk. – loc. 11, 35, 61, 84, 94, 113: on siliceous rocks.

#*Aspicilia polychroma* Anzi – loc. 24, 30, 42, 44, 62, 63, 64, 66, 69, 72, 76, 78, 82, 83, 97, 100, 107, 110, 111, 112, 113, 118, 115, 116, 124: on calcareous rocks.

#*Aspicilia subfarinosa* (J. Steiner) Şenkard. & Sohrabi – loc. 18, 29, 63, 89, 104: on calcareous rocks.

#*Aspiciliella cupreoglauca* (B. de Lesd.) Zakeri, Divakar & Otte – loc. 6, 7, 35, 36, 42, 44, 45, 46, 47, 48, 52, 61, 62, 63, 69, 70, 71, 77, 78, 79, 80, 81, 84, 85, 91, 107, 110, 111, 112, 113, 118, 119: on siliceous rocks.

#*Aspiciliella intermutans* (Nyl.) M. Choisy – loc. 19, 47, 35, 62, 69, 107, 112: on siliceous rocks.

ϕ*Athallia brachyspora* (Mereschk.) Halıcı & Vondrák – loc. 113: on calcareous rock (Yazıcı & Aslan 2023).

ϕ*Athallia holocarpa* (Hoffm.) Frödén & Søchting – loc. 97: on calcareous rock (Oran & Öztürk 2007).

#*Athallia inconnexa* (Nyl.) S.Y. Kondr. & L. Lőkös – loc. 17, 21, 31, 42, 92, 93, 97, 103, 115, 116: on calcareous rocks.

#*Athallia pyracea* (Ach.) Arup, Fröden & Søchting – loc. 11, 104, 57, 58, 59, 60, 61, 62, 92, 73, 77, 78, 112, 114, 115, 116, 117: on *Quercus* sp.; 90: on *Quercus* sp. and *Prunus* sp.; 65, 68, 75, 118: on *Quercus* sp. and *Populus* sp.; 69, 79, 113: on *Quercus* sp. and *Salix* sp.; 64: on *Quercus* sp., *Salix* sp. and *Juglans* sp.; 67, 80: on *Quercus* sp., *Populus* sp. and *Salix* sp.; 74, 76, 81: on *Quercus* sp., *Juglans* sp. and *Populus* sp.; 89: on *Quercus* sp., *Prunus* sp. and *Populus* sp.; 91: on *Quercus* sp., *Prunus* sp. and *Rhus* sp.; 63: on *Quercus* sp., *Populus* sp., *Salix* sp. and *Juglans* sp.

#*Bagliettoa baldensis* (A. Massal.) Vězda – loc. 19, 26, 28, 33, 59, 65, 73, 89, 90, 93, 97, 98, 102, 106, 108: on calcareous rocks.

ϕ*Bagiettoa calciseda* (DC.) Gueidan & Cl. Roux – loc. 15, 16, 22, 23, 25, 28, 42, 50, 59, 64, 74, 76, 77, 78, 79, 80, 86, 87, 90, 93, 96, 97, 101, 107, 108, 120, 121: on calcareous rocks (Yazıcı & al. 2008).

#*Bagliettoa cazzae* (Zahlbr.) Vězda & Poelt – loc. 32, 59, 60, 61, 63, 82, 83, 94, 95, 123: on calcareous rocks.

#*Bagliettoa marmorea* (Scop.) Gueidan & Cl. Roux – loc. 18, 19, 27, 31, 59, 63, 71, 89, 98, 100, 102: on calcareous rocks.

#*Bagliettoa parmigera* (J. Steiner) Vězda & Poelt – loc. 26, 33, 62, 87, 99: on calcareous rocks.

#*Bagliettoa parmigerella* (Zahlbr.) Vězda & Poelt – loc. 26: on calcareous rock.

#*Bellemerea cinereorufescens* (Ach.) Clauzade & Cl. Roux – loc. 29: on siliceous rocks.

#*Bellemerea cupreoatra* (Nyl.) Clauzade & Cl. Roux – loc. 6, 112: on siliceous rocks.

#*Blastenia crenularia* (With.) Arup, Søchting & Fröden – loc. 92: on siliceous rock.

#*Blastenia ferruginea* (Huds.) A. Massal. – loc. 27: on *Quercus* sp.

#*Blennothallia crispa* (Huds.) Otálora, P.M. Jørg. & Wedin – loc. 9, 11, 15, 16, 18, 21, 22, 26, 27, 28, 29, 33, 35, 42, 43, 44, 53, 54, 57, 58, 59, 60, 62, 63, 66, 68, 71, 75, 80, 86, 89, 90, 91, 92, 93, 94, 95, 96, 97, 100, 102, 103, 104, 105, 106, 111, 113, 116, 117: on calcareous rocks.

#+*Bryostigma epiphyscium* (Nyl.) S.Y. Kondr. & Hur – loc. 112: on *Physcia dubia.*

#*Bryostigma lapidicola* (Taylor) S.Y. Kondr. & Hur – loc. 47, 48, 63, 64, 65, 66, 110, 113: on calcareous rocks.

#+*Bryostigma phaeophysciae* (Grube & Matzer) S.Y. Kondr. & Hur – loc. 115: on *Phaeophyscia orbicularis.*

#*Buellia aethalea* (Ach.) Th. Fr. – loc. 91: on siliceous rock.

#*Buellia dispersa* A. Massal. – loc. 44, 113: on siliceous rocks.

#*Buellia stellulata* (Taylor) Mudd – loc. 99, 107: on siliceous rocks.

#*Calogaya arnoldii* (Wedd.) Arup, Fröden & Søchting – loc. 27: on calcareous rock.

#*Calogaya biatorina* (A. Massal.) Arup, Fröden & Søchting – loc. 6, 7, 24, 94, 93, 99, 100, 103, 113, 114, 115, 116, 117: on siliceous rocks.

ϕ*Calogaya decipiens* (Arnold) Arup, Fröden & Søchting – loc. 1, 2, 4, 14, 18, 21, 22, 23, 38, 39, 42, 43, 48, 51, 54, 74, 82, 85, 93, 99, 101, 123: on calcareous rocks (Oran & Öztürk 2007).

#*Calogaya pusilla* (A. Massal.) Arup, Fröden & Søchting – loc. 48, 93, 99, 100, 111, 112, 113: on calcareous rocks.

#*Calogaya saxicola* (Hoffm.) Vondrák – loc. 24, 35, 42, 45, 53, 57, 58, 59, 60, 61, 63, 67, 69, 73, 76, 79, 83, 86, 92, 93, 98, 99, 100, 101, 103, 108, 111, 112, 113, 114, 116, 117, 118, 124: on calcareous rocks.

#*Calogaya schistidii* (Anzi) Arup, Fröden & Søchting – loc. 64: on mosses.

ϕ*Caloplaca cerina* (Hedw.)Th. Fr. – loc. 3, 9, 11, 13, 14, 15, 16, 25, 26, 27, 28, 29: on 30, 31, 32, 44, 57, 58, 61, 63, 66, 69, 77, 79, 86, 87, 90, 93, 104, 105, 106, 108,115, 112, 113, 114: *Quercus* sp.; 116, 118: on *Quercus* sp. and *Populus* sp.; 117: on *Quercus* sp., *Salix* sp. and *Populus* sp. (Yazıcı & al. 2008).

#*Caloplaca pellodella* (Nyl.) Hasse – loc. 35, 64, 67, 71, 92: on siliceous rocks.

#*Candelariella antennaria* Räsänen – loc. 1, 5, 6, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 33, 34, 39, 40, 44, 49, 51, 59, 61, 66, 77, 78, 83, 86, 87, 88, 90, 92, 93, 102, 108, 104, 105, 106, 119, 121, 123, 124: on *Quercus* sp.; 55, 56: on *Prunus* sp.; 107: on *Salix* sp.; 109: on *Populus* sp.; 36, 37: on *Juglans* sp.; 3, 7, 52, 60, 62, 68, 69, 70, 72, 82, 85, 110, 115, 118: *Quercus* sp. and *Populus* sp.; 9, 35, 41, 42, 43, 50, 53, 54, 96, 97, 101, 105, 106: on *Quercus* sp. and *Prunus* sp.; 79, 11, 111, 112, 113, 114, 117: on *Quercus* sp. and *Salix* sp.; 8, 45, 63, 73, 76, 84, 103, 122: on *Quercus* sp. and *Juglans* sp.; 38: on *Rhus* sp. and *Prunus* sp.; 67, 81, 98: on *Quercus* sp., *Juglans* sp. and *Populus* sp.; 2, 4, 71: on *Quercus* sp., *Juglans* sp. and *Salix* sp.; 64, 74, 80, 116: on *Quercus* sp., *Populus* sp. and *Salix* sp.; 65, 75: on *Quercus* sp., *Salix* sp., *Juglans* sp. and *Populus* sp.

ϕ*Candelariella aurella* (Hoffm.) Zahlbr. – loc. 1, 2, 14, 15, 18, 21, 22, 23, 28, 30, 33, 35, 37, 38, 39, 40, 42, 43, 45, 46, 47, 53, 54, 55, 59, 60, 62, 63, 64, 65, 66, 67, 68, 80, 89, 90,91, 92, 93, 94, 96, 97, 98, 99, 100, 101, 100, 103, 104, 105, 107, 108, 110, 111, 112, 113, 114, 115, 116, 117, 118, 120, 122: on calcareous rocks (Yazıcı & al. 2008).

#*Candelariella coralliza* (Nyl.) H. Magn. – loc. 99: on siliceous rock.

#*Candelariella oleaginescens* Rondon – loc. 43, 67, 93, 97, 98, 115: on calcareous rocks.

#**Candelariella oleifera* H. Magn. – loc. 93: on calcareous rock. Previously found in Sivas (Halıcı & Khalaf 2019)

#*Candelariella reflexa* (Nyl.) Lettau – loc. 33, 46, 108: on *Quercus* sp.

