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Contributions to Lichen Biota of Günyüzü (Eskişehir)

Okan SEZER[1] Kurtuluş ÖZGİŞİ[1] Ömer Koray YAYLACI[2] Derviş ÖZTÜRK[1] Onur KOYUNCU[1]* Filiz SAVAROĞLU[1]
[1]Eskişehir Osmangazi University, Faculty of Science and Letters, Department of Biology, 26480, Eskişehir - Turkey.
[2]Anadolu University, Faculty of Pharmacy, Department of Pharmaceutical Botany, 26470 Eskişehir - Turkey.

*Corresponding author:
E-mail:okoyuncu@ogu.edu.tr

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Abstract

In this study, 154 lichenized fungi taxa were reported from 27 localities in Günyüzü (Eskişehir) district. 153 of these (except *Lecania fuscella* (Schaer.) A. Massal.) are new record for Günyüzü district. Also, 26 of these lichenized fungi taxa are new record for Eskişehir province. Their distributions and substrata are given below.

Keywords: Eskişehir, Günyüzü, Biota, Lichenized fungi, Lichen

INTRODUCTION

Although studies on lichen biota of Turkey obviously increased in recent years, many parts of Turkey still need to be investigated. In contrast to other provinces, many areas of Eskişehir have been investigated but these studies are not enough to determine present lichen biodiversity of Eskişehir. According to the literatures, 305 lichenized fungi taxa have been reported from Eskişehir [13, 27, 28, 29, 30, 33, 36].

Günyüzü district located in the southeast part of Eskişehir province is at Central Anatolia. Doğray village is the lowest altitude place of Günyüzü with 707 m and the peak of the Arayit mountain is the highest place with 1830 m. Dominant vegetation type of Günyüzü is steppe. Also, at the western of Gecek village and at the east slopes of the Arayit mountain, *Pinus nigra* plantation area is located.

According to the literatures, lichen biota of Günyüzü province was never studied before and only one lichen taxa have been recorded from there in Özdemir Türk, 2002.

The aim of this study is to make contributions in defining lichen biota of Günyüzü, Eskişehir.

MATERIAL and METHODS

Lichen specimens were collected from 27 localities in Günyüzü district between the years of 2011-2012. Lichen samples were identified with aid of literatures that include identification keys [1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 31, 32, 34, 35]. The names of taxa were controlled according to "Kirk et al., 2001". Morphological and anatomical characters were determined by stereo (Leica EZ4) and light microscope (Olympus BX40). Spot tests were also used for determination of lichen compounds. The specimens are deposited in the OUFE (Herbarium of Eskişehir Osmangazi University, Faculty of Arts and Science, Eskişehir, Turkey). Distribution of localities is given in Figure 1. The localities are also given in the locality list below.

Localities of the lichen specimens

1.Sivrihisar, Ankara road, slopes, N 39°28'28,6"-E 31°35'29.1", 1032 m.

2.Sivrihisar, Ankara road, Günyüzü turn, slopes, N 39°29'46.39"-E 31°37'10.7", 1048 m.

3.Sivrihisar, Nasrettin Hoca Village turn, N 39°29'46.9"-E 31°39'24.6", 976 m.

4.Sivrihisar, Nasrettin Hoca Village, Subaşı position, N 39°30'00.0"-E 31°40'16.2", 940 m.

5.Sivrihisar, Mülk Village around, N 39°32'30.8"-E 31°43'55.8", 818 m.

6.Sivrihisar, Koçaş Village around, N 39°26'37.6"-E 31°41'21.0", 987 m.

7.Sivrihisar, Between Kocaş and Tekören Villages, mountain foots, N 39°25'28.1"-E 31°39'04.1", 1166 m.

8.Sivrihisar, Between İstiklalbağı and Ballıhisar Villages, N 39°22'08.2"-E 31°35'15.2", 1059 m.

9.Sivrihisar, Between Dinek and Sadıkbağı Villages, N 39°21'54.3"-E 31°40'15.0", 1225m.

