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## Lichen Flora of Sakarya Province (Turkey)\*

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**Abstract:** This study of the lichen flora of Sakarya Province determined 159 species, which are listed along with their substrata.

**Key Words:** Lichen, Flora, Sakarya, Turkey

### Sakarya İli (Türkiye) Liken Florası\*

**Özet:** Sakarya ili liken florasını belirlemeye yönelik bu çalışmada 159 iken türünün yayılış alanları ve üzerinde geliştikleri substratlar verilmektedir.

**Anahtar Sözcükler:** Liken, Flora, Sakarya, Türkiye

### Introduction

There have been a great number of studies of the lichen flora of Turkey (1, 2 and references therein). However, if all the lichen flora of Turkey is to be determined many more studies need to be done. This study was carried out to add to the lichen flora of Turkey and to provide a basis for further studies.

### Material and Method

Lichen specimens were collected from 138 locations between 1994 and 1996 (Figure 1). Reference books (3-5) and determination keys (6, 7) were used to identify the specimens. The reference specimens are stored in the herbarium of the Faculty of Sciences, Anadolu University.

### Localities of the collected lichens

#### Adapazarı

1. Evrenköy, Çark Stream bank, 20m., 5.10.1994, 40°49' N - 30°27' E.
2. Camili Village, Kozdere. 20m., 5.10.1994, 40°51' N - 30°-18' E.

3. East of Camili Village, 30m., 5.10.1994, 40°51' - 30°19' E.
4. Camili Village, graveyard, 30m., 5.10.1994, 40°50' N - 30°19' E.
5. West of Nasuhlar Village, 20m., 5.10.1994, 40°52' N - 30°17' E.
6. Southwest of Kazımpaşa Town, 60m., 6.10.1994, 40°48' N - 30°17' E.
7. Kazımpaşa-Dağyoncalı road and Dağyoncalı Village, 250m., 6.10.1994, 40°47' N - 30°18' E.
8. Kaynarca-Karasu crossroads, 20m., 7.10.1994, 40°50' N - 30°21' E.
9. Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, 40°52' N - 30°26' E.
10. Poyrazlar Lake shore, Sakarya Hatıra Ormanı, 50m., 7.10.1994, 40°52' - 30°26' E.
11. North of Taşkırsığı Village, 20m., 7.10.1994, 40°52' N - 30°20' E.
12. Çaltıcak lake, picnic area, 20m., 7.10.1994, 40°53' N - 30°21' E.

\* The article is a part of the Ph.D. thesis carried out by A. Çiçek.

