

LICHENS FROM THE WESTERN PART OF THE BLACK SEA REGION OF TURKEY

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A total of 111 lichen species were identified from 32 localities in the western part of the Black Sea region of Turkey. *Strigula taylorii* (Nyl.) R. C. Harris and *Verrucaria caerulea* DC. are new records for Turkey.

Key words: Black Sea, floristics, lichens, Turkey

INTRODUCTION

Until 1995, 191 papers on lichens from Turkey had been published (John 1992, 1995). Recently, papers dealing with lichens from the different regions of Turkey have gradually increased (Aslan 2000, Güvenç 2002, Yazıcı and Aslan 2002), but our knowledge about the distribution of lichens in Turkey is still limited.

Previous study on lichens from Kastamonu, a few species were given by Szatala (1927) and Hertel (1989). In an other study, 69 species from Sinop and Kastamonu provinces were determined (Özdemir Türk 1997).

DESCRIPTION OF THE STUDY AREA

Turkey divided into three main phytogeographical regions: Black Sea (Euro-Siberian) phytogeographical region, Mediterranean phytogeographical region and Irano-Turanian phytogeographical region. The study area is situated within the boundaries of Euxianian section of the Euro-Siberian floristic region of Turkey. The area is located between 40–42° N and 30–34° E in the western part of the Black Sea region of Turkey. The western part of the Black sea region is influenced by oceanic and Mediterranean climate. At the higher altitudes the prevalence of *Fagus orientalis* and *Abies nordmanniana* subsp. *bornmuelleriana* (Euro-Siberian elements) is the evidence for the effect of oce-

anic climate. However, the costal areas show the features of the Mediterranean climate.

Various vegetation types occur depending on climate types and altitude. At an elevation of 0–200 m, along the narrow costal zone and valleys maquis elements consisting of *Arbutus unedo*, *Laurus nobilis*, *Myrtus communis*, *Spartium junceum* and *Cistus creticus* are dominant. Between 200 and 500 m, deciduous forests composed of *Fagus orientalis*, *Tilia* sp., *Carpinus* sp., *Quercus* sp. and *Castanea sativa* are spreaded. *Fagus orientalis* is dominant above the zone of deciduous forests at the elevation of 500–700 m. This *Fagetum* zone is mixed with *Pinus nigra* subsp. *pallasiana* and *Rhododendron ponticum*. At 800–1000 m, the forests of *Fagus orientalis* and *Abies bornmuelleriana* are spreaded together with *Rhododendron flavum*. Above this height, *Abies nordmanniana* subsp. *bornmuelleriana* is dominant (Atalay 1983).

The climatic data of the stations on the study area showed differences. The stations at Karabük and Safranbolu are influenced by Mediterranean climate. Mean annual rainfall and temperature are 400 mm and 12–14 °C, respectively. However, the stations in the provinces of Bolu and Kastamonu are influenced by both oceanic climate and Mediterranean climate. Mean annual rainfall is 500–700 mm and mean annual temperature 8–11 °C. Bartın is influenced by oceanic climate. Mean annual rainfall and temperature are 1000 mm and 13–15 °C, respectively (Akman 1990).

MATERIALS AND METHODS

The samples were collected from thirty-two stations from Bolu, Bartın, Karabük and Kastamonu provinces on 14–25 July, 2000 (Fig. 1). The samples were identified with the aid of Poelt (1974), Purvis *et al.* (1994) and Wirth (1995). The specimens are kept at the Herbarium (BULU) of the Faculty of Science and Art, Uludag University, Bursa. The number of the localities is as follows:

BOLU

1. Göynük: road of the Sünnet lake, alt. 920 m, 40°44'N, 30°58'E, 14.VII.2000.
2. Göynük: Çubuk lake, in the vicinity of Gölköy, alt. 1200 m, 40°29'N, 30°50'E, 14.VII.2000.
3. Göynük: in the vicinity of Örencik village, alt. 740 m, 40°24'N, 30°47'E, 14.VII.2000.
4. Mudurnu: 15 km to Mudurnu, in the vicinity of the 4. bridge, near to the stream, alt. 680 m, 40°28'N, 31°15'E, 15.VII.2000.

5. In the vicinity of Abant lake, alt. 880 m, 40°36'N, 31°18'E, 15.VII.2000.
6. Mengen: in the vicinity of Çağ stream, alt. 840 m, 40°48'N, 32°02'E, 15.VII.2000.