10.Sivrihisar, Sadıkbağı Village around, N 39°22'09.2"-E 31°40'10.9", 1237 m.

11.Sivrihisar, Kadıncık Village around, N 39°24'43.1"-E 31°41'0.21", 1118 m.

12.Günyüzü, Between Kadıncık and Hamamkarahisar Villages, N 39°25'48.3"-E 31°42'43.3", 990 m.

13.Günyüzü, Between Dutlu and Çardaközü Villages, N 39°24'33.9"-E 31°43'46.3",981 m.

14.Günyüzü, Çardaközü Village around, N 39°25'56.4"-E 31°46'40.6", 862 m.

15.Günyüzü, Between Yazır Village and Günyüzü turn, N 39°25'40.1"-E 31°49'29.8", 810 m.

16.Günyüzü, Between Çardaközü and Gecek Villages, N 39°25'22.5"-E 31°46'52.7", 879 m.

17.Günyüzü, Gecek Village, N 39°21'54.0"-E 31°43'59.7", 1181 m.

18.Günyüzü, Beyyayla Village around, N 39°22'21.7"-E 31°47'52.", 947 m.

19.Günyüzü, Atlas Village around, N 39°21'22.4"-E 31°46'30.9", 1042 m.

20.Sivrihisar, Karacaören Village around, N 39°17'45.3"-E 31°41'48.1", 1125 m.

21.Sivrihisar, Karacaören Village, Arayit mountain, Trt transmitter road, N 39°17'09.4"-E 31°44'35.1", 1479 m.

22.Sivrihisar, Karacaören Village, Arayit mountain, Trt transmitter road, N 39°17'32.7"-E 31°44'57.6", 1627 m.

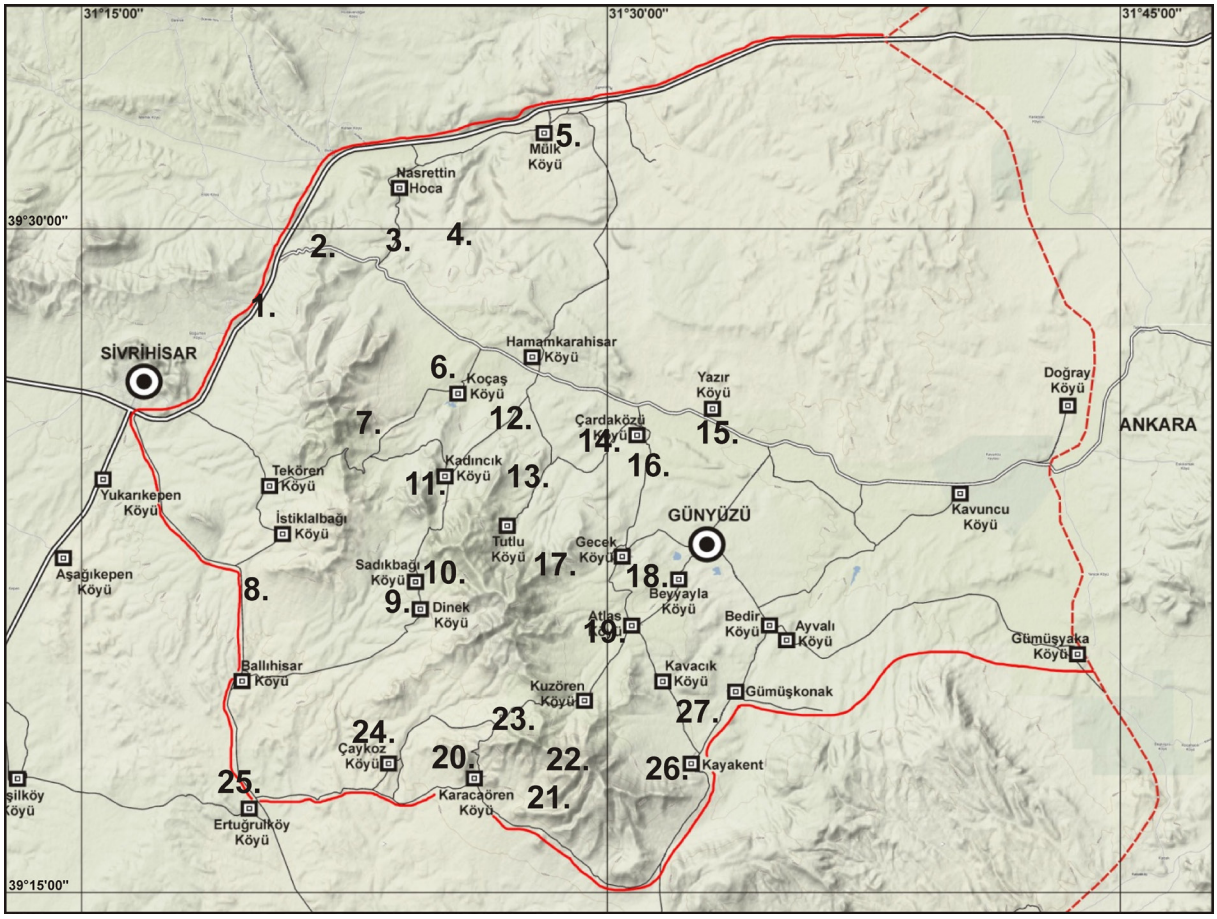
23.Sivrihisar, Karacaören Village, back of the Küçük Arayit mountain, N 39°18'50.3"-E 31°42'21.0", 1327 m.