#*Candelariella vitellina* (Hoffm.) Müll. Arg. – loc.1, 3, 4, 5, 6, 7, 14, 15, 16, 21, 22, 23, 24, 27, 28, 29, 30, 31, 33, 35, 36, 37, 38, 39, 40, 42, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 69, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 85, 86, 88, 89, 92, 93, 94, 96, 97, 98, 99, 100, 101, 102, 103, 105, 106, 110, 111, 112, 113, 114, 115, 116, 117, 118, 120, 121, 123, 124: on calcareous rocks.

#+*Carbonea supersparsa* (Nyl.) Hertel – loc. 92: on *Lecanora polytropa*.

#+*Carbonea vitellinaria* (Hoffm.) Müll. Arg. – loc. 35, 89: on *Candelariella vitellina*.

#*Carbonea vorticosa* (Flörke) Hertel – loc. 35, 110, 113, 118: on siliceous rocks.

#*Catapyrenium squamulosum* (Ach.) Breuss – loc. 22, 39, 40, 43, 54, 59, 60, 94, 102, 108: on soil.

#+*Cercidospora epìpolytropa* (Mudd) Arnold – loc. 92: on *Lecanora polytropa*.

#+*Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros. – loc. 1, 2, 103, 116, 118: on *Protoparmeliopsis muralis*.

#*Circinaria caesiocinerea* (Nyl. ex Malbr.) A. Nordin, Savić &Tibell – loc. 35, 36, 39, 43, 45, 47, 48, 52, 54, 60, 61, 69, 70, 83, 89, 103, 110, 112, 113, 114: on siliceous rocks.

ϕ*Circinaria calcarea* (L.) A. Nordin, Savić &Tibell – loc. 8, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25,26, 27, 28, 29, 30, 31, 33, 34, 40, 41, 42, 43, 46, 50, 51, 52, 53, 54, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 69, 72, 74, 76, 77, 78, 80, 81, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 110, 111, 113, 114, 115, 116, 117, 120, 121, 123, 124: on calcareous rocks (Yazıcı & al. 2008).

#*Circinaria contorta* (Hoffm.) A. Nordin, Savić & Tibell – loc. 15, 16, 25, 26, 27, 31, 35, 38, 42, 51, 60, 62, 63, 70, 84, 87, 96, 97, 98, 102, 107, 110, 111: on calcareous rocks.

#*Circinaria coronata* (A. Massal.) Wirth, Hauck & M. Schultz ex Paukov & Alverdiyeva – loc. 22, 43, 74, 87, 92, 95, 100, 102, 103, 108, 110, 115: on calcareous rocks.

ϕ*Circinaria hoffmanniana* (S. Ekman & Fröberg ex R. Sant.) A. Nordin – loc. 15, 16, 18, 25, 26, 27, 30, 31, 33, 36, 37, 38, 44, 51, 53, 54, 60, 64, 63, 66, 70, 71, 83, 89, 93, 90, 94, 95, 96, 97, 100, 102, 103, 106, 107, 108, 110, 111, 115, 117, 121, 122: on calcareous rocks (Yazıcı & al. 2008).

#**Circinaria scabridula* (H. Magn.) Sohrabi – loc. 4, 38, 42, 57, 59, 60, 61, 62, 63, 64, 67, 69, 70, 71, 72, 76, 78, 87, 90, 92, 99, 107, 108, 110, 111, 114, 115, 118, 121, 122, 123, 124: on calcareous rocks. Previously found in Siirt (Yazıcı & al. 2023).

#*Cladonia pyxidata* (L.) Hoffm. – loc. 107: on soil.

#*Clauzadea immersa* (Hofmm.) Hafellner & Bellem. – loc. 113: on calcareous rock.

#*Clauzadea metzleri* (Körb.) Clauzadea & Cl. Roux ex D. Hawksw. – loc. 69, 100: on calcareous rocks.

#**Clavascidium lacinulatum* (Ach.) M. Prieto – loc. 93: on soil. Previously found in Muğla (Breuss & John 2004).

#*Collema flaccidum* (Ach.) Ach. – loc. 120 on *Quercus* sp.

#*Collema furfuraceum* (Schaer.) Du Rietz – loc. 43: on *Quercus* sp.

#*Collema subflaccidum* Degel. – loc. 69, 108: on *Quercus* sp.

#*Dermatocarpon intestiniforme* (Körb.) Hasse – loc. 35, 63: on calcareous rocks.

#*Dermatocarpon miniatum* (L.) W. Mann – loc. 15, 33, 35, 36, 42, 61, 62, 63, 64, 65, 70, 86, 96, 111, 112, 113, 115, 123: on calcareous rocks.

#*Dermatocarpon miniatum* var. *cirsodes* (Ach.) Zahlbr. – loc. 120: on calcerous rock.

#*Dimelaena oreina* (Ach.) Norman – loc. 21, 22: on siliceous rocks.

#*Diploschiates actinostomus* (Ach.) Zahlbr. – loc.14, 16, 27, 51, 90: on calcareous rocks.

#*Diploschistes caesioplumbeus* (Nyl.) Vain. – loc. 31: on siliceous rock.

#*Diploschistes gypsaceus* (Ach.) Zahlbr. – loc. 115: on siliceous rock.

#*Diploschistes muscorum* (Scop.) R. Sant. – loc. 64, 104: on soil.

#*Diploschistes scruposus* (Schreb) Norman – loc.15, 16, 24, 43, 46, 47, 63, 75, 89, 90, 96, 107 110, 111, 112, 115, 124: on siliceous rocks.

#*Diplotomma alboatrum* (Hoffm.) Flot. – loc. 89: on calcareus rock.

#*Diplotomma chlorophaeum* Szatala – loc. 107: on calcareus rock.

#*Diplotomma epipolium* (Ach.) Arnold – loc. 4, 15, 16, 18, 19, 21, 22, 23, 25, 26, 29, 42, 43, 51, 52, 53, 54, 58, 60, 63, 64, 66, 67, 68, 69,70, 78, 79, 87, 89, 90, 91, 92, 93, 96, 97, 98, 99, 100, 102, 103, 104, 106, 108,1 10, 113, 114,1 15, 116, 117, 118: on calcareus rocks.

#*Diplotomma venustum* Körb. – loc. 92, 97, 103, 113, 115: on calcareous rocks.

#*Enchylium limosum* (Ach.) Otálora, P.M. Jørg & Wedin – loc. 44: on soil.

#*Enchylium polycarpon* (Hoffm.) Otálora, P.M. Jørg & Wedin – loc. 13, 15, 22, 23, 34, 43, 46, 53, 54, 66, 72, 84, 96, 98, 102, 105, 111, 116, 117: on calcareous rocks.

ɸ*Enchylium tenax* (Sw.) Gray – loc. 3, 21, 27, 28, 29, 36, 40, 41, 43, 57, 58, 59, 63, 71, 96, 104, 107, 111, 118: on soil (Oran & Öztürk 2007; Yazıcı & al. 2008).

#*Endocarpon adscendens* (Anzi) Müll. Arg. – loc. 54, 71, 73: on soil, 63: on mosses

#+*Endococcus propinquus* (Körb.) Trevis. – loc. 50: on *Verrucaria nigrescens***.**

#+*Endococcus rugulosus* Nyl. – loc. 47: on *Aspicilia cinerea***.**

#+*Endohyalina insularis* (Arnold) Giralt, van den Boom & Elix – loc. 112: on *Glaucomaria rupicola.*

#*Flavoplaca citrina* (Hoffm.) Arup, Fröden & Søchting – loc. 33: on calcareous rock.

#*Flavoplaca coronata* (Kremp. ex Körb.) Arup, Fröden & Søchting – loc. 21, 22, 42, 75, 82, 87, 88, 89, 92, 93, 94, 97, 98, 99, 102, 103, 121: on calcareous rocks.

#*Flavoplaca flavocitrina* (Nyl.) Arup, Fröden & Søchting – loc. 52: on calcareous rock.

#∆*Flavoplaca polycarpa* (A. Massal.) Arup, Fröden & Søchting – loc. 22: on *Bagliettoa* cf. *parmigera*

#*Glaucomaria carpinea* (L.) S.Y. Kondr., Lőkös & Farkas – loc. 105: on *Quercus* sp.

#*Glaucomaria leptyrodes* (G.B.F. Nilsson) S.Y. Kondr. Lőkös & Farkas – loc. 111: on *Quercus* sp.

#*Glaucomaria rupicola* (L.) P.F. Cannon – loc. 112: on siliceous rock.

#*Glaucomaria sulphurea* (Hoffm.) S.Y. Kondr., Lőkös & Farkas – loc. 42: on siliceous rock.

#*Glypholecia scabra* (Pers.) Müll. Arg. – loc. 66, 69: on siliceous rocks.

#*Gyalidea lecideopsis* (A. Massal.) Lettay ex Vězda – loc. 98, 100: on calcareous rocks.

#*Gyalolechia flavovirescens* (Wulfen) Søchting, Frödén & Arup – loc. 15: on siliceous rock.

#*Gyalolechia fulgens* (Sw.) Sochting, Fröden & Arup – loc. 14, 26, 27, 67, 89, 90, 92, 96, 100, 104: on calcareous rocks.

#*Gyalolechia bracteata* (Hoffm.) A. Massal. – loc. 1, 14, 15, 16, 17, 18, 19, 21, 22, 23, 25, 26, 27, 29, 33, 34, 39, 42, 43, 46, 50, 52, 53, 54, 57, 58, 59, 60, 63, 64, 67, 71, 89, 90, 92, 95, 96, 97, 98, 100, 102, 103, 104, 105, 107, 111, 113, 115, 119, 121, 122: on calcareous rocks.

#*Gyalolechia subbracteata* (Nyl.) Søchting, Frödén & Arup – loc. 39: on calcareous rock.

#*Heteroplacidium compactum* (A. Massal.) Gueidan & Cl. Roux – loc. 30, 64, 66, 92, 102, 103: on calcareous rocks.