BARTIN

7. Boğaz district, alt. 0 m, 41°22'N, 32°22'E, 17.VII.2000.
8. Çağlayan: picnic place, alt. 10 m, 41°22'N, 32°22'E, 18.VII.2000.
9. Arit: in the vicinity of Gülpınar, alt. 60 m, 41°23'N, 32°24'E, 18.VII.2000.
10. In the vicinity of Kaşbaşı village, alt. 35 m, 41°41'N, 32°38'E, 18.VII.2000.
11. Safranbolu: in the vicinity of Muratbey, alt. 10 m, 41°35'N, 32°24'E, 18.VII.2000.
12. Safranbolu: in the vicinity of Kirazlık, alt. 50 m, 41°30'N, 32°32'E, 18.VII.2000.
13. 5 km from Bartın to Ulus, between Aptipaşa and Ulus, alt. 120 m, 41°31'N, 32°36'E, 18.VII.2000.
14. In the vicinity of Kalaycı, alt. 30 m, 41°48'N, 32°33'E, 19.VII.2000.
15. In the vicinity of Meydan, alt. 220 m, 41°48'N, 32°36'E, 19.VII.2000.
16. In the vicinity of Karaman, alt. 175 m, 41°49'N, 32°40'E, 19.VII.2000.
17. Between Kurucaşile and Kapısu, alt. 45 m, 41°52'N, 32°53'E, 19.VII.2000.

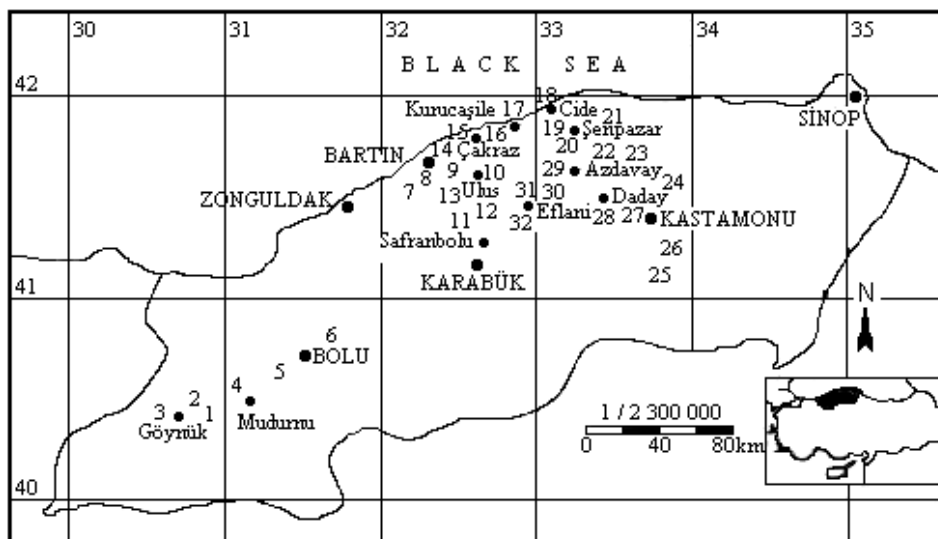


Fig. 1. The study area. Localities indicated by numbers (1–32)

KASTAMONU

18. In the vicinity of Kapısı, alt. 60 m, 41°53'N, 33°03'E, 19.VII.2000.
19. Road of Cide and Şenpazar, in the vicinity of Kirengeriş, alt. 600 m, 41°53'N, 33°04'E, 19.VII.2000.
20. Road of Cide and Şenpazar, in the vicinity of Pazarcık, alt. 850 m, 41°51'N, 33°06'E, 19.VII.2000.
21. Road of Cide and Şenpazar; near to Dağlı, alt. 460 m, 41°48'N, 33°07'E, 19.VII.2000.
22. Road of Şenpazar, after from Kalaycı, entrance to Valay, alt. 475 m, 41°48'N, 33°20'E, 19.VII.2000.
23. Küre Mountain, after from Ağlı, alt. 1125 m, 41°41'N, 33°35'E, 19.VII.2000.
24. Road of Kastamonu, Cide, Seydiler, alt. 975 m, 41°37'N, 33°35'E, 19.VII.2000.
25. Near to Ilgaz National Park, alt. 1660 m, 41°12'N, 33°58'E, 20.VII.2000.
26. Road of Ilgaz, near to road, alt. 1320 m, 41°16'N, 33°53'E, 20.VII.2000.
27. Gökçöy, alt. 720 m, 41°27'N, 33°44'E, 20.VII.2000.
28. 9 km to Daday, location of İnceğiz, alt. 785 m, 41°28'N, 33°34'E, 20.VII.2000.
29. Road from Daday to Azdavay, Ballıdağ passage, Kavak Plateau, alt. 1245 m, 41°29'N, 33°34'E, 20.VII.2000.
30. Road Daday–Eflani, alt. 960 m, 41°28'N, 33°27'E, 20.VII.2000.
31. Road Daday–Eflani, 5 km to Selalmaz, alt. 1040 m, 41°29'N, 33°11'E, 20.VII.2000.