24.Sivrihisar, Çaykoz Village around, N 39°18'03.7"-E 31°39'32.7", 1021 m.

25.Günyüzü, Ertuğrul Village around, N 39°17'10.3"-E 33°35'22.6", 880 m.

26.Günyüzü, Kayakent Town around, N 39°18'09.8"-E 31°48'09.2", 1000 m.

27.Günyüzü, Gümüş Konak Town around, N 39°19'4.13"-E 31°48'55.5", 1048 m.



RESULTS

In this study, 154 lichen forming fungi taxa were reported from 27 localities in Günyüzü. 153 lichen forming fungi taxa (except *Lecania fuscella* (Schaer.) A. Massal.) are new record for Günyüzü and so 26 of these are new to Eskişehir Province. The list of taxa are given in alphabetical order, followed by substrate and locality numbers in Table 1.

Table 1. List of taxa, their locality numbers, substrates (#:New record for Eskişehir Province, C: CaCO3 containing calcerous rock-limestone, S: Siliceous rock, E: Epiphytic on trees, T: Terricolous, M: Muscicolous)

List of Taxa	Substratum	Locality
Acarospora cervina (Ach.) A. Massal.	C	18, 22, 24
# *Acarospora glaucocarpa* (Ach.) Körb.	C	5, 7, 12, 13
# *Acarospora nodulosa* (Dufour) Hue	T (Gypsum)	4, 8
# *Acarospora strigata* (Nyl.) Jatta	C	14, 19
# *Amundsenia approximata* (Lynge) Søchting, Arup & Frödén	C	4, 7, 12
Anaptychia ciliaris (L.) Körb. ex A. Massal.	E (*Quercus* sp.)	13, 14, 17
Aspicilia cinerea (L.) Körb.	S	10, 11, 26, 27
Aspicilia contorta subsp. *hoffmanniana* S. Ekman & Fröberg	C	3, 5, 13, 18, 20
Aspicilia desertorum (Kremp.) Mereschk.	T (CaCO3)	1, 3
Aspicilia intermutans (Nyl.) Arnold	S	14, 18, 19
Aspicilia radiosa (Hoffm.) Poelt & Leuckert	C	12, 15, 16