#*Immersaria athroocarpa* (Ach.) Rambold & Pietschm. – loc. 24 ,35, 36, 42, 44, 45, 47, 53, 61, 66, 69, 73, 74, 78, 79, 80, 82, 107, 110, 111, 112, 123: on siliceous rocks.

#*Immersaria usbekica* (Hertel) M. Barberg, Nav.-Ros. & Cl. Roux – loc. 7, 36, 42, 44, 63, 107, 110, 111: on siliceous rocks.

#*Ionaspis lacustris* (With.) Lutzoni – loc. 45: on siliceous rock.

#*Johnsheardia zwackhiana* (Kremp.) S.Y. Kondr., Kärnefelt & A. Thell – loc. 33: on calcareous rock. Previously found in Bitlis (Krisai-Greilhuber & al. 2017).

#*Kudratovia luridata* (Körb.) S.Y. Kondr., Lőkös & Hur – loc. 28, 29, 33, 42, 50, 53, 57, 89, 90, 95, 97, 98, 101, 102, 113: on calcareous rocks.

#*Kuettlingeria albolutescens* (Nyl.) I.V. Frolov, Vondrák & Arup – loc. 39, 46, 71: on siliceous rocks.

#*Kuettlingeria atroflava* (Turner) I.V. Frolov, Vondrak & Arup – loc. 36, 42, 44, 45, 46, 47, 48, 62, 63, 64, 66, 68, 69, 71, 75, 93, 107, 112, 113: on siliceous rocks.

ɸ*Kuettlingeria erythrocarpa* (Pers.) I.V. Frolov, Vondrák & Arup – loc. 18, 34, 46, 58, 71: on calcareous rocks.

#*Kuettlingeria soralifera* (Vondrák & Hrouzek) I.V. Frolov, Vondrák & Arup – loc. 121: on siliceous rock.

#*Kuettlingeria teicholyta* (Ach.) Trevis. – loc. 1, 2, 3, 4, 5, 11, 18, 24, 25, 27, 38, 39, 41, 42, 50, 51, 52, 58, 64, 67, 71, 73, 75, 76, 77, 78, 79, 80, 81, 83, 85, 86, 88, 98, 100, 103, 107, 119, 120, 121, 122, 123, 124: on calcareous rocks.

∆*Lambiella insularis* (Nyl.) T. Sprib. – loc. 112: on *Glaucomaria rupicola***.**

ϕ*Lathagrium auriforme* (With.) Otálora, P.M. Jørg. & Wedin – loc. 1, 40, 43, 51, 52, 54, 59, 61, 63, 66, 67, 69, 89, 97, 101,105,107, 107, 108, 111, 115: on calcareous rocks (Yazıcı & al. 2008).

#*Lathagrium cristatum* (L.) Otálora, P.M. Jørg. & Wedin – loc. 2, 11, 14, 15, 21, 24, 25, 26, 27, 28, 29, 33, 34, 35, 37, 42, 44, 46, 50, 53, 54, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 75, 76, 77, 79, 84, 85, 86, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 105, 106; 107: on calcareous rocks and Quercus sp.; 108, 110, 111, 118, 115, 116, 117, 119, 120, 123: on calcareous rocks.

#*Lathagrium fuscovirens* (With.) Otálora, P.M. Jørg. & Wedin – loc. 63: on calcareous rock.

#*Lathagrium undulatum* (Laurer ex Flot.) Poetsch – loc. 29, 52, 54, 61, 62, 63, 64, 69, 93, 96, 106, 108, 111, 115, 117: on calcareous rocks.

#*Lazarenkoella persica* (J. Steiner) S.Y. Kondr. & Lőkös – loc. 44, 49, 123: on *Quercus* sp.

#*Lecania cyrtella* (Ach.) Th. Fr. – loc. 13: on *Quercus* sp.

#*Lecania inundata* (Hepp. ex Körb.) M. Mayrhofer – loc. 29, 42, 87, 93, 94, 97, 161: on calcareous rocks.

#*Lecania rabenhorstii* (Hepp) Arnold – loc. 46, 95: on calcareous rocks.

#*Lecania spadicea* (Flot.) Zahlbr. – loc. 1, 14, 18, 26, 27, 31, 35, 50, 51, 63, 89, 90, 92, 96, 97, 98, 101, 102, 103, 104, 105: on calcareous rocks.

#*Lecanora argopholis* (Ach.) Ach. – loc. 113: on siliceous rock.

#*Lecanora cenisia* Ach. – loc. 15: on siliceous rock.

#*Lecanora chlarotera* Nyl. – loc. 106: on *Quercus* sp.

#*Lecanora frustulosa* (Dicks.) Ach. – loc. 26: on siliceous rock.

#*Lecanora gangaleoides* Nyl. – loc. 32: on siliceous rock.

#*Lecanora kjachtensis* J. Steiner – loc. 25, 34, 38, 43, 44, 45, 50, 51, 53, 59, 65, 67, 70, 72, 87, 89, 91, 94, 95, 96, 98, 99, 100, 104, 108, 110, 113, 114,115: on calcareous rocks.

#*Lecanora polytropa* (Hoffm.) Rabenh. – loc. 103: on siliceous rock.

#*Lecanora subcarnea* (Lilj.) Ach. – loc. 123: on siliceous rock.

#*Lecidea atrobrunnea* (DC.) Schaer. – loc. 24, 113: on siliceous rock.

#*Lecidea fuscoatra* (L.) Ach. – loc. 6, 7, 9, 35, 36, 43, 47, 57, 58, 61, 63, 64, 69, 70, 76, 79, 80, 84, 97, 100, 107, 111, 112, 123: on siliceous rocks.

#*Lecidea grisella* Flörke – loc. 63: on siliceous rock.

#*Lecidea plana* (J. Lahm. ex Körb.) Nyl. – loc. 47, 117: on siliceous rocks.

#*Lecidea sarcogynoides* Körb. – loc. 107, 111, 114, 117: on siliceous rocks.

#*Lecidea syncarpa* Zahlbr. – loc. 116: on siliceous rock.

#*Lecidea tessellata* Flörke – loc. 47, 113, 117: on siliceous rocks.

#*Lecidella asema* (Nyl.) Knoph & Hertel – loc. 112: on siliceous rock.

#*Lecidella carpathica* Körb. – Loc. 21, 22, 24, 35, 42, 43, 46, 62, 63, 64, 67, 76, 77, 78, 79, 81, 83, 93, 110, 111, 112, 113, 114, 116, 118, 124: on siliceous rocks.

#*Lecidella stigmatea* (Ach.) Hertel & Leukert – loc. 70, 71, 75, 77, 80, 97, 100, 108, 110, 111, 113, 117, 123, 124: on calcareous rocks.

#*Lempholemma polyanthes* (Schrad.) Malme – loc. 25, 36, 61, 63, 64, 89, 96, 106, 113, 114: on mosses.

#*Lepra excludens* (Nyl.) Hafellner – loc. 36, 63, 107, 109, 110, 111, 112: on siliceous rocks.

#*Lepraria incana* (L.) Ach. – loc. 46: on siliceous rock, 107: on mosses, 112: on soil.

#*Lepraria lobificans* Nyl. – loc. 32: on soil.

#*Lepraria membranacea* (Dicks.) Vain. – loc. 107: on mosses.

#*Lepraria nivalis* J.R. Laundon – loc. 113: on mosses.

#*Lepraria vouauxii* (Hue) R.C. Harris – loc. 25: *Quercus* sp.; 18, 26, 27, 33, 46, 63, 89, 96, 107, 108, 109: on calcareous rocks.

#*Leproplaca chrysodeta* (Vain.) J.R. Laundon ex Ahti – loc. 33: on calcareous rock.

#*Leproplaca xantholyta* (Nyl.) Nyl. – loc. 18, 46, 72, 96, 107: on calcareous rocks.

#*Leptochidium albociliatum* (Desm.) M. Choisy – loc.120: on mosses.

#*Leptogium saturninum* (Dicks.) Nyl. – loc. 120: on *Quercus* sp.

#*+*Lichenochora verrucicola* (Wedd.) Nik. Hoffm. & Hafellner – loc. 107: on *Aspicilia cinera***.** Previously found in Bitlis (Yazıcı & Aslan 2019).

#+*Lichenostigma elongatum* Nav.-Ros. & Hafellner – loc. 119: on *Aspicilia cinera***.**

#+*Lichenostigma radicans* Calat. & Barreno – loc. 100: on *Aspicilia* sp.

#+*Lichenostigma rouxii* Nav.-Ros., Calat. & Hafellner – loc. 108: on *Squamarina cartilaginea*.

#+*Lichenostigma rugosum* (G. Thor) Ertz & Diederich – loc. 120: on *Xalocoa ocellata***.**

#+*Lichenostigma subradians* Hafellner, Calat. & Nav.-Ros. – loc. 111: on *Acarospora* sp.

#+*Lichenostigma triseptatum* Halıcı & D. Hawksw. – loc. 114: on *Circinaria scabridula***.**

#*Lichinella stipatula* Nyl. – loc. 36, 62, 110: on siliceous rocks.

#+*Llimoniella muralicola* Halıcı – loc. 20, 45: on *Protoparmeliopsis muralis***.**

#*Lobothallia alphoplaca* (Wahlenb.) Hafellner – loc. 38, 64, 65, 69, 101, 107, 108, 110, 111, 112, 118: on siliceous rocks.

#*Lobothallia cheresina* (Müll. Arg.) A. Nordin, Cl. Roux & Sohrabi – loc. 64, 75, 91, 95, 100, 113, 116, 117: on calcareous rocks.

#*Lobothallia farinosa* (Flörke) A. Nordin, Savić & Tibell – loc. 19, 89: on calcareous rocks.