KARABÜK

32. Road Eflani–Safranbolu, 25 km to Safranbolu, alt. 875 m, 41°23'N, 32°47'E, 20.VII.2000.

RESULTS

A total of 111 lichen species were identified from 32 localities in the west of the Black Sea region of Turkey. Species are listed alphabetically and for each lichen species number of localities the reference number of the herbarium, and substratum are given in Table 1. *Strigula taylorii* (Nyl.) R. C. Harris and *Verrucaria caerulea* DC. are new records for Turkey. Twenty species are new records for the Black Sea region of Turkey. New records for Turkey and the Black Sea region of Turkey are initiated by * and + in Table 1, respectively.

Table 1
List of collected species

Species	Collecting site	Substratum
<i>Anaptychia ciliaris</i> (L.) Körb. ex A. Massal.	2 (BULU 2727) 6 (BULU 2763, 2764) 29, 31 (BULU 2853, 3008) 30 (BULU 2990) 12 (BULU 2799) 18, 20, 31 (BULU 2849, 2869, 2994) 16, 31 (BULU 2826, 3016) 3, 4, 28, 30 (BULU 2742, 2746, 2931, 2982) 31 (BULU 2995) 18 (BULU 2847) 25 (BULU 2908) 25 (BULU 2900, 2904) 26 (BULU 2916) 1 (BULU 2696) 4 (BULU 2747) 27 (BULU 2925) 28 (BULU 2943) 29 (BULU 2963) 17 (BULU 2841) 16 (BULU 2824) 24 (BULU 2892) 27, 29 (BULU 2918, 2969) 12 (BULU 2792) 16 (BULU 2822) 25 (BULU 2896) 25 (BULU 2903) 1 (BULU 2704) 3, 17, 18, 29 (BULU 2743, 2838, 2852, 2967) 27 (BULU 2927) 29 (BULU 2973, 2959) 28, 32 (BULU 2942, 3051)	<i>Pyrus</i> sp. <i>Prunus</i> sp., <i>Malus</i> sp. <i>Quercus</i> sp. <i>Salix</i> sp. Calcareous rock Calcareous rocks Siliceous rocks Calcareous rocks Siliceous rock Calcareous rock <i>Pinus</i> sp. <i>Abies</i> sp., <i>Pinus</i> sp. Siliceous rock <i>Juglans</i> sp. <i>Quercus</i> sp. <i>Acacia</i> sp. <i>Populus</i> sp. <i>Crataegus</i> sp. Calcareous rock Siliceous rock Calcareous rock Calcareous rocks Parasite on <i>Aspicilia caesiocinerea</i> Parasite on <i>Verrucaria nigrescens</i> <i>Abies</i> sp. <i>Abies</i> sp. <i>Pyrus</i> sp. Calcareous rocks <i>Populus</i> sp. <i>Crataegus</i> sp., <i>Quercus</i> sp. <i>Pinus</i> sp.
<i>Aspicilia caesiocinerea</i> (Nyl. ex Malbr.) Arnold		
<i>Aspicilia calcarea</i> (L.) Mudd		
<i>Aspicilia cinerea</i> (L.) Körb.		
<i>Aspicilia contorta</i> (Hoffm.) Kremp.		
+ <i>Aspicilia intermutans</i> (Nyl.) Arnold		
+ <i>Bagliettoa parmigera</i> (J. Steiner) Vezda et Poelt		
<i>Bryoria capillaris</i> (Ach.) Brodo et D. Hawksw.		
<i>Bryoria fuscescens</i> (Gyeln.) Brodo et D. Hawksw.		
<i>Buellia aethalea</i> (Ach.) Th. Fr.		
<i>Caloplaca cerina</i> (Ehrh. ex Hedw.) Th. Fr.		
<i>Caloplaca citrina</i> (Hoffm.) Th. Fr.		
<i>Caloplaca crenularia</i> (With.) J. R. Laundon		
<i>Caloplaca decipiens</i> (Arnold) Blomb. et Forssell		
<i>Caloplaca dolomiticola</i> (Hue) Zahlbr.		
<i>Caloplaca flavovirescens</i> (Wulfen) Dalla Torre et Sarnth.		
<i>Caloplaca herbidella</i> (Hue) H. Magn.		
<i>Caloplaca holocarpa</i> (Ehrh. ex Ach.) Wade		
<i>Caloplaca holocarpa</i> (Ehrh. ex Ach.) Wade		