Athallia cerinella (Nyl.) Arup, Frödén & Søchting	E (*Quercus* sp.)	13, 17
Athallia holocarpa (Hoffm.) Arup, Frödén & Søchting	C	12, 18, 20
Blastenia crenularia (With.) Arup, Søchting & Frödén	S	6, 9, 11
Bryoria fuscescens (Gyeln.) Brodo & D. Hawksw.	E (*Quercus* sp., *Pinus* sp.)	13, 14, 17
Buellia spuria (Schaer.) Anzi	S	9
Calogaya pusilla (A. Massal.) Arup, Frödén & Søchting	C	4, 5, 12, 19
Calogaya schistidii (Anzi) Arup, Frödén & Søchting	M	17
Caloplaca alociza (A. Massal.) Mig.	C	12, 22, 27
Caloplaca cerina var. *cerina* (Hedw.) Th. Fr.	E (*Quercus* sp.)	13, 14
# *Caloplaca cerina* var. *muscorum* (A. Massal.) Jatta	C	19, 23
Caloplaca chalybaea (Fr.) Müll. Arg.	C	7, 12, 19
Caloplaca decipens (Arnold) Blomb. & Forssell	C	18, 20, 21
Caloplaca grimmiae (Nyl.) H. Olivier	*On Candelariella vitellina*	22, 23, 27
Caloplaca inconnexa var. *inconnexa* (Nyl.) Zahlbr.	C	3, 4, 7, 10, 18
Caloplaca lactea (A. Massal.) Zahlbr.	C	26, 25, 12
Caloplaca variabilis (Pers.) Müll. Arg.	C	18, 21, 24
Candelariella aurella (Hoffm.) Zahlbr.	C	12, 23, 25, 27
Candelariella coralliza (Nyl.) H. Magn.	S	21, 26, 27
# *Candelariella medians* (Nyl.) A.L. Sm.	C	3, 7, 8, 12
Candelariella vitellina (Hoffm.) Müll. Arg.	S	5, 9, 11, 26
Carbonicola myrmecina (Ach.) Bendiksby & Timdal	E (*Pinus* sp.)	17
Catapyrenium lachneum (Ach.) R. Sant.	C, T	3, 4, 19
# *Catapyrenium squamulosum* (Ach.) Breuss	T (Gypsum)	4, 8
Cetraria aculeata (Schreb.) Fr.	E (*Quercus* sp.)	13, 18
Cetraria islandica (L.) Ach.	T	17
Cetrariella delisei (Bory ex Schaer.) Kärnefelt & A. Thell	T	2, 5
Circinaria calcarea (L.) A. Nordin, Savić & Tibell	C	3, 7, 12, 22
Circinaria contorta (Hoffm.) A. Nordin, Savić & Tibell	C	12, 18, 20, 22, 24
# *Circinaria fruticulosa* (Eversm.) Sohrabi	T (Gypsum)	15, 25
Cladonia convoluta (Lam.) Anders	T, M	17
Cladonia fimbriata (L.) Fr.	T	17
Cladonia foliacea (Huds.) Willd.	T	13, 17
Cladonia pyxidata (L.) Hoffm.	M	17
Cladonia rangiformis Hoffm.	T	13, 17
# *Collema flaccidum* (Ach.) Ach.	S	6, 11
Collema tenax (Sw.) Ach.	T (Gypsum)	4, 8, 16
Dermatocarpon miniatum (L.) W. Mann	C	12, 15, 19, 25
Dimelaena oreina (Ach.) Norman	S	3, 10, 19, 27
# *Diploschistes gypsaceus* (Ach.) Zahlbr.	C	8, 15, 16
Diploschistes muscorum (Scop.) R. Sant.	T, M	4, 7, 12, 25
Diplotomma alboatrum (Hoffm.) Flot.	S	9, 17, 21
Diplotomma epipolium (Ach.) Arnold	C	3, 4, 7, 20
# *Diplotomma populorum* A. Massal.	T (Gypsum)	4, 16
Endocarpon pusillum Hedw.	C	23, 25
Evernia prunastri (L.) Ach.	E (*Quercus* sp., *Pinus* sp.)	13, 17
Gyalolechia flavorubescens (Huds.) Søchting, Frödén & Arup	E (*Quercus* sp.)	13, 14
Gyalolechia flavovirescens (Wulfen) Søchting, Frödén & Arup.	C	3, 5, 8, 23
Gyalolechia fulgens (Sw.) Søchting, Frödén & Arup	T (Gypsum)	4, 15, 25
# *Gyalolechia subbracteata* (Nyl.) Søchting, Frödén & Arup	T, C	2, 3, 14
# *Heteroplacidium compactum* (A. Massal.) Gueidan & Cl. Roux	C	3, 7, 8
Hypogymnia physodes (L.) Nyl.	E (*Pinus* sp.)	14, 17

