

## Contribution to the Lichen Flora of Gürgen Dağı (Çanakkale)

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**Abstract:** A list of 75 lichen taxa is reported from Gürgendağı Mountain located to the north of Kazdağı (İda Mountain), in Çanakkale province. Among the identified taxa, 41 taxa are epiphytic, 26 saxicolous and 8 terricolous. All of the taxa are new records for the area. Nineteen taxa are new for the province.

**Key Words:** Lichen, flora, Gürgen Dağı, Çanakkale

### Gürgen Dağı (Çanakkale) Liken Florasına Katkı

**Özet:** Çanakkale ili sınırlarında ve Kazdağı'nın kuzeyinde yer alan Gürgen Dağı'ndan 75 liken taksonu kaydedilmiştir. 41 epifitik liken taksonu, 26 saksikol ve 8 terrikol takson tayin edilmiştir. Taksonların tümü bölge için yeni kayıtlardır. 19 takson il için yeni kayıttır.

**Anahtar Sözcükler:** Liken, flora, Gürgen Dağı, Çanakkale

### Introduction

There is no information on the lichen diversity of Gürgendağı Mountain. However, some lichen records are present in earlier floristic studies from surrounding mountains (Kazdağı Mountain, John, 1992; Şapdağ and Karadağ, Karabulut et al., 2004) and from Çanakkale province, in papers focused on lichen diversity in the Thrace region (Özdemir Türk & Güner, 1998), in Anatolia and intensively in the Mediterranean region (Güner & Özdemir, 1986; John, 1992; Zeybek et al., 1993; John, 1996; Nimis & John, 1998; Breuss & John, 2004), on Gökçeada (Özdemir Türk, 1997), and on Bozcaada (Öztürk, 1999), and also papers on lichen chemistry (Huneck & John, 1987; Topçuoğlu et al., 1992).

Gürgendağı Mountain is located in the northern part of Western Anatolia, lying to the north of Kazdağı (İda Mountain), with a maximum altitude of 1434 m. It is 35 km east of Bayramiç district and within the borders of the Karaköy and Çirpılar Forest Management areas. It is situated at the latitudes 39° 45' – 39° 52' N and the longitudes 27° 00' – 26° 52' E, and in grid square B1 according to the Flora of Turkey (Davis, 1965). The research area neighbors Kazdağı National Park and Balıkesir-Gürgen Dağı Natural Reserve. It contains mainly *Pinus nigra* Arnold, *Abies equi-trojani* Ascehrs. et Sint., *Pinus brutia* Ten., *Fagus* L. and *Quercus* L. species. The climate of the research area is generally Mediterranean. The average annual precipitation is 655.2 mm. The annual mean temperature is about 14.5 °C (Table 1) (Meteoroloji Bülteni, 1974).

Table 1. The average climatic values for Bayramiç (Meteoroloji Bülteni, 1974).

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Mean Precipitation (mm)	97.3	78.2	64.1	48.4	38.8	23.7	5.2	5.5	34.7	29.7	77.1	152.4	655.2
Mean Temperature (°C)	5.0	6.6	7.9	12.9	17.3	21.9	24.2	23.8	19.7	14.9	11.3	8.4	14.5

## Materials and Methods

The present study is based on lichen specimens collected from 2-4.07.2001 and 5-8.08.2004 on different substrata from 21 localities in Gürgen Dağı (within the boundaries of the Karaköy and Çırpılar Forest Management areas). The samples were collected with their substrates and put into paper bags in the field. They were then left to air dry and were put into herbarium envelopes. The specimens were determined at least at species level. Morphological and microscopic investigations were performed under a binocular dissecting microscope (40 SZ Olympus), and supported with standard chemical spot tests. The specimens are kept in the herbarium of the Faculty of Science and Arts, the University of Marmara (MUFE), with some duplicates in the herbarium of Faculty of Forestry, the University of İstanbul.