♦Δ*Lobothallia parasitica* (B. de Lesd.) Mayrhofer, Denchev, Stoykov & Nikolova

Distribution: *Specimen examined*: Turkey, Batman: center; Kayatepe (Beşiri)-Kayabağı villages, crossroads, south of Kayatepe village, 37°54’52.56”N 41°13’42.02”E, 78 m s.m., on *Pyrenodesmia variabilis*, 19.07.2022, leg. K. Yazıcı (KTUB-2502), det. K. Yazıcı and A. Aslan. Batman: Gercüş; 1 km west from Tepecik village, 37°35'25.86"N 41°07'28.12"E, 1112 m s.m., on *Pyrenodesmia chalybaea*, 18.06.2021, leg. K. Yazıcı (KTUB-2503), det. K. Yazıcı and A. Aslan

ɸ*Lobothallia praeradiosa* (Nyl.) Hafellner – loc. 42, 69, 110: on siliceous rocks (Yazıcı & al. 2008).

ɸ*Lobothallia radiosa* (Hoffm.) Hafellner – loc. 1, 2, 6, 7, 9, 17, 24, 26, 27, 29, 31, 33, 34, 35, 36, 38, 39, 42, 44, 45, 46, 47,48, 50, 51, 52, 53, 54, 55, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 69, 70, 71, 74, 78, 80, 83, 85, 87, 89, 92, 95, 96, 97, 98, 99, 100, 101,103, 107, 108, 110, 111, 112, 113, 115, 116, 117, 118, 121, 122, 124: on siliceous rocks (Oran & Öztürk 2007).

#*Lobothallia recedens* (Taylor) A. Nordin, Savić & Tibell – loc. 26, 27, 29, 118: on siliceous rocks.

#*Megaspora rimisorediata* Valadb. & A. Nordin – loc. 63, 69, 87, 90, 105, 106, 118: on *Quercus* sp.

#*Megaspora verrucosa* (Ach.) Arcadia & A. Nordin – loc. 92, 95, 11: on soil.

#*Melanelixia glabra* (Schaer.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – loc. 108, 115: on *Quercus* sp.

#*Melanohalea infumata* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – loc. 35, 42, 97: on calcareous rocks.

#*Miriquidica atriseda* (Fr.) P.F. Cannon – loc. 107: on siliceous rock.

#**Miriquidica leucophaea* (Rabenh.) Hertel & Rambold – loc. 116: on siliceous rock. Previously found in Bursa (Yazıcı & al. 2007).

#*Monerolechia badia* (Fr.) Kalb – loc. 35, 47, 48, 52, 84: on siliceous rocks

#+*Muellerella erratica* (A. Massal.) Hafellner & Volk. John – loc. 45, 46, 47: on *Protoparmeliopsis muralis;* 64, 67: on *Circinaria scabridula.*

#+*Muellerella pygmaea* (Körb.) D. Hawksw. – loc. 112: on *Lecidea fuscoatra.*

#+*Muellerella ventosicola* (Mudd) D. Hawksw. – loc. 110: on *Rhizocarponn geographicum.*

#*Myriospora rufescens* (Ach.) Nägeli – loc. 19, 25, 36, 47: on siliceous rocks.

#+*Nesolechia oxyspora* (Tul.) A. Massal. – loc. 6, 7, 35, 62, 67, 71, 110: on *Xanthoparmelia tinctina.*

#*Nesothele rugulosa* (A. Massal.) Orange – loc. 54, 66, 70: on calcareous rocks.

#*Ochrolechia pallescens* (L.) A. Massal. – loc. 97: on *Quercus* sp.

ɸ*Olegblumia demissa* (Flot. Ex Körb.) S.Y. Kondr., Lőokös, Jung Kim, A.S. Kondr., S.O. Oh & Hur. Not found in this study (Oran & Öztürk 2007).

#*Opeltia flavorubescens* (Huds) S.Y. Kondr. & Hur – loc. 107: on *Quercus* sp.

#*Oxnerella castanomelodes* (H. Mayrhofer & Poelt) S.Y. Kondr., Lőkös & Hur – loc. 4, 8, 15, 29, 31, 39, 42, 47, 50, 51, 53, 54, 55, 57, 58, 59, 60, 90, 92, 93, 95, 97, 99, 100, 101, 103, 106, 107, 108, 113: on calcareous rocks.

ɸ*Parabagliettoa dufourii* (DC.) Gueidan & Cl. Roux – loc. 104, 118: on calcareous rocks (Yazıcı & al. 2008).

#*Parmelina tiliacea* (Hoffm.) Hale – loc. 6, 7, 35, 44, 107: on siliceous rocks

#*Parvoplaca tiroliensis* (Zahlbr.) Arup, Søchting & Frödén – loc. 64, 96, 111, 113, 115, 116: on mosses.

#*Peltigera praetextata* (Flörke ex Sommerf.) Zopf – loc. 29: on mosses.

#*Peltigera rufescens* (Weiss) Humb. – loc. 63: on mosses.

#*Peltula euploca* (Ach.) Poelt ex Pišút – loc. 62: on siliceous rock.

#*Pertusaria chiodectonoides* Bagl. ex A. Massal. – loc. 35, 36, 42, 44, 45, 47, 48, 69, 107, 110, 112: on siliceous rocks.

#*Pertusaria flavicans* Lamy – loc. 26: on siliceous rock.

#+*Phacographa glaucomaria* (Nyl.) Hafellner – loc. 112: on *Glaucomaria rupicola***.**

#*Phaeophyscia nigricans* (Flörke) S.Y. Kondr., Lőkös & Hur – loc. 28: on *Quercus* sp.

#*Phaeophyscia orbicularis* (Neck.) Moberg – loc. 5, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 38, 42, 44, 47, 48, 49, 50, 57, 58, 59, 60, 61, 62, 63, 64, 66, 68, 70, 75, 86, 87, 88, 90, 97, 101,102, 106, 107, 108, 111, 115, 119, 120, 123, 124: on *Quercus* sp.; 53, 79: on *Prunus* sp.; 56: on *Juglans* sp.; 8: on *Quercus* sp. and *Juglans* sp.; 9, 12, 39, 67, 74, 77, 81, 112, 113, 117, 122: on *Quercus* sp. and *Populus* sp.; 35: on *Quercus* sp. and *Rhus* sp.; 36, 37, 45, 51, 52, 54, 92, 105, 103: on *Quercus* sp. and *Prunus* sp.; 40, 69, 73, 76, 104, 116: on *Quercus* sp. and *Salix* sp.; 82, 84: on *Salix* sp. and *Juglans* sp.; 80, 83: on *Populus* sp. and *Juglans* sp.; 55: on *Juglans* sp. and *Salix* sp.; 94: on *Prunus* sp. and *Rhus* sp.; 96: on *Prunus* sp. and *Juglans* sp.; 109: on *Salix* sp. and *Populus* sp.; 71, 78: on *Quercus* sp., *Juglans* sp. and *Populus* sp.; 43: on *Quercus* sp., *Populus* sp. and *Prunus* sp.; 72, 114, 118: on *Quercus* sp., *Salix* sp. and *Populus* sp.; 93: on *Quercus* sp., *Juglans* sp. and *Rhus* sp.; 98: on *Quercus* sp., *Juglans* sp. and *Prunus* sp.; 85: on *Salix* sp., *Populus* sp. and *Juglans* sp.; 65: on *Quercus* sp., *Salix* sp., *Populus* sp. and *Juglans* sp.,

#*Phaeorrhiza nimbosa* (Fr.) H. Mayrhofer & Poelt – loc. 110: on soil.

#*Physcia adscendens* H. Olivier – loc. 63, 105: on *Quercus* sp.; 41: on *Quercus* sp. and *Prunus* sp.; 96: on *Quercus* sp., *Prunus* sp., *Juglans* sp. and *Rhus* sp.; 97: on *Quercus* sp., *Prunus* sp. and *Juglans* sp.

#*Physcia aipolia* (Ehrh. ex Humb.) Fürnr. – loc. 3, 5, 11, 12, 13, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 36, 44, 66, 78, 77, 85, 87, 101, 104, 105, 119, 121: on *Quercus* sp.; 75: on *Juglans* sp.; 81: on *Salix* sp.; 80: on *Juglans* sp. and *Populus* sp.; 104: on *Salix* sp. and *Populus* sp.; 38: on *Quercus* sp. and *Rhus* sp.; 8, 67, 79, 102: on *Quercus* sp. and *Populus* sp.; 9, 68, 69, 86, 110, 122: on *Quercus* sp. and *Salix* sp.; 10, 74, 88: on *Quercus* sp. and *Juglans* sp.; 35, 37, 92: on *Quercus* sp. and *Prunus* sp.; 103, 111: on *Quercus* sp., *Salix* sp. and *Populus* sp.; 76: on *Quercus* sp., *Salix* sp. and *Juglans* sp.; 90: on *Salix* sp., *Populus* sp. and *Rhus* sp.; 91: on *Salix* sp., *Populus* sp. and *Prunus* sp.; 98: on *Quercus* sp., *Prunus* sp., *Salix* sp. and *Populus* sp.; 89: on *Quercus* sp., *Prunus* sp., *Salix* sp. and *Populus* sp.; 95: on *Quercus* sp., *Prunus* sp., *Salix* sp. and *Rhus* sp.

#*Physcia biziana* (A. Massal.) Zahlbr. – loc. 6, 8, 9, 11, 24, 25, 26, 27, 28, 29, 30, 42, 44, 49, 59, 60, 61, 63, 66, 67, 77, 93, 97, 105, 104, 105, 106, 113, 121, 124: on *Quercus* sp.; 74, 81: on *Populus* sp.; 76, 79: on *Juglans* sp.; 12, 68, 69, 78, 80,108: on *Quercus* sp. and *Salix* sp.; 5, 13, 23: on *Quercus* sp. and *Juglans* sp.; 7, 43, 90, 95: on *Quercus* sp. and *Prunus* sp.; 10, 45, 107, 109: on *Quercus* sp. and *Populus* sp.; 75: on *Populus* sp. and *Juglans* sp.; 89: on *Prunus* sp. and *Salix* sp.; 91: on *Juglans* sp.and *Prunus* sp.; 96*: on Quercus* sp., *Populus* sp. and *Prunus* sp.; 62: on *Quercus* sp., *Salix* sp. and *Juglans* sp.; 73: on *Quercus* sp., *Juglans* sp. and *Populus* sp.