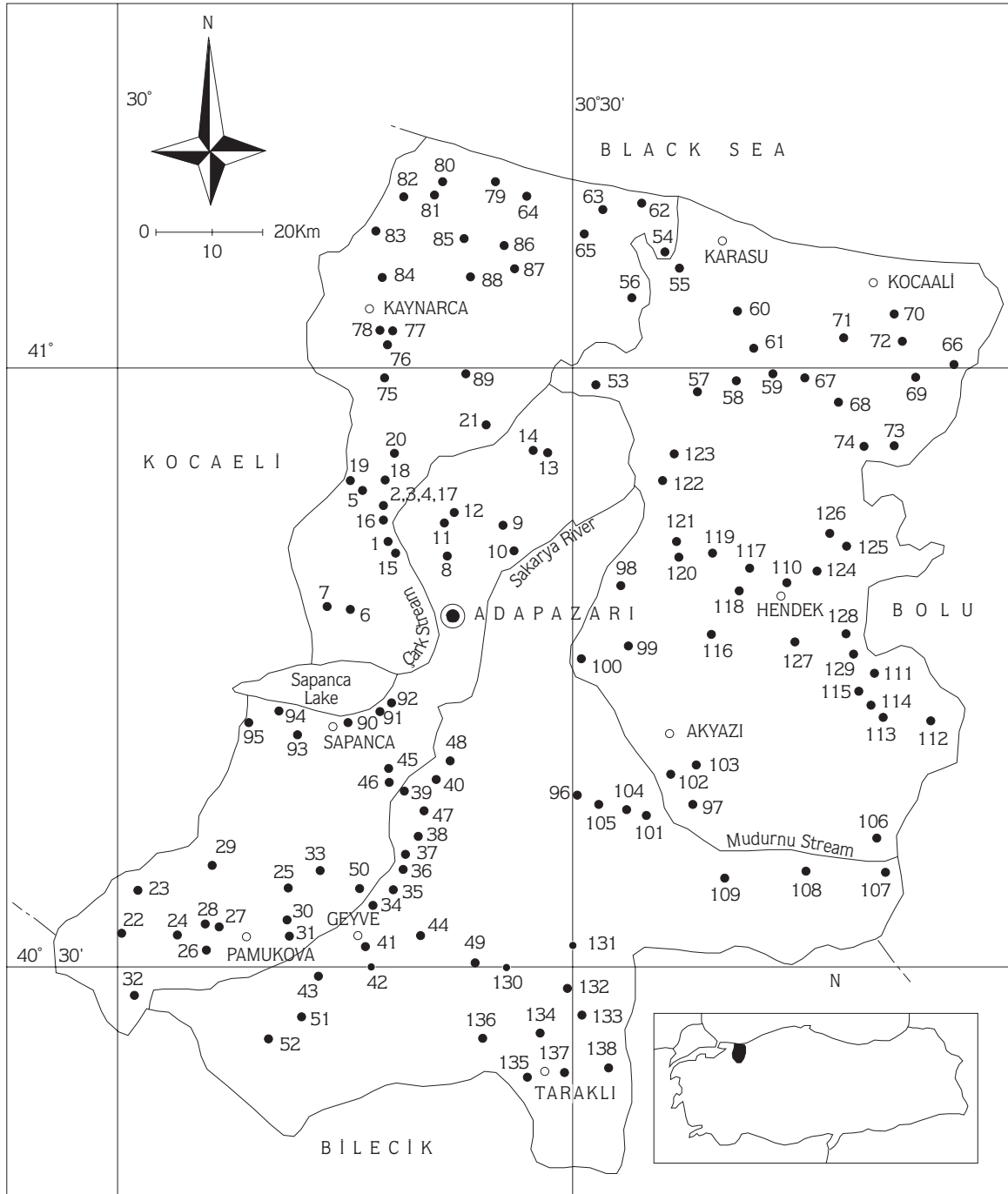


Figure 1. Localities of the collected lichens

- |   |   |
|---|---|
| <p>13. Söğütlü, Soğucak Village, 20m., 7.10.1994, 40°54' N - 30°27' E.</p> <p>14. North of Söğütlü, 1km., 20m., 7.10.1994, 40°56' N - 30°26' E.</p> | <p>15. Yazlık, Çark Stream bank, 30m., 1.4.1995, 40°48' N - 30°19' E.</p> <p>16. Evrenköy - Camili Road, 2km., 40m., 1.4.1995, 40°50' N - 30°17' E.</p> |
|---|---|

17. North of Camili Village, Gürgenlik Hill, 110m., 1.4.1995, 40°52' N - 30°14' E.
18. Dereköy Village, 90m., 6.4.1995, 40°54' N - 30°16' E.
19. North of Salmanlı Village, 130m., 7.4.1995, 40°55' N - 30°16' E.
20. Örentepe - Çınarlık Road, 1.km., 40m., 7.4.1995, 40°55' N - 30°18' E.
21. North of Fındıklı Village, Büyükmahalle, 150m., 7.4.1995, 40°57' N - 30°22' E.