Table 1 (continued)

Species	Collecting site	Substratum
<i>Caloplaca lactea</i> (A. Massal.) Zahlbr.	15, 24, 26, 30 (BULU 2814, 2891, 2917, 2986)	Calcareous rocks
<i>Caloplaca lobulata</i> (Flörke) Hellb.	2 (BULU 2734) 5 (BULU 2756)	<i>Cedrus</i> <i>Salix</i> sp.
<i>Caloplaca variabilis</i> (Pers.) Müll. Arg.	27, 30 (BULU 2920, 2992)	Calcareous rocks
<i>Candelariella aurella</i> (Hoffm.) Zahlbr.	3, 4, 12, 20, 24, 27, 29 (BULU 2740, 2745, 2794, 2871, 2893, 2928, 2972)	Calcareous rocks
<i>Candelariella vitellina</i> (Hoffm.) Müll. Arg.	1 (BULU 2706) 2 (BULU 2736, 2733) 28, 31 (BULU 2935, 3042)	<i>Prunus</i> Garden fence, <i>Cedrus</i> sp. Siliceous rocks
+ <i>Carbonea vitellinaria</i> (Nyl.) Hertel	31 (BULU 3045)	Parasite on <i>Candelariella vitellina</i>
+ <i>Catillaria chalybeia</i> (Borrer) A. Massal.	16 (BULU 2828)	Siliceous rock
<i>Catillaria nigroclavata</i> (Nyl.) Schuler	32 (BULU 3046)	<i>Pinus</i> sp.
<i>Cladonia cervicornis</i> (Ach.) Flot.	16 (BULU 2817)	On siliceous soil
<i>Cladonia fimbriata</i> (L.) Fr.	13 (BULU 2800)	Together with moss on stem of <i>Platanus</i> sp.
	25 (BULU 2897)	On log of a tree
	31 (BULU 3039)	Together with moss on stem of <i>Quercus</i> sp.
<i>Cladonia pyxidata</i> (L.) Hoffm.	23 (BULU 2885)	Siliceous soil
+ <i>Clauzadea monticola</i> (Ach.) Hafelner et Bellem.	17 (BULU 2842)	Calcareous rock
<i>Collena cristatum</i> (L.) Weber ex F. H. Wigg.	19 (BULU 2863)	Calcareous rock
<i>Diplotomma alboastrum</i> (Hoffm.) Flot.	29 (BULU 2958)	<i>Quercus</i> sp.
<i>Evernia prunastri</i> (L.) Ach.	1 (BULU 2701) 2, 28 (BULU 2735, 2948) 31 (BULU 3018, 3029, 3041)	<i>Prunus</i> sp. Garden fence <i>Crataegus</i> sp., <i>Quercus</i> sp., <i>Rhododendron</i> sp.
<i>Flavoparmelia caperata</i> (L.) Hale	11 (BULU 2783)	On log of a tree
<i>Hypogymnia physodes</i> (L.) Nyl.	19 (BULU 2865) 23 (BULU 2887) 31 (BULU 3011)	<i>Crataegus</i> sp. <i>Pinus</i> sp. <i>Rhododendron</i> sp.
<i>Hypogymnia tubulosa</i> (Schaer.) Hav.	25 (BULU 2909)	<i>Abies</i> sp.
+ <i>Lecania crytella</i> (Ach.) Th.Fr.	32 (BULU 3049)	<i>Pinus</i> sp.
+ <i>Lecania fuscilla</i> (Schaer.) Körb.	7 (BULU 2773)	<i>Salix</i> sp.

Table 1 (continued)