#*Physcia caesia* (Hoffm.) Fürnr. – loc. 6, 7, 42, 46, 47: on siliceous rocks.

#*Physcia cernohorskyi* Nádv. – loc. 35, 104, 112, 113, 115, 117, 121, 122: on calcareous rocks.

#*Physcia dimidiata* (Arnold) Nyl. – loc. 29: on siliceous rock.

#*Physcia dubia* (Hoffm.) Lettau – loc. 6, 7, 15, 16, 21, 22, 35, 36, 42, 43, 44, 45, 47, 47, 48, 60, 63, 67, 86, 92, 107, 110, 111, 112, 113, 116, 117, 118, 118: on siliceous rocks; 9, 10, 11, 101, 102, 104: on *Quercus* sp.; 13: on *Populus* sp.; 64, 70, 72, 105: on *Quercus* sp. and *Populus* sp.; 8, 106: on *Quercus* sp. and *Prunus* sp.; 83, 103. on *Salix* sp. and *Populus* sp.; 12, 82, 85: on *Populus* sp. and *Juglans* sp.; 65, 71. on *Quercus* sp., *Juglans* sp. and *Populus* sp.; 96: on *Quercus* sp., *Prunus* sp. and *Juglans* sp.; 97: on *Quercus* sp., *Juglans* sp., *Prunus* sp. and *Rhus* sp.

#*Physcia stellaris* (L.) Nyl. – loc. 63, 108: on *Quercus* sp.

#*Physcia tenella* (Scop) DC. – loc. 30, 42, 43, 44, 45: on *Quercus* sp.

#*Physcia tribacia* (Ach.) Nyl., – loc. 6, 7, 15, 35, 36, 42, 43, 44, 110: on siliceous rocks.

#*Physconia distorta* (With.) J.R. Laundon – loc. 1, 9, 10, 12, 13, 14, 15, 16, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 47, 48, 49, 52, 54, 57, 58, 63, 66, 71, 77, 78, 87, 88, 105, 107, 108, 114, 115, 119, 120, 121, 123, 124, 59, 61: on *Quercus* sp.; 4, 11, 56: on *Juglans* sp.; 8, 55, 82, 85: on *Populus* sp.; 2, 3, 50, 51, 69, 73, 79, 106, 110: on *Quercus* sp. and *Populus* sp.; 35, 36, 53, 70, 72, 74, 76: on *Quercus* sp. and *Juglans* sp.; 37, 38: on *Juglans* sp. and *Prunus* sp.; 60, 67, 68, 80, 111: on *Quercus* sp. and *Salix* sp.; 83, 84: on *Salix* sp. and *Juglans* sp.; 62, 64, 75: on *Quercus* sp. *Juglans* sp. and *Salix* sp.; 65, 81: on *Quercus* sp. *Populus* sp. and *Salix* sp.

#*Physconia enteroxantha* (Nyl.) Poelt – loc. 6, 7: on mosses.

#*Physconia muscigena* (Ach.) Moberg, – loc. 7, 35, 47, 63, 71, 107, 110: on mosses.

#*Physconia perisidiosa* (Erichsen) Moberg – loc. 7, 35, 44, 47, 63, 71, 79: on mosses.

#Δ*Pisutiella grimmiae* (Nyl.) S.Y. Kondr. Lőkös & Farkas – loc. 115: on *Candelariella vitellina.*

#*Placocarpus schaereri* (Fr.) Breuss – loc. 15, 19, 21, 25, 26, 29, 43, 52, 53, 54, 55, 57, 58, 61, 87, 95, 97, 98, 99, 100, 102, 103, 108, 122: on calcareous rocks.

#*Placopyrenium bucekii* (Nadv. & Servit) Breuss – loc. 35, 36, 43, 58, 63, 96, 111, 113: on calcareous rocks.

#*Placopyrenium iranicum* Breuss – loc. 48, 54: on siliceous rock.

#*Placopyrenium trachyticum* (Hazsl.) Breuss – loc. 14, 15, 16, 18, 20, 21, 25, 27, 33, 35, 36, 39, 42, 46, 52, 53, ***54,*** 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 89, 90, 92, 93, 94, 95, 96, 97,98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 110, 111, 113, 114, 115, 116, 121: on calcareous rocks.

#*Placynthium hungaricum* Gyeln. – loc. 93: on calcareous rock.

#*Placynthium nigrum* (Huds.) Gray – loc. 2, 3, 10, 18, 24, 25, 26, 27, 28, 32, 33, 34, 35, 37, 38, 42, 43, 44, 46, 50, 51, 53, 54, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71,72, 74, 75, 76,77,78,79, 83, 86, 87, 89, 90, 92, 93, 94, 95, 96, 98, 100, 103, 104, 107, 108, 111, 112, 113, 114, 115,118, 119, 120, 122, 123: on calcareous rocks.

#*Placynthium posterulum* (Nyl.) Henssen – loc. 33: on calcareous rock.

#*Poeltonia grisea* (Lam.) S.Y. Kondr., Lőkös & Hur – loc. 7, 35, 47, 63: on mosses.

#*Polyblastia cupularis* A. Massal. – loc. 60: on calcareous rock.

#*Polyblastia dermatodes* A. Massal. – loc. 19, 56, 57, 58: on calcareous rocks.

#*Polyozosia agardhiana* (Ach.) S.Y. Kondr. Lőkös & Farkas – loc. 108, 115, 116, 117: on calcareous rocks.

ϕ*Polyozosia albescens* (Hoffm.) S.Y. Kondr. Lőkös & Farkas – loc. 1, 2,4, 8, 14, 18, 21, 22, 23, 26, 27, 29, 30, 31, 37, 38, 43, 54, 63, 64, 65, 66, 67, 68, 70, 71, 89, 91, 92, 93, 95, 96, 97, 98, 100, 102, 103, 104, 105, 106, 107, 108, 110, 113, 114, 115, 116, 122: on calcareous rocks (Yazıcı & al. 2008).

#*Polyozosia crenulata* (Ach.) S.Y. Kondr., Lőkös & Farkas – loc. 6, 7, 18, 21, 22, 26, 28, 43, 46, 52, 53, 54, 64, 71, 93, 99, 100, 101, 103, 107, 109, 113, 116, 117, 121,122: on calcareous rocks.

ϕ*Polyozosia dispersa* (Pers.) S.Y. Kondr. Lőkös & Farkas – loc. 1, 2, 3, 4, 6, 7, 12, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 33, 35, 36, 38, 39, 42, 45, 43, 44, 46, 47, 48, 50, 53, 54, 60, 61, 62, 63, 63, 64, 65, 66, 67, 68, 69, 70, 71, 80, 84, 85, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 104,105, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124: on calcareous rocks (Yazıcı & al. 2008).

ϕ*Polyozosia hagenii* (Ach.) S.Y. Kondr. Lőkös & Farkas – loc. 5, 10, 11, 13, 35, 44, 44, 48, 49, 63, 66, 85, 86, 87, 88, 90, 93, 97, 104, 105, 106, 107 108, 113, 121, 123: on *Quercus* sp.; 110, 114, 116, 117: on *Quercus* sp. and *Populus* sp.; 118: on *Quercus* sp. and *Salix* sp.; 47: on *Quercus* sp. and *Juglans* sp.; 94: on *Juglans* sp. and *Prunus* sp.; 98, 111, 112, 115: on *Quercus* sp., *Salix* sp. and *Populus* sp.

#*Polyozosia invadens* (H. Magn.) S.Y. Kondr. Lőkös & Farkas – loc. 111, 112, 117: on soil.

#*Polyozosia persimilis* (Th. Fr.) S.Y. Kondr., Lőkös & Farkas – loc. 26: on *Quercus* sp.

#*Polyozosia pruinosa* (Chaub.) S.Y. Kondr. Lőkös & Farkas – loc. 25, 98, 102, 116: on calcareous rocks.

#*Polyozosia semipallida* (H. Magn.) S.Y. Kondr. Lőkös & Farkas – loc. 21, 22, 42, 44, 46, 63, 64, 65, 67, 68, 70, 71, 89, 90, 92, 93, 94, 96, 103, 105, 106, 107, 109, 110, 111, 112, 113, 115, 116, 117: on calcareous rocks.

ɸ*Protoblastenia incrustans* (DC.) J. Steiner – loc. 22: on calcareous rock (Yazıcı & al. 2008).

#*Protoblastenia rupestris* (Scop.) J. Steiner – loc. 23: on calcareous rock.

#*Protoparmelia badia* (Hoffm.) Hafellner – loc. 103: on siliceous rock.

#*Protoparmeliopsis bolcana* (Pollini) Lumbsch – loc. 6, 7, 26, 29, 35, 36, 42, 44, 45, 46, 50, 52, 53, 54, 61, 67, 66, 69, 70, 72, 87, 98, 104, 107, 108, 110, 111, 112, 114: on siliceous rocks.

#*Protoparmeliopsis garovaglii* (Körb.) Arup, Zhao Xin & Lumbsch – loc. 6, 7, 35, 39, 42, 48, 67: on siliceous rocks.

#*Protoparmeliopsis klauskalbii* (Sipman) Şenkard. – loc.1, 2, 6, 7, 13, 14, 15, 16, 19, 21, 24, 25, 26, 27, 29, 30, 42, 43, 45, 46, 48, 50, 51, 52, 53, 54, 55, 57, 58, 59, 61, 65, 67, 69, 70, 71, 72, 87, 89, 91, 92, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 107, 108, 113, 118, 114, 115, 116, 122: on siliceous rocks.

#*Protoparmeliopsis macrocyclos* (H. Magn.) Moberg & R. Sant. – loc. 102: on siliceous rock.