#### Pamukova

22. İsabalı - Akçakaya Road, 7km., 50m., 4.10.1994, 40°31' N - 30°01' E.
23. North of Katözü Village, 250m., 4.10.1994, 40°32' N - 30°01' E.
24. West of Hayrettin Village, 60m., 4.10.1994, 40°31' N - 30°06' E.
25. Şahmelek Village, 50m., 4.10.1994, 40°34' N - 30°08' E.
26. Pamukova - Bilecik, Fevziye crossroads, 60m., 4.10.1994, 40°31' N - 30°07' E.
27. North of Karapınar, Yörük Hill, 1200m., 2.4.1995, 40°31' N - 30°05' E.
28. Karapınar, Orman İşletme Şefliği, 70m., 2.4.1995, 40°31' N - 30°05' E.
29. North of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, 40°34' N - 30°04' E.
30. Turgutlu Stream bank, 100m., 2.4.1995, 40°31' N - 30°10' E.
31. Turgutlu, Karakavak, 90m., 2.4.1995, 40°31' N - 30°10' E.
32. South of Mekece Village, Cambazkaya Hill, 400m., 2.4.1995, 40°26' N - 30°02' E.

#### Geyve

33. South of Melekşesolak, 80m., 4.10.1994, 40°34' N - 30°12' E.
34. Ali Fuat Paşa - Epçeler, 1.km., 50m., 4.10.1994, 40°32' N - 30°16' E.
35. West of Akkaya Village, 60m., 4.10.1994, 40°33' N - 30°19' E.

36. Dereköy - Kızılkaya, 1km., 50m., 4.10.1994, 40°35' N - 30°18' E.
37. Kızılkaya Village, East of Sakarya River, 50m., 4.10.1994, 40°36' N - 30°18' E.
38. Fındıksuyu Village, 60m., 4.10.1994, 40°36' N - 30°19' E.
39. Doğançay, Sakarya River bank, 60m., 4.10.1994, 3.4.1995, 40°37' N - 30°17' E.
40. Boğazköy - Kışlaçay, 1km., 40m., 4.10.1995, 40°39' N - 30°20' E.
41. Geyve, Forest Management Administration, Karataşdere Afforestation Area, 140m.-160m., 9.10.1994, 40°30' N - 30°16' E.
42. Sarıgazi Village, 130m., 9.10.1994, 40°29' N - 30°16' E.
43. Safibey - Umurbey, roadside, 130m., 9.10.1994, 40°28' N - 30°13' E.
44. North of Doğanentepe, Halaçdoruk Hill, 760m., 9.10.1994, 40°31' N - 30°19' E.
45. İlimbey, Southwest of İlimbey Hill, 540m., 3.4.1995, 40°40' N - 30°17' E.
46. Karaçam, roadside, 110m., 3.4.1995, 40°39' N - 30°17' E.
47. Northeast of Doğançay, Doğançay Stream bank, 110m.-250m., 3.4.1995, 40°37' N - 30°20' E.
48. South of Kumbaşı Village, Soğuksu Hill, 800m., 3.4.1995, 40°40' N - 30°21' E.
49. North of Şükürler Village, Harmankaya Hill, 980m., 3.4.1995, 40°29' N - 30°23' E.
50. Ali Fuat Paşa, Gemidoruk Hill, 660m., 3.4.1995, 40°34' N - 30°14' E.
51. West of Akdoğan Village, 250m., 20.1.1996, 40°26' N - 30°13' E.
52. Çarıklı Hill, 600m., 20.1.1996, 40°26' N - 30°11' E.

#### Karasu

53. East of Sinanoğlu Village, 10m., 7.10.1994, 40°58' N - 30°30' E.
54. Tuzla, Sakarya River bank, Om., 7.10.1994, 41°06' N - 30°34' E.
55. Ballıkayalar, 10m., 7.10.1994, 41°05' N - 30°34' E.
56. East of Akgöl Lake, 30m., 7.10.1994, 41°03' N - 30°32' E.
57. South of Ardıçbeli Stream, Meşeyatak Hill, 450m., 5.4.1995, 40°58' N - 30°36' E.