Hypogymnia tubulosa (Schaer.) Hav.	C, E (*Quercus* sp., *Pinus* sp.)	13, 14, 17
# *Lathagrium cristatum* (L.) Otálora, P.M. Jørg. & Wedin	C	3, 4, 12
Lecania fuscella (Schaer.) A. Massal.	E (*Quercus* sp.)	13, 22
Lecanora argentata (Ach.) Röhl.	E (*Quercus* sp.)	14, 17
Lecanora bolcana (Pollini) Poelt	C	3, 5, 7, 18
Lecanora campestris (Schaer.) Hue	C	23, 24, 27
Lecanora carpinea (L.) Vain.	E (*Quercus* sp.)	13, 17
Lecanora chlarotera Nyl.	E (*Quercus* sp.)	13, 14, 17
Lecanora crenulata Hook.	C	20, 21, 26, 27
Lecanora dispersa (Pers.) Röhl.	C	8, 10, 12
Lecanora garovaglii (Körb.) Zahlbr.	S	5, 21, 26
Lecanora hagenii (Ach.) Ach.	E (*Quercus* sp., *Pinus* sp.)	13, 17
Lecanora rupicola subsp. *rupicola* (L.) Zahlbr.	S	5, 9, 21, 26
Lecanora rupicola subsp. *subplanata* (Nyl.) Leuckert & Poelt	S	6, 9, 11, 21
Lecidea fuscoatra (L.) Ach.	S	6, 9, 10, 21, 27
Lecidea plana (J. Lahm) Nyl.	S	9
Lecidella carpathica Körb.	C	7, 8, 24, 26
Lecidella elaeochroma (Ach.) M. Choisy	E (*Quercus* sp., *Pinus* sp.)	13, 17
Lecidella stigmatea (Ach.) Hertel & Leuckert	C	12, 16, 18
Lepraria incana (L.) Ach.	E (*Quercus* sp.)	13, 14
Lepraria nivalis J.R. Laundon	M	17
Letharia vulpina (L.) Hue	E (*Pinus* sp.)	17, 18
# *Lobothallia farinosa* (Flörke) A. Nordin, Savić & Tibell	C	2, 3
Melanelia subaurifera (Nyl.) Essl.	E (*Quercus* sp.)	13, 18, 22
Melanohalea exasperata (De Not.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch	E (*Quercus* sp.)	13
Melanohalea exasperatula (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch	E (*Pinus* sp.)	13, 17
# *Obryzum corniculatum* (Hoffm.) Wallr.	T	3, 7, 24
Ochrolechia parella (L.) A. Massal.	S, E (*Quercus* sp.)	13, 17
Parmelia saxatilis (L.) Ach.	S	6, 9, 17, 21, 26, 27
Parmelia sulcata Taylor	E (*Quercus* sp.)	10, 13, 21
Parmelina tiliacea (Hoffm.) Hale	E (*Quercus* sp.)	13
Parmeliopsis ambigua (Wulfen) Nyl.	E (*Pinus* sp.)	17
Parmularia melanophthalma (DC.) Räsänen	S	9, 11, 26
Peltigera rufescens (Weiss) Humb.	S, T	9, 10, 26
Pertusaria albescens var. albescens (Huds.) M. Choisy & Werner	E (*Quercus* sp., *Pinus* sp.)	13, 17
Pertusaria amara (Ach.) Nyl.	S, E (*Quercus* sp.)	13, 17, 19
Phaeophyscia orbicularis (Neck.) Moberg	E (*Quercus* sp.)	1, 2, 13
Physcia adscendens (Fr.) H. Olivier	S, E (*Quercus* sp.)	13, 14, 22, 25
Physcia aipolia (Ehrh. ex Humb.) Fürnr.	E (*Quercus* sp.)	13, 17
Physcia biziana (A. Massal.) Zahlbr.	E (*Quercus* sp.)	13, 17
Physcia dubia (Hoffm.) Lettau	E (*Pinus* sp.)	17
Physcia leptalea (Ach.) DC.	S	5, 9, 21
Physcia stellaris (L.) Nyl.	E (*Quercus* sp.)	13, 18
Physcia tenella (Scop.) DC.	E (*Quercus* sp.)	13, 17
Physconia distorta (With.) J.R. Laundon	E (*Quercus* sp.)	12, 13, 17
Physconia enteroxantha (Nyl.) Poelt	E (*Quercus* sp.)	1, 17, 18
Physconia grisea (Lam.) Poelt	E (*Quercus* sp.)	2, 13
Placocarpus schaereri (Fr.) Breuss	S, C	6, 10, 18, 24, 25
Placynthium nigrum (Huds.) Gray	S, C	7, 18, 19, 22
Platismatia glauca (L.) W.L. Culb. & C.F. Culb.	E (*Quercus* sp., *Pinus* sp.)	3, 13, 14, 17