Species	Collecting site	Substratum
<i>+Lecania fuscella</i> (Schaer.) Körb.	14 (BULU 2804)	Garden fence
	29 (BULU 2968)	<i>Quercus</i> sp.
<i>Lecanora argentata</i> (Ach.) Malm	1 (BULU 2710)	<i>Prunus</i> sp.
	5 (BULU 2757)	<i>Salix</i> sp.
	6 (BULU 2769)	<i>Malus</i> sp.
	14 (BULU 2811)	<i>Juglans</i> sp.
	25 (BULU 2906)	<i>Abies</i> sp.
	29 (BULU 2979, 2956)	<i>Crataegus</i> sp., <i>Quercus</i> sp.
<i>Lecanora carpinea</i> (L.) Vain.	1 (BULU 2709)	<i>Prunus</i> sp.
	2, 28 (BULU 2737, 2944)	Garden fence
	2 (BULU 2718)	<i>Pyrus</i> sp.
	16 (BULU 2816)	<i>Populus</i> sp.
	19 (BULU 2854, 2853, 2858)	<i>Carpinus</i> sp., <i>Crataegus</i> sp., <i>Prunus</i> sp.
	21, 32 (BULU 2877, 3053)	<i>Quercus</i> sp.
	22 (BULU 2881)	<i>Platanus</i> sp.
	25 (BULU 2905)	<i>Abies</i> sp.
	29 (BULU 2971)	<i>Pinus</i> sp.
	30 (BULU 2987)	<i>Salix</i> sp.
<i>Lecanora chlorotera</i> Nyl.	31 (BULU 2996)	<i>Rhododendron</i> sp.
	16, 28 (BULU 2818, 2945)	<i>Populus</i> sp.
	17 (BULU 2832, 2833)	On log, <i>Ostrya carpinifolia</i>
	19 (BULU 2861)	<i>Carpinus</i> sp.
	30 (BULU 2984)	<i>Salix</i> sp.
	31 (BULU 3023)	<i>Quercus</i> sp.
	15, 27, 30, 31 (BULU 2812, 2924, 2993, 3034)	Calcareous rocks
	3, 4, 12, 18, 20, 24, 29 (BULU 2740, 2749, 2793, 2848, 2870, 2889, 2965)	Calcareous rocks
<i>Lecanora crenulata</i> Hook. <i>Lecanora dispersa</i> (Pers.) Sommerf.	16, 28 (BULU 2823, 2947)	Siliceous rocks
	22 (BULU 2882)	<i>Platanus</i> sp.
	2 (BULU 2715, 2723)	Garden fence, <i>Cedrus</i> sp.
	21 (BULU 2878)	<i>Quercus</i> sp.
<i>Lecanora glabrata</i> (Ach.) Malm <i>Lecanora hagenii</i> (Ach.) Ach.		

Table 1 (continued)

Species	Collecting site	Substratum
<i>Lecanora hagenii</i> (Ach.) Ach.	29 (BULU 2951)	<i>Crataegus</i> sp.
<i>Lecanora muralis</i> (Schreb.) Rabenh.	4, 12, 24 (BULU 2748, 2797, 2890)	Calcareous rocks
	28, 31 (BULU 2934, 3001)	Siliceous rocks
<i>Lecanora pulicaris</i> (Pers.) Ach.	2, 28 (BULU 2713, 2932)	Garden fence
	2 (BULU 2728)	<i>Pyrus</i> sp.
	16 (BULU 2819)	<i>Populus</i> sp.
	23 (BULU 2884)	<i>Pinus</i> sp.
	25 (BULU 2914)	<i>Abies</i> sp.
+ <i>Lecanora subcarpinia</i> Szatala	1 (BULU 2703)	<i>Pyrus</i> sp.
	6 (BULU 2767)	<i>Malus</i> sp.
+ <i>Lecanora subintricata</i> (Nyl.) Th. Fr.	29 (BULU 2970)	<i>Pinus</i> sp.
	32 (BULU 3054)	<i>Quercus</i> sp.
<i>Lecanora rupicola</i> (L.) Zahlbr.	31 (BULU 2999)	Siliceous rock
<i>Lecidella carpathica</i> Körb.	29, 31 (BULU 2955, 3019)	Siliceous rocks
<i>Lecidella elaeochroma</i> (Ach.) Choisy	1, 2 (BULU 2705, 2724)	<i>Pyrus</i> sp.
	1, 19 (BULU 2708, 2857)	<i>Prunus</i> sp.
	2, 14 (BULU 2725, 2808)	Garden fence
	4, 21, 29, 31 (BULU 2744, 2874, 2957, 3025)	<i>Quercus</i> sp.
	5, 9, 11, 30 (BULU 2755, 2778, 2781, 2985)	<i>Salix</i> sp.
	6 (BULU 2766, 2758)	<i>Malus</i> sp., <i>Cornus</i> sp.
	8, 16, 22 (BULU 2775, 2828, 2883)	<i>Populus</i> sp.
	11 (BULU 2787)	<i>Juglans</i> sp.
	17 (BULU 2834)	On log of a tree
	19, 29 (BULU 2862, 2966)	<i>Crataegus</i> sp.
	25 (BULU 2898)	<i>Abies</i> sp.
	28, 29 (BULU 2939, 2974)	<i>Pinus</i> sp.
	31 (BULU 3003)	<i>Rhododendron</i> sp.
<i>Lecidella stigmatea</i> (Ach.) Hertel et Leuckert	18, 20, 30 (BULU 2850, 2868, 2991)	Calcareous rocks
+ <i>Lepnaria caesiobla</i> (B. de Lesd.) J. R. Laundon	11 (BULU 2791)	<i>Salix</i> sp.
<i>Lepnaria lobificans</i> Nyl.	13 (BULU 2801)	On moss
	16 (BULU 2896)	Siliceous rock
+ <i>Lepnaria neglecta</i> (Nyl.) Lettau	20 (BULU 2867)	On log of a tree