### List of localities

Gürgen Dağı (Çanakkale):

1. Menderes Stream-Koçakır Store, flat place, 225 m, 2-4.VII.2001, 39° 49' 39" N - 26° 49' 28" E.
2. Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E.
3. Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E.
4. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E.
5. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E.
6. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E.
7. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E.
8. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E.
9. İmam Çeşme entrance, NE, 850 m, 2-4.VII.2001, 39° 47' 23" N - 26° 53' 13" E.
10. Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E.
11. Yemişenlidüz, NE, 960 m, 2-4.VII.2001, 39° 46' 33" N - 26° 53' 20" E.
12. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E.

13. Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E.
14. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E.
15. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E.
16. Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E.
17. Hakan'ın Çeşme, flat place, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E.
18. Sazaktepe, N, 1250 m, 2-4.VII.2001, 39° 45' 37" N - 26° 53' 05" E.
19. Sazaktepe, SW, 1260 m, 2-4.VII.2001, 39° 45' 25" N - 26° 53' 03" E.
20. Sazaktepe, flat place, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E.
21. Ardıçbaşı, flat place, 1290-1305 m, 2-4.VII.2001, 6-8.VIII.2004, 39° 45' 26" N - 26° 25' 49" E.

## Results

Seventy five lichen taxa (74 species, 4 varieties and 1 subspecies) from 19 families in *Ascomycotina* were defined. Nineteen species are new for the province. The list of taxa is arranged in alphabetical order. Species names are followed by locality and substrate data. New records for the province Çanakkale are indicated by an asterisk (\*).

The nomenclature follows modern concepts (Hafellner & Türk, 2001; Blanco et al., 2004; Molina et al., 2004; Santesson et al., 2004). The abbreviations of the authors' names are according to Brummitt & Powell (1992).

### List of taxa

\**Acarospora fuscata* (Schrad.) Th.Fr.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E, on siliceous rocks.

\**Alectoria sarmentosa* (Ach.) Ach.

Ardıçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* branch.

**Anaptychia ciliaris** (L.) Körb. ex A.Massal.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*.

**Aspicilia caesiocinerea** (Nyl. ex Malbr.) Arnold

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Aspicilia cinerea** (L.) Körb.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Bryoria fuscescens** (Gyeln.) Brodo & D.Hawksw.

Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* branch.

\***Buellia griseovirens** (Turner & Borrer ex Sm.) Almb.

Yemişenlidüz, NE, 960 m, 2-4.VII.2001, 39° 46' 33" N - 26° 53' 20" E, on *Pinus nigra*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

**\*Caloplaca arenaria** (Pers.) Müll.Arg.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on siliceous rocks.

**Candelariella vitellina** (Hoffm.) Müll.Arg.

Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

\***Cladonia chlorophaea** (Flörke ex Sommerf.) Spreng.

Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E, on soil with mosses.

**Cladonia fimbriata** (L.) Fr.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E, on soil with mosses.

**Cladonia foliacea** (Huds.) Willd.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E, on soil with mosses.

**Cladonia furcata** (Huds.) Schrad.

Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E, on soil with mosses.

**Cladonia ramulosa** (With.) J.R.Laundon

Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E, on soil.

**Cladonia rangiformis** Hoffm.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on soil with mosses and *Peltigera didactyla*. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E, on soil with *Leptogium gelatinosum*. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E, on soil with mosses.

**\*Evernia divaricata** (L.) Ach.

Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* branch.

**Evernia prunastri** (L.) Ach.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on *Quercus* sp. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa* and *Quercus* sp. and branches. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Yemişenlidüz, NE, 960 m, 2-4.VII.2001, 39° 46' 33" N - 26° 53' 20" E, on *Pinus nigra*. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra* and *Fagus* sp.

**Hypogymnia farinacea** Zopf.

Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E, on *Pinus nigra*.