Pleurosticta acetabulum (Neck.) Elix & Lumbsch	E (*Quercus* sp.)	13, 17
Polycauliona candelaria (L.) Frödén, Arup & Søchting	E (*Pinus* sp.)	17
# *Porpidia macrocarpa* (DC.) Hertel & A.J. Schwab	S, C	5, 9, 27
Protoparmeliopsis muralis (Schreb.) M. Choisy	C	12, 13, 19
Pseudevernia furfuracea var. *furfuracea* (L.) Zopf	E (*Quercus* sp., *Pinus* sp.)	13, 14, 17
Psora decipiens (Hedw.) Hoffm.	T (CaCO3)	3, 4, 8, 15
# *Psora saviczii* (Tomin) Follmann & A. Crespo	T (Gypsum)	4, 8
Ramalina farinacea (L.) Ach.	E (*Quercus* sp.)	17
Ramalina fastigiata (Pers.) Ach.	E (*Quercus* sp.)	17
Ramalina fraxinea (L.) Ach.	E (*Quercus* sp.)	13, 17
Ramalina pollinaria (Westr.) Ach.	E (*Quercus* sp.)	14
Rhizocarpon distinctum Th. Fr.	S	5, 9, 21
Rhizocarpon geographicum (L.) DC.	S	6, 9, 10, 27
Rhizoplaca peltata (Ramond) Leuckert & Poelt	S	5, 9, 17
# *Rinodina bischoffii* (Hepp) A. Massal.	S, C	18, 21, 22, 24
Rinodina exigua (Ach.) Gray	E (*Quercus* sp.)	13, 14
Rinodina immersa (Körb.) J. Steiner	C	7, 8, 23, 24
Rinodina pyrina (Ach.) Arnold	E (*Quercus* sp.)	13
# *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén	S	11, 21, 26, 27
Sarcogyne clavus (DC.) Kremp.	S	18, 22, 25
Sarcogyne privigna (Ach.) A. Massal.	C	12, 15, 19, 23
Sarcogyne regularis Körb.	S, C	11, 22, 23
Squamarina cartilaginea (With.) P. James	T (Gypsum)	8, 15, 25
Squamarina lentigera (Weber) Poelt	C	3, 7, 13, 18
Tephromela atra (Huds.) Hafellner	S	6, 11
Toninia candida (Weber) Th. Fr.	C	12, 19, 22, 24
# *Toninia diffracta* (A. Massal.) Zahlbr.	T (Gypsum)	4, 15, 25
Toninia sedifolia (Scop.) Timdal	C	14, 18, 20
Trimmatothelopsis smaragdula (Wahlenb.) Cl. Roux & Nav.-Ros.	S	5, 6, 9
Usnea hirta (L.) Weber ex F.H. Wigg.	E (*Quercus* sp., *Pinus* sp.)	13, 17
# *Variospora flavescens* (Huds.) Arup, Frödén & Søchting	C	12, 18, 23
# *Verrucaria calciseda* DC.	C	23, 25
# *Verrucaria marmorea* (Scop.) Arnold	C	22, 24, 25
# *Verrucaria muralis* Ach.	S, C	3, 4, 6, 10, 22
# *Verrucaria nigrescens* Pers.	S, C	5, 18, 20, 21, 22
Xalocoa ocellata (Fr.) E. Kraichak, R. Lücking & Lumbsch	C	18, 20
Xanthoparmelia conspersa (Ehrh. ex Ach.) Hale	S	14, 19
Xanthoparmelia pulla (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch	C	22, 24, 26
Xanthoparmelia somloensis (Gyeln.) Hale	S	5, 9, 11, 21
Xanthoparmelia tinctina (Maheu & A. Gillet) Hale	E (*Quercus* sp.)	13, 17
Xanthoria elegans (Link) Th. Fr.	C	7, 12, 23, 24
Xanthoria parietina (L.) Beltr.	E (*Quercus* sp.)	13, 14, 17