58. Yenidağ, North of Küçükyenidağ Hill, 400m., 5.4.1995, 40°58' N - 30°39' E.
59. Southwest of Kurudere, Çayırılı Hill, 350m., 5.4.1995, 40°58' N - 30°41' E.
60. East of Kızılıcık Village, 20m., 16.1.1996, 41°03' N - 30°32' E.
61. North of Kurudere, 230m., 16.1.1996, 40°59' N - 30°41' E.
62. West of Ihsaniye Village, 10m., 17.1.1996, 41°08' N - 30°36' E.
63. North of Denizköy, 10m., 17.1.1996, 41°08' N - 30°30' E.
64. Camitepe Village, Acarlar Lake shore, 10m., 17.1.1996, 41°08' N - 30°24' E.
65. Resuller Village, 20m., 17.10.1996, 41°06' N - 30°29' E.
- Kocaali**
66. Ortaköy Village, 230m., 7.10.1994, 41°01' N - 30°52' E.
67. Şerbetpınarı Village, 290m., 5.4.1995, 40°59' N - 30°43' E.
68. Karadere - Çakmaklı, 2.km., 360m., 5.4.1995, 40°57' N - 30°46' E.
69. East of Açmabaşı Village, 260m., 5.4.1995, 40°59' N - 30°49' E.
70. South of Kocaali Town, 7.km., 220m., 16.1.1996, 41°02' N - 30°46' E.
71. Kirazlı Village, 250m., 16.1.1996, 41°01' N - 30°46' E.
72. East of Selahiye Village, 270m., 16.1.1996, 41°02' N - 30°50' E.
73. Kızılüzüm Village, 430m., 16.1.1996, 40°56' N - 30°48' E.
74. Şerbet Village, Fındık Hill, 550m., 16.1.1996, 40°55' N - 30°47' E.
- Kaynarca**
75. North of Müezzinler Village, 30m., 7.4.1995, 40°58' N - 30°16' E.
76. Güven - Reisli, roadside, 20m., 7.4.1995, 41°01' N - 30°16' E.
77. Kadıköy, 20m., 7.4.1995, 41°02' N - 30°16' E.
78. Kadıköy - Kaynarca Road, 2.km., 10m., 7.4.1995, 41°02' N - 30°15' E.
79. North of Sülüklü Lake, 30m., 17.1.1996, 41°09' N - 30°21' E.
80. South of Başoğlu Village, 30m., 17.1.1996, 41°08' N - 30°20' E.
81. Ortaköy Village, 20m., 17.1.1996, 41°07' N - 30°19' E.
82. Arifağa - Soğuksu, roadside, 20m., 17.1.1996, 41°08' N - 30°16' E.
83. South of Karaçalı Village, 40m., 17.1.1996, 41°07' N - 30°15' E.
84. Dağyeniköy Village, 30m., 17.1.1996, 41°05' N - 30°17' E.
85. SE of Turnalı Village, 30m., 17.1.1996, 41°06' N - 30°20' E.
86. Büyükyanık - Taşlıgeçit, 1.km., 30m., 17.1.1996, 41°06' N - 30°19' E.
87. Yeşilova Village, 40m., 17.1.1996, 41°05' N - 30°19' E.
88. South of İmamlar Village, 30m., 17.1.1996, 41°05' N - 30°18' E.
89. Oflak Hill, 250m., 17.1.1996, 41°02' N - 30°26' E.
- Sapanca**
90. Atatürk Recreation Area, 40m.-60m., 10.10.1994, 40°42' N - 30°15' E.
91. North of Uzunkum Village, 30m., 10.10.1994, 6.4.1995, 40°43' N - 30°17' E.
92. Arifiye - Sapanca Road, 3.km., 30m., 10.10.1994, 40°44' N - 30°18' E.
93. South of Mahmudiye, 40m., 6.4.1995, 40°41' N - 30°11' E.
94. Kurtköy, 40m., 6.4.1995, 40°41' N - 30°09' E.
95. Kartepe, 30m.-1150m., 6.4.1995, 40°37' N - 30°08' E.
- Akyazı**
96. Karapürçek, Kızılcapınar Hill, 480m.-630m., 8.10.1994, 8.4.1995, 40°39' N - 30°30' E.
97. Kuzuluk, Thermal springs, 160m., 8.10.1994, 40°38' N - 30°36' E.