ɸ*Protoparmeliopsis muralis* (Schreb.) M. Choisy – loc. 1, 2, 3, 5, 4, 6, 7, 9, 11, 12, 13, 14, 15, 16, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 34, 35, 36, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 58, 59, 60, 61, 62, 63, 66, 67, 69, 70, 71, 72, 75, 76, 77, 78, 79, 80, 83, 84, 85, 88, 87, 89, 92, 93, 95, 97, 98, 99, 100, 101, 102, 103, 104, 107, 108, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124: on calcareous rocks (Oran & Öztürk 2007).

#*Protoparmeliopsis peltata* Ramond ex Arup, Zhao Xin & Lumbsch – loc. 6, 67: on calcareous rocks.

#*Pseudoleptogium diffractum* (Kremp. ex Körb.) Müll. Arg. – loc. 27, 42, 54, 61, 62, 65, 95, 103, 107, 108: on calcareous rocks.

#*Psora decipiens* (Hedw.) Hoffm. – loc. 4, 50, 57, 58, 93, 94, 104, 112, 118: on soil.

#*Psora globifera* (Ach.) A. Massal. – loc. 63, 111: on soil.

#*Psora testacea* Hoffm. – loc. 25, 27, 28, 29, 30, 73, 89: on calcareous rocks.

#*Psora vallesiaca* (Schaer.) Timdal – loc. 25, 26, 27, 28, 30, 50, 64, 70, 72, 89, 92, 96, 103, 108, 118, 119, 120: on calcareous rocks.

#*Psorotichia schaereri* (A. Massal.) Arnold – loc. 21, 25, 27, 29, 32, 33, 34, 59, 61, 71, 82, 89, 92, 95, 97, 99, 100, 103,114: on siliceous rocks.

#*Pyrenodesmia albopruinosa* (Arnold) S.Y. Kondr. – loc. 25, 26, 29, 30, 31, 35, 36, 43, 45, 53, 89, 90, 101, 102, 104, 115, 117: on calcareous rocks.

#*Pyrenodesmia alociza* (A. Massal.) Arnold – loc. 87, 97, 108, 115, 116: on calcareous rocks.

#*Pyrenodesmia ceracea* (J.R. Laundon) S.Y. Kondr. – loc. 30, 43, 47, 113: on siliceous rocks.

#*Pyrenodesmia chalybaea* (Fr.) A. Massal. – loc. 14, 18, 19, 20, 21, 22, 25, 26, 28, 29, 34, 31, 38, 42, 43, 46, 50, 51, 52, 53, 54, 57, 58, 60, 63, 70, 77, 78, 79, 82, 88, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 113, 114, 116, 117, 119, 120, 121, 122, 123: on calcareous rocks.

#*Pyrenodesmia erodens* (Tretiach, Pinna & Grube) Søchting, Arup & Frödén – loc. 15: on calcareous rock.

#*Pyrenodesmia transcaspica* (Nyl.) S.Y. Kondr. – loc. 117: on calcareous rock.

ɸ*Pyrenodesmia variabilis* (Pers.) A. Massal. – loc. 1, 2, 4, 6, 7, 8, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 42, 43, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 76, 77, 79, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124: on calcareous rocks (Oran & Öztürk 2007; Yazıcı & al. 2008).

#*Rhizocarpon disporum* (Nägeli ex Hepp) Müll. Arg. – loc. 110: on siliceous rock.

#*Rhizocarpon geminatum* Körb. – loc. 63, 113: on siliceous rock

#*Rhizocarpon geographicum* (L.) DC. – loc. 35, 36, 42, 107, 110, 111, 112: on siliceous rocks

ɸ+*Rhizocarpon ochrolechiae* (Poelt & Nimis) Hafellner, – loc. 97: on *Ochrolechia* sp. (Yazıcı & al. 2021)

ɸ*Rhizocarpon umbilicatum* (Ramond) Flagey. Not found in this study (Yazıcı & al. 2008).

#*Rhizoplaca melanophthalma* (DC.) Leuckert & Poelt – loc. 113: on calcareous rock.

ɸ*Rinodina bischoffii* (Hepp) A. Massal. – loc. 14, 15, 16, 18, 19, 20, 21, 22, 23, 25, 26, 27, 29, 30, 31, 33, 42, 46, 50, 51, 52, 53, 54, 57, 58, 59, 60, 61, 63, 66, 67, 71, 72, 82, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 107, 108, 110, 111, 113, 115, 116, 117, 118: on calcareous rocks (Oran & Öztürk 2007; Yazıcı & al. 2008).

#*Rinodina calcarea* (Arnold) Arnold – loc. 1, 14, 15, 17, 18, 21, 23, 26, 27, 29, 31, 33, 42, 47, 52, 53, 54, 55, 57, 60, 79, 89, 92, 94, 95, 96, 97, 98, 99, 101, 102, 103, 105, 107, 113, 117, 118, 124: on calcareous rocks.

#*Rinodina dubyana* (Hepp) J. Steiner – loc. 93, 98, 100, 101, 115, 117: on calcareous rocks.

ɸ*Rinodina guzzinii* Jatta – loc. 15, 19, 53, 67, 98, 99, 105, 116: on calcareous rocks (Yazıcı & al. 2008.

#*Rinodina immersa* (Körb.) J. Steiner – loc. 19, 25, 26, 28, 31, 53, 54, 57, 83, 84, 88, 93, 94, 96, 99, 100, 101, 104, 106, 117, 118: on calcareous rocks.

#*Rinodina lecanorina* (A. Massal.) A. Massal. – loc. 18, 21, 22, 23, 25, 29, 39, 42, 43, 47, 50, 51, 52, 53, 54, 57, 58, 60, 63, 65, 67, 71, 89, 90, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 102, 110, 112, 113, 115, 116, 117,118: on calcareous rocks.

#*Rinodina milvina* (Wahlenb. ex Ach.) Th. Fr. – loc. 24, 35, 60, 67, 73, 93, 95, 99, 104, 110, 112, 113: on calcareous rocks.

#Δ*Rinodina obnascens* (Nyl.) H. Olivier – loc. 112: on *Circinaria* sp.

#*Rinodina poeltii* H. Mayrhofer – loc. 14, 15, 16, 17, 19, 26, 29, 33, 42, 43, 50, 51, 52, 53, 54, 57, 60, 62, 63, 87, 89, 90, 92, 94, 95, 97, 98, 99, 101, 103, 120: on calcareous rocks.

ϕ*Rinodina polysporoides* Giralt & H. Mayrhofer – loc. 109: on *Quercus* sp. (Yazıcı & Aslan 2022)

#*Rinodina pyrina* (Ach.) Arnold – loc. 5, 10, 12, 13, 44, 49, 88, 93, 97, 104, 105, 106, 111, 123, 124: on *Quercus* sp.

#*Rinodina trachytica* (A. Massal.) Arnold – loc. 92, 110: on siliceous rocks.

#*Rinodinella controversa* (A. Massal.) H. Mayrhofer & Poelt – loc. 15, 19, 27, 54: on calcareous rocks.

#*Romjularia lurida* (Ach.) Timdal – loc. 37, 50, 53, 54, 60, 71, 92, 94, 95, 97, 103, 106, 108, 111, 112, 116, 117, 118: on soil.

#+*Rosellinula haplospora* (Th. Fr. & Almq.) R. Sant. – loc. 19: on *Aspicilia* sp.

ϕ*Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén – loc. 36, 47, 53, 54, 105: on siliceous rocks (Oran & Öztürk 2007; Yazıcı & al. 2008).

#*Rusavskia elegans* (Link) S.Y. Kondr. & Kärnefelt – loc. 112: on siliceous rock.

#*Sagedia mastrucata* (Wahlenb.) A. Nordin, Savić & Tibell – loc. 112: on siliceous rock.

#*Sanguineodiscus aractinus* (Fr.) I.V. Frolov & Vondrák – loc. 97: on siliceous rock.

ϕ*Sarcogyne algoviae* H. Magn. – loc. 113: on calcareous rock (Yazıcı & al. 2023).

#*Sarcogyne clavus* (DC.) Kremp. – loc. 59, 93, 113, 117, 118: on siliceous rocks.

#*Sarcogyne fallax* H. Magn. – loc. 37: on siliceous rock.

#*Sarcogyne hypophaea* (Nyl.) Arnold – loc.15: on siliceous rock.

#**Sarcogyne platycarpoides* Anzi – loc. 31: on calcareous rock. Previously found in Kayseri (Halıcı & Aksoy 2006).

#*Sarcogyne regularis* Körb. – loc. 19, 21, 22, 25, 26, 30, 31, 37, 40, 43, 51, 52, 55, 59, 60, 64, 66, 70, 71, 77, 87, 88, 89, 90, 92, 93, 94, 95, 98, 100, 103, 104, 105, 108, 113, 117, 118, 122, 124: on calcareous rocks.

#*Schaereria fuscocinerea* (Nyl.) Clauzade & Cl. Roux – loc. 39: on siliceous rock.

#*Scythioria phlogina* (Ach.) S.Y. Kondr., I. Kärnefelt, Elix, A. Thell & Hur – loc. 63, 69, 90, 97, 105, 106,107, 108, 114, 115: on *Quercus* sp.

#*Scytinium callopismum* (A. Massal.) Otálora, P.M. Jørg. & Wedin – loc. 19: on calcareous rock.

#*Scytinium gelatinosum* (With.) Otálora, P.M. Jørg. & Wedin – loc. 46: on mosses.

#*Scytinium lichenoides* (L.) Otálora, P.M. Jørg. & Wedin – loc. 27, 35, 36, 42, 46, 63, 66, 93, 94, 95, 96, 97, 100, 101, 103, 107, 108, 110, 111, 115: on mosses.

#*Scytinium parvum* (Degel.) Otálora, P.M. Jørg. & Wedin – loc. 21, 38, 43, 63, 94, 97, 101, 106, 113, 116: on calcareous rocks.