**Hypogymnia physodes** (L.) Nyl.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Pinus nigra* and branches, *P. nigra* stump and *Quercus* sp. İmam Çeşme entrance, NE, 850 m, 2-4.VII.2001, 39° 47' 23" N - 26° 53' 13" E. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E. Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E, on *Pinus nigra*.

**Hypogymnia tubulosa** (Schaer.) Hav.

Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E, on *Pinus nigra*. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Pinus nigra* and *Quercus* sp. branch. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E. Sazaktepe, N, 1250 m, 2-4.VII.2001, 39° 45' 37" N - 26° 53' 05" E. Sazaktepe, SW, 1260 m, 2-4.VII.2001, 39° 45' 25" N - 26° 53' 03" E, on *Pinus nigra* and branches. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* branch.

\***Lecanora albella** (Pers.) Ach.

Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E, on *Quercus* sp.

**Lecanora carpinea** (L.) Vain.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. branch. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp.

**Lecanora chlorotera** Nyl.

Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

\***Lecanora gangaleoides** Nyl.

Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Lecanora polytropa** (Ehrh. ex Hoffm.) Rabenh.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Sazaktepe,

1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Lecanora rupicola** (L.) Zahlbr. subsp. *rupicola*

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E, on siliceous rocks.

**Lecanora saligna** (Schröd.) Zahlbr.

Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*.

\***Lecanora symmicta** (Ach.) Ach.

Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

\***Lecanora varia** (Hoffm.) Ach.

Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp.

**Lecidea atrobrunnea** (Lam. & DC.) Schaer.

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E, on siliceous rocks.

\***Lecidea plana** (J.Lahm) Nyl.

Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Lecidella carpathica** Körb.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on siliceous rocks.

**Lecidella elaeochroma** (Ach.) M.Choisy

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. branch. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*.

\***Leptogium gelatinosum** (With.) J.R.Laundon

Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E, on soil with mosses and *Cladonia rangiformis*.

**Lobaria pulmonaria** (L.) Hoffm.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*.

**Melanelia glabratula** (Lamy) Nyl.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. and branches. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Fagus* sp.

**\*Micarea prasina** Fr.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

**Ochrolechia pallescens** (L.) A.Massal.

Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*.

**Parmelia saxatilis** (L.) Ach.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa* and *Quercus* sp. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E. İmam Çeşme entrance, NE, 850 m, 2-4.VII.2001, 39° 47' 23" N - 26° 53' 13" E. Yemişenlidüz, NE, 960 m, 2-4.VII.2001, 39° 46' 33" N - 26° 53' 20" E. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E, on *Pinus nigra*. Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E, on *Abies equi-trojani*. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* and branches.

**Parmelia sulcata** Taylor

Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E, on *Quercus* sp. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa*, *Quercus* sp. and branches. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E, on *Pinus nigra*. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Fagus* sp. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* and branches.

**Parmelina pastillifera** (Harm.) Hale

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa* and *Quercus* sp.

**Parmelina quercina** (Willd.) Hale

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E, on *Quercus* sp.

**\*Parmeliopsis ambigua** (Wulfen) Nyl.

Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra*.

**\*Peltigera didactyla** (With.) J.R.Laundon

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on soil with mosses and *Cladonia rangiformis*.

**Pertusaria albescens** (Huds.) M.Choisy & Werner var. *albescens*

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Fagus* sp. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

**Pertusaria amara** (Ach.) Nyl.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa*. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Fagus* sp.

**Pertusaria hemisphaerica** (Flörke) Erichsen

Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E, on *Abies equi-trojani*.

**Pertusaria pertusa** (Weigel) Tuck.

Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*.

**Phlyctis argena** (Spreng.) Flot.

Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

**Physcia adscendens** (Fr.) H.Olivier

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on *Quercus* sp.

**Physcia aipolia** (Ehrh. ex Humb.) Fűrnr.

Menderes Stream-Koçakır Store, flat place, 225 m, 2-4.VII.2001, 39° 49' 39" N - 26° 49' 28" E. Döllük, SW,

475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on *Quercus* sp.