DISCUSSION

In this study, the lichen biodiversity of Günyüzü district at the southeast of Eskişehir was investigated. The district, located in Irano-Turanian floristic region, is in the B3 square according to the Davis's squaring system [6]. Steppe, the typical vegetation of Irano-Turain floristic region is dominant in Günyüzü. Continental climate is seen in the district (Akman, 2011). Also, at the western of Gecek village and at the east slopes of the Arayit mountain, *Pinus nigra* plantation area was observed. In the region, the most structure of parent rock consisting of rocks rich in CaCO3 was observed. Also gypsum soil areas rich in CaCO3 were mostly found during study. Doğray village is the lowest altitude place of Günyüzü with 707 m and the peak of the Arayit mountain is the highest place with 1830 m.

At the end of the study, 154 lichenized fungi taxa were determined from Günyüzü. 153 of these are new recordings for Günyüzü district. Also 26 of these lichen taxa are new recordings for Eskişehir province. According to the literature search, there weren't any former studies about lichen biota of Günyüzü done in the district and only recorded taxa

from the district is *Lecania fuscella* (Schaer.) A. Massal in Özdemir Türk, 2002. By this study, the number of the lichenized fungi in Eskişehir province reached from 305 to 331.

Some lichen taxa identified in this study like *Acarospora cervina, Ac. glaucocarpa, Ac. strigata, Amundsenia approximata, Aspicilia contorta* subsp. *hoffmanniana, As. radiosa, Athallia holocarpa, Calogaya pusilla, Caloplaca alociza, Ca. cerina* var. *muscorum, Ca. chalybaea, Ca. decipens, Ca. inconnexa* var. *inconnexa, Ca. lactea, Ca.* var*iabilis, C*ande*lariella aurella, Can. medians, Circinaria calcarea, Ci. contorta, Dermatocarpon miniatum, Diploschistes gypsaceus, Diplotomma epipolium, Endocarpon pusillum, Gyalolechia flavovirescens, Heteroplacidium compactum, Lathagrium cristatum, Lecanora bolcana, L. campestris, L. crenulata, L. dispersa, Lecidella carpathica, Le. stigmatea, Lobothallia farinosa, Protoparmeliopsis muralis, Rinodina immersa, Squamarina lentigera, Toninia c*and*ida, To. sedifolia, Xalocoa ocellata, Xanthoparmelia pulla* and *Xanthoria elegans* were determined preferring to grow on the rocks (limestone) rich in CaCO3.