Table 1 (continued)

Species	Collecting site	Substratum
<i>Lobothallia radiosa</i> (Hoffm.) Hafellner	12 (BULU 2796)	Calcareous rock
<i>Melanelia exasperata</i> (De Not.) Essl.	1 (BULU 2697)	<i>Cydonia</i> sp.
	31 (BULU 3031)	<i>Rhododendron</i> sp.
<i>Melanelia exasperatula</i> (Nyl.) Essl.	2 (BULU 2738)	Garden fence
	25 (BULU 2910)	<i>Abies</i> sp.
<i>Melanelia glabratula</i> (Lamy) Essl.	28 (BULU 2933)	Garden fence
	30 (BULU 2983)	<i>Salix</i> sp.
	31 (BULU 3021, 3012, 3010)	<i>Crataegus</i> sp., <i>Quercus</i> sp., <i>Rhododendron</i> sp.
+ <i>Melanelia subargentifera</i> (Nyl.) Essl.	19 (BULU 2859)	<i>Crataegus</i> sp.
+ <i>Melanelia subaurifera</i> (Nyl.) Essl.	1 (BULU 2700)	<i>Cydonia</i> sp.
	29 (BULU 2980)	<i>Quercus</i> sp.
<i>Neofuscelia pulla</i> (Ach.) Essl.	31 (BULU 3030)	Siliceous rock
<i>Nephromia parile</i> (Ach.) Ach.	31 (BULU 3037)	On moss
<i>Opegrapha atra</i> Pers.	11, 14 (BULU 2786, 2807)	<i>Juglans</i> sp.
	16 (BULU 2825)	<i>Populus</i> sp.
<i>Opegrapha varia</i> Pers.	7 (BULU 2774)	<i>Salix</i> sp.
	10 (BULU 2780)	<i>Juglans</i> sp.
	14 (BULU 2805)	<i>Pyrus</i> sp.
+ <i>Parmelia quercina</i> (Willd.) Vain.	20 (BULU 2873)	On log of a tree
<i>Parmelia sulcata</i> Taylor	1 (BULU 2699)	<i>Cydonia</i> sp.
	2, 28 (BULU 2716, 2949)	Garden fence
	11 (BULU 2785)	<i>Juglans</i> sp.
	19 (BULU 2864, 2855)	<i>Crataegus</i> sp., <i>Prunus</i> sp.
	20, 21 (BULU 2872, 2876)	On log of a tree
	31 (BULU 3004, 3041, 3000)	<i>Quercus</i> sp., <i>Rhododendron</i> sp., siliceous rock
<i>Peltigera collina</i> (Ach.) Schrad.	31 (BULU 3024)	Stem of <i>Quercus</i> sp.
<i>Pertusaria albescens</i> (Huds.) M. Choisy et Werner	2 (BULU 2722)	Garden fence
	29, 31 (BULU 2954, 3028)	<i>Quercus</i> sp.
<i>Pertusaria amara</i> (Ach.) Nyl.	31 (BULU 3020)	On log of a tree
<i>Pertusaria coccodes</i> (Ach.) Nyl.	21 (BULU 2880)	On log of a tree

Table 1 (continued)