**Physconia distorta** (With.) J.R.Laundon

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

**Physconia grisea** (Lam.) Poelt

Menderes Stream-Koçakır Store, 225 m, 2-4.VII.2001, 39° 49' 39" N - 26° 49' 28" E, on *Quercus* sp.

**Platismatia glauca** (L.) W.L.Culb. & C.F.Culb.

Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E. İmam Çeşme entrance, NE, 850 m, 2-4.VII.2001, 39° 47' 23" N - 26° 53' 13" E. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E. Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E, on *Pinus nigra* sp. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Pinus nigra* and *Fagus* sp. Sazaktepe, SW, 1260 m, 2-4.VII.2001, 39° 45' 25" N - 26° 53' 03" E, on *Pinus nigra*. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* and branches.

**Pleurosticta acetabulum** (Neck.) Elix & Lumbsch

Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*.

\***Porpidia albocaerulescens** (Wulfen) Hertel & Knoph

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E. Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E, on siliceous rocks.

**Porpidia crustulata** (Ach.) Hertel & Knoph

Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E, on siliceous rocks.

**Protoparmeliopsis muralis** (Schreb.) M.Choisy var. *muralis*

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on siliceous rocks.

**Protoparmeliopsis muralis** var. *dubyi* (Müll.Arg.) Poelt

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E, on siliceous rocks.

**Pseudevernia furfuracea** (L.) Zopf var. *furfuracea*

Çırpılar Village, SE, 525 m, 2-4.VII.2001, 39° 48' 21" N - 26° 52' 48" E. Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E. İmam Çeşme entrance, NE, 850 m, 2-4.VII.2001, 39° 47' 23" N - 26° 53' 13" E. Hacıöldüren, NW, 1020 m, 2-4.VII.2001, 39° 47' 38" N - 26° 59' 21" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E. Sazaktepe, N, 1250 m, 2-4.VII.2001, 39° 45' 37" N - 26° 53' 05" E. Sazaktepe, SW, 1260 m, 2-4.VII.2001, 39° 45' 25" N - 26° 53' 03" E, on *Pinus nigra* and branches. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* and branches.

**Ramalina farinacea** (L.) Ach.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. and branches. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*. Hakan'ın Çeşme, 1150 m, 2-4.VII.2001, 39° 46' 55" N - 26° 59' 05" E, on *Fagus* sp.

**Ramalina fastigiata** (Pers.) Ach.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Castanea sativa* and *Quercus* sp. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea sativa*. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*. Hacıöldüren, NW, 1120 m, 2-4.VII.2001, 39° 47' 32" N - 26° 59' 37" E. Ardiçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani*.

**Ramalina fraxinea** (L.) Ach.

Karaköy, NW, 550 m, 2-4.VII.2001, 39° 51' 46" N - 26° 53' 54" E, on *Quercus* sp. Poyraz, NW, 640 m, 5-6.VIII.2004, 39° 48' 19" N - 26° 56' 44" E, on *Castanea*

*sativa*. Çırpılar Village, NE, 720 m, 2-4.VII.2001, 39° 47' 48" N - 26° 53' 18" E, on *Quercus* sp.

\**Rhizocarpon distinctum* Th.Fr.

Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

*Rhizocarpon geographicum* (L.) DC.

Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

*Rhizocarpon lecanorinum* Anders

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E, on siliceous rocks.

*Rhizocarpon obscuratum* (Ach.) A.Massal.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E. Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E, on siliceous rocks.

\**Rinodina milvina* (Wahlenb.) Th.Fr.

Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

*Tephromela atra* (Huds.) Hafellner

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

\**Usnea filipendula* Stirt.

Ardıçbaşı, 1290 m, 2-4.VII.2001, 39° 45' 26" N - 26° 25' 49" E, on *Abies equi-trojani* branch.