98. East of Yenidoğan Village, Kocatokat place, 40m., 8.4.1995, 40°49' N - 30°33' E.
99. Kızılıkorman, roadside, 50m., 8.4.1995, 40°46' N - 30°32' E.
100. Afforestation Area on E5 state highway, 60m., 8.4.1995, 40°44' N - 30°29' E.
101. Taşburun Village, Beldibi, 90m., 8.4.1995, 40°37' N - 30°35' E.
102. East of Karaçalılık Village, 150m., 8.4.1995, 40°40' N - 30°35' E.
103. Keremali Mountain, 800m., 8.4.1995, 40°39' N - 30°41' E.
104. West of Bıçkıdere Village, 2km., 280m., 19.1.1996, 40°37' N - 30°33' E.
105. South of Medicidey Village, 480m., 19.1.1996, 40°37' N - 30°31' E.
106. Dokurcun, Mayapınar Hill, 850m., 19.1.1996, 40°37' N - 30°48' E.
107. South of Dokurcun Town, 350m., 19.1.1996, 40°35' N - 30°48' E.
108. South of Güvençler Village, 1km., 450m., 19.1.1996, 40°34' N - 30°43' E.
109. East of Taşyatak Village, 460m., 19.1.1996, 40°35' N - 30°38' E.

#### Hendek

110. Hendek, picnic area, 120m., 8.10.1994, 40°48' N - 30°42' E.
111. Karadere Hill, 390m., 4.4.1995, 40°44' N - 30°48' E.
112. Dikmen Hill, 1300m., 4.4.1995, 40°43' N - 30°52' E.
113. Aksu, Aksu Stream bank, 500m., 4.4.1995, 40°43' N - 30°48' E.
114. Kızkalesi, Keltepe - Kızkalesi Hill, 800m., 4.4.1995, 40°43' N - 30°47' E.
115. North of Keltepe, Sazlıgöl Stream bank, 500m., 4.4.1995, 40°43' N - 30°47' E.
116. Uzuncaorman Village, 60m., 18.1.1996, 40°46' N - 30°37' E.
117. North of Kazımiye, Çam Mountain, 200m., 18.1.1996, 40°50' N - 30°40' E.
118. Northeast of Lütfiyeköşk Village, 100m., 18.1.1996, 40°49' N - 30°39' E.

119. Çobanyatak Village, 150m., 18.1.1996, 40°51' N - 30°37' E.
120. Sivritepe, 200m., 18.1.1996, 40°51' N - 30°36' E.
121. Kurtköy, 220m., 18.1.1996, 40°52' N - 30°36' E.
122. North of Soğuksu Village, 2km., 150m., 18.1.1996, 40°53' N - 30°36' E.
123. Dereköy - Kocatöngel, roadside, 160m., 18.1.1996, 40°55' N - 30°37' E.
124. North of Hüseyinşeyh Village, 250m., 18.1.1996, 40°50' N - 30°45' E.
125. Muradiye Hill, 250m., 18.1.1996, 40°51' N - 30°46' E.
126. Kayalık Hill, 420m., 18.1.1996, 40°52' N - 30°45' E.
127. North of Kalayık Village, 80m., 18.1.1996, 40°48' N - 30°45' E.
128. Harmantepe, 200m., 18.1.1996, 40°47' N - 30°47' E.
129. Kırktepe, 350m., 18.1.1996, 40°46' N - 30°47' E.

#### Taraklı

130. Kayadibi - Doğançıl, 4km., 1100m., 3.4.1995, 40°30' N - 30°24' E.
131. Tuzla, Karlık Hill, 1320m., 3.4.1995, 40°30' N - 30°29' E.
132. West of İçdedeler Village, 700m., 3.4.1995, 40°28' N - 30°28' E.
133. Southwest of Esenyurt Village, 820m., 3.4.1995, 40°28' N - 30°31' E.
134. North of Taraklı Town, 4km, Aksu Stream bank, 220m., 21.1.1996, 40°26' N - 30°27' E.
135. West of Taraklı Town, Göynük Stream bank, 230m., 21.1.1996, 40°25' N - 30°28' E.
136. Hacıyakup Village, 650m., 21.1.1996, 40°26' N - 30°23' E.
137. Taraklı - Göynük, 6km., 240m., 21.1.1996, 40°25' N - 30°28' E.
138. North of Yeniköy and Gürleyik Stream bank, 260m., 21.1.1996, 40°24' N - 30°30' E.