In contrast to calcericolous lichen taxa, *Aspicilia cinerea, As. intermutans, Blastenia crenularia, Buellia spuria, C*and*elariella coralliza, Can. vitellina, Collema flaccidum, Dimelaena oreina, Diplotomma alboatrum, Lecanora garovaglii, L. rupicola subsp. rupicola, L. rupicola subsp. subplanata, Lecidea fuscoatra, Lec. plana, Parmelia saxatilis, Parmularia melanophthalma, Physcia leptalea, Rhizocarpon distinctum, Rh. geographicum, Rhizoplaca peltata, Rufoplaca arenaria, Sarcogyne clavus, Tephromela atra, Trimmatothelopsis smaragdula, Xanthoparmelia conspersa* and *Xan. somloensis* commonly grow up on the siliceous substrates.

Placocarpus schaereri, Placynthium nigrum, Porpidia macrocarpa, Rinodina bischoffii, Sarcogyne regularis, Verrucaria muralis and *V. nigrescens* were found both on the siliceous and on the calcericolous rocks. These taxa have high tolerance on substratum selectivity contrary to other siliceous and calcericolous specific taxa.

Aspicilia desertorum were found on rocks and small stones close the soil surface. *Cladonia convoluta*, *C. fimbriata,* and *C. rangiformis* are terricolous species that like high light and they were mainly found on soil surface at open areas of lower parts of forrests. *Cetraria aculeata, C. isl*and*ica, Cetrariella delisei, Calogaya schistidii* and *Peltigera rufescens* develop on soil and moss between rocks.

Acarospora nodulosa, Catapyrenium squamulosum, Circinaria fruticulosa, Collema tenax, Diplotomma populorum, Gyalolechia fulgens, Psora saviczii, Squamarina cartilaginea and *Toninia diffracta* were widely observed on gypsum soil rich in CaCO3.

Also some epiphytic lichen taxa like *Anaptychia ciliaris, Athallia cerinella, Bryoria fuscescens, Caloplaca cerina var. cerina, Carbonicola myrmecina, Cetraria aculeata, Evernia prunastri, Gyalolechia flavorubescens, Hypogymnia physodes, Hy. tubulosa, Lecania fuscella, Lecanora argentata, L. carpinea, L. chlarotera, L. hagenii, Lecidella elaeochroma, Lepraria incana, Letharia vulpina, Melanelia subaurifera, Melanohalea exasperata, Mel. exasperatula, Ochrolechia parella, Parmelia sulcata, Parmelina tiliacea, Parmeliopsis ambigua, Pertusaria albescens var. albescens, Per. amara, Phaeophyscia orbicularis, Physcia adscendens, Ph. aipolia, Ph. biziana, Ph. dubia, Ph. stellaris, Ph. tenella, Physconia distorta, Phy. enteroxantha, Phy. grisea, Platismatia glauca, Pleurosticta acetabulum, Polycauliona candelaria, Pseudevernia furfuracea var. furfuracea, Ramalina farinacea, Ra. fastigiata, Ra. fraxinea, Ra. pollinaria, Rinodina exigua, Rin. pyrina, Usnea hirta, Xanthoparmelia tinctina and Xanthoria parietina* have been determined on barks in study area.

We determined that some lichen are parasitic on other lichens at first developmental stages. For example, *Caloplaca grimmiae* is parasitic on *C*and*elariella vitellina* and so *Diploschistes muscorum* subsp. muscorum is parasitic on *Cladonia* species. *Placocarpus schaereri* is parasitic on *Protoparmeliopsis muralis* and then it becomes dependent at mature period.

Because of the serious fertilizer use at the agricultural activities in Günyüzü, especially nitripilous lichen genus like Physcia, Caloplaca, Physconia and Xanthoria were widely found near the settlements.

Findings obtained at the end of the study show accordance with the literatures [1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 31, 32, 34, 35].

To protect a country's biological richness, first of all its biodiversity should be defined.This can only be accomplished with the guidance of floristic and faunistic studies. To know the biodiversities of countries is important in supplying database for planned future studies such as biological activity and bioindication. With this study in which lichen samples collected from 27 localities of Günyüzü (Eskişehir) were investigated aims to make contribution to the biodiversity of Eskişehir.

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