*Xanthoparmelia conspersa* (Ehrh. ex Ach.) Hale

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E. Otomas turn, N, 970 m, 6-8.VIII.2004, 39° 47' 19" N - 26° 58' 50" E, on siliceous rocks.

*Xanthoparmelia pulla* (Ach.) O.Blanco, A.Crespo, Elix, D.Hawksw. & Lumbsch

Poyraz, NW, 890 m, 6-8.VIII.2004, 39° 48' 17" N - 26° 57' 25" E, on siliceous rocks.

*Xanthoparmelia somloensis* (Gyeln.) Hale

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E. Kızılgedik, W, 602 m, 5-6.VIII.2004, 39° 48' 14" N - 26° 53' 07" E, on siliceous rocks.

*Xanthoparmelia tinctina* (Maheu & A.Gillet) Hale

Karatepe, N, 1058 m, 6-8.VIII.2004, 39° 46' 39" N - 26° 53' 15" E. Kobaklı Çeşme, N, 1010 m, 2-4.VII.2001, 39° 46' 47" N - 26° 53' 05" E. Sazaktepe, 1280 m, 6-8.VIII.2004, 39° 45' 27" N - 26° 53' 07" E, on siliceous rocks.

*Xanthoria parietina* (L.) Th.Fr.

Döllük, SW, 475 m, 5-6.VIII.2004, 39° 48' 17" N - 26° 52' 22" E, on *Quercus* sp. Poyraz, NE, 785 m, 6-8.VIII.2004, 39° 47' 59" N - 26° 57' 30" E, on *Populus tremula*.

## Discussion

As forest vegetation covers most of the study area, epiphytic lichens prevail. The diversity of the epiphytic taxa is considerably higher on the deciduous trees (*Castanea sativa* Mill., *Populus tremula* L., *Fagus* sp. and *Quercus* spp.), particularly on *Quercus* species, probably depending on the bark properties. Comparatively, the number of the species preferring only the evergreen trees (*Abies equi-trojani* and *Pinus nigra*) is 10, half of the number on the deciduous trees. The remaining 11 epiphytic species (*Evernia prunastri*, *Hypogymnia physodes*, *H. tubulosa*, *Lecanora chlorotera*, *L. symmicta*, *Parmelia saxatilis*, *P. sulcata*, *Pertusaria albescens*, *Physconia distorta*, *Platismatia glauca* and *Ramalina fastigiata*) are common on both types of trees.

The epilithic saxicolous lichens are sparsely distributed in the area on siliceous rocks. Most of the terricolous taxa include dimorphic *Cladonia* species growing together with 2 foliose species, *Leptogium gelatinosum* and *Peltigera didactyla*. Substrate types of the taxa correspond with the literature (Purvis et al., 1992; Wirth, 1995).

Growth forms of the taxa differ. The major group is crustose, with 35 species, which is about 49% of the total. Foliose lichens are also abundant, represented by 23 species, which is 30% of the total. The fruticose species make up a lower proportion (13%). There are also 6 dimorphic species (8%).

The 2<sup>nd</sup> and 21<sup>st</sup> localities had the highest numbers of lichen taxa, probably due to the intensity of trees. Localities 1, 18 and 19 had the least numbers of taxa because of sparse tree vegetation and rocky substrates.

The study area itself is not visited by tourists, but nearby Kazdağı (Ida Mountain) is very popular and has been exposed to the effects of air pollution in recent years. However, the sensitive species, according to Purvis et al. (1992) and Wirth (1995), such as *Anaptychia ciliaris*, *Lobaria pulmonaria*, *Ramalina fraxinea*, *Usnea filipendula*, *Parmelina pastillifera*, *Physcia aipolia*, *Pertusaria albescens* and *Pertusaria hemispherica*, are abundant in the research area. The lichen flora reflects low emissions of pollutants around Gürğendağı to date.

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