#*Scytinium plicatile* (Ach.) Otálora, P.M. Jørg. & Wedin – loc. 15, 36, 39, 42, 50, 60, 61, 63, 67, 68, 71, 92, 93, 96, 97, 99, 100, 101, 103, 104, 106, 113, 116, 117: on calcareous rocks.

#*Scytinium schraderi* (Ach.) Otálora, P.M. Jørg. & Wedin – loc. 36, 51, 53, 61, 96, 102, 108: on calcareous rocks; 60: on mosses.

#*Seawardiella lobulata* (Flörke) S.Y. Kondr., I. Kärnefelt & A. Thell – loc. 2, 3, 5, 6, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 31, 32, 35, 36, 45, 44, 47, 48, 49, 50, 52, 54, 59, 60, 61, 62, 63, 67, 68, 69, 70, 63, 66, 87, 90, 93, 97, 101, 102, 103, 104,105, 106, 108, 113, 114, 116, 117: on *Quercus* sp.; 37, 53, 76: on *Juglans* sp.; 74, 75, 79, 81, 85: on *Populus* sp.; 80: on *Salix* sp.; 56: on *Prunus* sp.; 82, 83: on *Juglans* sp. and *Populus* sp.; 55: on *Juglans* and *Rhus* sp.; 84: on *Salix* sp. and *Populus* sp.; 1, 4, 7, 51, 107, 112, 115, 118: on *Quercus* sp. and *Populus* sp.; 38, 42: on *Quercus* sp. and *Prunus* sp.; 43, 77, 94: on *Quercus* sp. and *Juglans* sp.; 71, 72, 78, 109: on *Quercus* sp. and *Salix* sp.; 65, 73: on *Quercus* sp. *Populus* sp. and *Salix* sp.; 64: on *Quercus* sp. *Juglans,* sp., *Populus* sp. and *Salix* sp.

#*Solenopsora olivacea* (Fr.) H. Kilias – loc. 66, 67, 116: on calcareous rocks.

#*Squamarina cartilaginea* (With.) P. James – loc. 18, 19, 20, 21, 25, 26, 27, 28, 30, 31, 33, 34, 39, 40, 42, 43, 46, 51, 53, 54, 57, 58, 61, 62, 63, 71, 72, 87, 89, 92, 96, 97, 98, 100, 103, 104, 107, 108, 110, 114, 115, 119, 122: on calcareous rocks.

#*Squamarina lentigera* (Weber) Poelt – loc. 30, 34, 39, 51, 53, 63, 72, 89, 92, 97, 98, 104, 118, 115, 116, 117: on calcareous rocks.

#*Squamulea subsoluta* (Nyl.) Arup, Søchting & Frödén – loc. 21: on siliceous rock.

#*Staurothele areolata* (Ach.) Lettau – loc. 57, 58: on siliceous rocks.

#**Staurothele bacilligera* (Arnold) Arnold – loc. 56: on calcareous rock. Previously found in Malatya (Candan & Özdemir Türk 2008).

#*Staurothele caesia* (Arnold) Arnold – loc. 20: on calcareous rock.

#*Synalissa symphorea* (Ach.) Nyl. – loc. 25, 28, 30, 34, 35, 46, 57, 58, 59, 60, 61, 62, 63, 64, 67, 71, 87, 89, 91, 92, 94, 96, 99, 103, 108, 114, 115, 122: on calcareous rocks.

#*Tephromela atra* (Huds.) Hafellner – loc. 66: on siliceous rock.

#*Thalloidima candidum* (Weber) A. Massal. – loc. 36, 39, 63, 67, 110, 124: on calcareous rocks.

#*Thalloidima opuntioides* (Vill.) Kistenich, Timdal, Bendiksby & S. Ekman – loc. 111: on soil.

#*Thalloidima physaroides* (Opiz) Opiz – loc. 25, 37, 41, 96, 105,110: on soil.

#*Thalloidima sedifolium* (Scop.) Kistenich, Timdal, Bendiksby & S. Ekman – loc. 1, 3, 12, 14, 15, 16, 18, 21, 22, 23, 24, 27, 28, 29, 30, 31, 37, 39, 41, 42, 43, 50, 57, 58, 59, 60, 61, 63, 64, 66, 67, 70, 71, 72, 76, 77, 86, 87, 89, 91, 92, 93, 94, 95, 96, 97, 100, 103, 104, 105, 107, 110, 111, 115, 116, 118, 120, 121, 122, 124: on soil.

#*Thalloidima tauricum* Szatala – loc. 43, 63, 64: on calcareous rocks; 37, 92, 115: on soil.

#*Thyrea confusa* Henssen – loc. 87: on calcareous rock.

#*Toninia cinereovirens* (Schaer.) A.Massal. – loc. 64: on calcareous rock.

#*Toninia diffracta* (A. Massal.) Zahlbr. – loc. 25, 39, 59, 60, 61, 63, 64, 66, 67, 71, 87, 91, 92, 94, 95, 110, 111, 115, 118: on calcareous rocks.

#*Toninia squalida* (Ach.) A. Massal. – loc. 60, 61, 106, 110, 111, 118: on calcareous rocks.

ϕ*Toninia tristis* (Th. Fr.) Th. Fr. Not found in this study (Yazıcı & al. 2008).

#*Trapelia coarctata* (Turner) M. Choisy – loc. 107, 109: on siliceous rocks.

#*Vahliella leucophaea* (Vahl) P.M. Jørg. – loc. 60: on siliceous rock.

#*Varicellaria lactea* (L.) I. Schmitt & Lumbsch – loc. 29, 40, 41, 46, 63, 87, 96, 98, 100, 101, 110, 111, 113: on siliceous rocks.

#*Variospora aurantia* (Pers.) Arup, Frödén & Søchting – loc. 14, 15, 16, 18, 19, 20, 26, 27, 33, 46, 50, 89, 92, 97, 101, 102, 103, 104, 108: on calcareous rocks.

ϕ*Variaspora dalmatica* (A. Massal.) Cl. Roux. Not found in this study (Yazıcı & al. 2008).

ϕ*Variospora dolomiticola* (Zahbr.) Arup, Søchting & Frödén – loc. 89: on calcareous rock (Oran & Öztürk 2007).

#*Variospora flavescens* (Huds.) Arup, Frödén & Søchting – loc. 14, 18, 33: on calcareous rocks.

#*Variospora velana* (A. Massal.) Arup, Søchting & Frödén – loc. 19: on calcareous rock.

#*Verrucaria dolosa* Hepp – loc. 90: on calcareous rock.

#*Verrucaria fuscella* (Turner) Winch – loc. 14, 20, 21, 26, 27, 31, 53, 66, 89, 92, 97, 98, 103,104, 113, 115: on calcareous rocks.

#*Verrucaria hochstetteri* Fr. – loc. 87: on calcareous rocks.

#*Verrucaria macrostoma* DC. – loc. 27, 33, 42, 52, 54, 58, 60, 64, 90, 92, 97, 98, 103, 104, 106, 107, 112: on calcareous rocks.

ϕ*Verrucaria muralis* Ach. – loc. 42, 98, 103, 112, 115, 124: on calcareous rocks (Oran & Öztürk 2007).

ϕ*Verrucaria nigrescens* Pers. – loc. 1, 2, 3,4, 12, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 46, 49, 50, 51, 52, 53, 54, 57, 58, 59, 60, 63, 64, 66, 67, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 88, 89, 90, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 110, 113, 115, 116, 119, 120, 121, 122, 123, 124: on calcareous rocks (Yazıcı & al. 2008).

#*Verrucaria ochrostoma* Turner & Borrer – loc. 118: on siliceous rock.

#*Verrucaria polysticta* Borrer – loc. 14, 15, 18, 26, 27, 29, 38, 41, 42, 53, 54, 59, 60, 61, 63, 64, 66, 67, 68, 70, 71, 93, 95, 97, 98, 103, 104, 107, 110, 111, 113, 115, 117, 120: on calcareous rocks.

#*Verrucaria sphaerospora* Anzi – loc. 35, 36, 54, 57, 58, 59, 61, 66, 107, 110, 112, 116: on calcareous rocks.

ϕ*Verrucaria subfuscella* Nyl. Not found in this study (Oran & Öztürk 2007).

#*Verrucaria viridula* (Schrad.) Ach. – loc. 4, 18, 19, 20, 21, 22, 26, 27, 42, 44, 53, 54, 57, 59, 64, 66, 89, 90, 92, 94, 95, 96, 97, 98, 103, 104, 105, 107, 108, 111, 113, 118, 120, 122, 124: on calcareous rocks.

#Δ*Verrucula biatorinaria* (Zehetl.) Nav.-Ros. & Cl. Roux – loc. 7: on *Calogaya biatorina.*

ϕ*Verruculopsis lecideoides* (A. Massal.) Gueidan & Cl. Roux – loc. 21, 37, 51, 52, 93, 97, 98, 113, 116: on siliceous rocks (Oran & Öztürk 2007).

#*Xalocoa ocellata* (Fr.) Kraichak, Lücking & Lumbsch – loc. 19, 20, 25, 27, 30, 34, 43, 46, 50, 51, 57, 58, 59, 61, 63, 72, 87, 89, 90, 96, 101, 103, 104, 108, 110, 111,120, 124: on calcareous rocks.

#*Xanthocarpia crenulatella* (Nyl.) Frödén, Arup & Søchting – loc. 1, 2, 4, 12, 14, 15, 16, 17, 18, 19, 20, 22, 23, 25, 27, 26, 29, 30, 31, 34, 37, 38, 39, 43, 41, 42, 50, 51, 53, 54, 57, 58, 59, 60, 63, 64, 66, 70, 71, 88, 92, 93, 95, 96, 97, 99, 101, 103, 105, 106, 107, 108, 111, 113, 115, 116: on calcareous rocks.

#*Xanthocarpia interfulgens* (Nyl.) Frödén, Arup & Søchting – loc. 14, 15, 21, 29, 31, 42, 66, 71, 93, 96, 97, 100, 103, 105, 106, 115, 116, 117, 118: on calcareous rocks.