#### Description of the study area

Sakarya is located in the East Marmara region. Most of the land lies within the Sakarya Valley, broadening towards the Black Sea. It also contains mildly

rough terrain with elevation varying from 500 to 1500 metres. A temperate sea climate is dominant in most of the province, while there is a dry continental climate in a small section of the area. Approximately forty percent of the ground is covered by woods.

The northern part of the province is covered by a mixture of *Quercus robur* L., *Q. ilex* L., *Q. petraea* (Mattuschka) Lieb., *Q. frainetto* Ten., *Q. cerris* L., *Fagus orientalis* Lipsky, *Castanea sativa* Mill., *Carpinus betulus* L., *Tilia rubra* DC., *T. argentea* Desf. and *Acer platanoides* L. and, in the inner region, *Quercus* spp. becomes dominant. In the mountainous southern area, deciduous trees and coniferous trees: (*Abies nordmanniana* (Stev) Spach. ssp. *bornmülleriana* (Mattf.) Coode et Cullen, *Pinus nigra* Arnold., *P. sylvestris* L.) form mixed forests above 700 metres. Above these forests, there are forests of *Fagus orientalis* and *Abies nordmanniana*. *Pinus brutia* Ten. is found in the south of the Sakarya Strait, which is influenced by a Mediterranean climate. *Populus tremula* L. and *P. alba* L. grow along the banks of the river Sakarya and throughout Adapazarı Plain. *Salix alba* L., *Platanus orientalis* L. and *Taxus baccata* L. are found in most of the study area.

## Results

The system of orders and families used here is from Purvis et al. (3).

Directions are abbreviated as follows: North (N), South (S), West (W), Northeast (NE), Southeast (SE), Southwest (SW).

In this section, only one location in every district is fully described for each species, while the other locations in that district are given as numbers in parentheses.

### Ascomycotina

#### Ordo: Arthoniales

##### Familia: Chrysothrichaceae

*Chrysothrix candelaris* (L.) Laundon

Karasu; N of Kurudere, 230m., 16.1.1996, (61).

Akyazı; S of Mecidiye Village, 480m., 19.1.1996, (105).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112, 125).

*On coniferous and deciduous tree bark.*

#### Ordo: Caliciales

##### Familia: Caliciaceae

*Calicium viride* Pers.

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On coniferous tree bark.*

#### Ordo: Graphidales

##### Familia: Graphidaceae

*Graphis scripta* (L.) Ach.

Karasu; E of Kızılılık Village, 20m., 16.1.1996, (60, 62, 64).

Kocaali; S of the town, 7km., 220m., 16.1.1996, (70, 72).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80-82, 85).

Akyazı; S of Dokurcun, 350m., 19.1.1996, (107, 109).

Hendek; Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114, 118, 125, 127).

West of Taraklı, Göynük Stream bank, 230m., 21.1.1996, (135, 138).

*On deciduous tree bark.*

##### Familia: Thelotremales

*Diploschistes muscorum* (Scop.) R. Santesson

Geyve; Çarıklı Hill, 600m., 20.1.1996, (52).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96).

*On mosses.*

*D. ocellatus* (Will.) Norm.

Geyve; Ali Fuat Paşa - Epçeler, 1km., 50m., 4.10.1994, (34).

*On calcareous rock.*

*D. scruposus* (Schreber) Norm.

Karasu; Ballıkayalar, 10m., 7.10.1994, (55).

Sapanca; Kartepe, 1150m., 6.4.1995, (95).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On siliceous rock.*

#### Ordo: Lecanorales

##### Familia: Alectoriaceae

*Bryoria capillaris* (Ach.) Brodo & D. Hawksw.

Sapanca; Kartepe, 1150m., 6.4.1995, (95).

*On coniferous tree bark.*

**B. fuscescens** (Gyelnik) Brodo et D. Hawksw.

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10).