Species	Collecting site	Substratum
<i>Phaeophyscia orbicularis</i> (Neck.) Moberg	14 (BULU 2809)	<i>Juglans</i> sp.
	17 (BULU 2836, 2835)	<i>Ostrya carpinifolia</i> , <i>Quercus</i> sp.
	29 (BULU 2950)	Siliceous rock
+ <i>Phlyctis agelaea</i> (Ach.) Flot.	13 (BULU 2802)	<i>Platanus</i> sp.
+ <i>Phlyctis argena</i> (Spreng.) Flot.	8 (BULU 2776)	<i>Juglans</i> sp.
	32 (BULU 3048)	<i>Pinus</i> sp.
<i>Physcia adscendens</i> (Fr.) H. Olivier	1, 4, 7, 11 (BULU 2694, 2751, 2772, 2782)	<i>Salix</i> sp.
	1, 19 (BULU 2707, 2860)	<i>Prunus</i> sp.
	2 (BULU 2714)	Garden fence
	2, 14 (BULU 2717, 2806)	<i>Pyrus</i> sp.
	6 (BULU 2761)	<i>Acacia</i> sp.
	8, 27, 28 (BULU 2777, 2922, 2940)	<i>Populus</i> sp.
	11 (BULU 2789)	<i>Juglans</i> sp.
	17 (BULU 2837)	On log of a tree
	28 (BULU 2938)	<i>Pinus</i> sp.
<i>Physcia aipolia</i> (Erhr. ex Humb.) Hampe	29, 31 (BULU 2978, 3009)	<i>Quercus</i> sp.
	31 (BULU 3032, 3017)	<i>Crataegus</i> sp., <i>Rhododendron</i> sp.
	1, 6 (BULU 2702, 2762)	<i>Prunus</i> sp.
	2 (BULU 2712, 2711)	Garden fence, <i>Pyrus</i> sp.
	5, 30 (BULU 2754, 2988)	<i>Salix</i> sp.
	6 (BULU 2770)	<i>Acacia</i> sp.
	14 (BULU 2803)	<i>Juglans</i> sp.
	17 (BULU 2840)	On log of a tree
	25 (BULU 2913)	<i>Abies</i> sp.
	29 (BULU 2976, 2977, 2975)	Calcareous rock, <i>Crataegus</i> sp.,
		<i>Quercus</i> sp.
	31 (BULU 2998)	Siliceous rock
	2 (BULU 2731)	<i>Pyrus</i> sp.
+ <i>Physcia clementei</i> (Sm.) Maas Geest.	31 (BULU 3036)	Siliceous rock
<i>Physcia semipinnata</i> (J. F. Gmel.) Moberg	31 (BULU 3007, 3014)	<i>Crataegus</i> sp., <i>Rhododendron</i> sp.
<i>Physcia stellaris</i> (L.) Nyl.	11 (BULU 2784)	<i>Salix</i> sp.
<i>Physcia tenella</i> (Scop.) DC.	25 (BULU 2901)	<i>Abies</i> sp.

Table 1 (continued)

Species	Collecting site	Substratum
<i>Physconia distorta</i> (With.) J. R. Laundon	2 (BULU 2720) 6 (BULU 2760, 2765) 27 (BULU 2921) 31 (BULU 3026) 29 (BULU 2960) 5 (BULU 2752) 27 (BULU 2929, 2923) 2 (BULU 2731) 31 (BULU 3044) 2 (BULU 2719) 17, 18 (BULU 2843, 2851) 23, 25 (BULU 2886, 2911) 25 (BULU 2912) 31 (BULU 3015) 9 (BULU 2779) 29, 31 (BULU 2952, 3040) 21 (BULU 2875) 30 (BULU 2981) 31 (BULU 3013) 19 (BULU 2856) 32 (BULU 3050) 31 (BULU 3035) 16, 32 (BULU 2827, 3047) 31 (BULU 3043) 24 (BULU 2888) 16, 28 (BULU 2815, 2937) 28, 29 (BULU 2936, 2961) 29 (BULU 2962) 25 (BULU 2915) 14 (BULU 2810) 31 (BULU 2997) 25 (BULU 2902, 2907)	<i>Pyrus</i> sp. <i>Cornus</i> sp., <i>Malus</i> sp. <i>Cerasus</i> sp. <i>Quercus</i> sp. <i>Quercus</i> sp. <i>Salix</i> sp. <i>Acacia</i> sp., <i>Populus</i> sp. Garden fence <i>Quercus</i> sp. <i>Pyrus</i> sp. Calcareous rocks <i>Pinus</i> sp. <i>Abies</i> sp. <i>Rhododendron</i> sp. <i>Salix</i> sp. <i>Quercus</i> sp. On log of a tree <i>Salix</i> sp. <i>Quercus</i> sp. <i>Crataegus</i> sp. <i>Quercus</i> sp. Siliceous rock Siliceous rocks Siliceous rock Calcareous rock <i>Populus</i> sp. <i>Pinus</i> sp. <i>Crataegus</i> sp. <i>Abies</i> sp. <i>Pyrus</i> sp. Siliceous rock <i>Abies</i> sp., <i>Pinus</i> sp.
<i>Physconia enteroxantha</i> (Nyl.) Poelt		
<i>Physconia grisea</i> (Lam.) Poelt		
<i>Physconia perisidiosa</i> (Erichsen) Moberg		
<i>Pleurosticta acetabulum</i> (Neck.) Elix et Lumbsch		
<i>Protoblastenia rupestris</i> (Scop.) J. Steiner		
<i>Pseudevernia furfuracea</i> (L.) Zopf		
<i>Pyrenula macrospora</i> (Degel.) Coppins et P. James		
<i>Ramalina canariensis</i> J. Steiner		
<i>Ramalina farinacea</i> (L.) Ach.		
<i>Ramalina subfarinacea</i> (Nyl. ex Cromb.) Nyl.		
<i>Rhizocarpon geographicum</i> (L.) DC.		
<i>Rhizocarpon petraeum</i> (Wulfen) A. Massal.		
+ <i>Rhizocarpon polycarpum</i> (Hepp) Th. Fr.		
<i>Rinodina bischoffii</i> (Hepp) A. Massal.		
<i>Rinodina pyrina</i> (Ach.) Arnold		
<i>Rinodina sophodes</i> (Ach.) A. Massal.		
* <i>Strigula taylorii</i> (Nyl.) R. C. Harris		
<i>Teplomela atra</i> (Huds.) Hafellner		
<i>Usnea florida</i> (L.) Weber ex F. H. Wigg.		