ϕ*Xanthocarpia lactea* (A. Massal.) A. Massal. – loc.15, 22, 25, 50, 51, 57, 59, 64, 90, 97, 100, 104, 106, 107, 111: on calcareous rocks (Yazıcı & al. 2008).

#*Xanthocarpia marmorata* (Bagl.) Fröden, Arup & Søchting – loc. 26, 27, 53, 54, 89, 90, 94, 95, 97, 105: on calcareous rocks.

#*Xanthocarpia ochracea* (Schaer.) A. Massal. & De Not. – loc. 104: on calcareous rock.

#*Xanthomendoza fallax* Søchting, Kärnefelt & S.Y. Kondr.– loc. 32: on *Quercus* sp.

#*Xanthomendoza fulva* (Hoffm.) Søchting, Kārnefelt & S.Y. Kondr. – loc. 1, 2, 3, 13, 47, 48, 49, 61, 62, 63, 98, 107, 123: on *Quercus* sp.; 109: on *Populus* sp.; 5, 59, 108, 110, 113, 116: on *Quercus* sp. and *Salix* sp.; 6, 47: on *Quercus* sp. and *Juglans* sp.; 60, 73, 77, 11, 115, 117: on *Quercus* sp. and *Populus* sp.; 41: on *Quercus* sp. and *Rhus* sp.; 63, 78: on *Quercus* sp., *Juglans* sp. and *Populus* sp.; 65, 65, 111, 114, 118: on *Quercus* sp. *Populus* sp. and *Salix* sp.; 90, 91, 96: on *Quercus* sp., *Prunus* sp. and *Salix* sp.; 91: on *Prunus* sp., *Rhus* sp. and *Populus* sp.; 96: on *Prunus* sp., *Rhus* sp. and *Juglans* sp.; 89 on *Rhus* sp., *Salix* sp., and *Populus* sp.; 97: on *Quercus* sp., *Prunus* sp., *Juglans* sp. and *Rhus* sp.

#*Xanthoparmelia conspersa* (Ehrh. ex Ach.) Hale – loc. 35, 36, 46, 110: on siliceous rocks.

#*Xanthoparmelia pulla* (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – loc. 6, 7, 35, 36, 42, 45, 46, 62, 69, 70, 71, 72, 107, 110, 111, 112, 114: on siliceous rocks.

#*Xanthoparmelia stenophylla* (Ach.) Ahti & D. Hawksw. – loc. 35, 110: on siliceous rocks.

#*Xanthoparmelia tinctina* (Maheu & A. Gillet) Hale – loc. 6, 7, 35, 36, 46, 62, 67, 110: on siliceous rocks.

#*Xanthoparmelia verruculifera* (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – loc. 6, 7, 35, 36, 42, 44, 46, 47, 48, 71, 107, 110, 111, 112: on siliceous rocks.

#*Xanthoria parietina* (L.) Th. Fr. – loc. 29: on *Quercus* sp.

#*Zahlbrucknerella calcarea* (Herre) Zahlbr. – loc. 61: on calcareous rock.

#+*Zwackhiomyces calcariae* (Flagey) Hafellner & Nik. Hoffm. – loc. 31 on *Circinaria* sp.

Seven lichens – *Acarospora hospitans, Flavoplaca polycarpa*, *Lambiella insularis*, *Lobothallia parasitica, Pisutiella grimmiae*, *Rinodina obnascens,* and *Verrucula biatorinaria* are lichenicolous and live on other lichens.

Acarospora cervina, Candelariella antennaria, Candelariella vitellina, Polyozosia dispersa, Protoparmeliopsis muralis, Pyrenodesmia variabilis, Seawardiella lobulata, and *Verrucaria nigrescens* have been the most common species found.

Thirty-eight lichens and one lichenicolous fungus have been reported from the Batman Province in the checklist of lichenized and lichenicolous fungi (John & Güvenç 2023). Of the 360 taxa identified in this study, 38 lichens and one lichenicolous fungus species were recorded earlier from the Batman Province. Six (*Acarospora umbilicata, Olegblumia demissa, Rhizocarpon umbilicatum, Toninia tristis, Variospora dalmatica* and *Verrucaria subfuscella*) of the 34 species mentioned in the earlier studies (Oran & Öztürk 2007; Yazıcı & al. 2008; Şenkardeşler & Calba 2011; Yazıcı & al. 2021, 2023; Yazıcı & Aslan 2022, 2023) and the lichen checklist (John & Türk 2017; John & al. 2020; John & Güvenç 2023) for the Batman Province have not been detected in this study.

Seven lichens and one lichenicolous fungus are recorded for the second time from Turkey. The first records of these species from Turkey have been as follows: *Candelariella oleifera* recorded for the first time from Sivas Province (Halıcı & Khalaf 2019), *Circinaria scabridula* from Siirt Province (Yazıcı & al. 2023), *Clavascidium lacinulatum* from Muğla Province (Breuss & John 2004), *Johnsheardia zwackhiana* as *Rinodina zwackhiana* from Bitlis Province (Krisai-Greilhuber & al. 2017), *Miriquidica leucophaea* from Bursa Province (Yazıcı & al. 2007), *Sarcogyne platycarpoides* from Kayseri Province (Halıcı & Aksoy 2006), and *Staurothele bacilligera* from Malatya Province (Candan & Özdemir Türk 2008). *Lichenochora verrucicola*, one of the lichenicolous fungi, was recorded for the first time on the thallus of *Aspicilia cinerea* by Yazıcı and Aslan (2019) from the Bitlis Province.

The lichenized and lichenicolous lichens have been found to develop on a total of 17 different substrates (siliceous rock, calcareous rock, moss, soil, *Quercus*, *Populus*, *Prunus*, *Salix*, *Rhus*, *Aspicilia* sp., *Bagliettoa* cf. *parmigera, Circinaria* sp., *Candelariella vitellina, Glaucomaria rupicola, Calogaya biatorina,* etc.). Some lichens have been widely distributed on many substrates, while others on only one substrate type. The most tolerant species in terms of substrate preference are *Athallia pyracea, Candelariella antennaria, Gallowayella fulva, Phaeophyscia orbicularis, Physcia adscendens, Physcia aipolia, Physcia biziana, Physcia dubia, Physconia distorta, Polyozosia hagenii,* and *Seawardiella lobulata.*

Considering the general state of the lichen cover in the Province, lichens have been mostly found on rocks and in large stretches of land covered by oak trees, where the lichen taxa can thrive. Crustose and foliose lichens develop mostly on rocks and occasionally on soil, otherwise extremely poor for lichen development. Lichens can develop mostly on rocks in the region. Foliose lichens have been found to develop on tree trunks, especially of *Quercus, Populus, Salix, Prunus,* and *Juglans*. Lichens growing on soil and at the highways have been much lesser

Table 2. The numbers of taxa based on the growth form and substrate in the Batman Province.

The growth forms and substrata	Crustose	Foliose	Fruticose	Leprose	Total
Lichens total	279	41	4	7	331
rocks	226	22	3	4	255
rocks only	226	19	2	3	250
Epiphytic	21	18	-	-	39
Epiphytic only	21	15	-	-	36
soil	15	1	1	2	19
soil only	14	1	-	1	17
mosses	7	7	1	3	18
mosses only	6	7	-	2	15
soil and mosses	1	-	-	-	1
rock, mosses and soil	-	-	-	1	1
rock and tree	-	3	-	-	1
rock and mosses	-	-	1	-	1
lichens	8	-	-	-	8

in number than the lichen taxa developing on rocks and tree trunks.

Except for the lichenicolous fungi, 279 lichens were crustose, 41 foliose, four fruticose, and another seven leprose taxa. While 39 of the identified taxa (with the exception of lichenicolous fungi) were epiphytic, 36 were strictly epiphytic, 255 detected on rocks (saxicolous), 250 strictly saxicolous, 15 exclusively musicolous (on moss), and 17 exclusively terricolous (on soil). Eighteen taxa were observed to grow on mosses. While a total of 39 taxa have developed on trees, 37 taxa were observed to develop exclusively on trees (Table 2). Although there have been communities formed by broad-leaved trees, such as *Quercus*, *Juglans*, *Populus*, *Prunus*, *Salix*, etc., crustose and foliose lichen species have been mostly found on rocks, because the forest areas were not very rich (Table 2).

While epiphytic species were mostly seen on *Quercus* trees (38 taxa), 11 taxa were found to develop each on *Juglans*, *Populus*, *Prunus*, and *Salix,* and eight taxa on *Rhus.*

Localities with the highest number of taxa are: 63 (88 taxa), 113 (79 taxa), 107 (76 taxa), 97 (74 taxa), 110 (72 taxa), 111 (70 taxa), 103 (65 taxa), 115 (63 taxa), 92 (63 taxa), 108 (63 taxa), 89 (62 taxa), 35 (60 taxa), and 112 (59 taxa). Although there is a total of 27.27% forest area in Batman Province (URL-1), the observed development of lichens on mosses has been poor.

In the light of some studies on lichens performed in the eastern part of Turkey, many common crustose species found during these surveys have been also seen in the present research. Considering the fact that Bitlis, Bingöl and Muş Tunceli regions are similar to the Batman region in terms of climate and terrain, lichen diversity in these regions is similar to that in the study area.

When lichen diversity of the Batman Province is compared with the best studied provinces in the country, the greatest similarity has been detected in Bingöl, Bitlis, Muş, and Tunceli.

Lichen cover (in terms of lichens that can grow on trees and mosses) in Batman remains relatively poor as compared to that in the above-mentioned provinces. The general state of the lichen cover in the Batman Province reflects a very poor lichen growth, considering the woodless spans without the ususally common oak trees, occasionally abundant bare areas, with rare rocks and trees, and areas with poor soil. In that region, the lichens develop mostly on rocks. Some common crustose and foliose lichens also develop on oaks that do not form forest areas.

Acknowledgement.

This study was financially supported by TUBITAK (Project No. 219Z014).

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