Sapanca; Kartepe, 1150m., 6.4.1995, (95).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On coniferous and deciduous tree bark.*

**Familia: Bacidiaceae**

**Bacidia begliettoana** (Massal. & De Not.) Jatta

Adapazarı; N of Taşkısıği Village, 20m., 7.10.1994, (11).

*On calcareous rock.*

**Squamarina cartilaginea** (With.) P. James

Akyazı; E of Yenidoğan, Kocatokat, 40m., 8.4.1995, (98).

Hendek; Kayalık Hill, 420m., 18.1.1996, (126).

*On calcareous rock and soil.*

**Toninia sedifolia** (Scop.) Timdal

Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).

Geyve; Çarıklı Hill, 600m., 20.1.1996, (52).

Karasu; Ballıkayalar, 10m., 7.10.1994, (55).

Hendek, Harmantepe, 200m., 18.1.1996, (128).

*On calcareous rock.*

**T. candida** (Weber) Th. Fr.

Karasu; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Sapanca; Kartepe, 800m., 6.4.1995, (95).

*On calcareous rock.*

**Familia: Candelariaceae**

**Candelaria concolor** (Dickson) B. Stein

Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62).

Kocaali; S of Kocaali Town, 7km., 220m., 16.1.1996, (70, 74).

Kaynarca; Ortaköy Village, 20m., 17.1.1996, (81).

Akyazı; S of Güvençler Village, 450m., 19.1.1996, (108).

Hendek; Kızkalesi, Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114, 119, 124).

*On deciduous tree bark.*

**Candelariella aurella** (Hoffm.) Zahlbr.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 10).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53).

Kocaali; Karadere-Çakmaklı, 2.km., 360m., 5.4.1995, (68, 71).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 84).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 103, 104, 109).

Hendek; Çam Dağı, N of Kazımiye, 200m., 18.1.1996, (117, 125, 129).

N of Taraklı Town, Aksu Stream bank, 220m., 21.1.1996, (134, 138).

*On deciduous tree bark and calcareous rock.*

**Ca. reflexa** (Nyl.) Lettau

Kaynarca; Büyükyanık-Taşlıgeçit, 1.km., 30m., 17.1.1996, (86).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On deciduous tree bark.*

**Ca. vitellina** (Hoffm.) Müll. Arg.

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Karasu; N of Kurudere, 230m., 16.1.1996, (61).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77).

*On siliceous rock.*

**Ca. xanhostigma** (Ach.) Lettau

Adapazarı; Camili Village, graveyard, 30m., 5.10.1994, (4).

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Geyve; Karateşdere Afforestation Area, 160m., 9.10.1994, (41).

Karasu; Tuzla, Sakarya River bank, Om., 7.10.1994, (54, 64).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71).

Kaynarca; Arifağa - Soğuksu, roadside, 20m., 17.1.1996, (82, 83, 87, 89).

Hendek; Sivritepe, 200m., 18.1.1996, (120, 122).

Taraklı; Kayadibi-Doğançıl, 4km., 1100m., 3.4.1995, (130).

*On deciduous tree bark.*

**Familia: Cladoniaceae**

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



Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10, 11).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On mosses and soil.*

**Cl. coniocraea** (Flörke ex Sommerf.) Spreng.

Karasu; Camitepe, Acarlar Lake shore, 10m., 17.1.1996, (64).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80).

Sapanca; Atatürk Recreation Area, 40m., 10.10.1994, (90).

*On mosses and soil.*

**Cl. fimbriata** (L.) Fr.

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53, 54, 56, 64).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 80, 81, 85, 89).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90, 92).

Hendek; N of Kazımiye, Çam Dağı, 200m., 18.1.1996, (117, 119, 122).

*On mosses and soil.*

**Cl. foliacea** (Huds.) Willd.

Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1, 2, 7, 9, 10).

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Geyve; Dereköy-Kızılkaya, 1.km., 650m., 4.10.1994, (36, 39, 41).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53, 56, 64).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 81, 83, 85, 88, 89).

Sapanca; Atatürk Recreation Area, 40m., 10.10.1994, (90, 91).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

Hendek; N of Kâzımiye, Çam Dağı, 200m., 18.1.1996, (117, 125, 126, 128).