Table 1 (continued)

Species	Collecting site	Substratum
<i>Usnea hirta</i> (L.) Weber ex F. H. Wigg.	25 (BULU 2899) 31 (BULU 3022, 3038)	<i>Pinus</i> sp. <i>Crataegus</i> sp., <i>Rhododendron</i> sp.
<i>Usnea subfloridana</i> Stirt.	2 (BULU 2721)	Garden fence
* <i>Verrucaria caerulea</i> DC.	18 (BULU 2845)	Calcareous rock
+ <i>Verrucaria dufourii</i> DC.	17 (BULU 2830)	Calcareous rock
<i>Verrucaria muralis</i> Ach.	18 (BULU 2844)	Calcareous rock
<i>Verrucaria nigrescens</i> Pers.	12, 17, 18 (BULU 2798, 2839, 2846)	Calcareous rocks
	16 (BULU 2821)	Siliceous rock
<i>Xanthoparmelia conspersa</i> (Ehrh. ex Ach.) Hale	31 (BULU 3005)	Siliceous rock
<i>Xanthoria elegans</i> (Link) Th. Fr.	24, 31 (BULU 2894, 3002)	Calcareous rocks
<i>Xanthoria parietina</i> (L.) Th. Fr.	1, 11 (BULU 2698, 2788)	<i>Juglans</i> sp.
	1, 4, 5, 7, 11, 30 (BULU 2695, 2750, 2753, 2771, 2790, 2989)	<i>Salix</i> sp.
	2 (BULU 2729, 2726)	Garden fence, <i>Pyrus</i> sp.
	6, 27 (BULU 2768, 2930)	<i>Acacia</i> sp.
	6 (BULU 2759)	<i>Cornus</i> sp.
	12 (BULU 2795)	Calcareous rock
	17 (BULU 2831)	On log of a tree
	21 (BULU 2879)	<i>Quercus</i> sp.
	27, 28 (BULU 2926, 2946)	<i>Populus</i> sp.
	27, 31 (BULU 2919, 3027)	<i>Rhododendron</i> sp.
	28 (BULU 2941)	<i>Pinus</i> sp.
	29, 31 (BULU 2964, 3033)	<i>Crataegus</i> sp.

* = new records for Turkey, + = new records for the Black Sea region of Turkey

DISCUSSION

A total of 111 species belonging to 47 genera have been determined. 359 samples are collected from the study area. Of these samples, 258 are epiphytic, 92 are saxicolous, 2 are terricolous, and 4 specimens are parasitic on other lichens and 3 specimens are muscicolous.

The first lichen records from the provinces of Ordu and Trabzon in the Black Sea region of Turkey were given by Steiner (1909, 1916) and followed by other studies (Szatala 1927, 1960).

Studies towards to determining the lichen flora of the Black Sea region have been generally carried out in the province of Trabzon (Kınalıoğlu *et al.* 1994, Yazıcı 1995a, 1996, 1999) and Rize (Yazıcı 1995b, Yazıcı and Aslan 2002). In addition to these studies, there are also some studies supplying lichen records from the provinces of Gümüşhane, Ordu, Zonguldak, Trabzon and Rize (John 1999, 2000, John *et al.* 2000). Comparing with these studies, 2 species are new to Turkey and 20 species are new records for the Black Sea regions of Turkey.

The lichen flora of the western part of the Black Sea region including the study area is still poorly known. The first lichen records from the study area were given by Szatala (1927). *Bacidia subincompta* (Nyl.) Arnold was designated later by Hertel (1989) from Kastamonu province. At the study from Sinop and Kastamonu provinces, 69 species were determined (Özdemir Türk 1997). According to present studies, 37 species are new records for the study area.

*

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