Taraklı; N of Taraklı, Aksu Stream bank, 220m., 21.1.1996, (134).

*On soil.*

**Cl. furcata** (Huds.) Schard.

Adapazarı; Camili Village, Kozdere 20m., 5.10.1994, (2).

Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 80).

Sapanca; Atatürk Recreation Area, 40m., 10.10.1994, (90).

Akyazı; Kuzuluk, Thermal springs, 160m., 8.10.1994, (97, 106).

Hendek, picnic area, 120m., 8.10.1994, (110, 117, 125).

*On soil.*

**Cl. pocillum** (Ach.) O.J.Rich.

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

Hendek; Kayalık Hill, 420m., 18.1.1996, (126).

*On soil.*

**Cl. pyxidata** (L.) Hoffm.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 10).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On soil.*

**Cl. rangiformis** Hoffm.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 10).

Geyve; Dereköy-Kızılkaya, 1.km., 650m., 4.10.1994, (36, 41, 52).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56, 61, 64).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

Hendek; Sivritepe, 200m., 18.1.1996, (120, 126).

*On soil.*

#### Familia: Collembataceae

**Collema auriforme** (With.) Coppins & Laundon

Sapanca; Kartepe, 800m., 6.4.1995, (95).

*On calcareous rock.*

**Co. crispum** (Hudson) Weber

Adapazarı; N of Taşkırsığı Village, 20m., 7.10.1994, (11).

Akyazı; E of Taşyatak Village, 460m., 19.1.1996, (109).  
 Taraklı; Kayadibi-Doğançıl, 4.km., 1100m., 3.4.1995, (130).  
*On calcareous rock.*  
**Co. cristatum** (L.) Weber  
 Akyazı; Kuzuluk, Thermal springs, 160m., 8.10.1994, (97).  
 Hendek; Kayalık Hill, 420m., 18.1.1996, (126).  
*On calcareous rock.*  
**Co. fuscovirens** (With.) Laundon  
 Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).  
*On calcareous rock.*  
**Co. polycarpon** Hoffm.  
 Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
*On calcareous rock.*  
**Co. tenax** (Sw.) Ach.  
 Geyve; Doğantepe, Halaçdoruk Hill, 760m., 9.10.1994, (44).  
*On calcareous rock.*  
**Leptogium lichenoides** (L.) Zahlbr.  
 Karasu; Ballıkayalar, 10m., 7.10.1994, (55).  
 Akyazı; Keremali Mountain, 800m., 8.4.1995, (103).  
*On calcareous rock and mosses.*

**Familia: Hymeneliaceae**

**Aspicilia calcarea** (L.) Mudd  
 Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
 Geyve; S of Melekşesolak, 80m., 4.10.1994, (33, 48).  
*On calcareous rock.*  
**A. cinerea** (L.) Körber  
 Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
 Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).  
*On siliceous rock.*  
**Lobothallia radiosa** (Hoffm.) Hafellner  
 Geyve; Safibey-Umurbey, roadside, 130m., 9.10.1994, (43, 48).  
*On calcareous rock.*

**Familia: Lecanoraceae**

**Lecanora allophana** (Ach.) Röhl.

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7).  
*On deciduous tree bark.*  
**L. argentata** (Ach.) Malme  
 Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7, 10).  
 Kocaali; S of Kocaali Town, 7.km., 220m., 16.1.1996, (70).  
*On deciduous tree bark.*  
**L. bolcana** (Pollin.) Poelt  
 Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
*On calcareous rock.*  
**L. carpinea** (L.) Vainio  
 Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2, 4, 5, 7-9, 12, 16).  
 Pamukova; Karapınar, Orman İşletmesi, 70m., 2.4.1995, (28).  
 Geyve; Boğazköy-Kışlaçay, 1.km., 40m., 4.10.1995, (40, 41, 46, 49, 51).  
 Karasu; W of İhsaniye Village, 10m., 17.1.1996, (62, 64).  
 Kocaali; Ortaköy Village, 230m., 7.10.1994, (66, 69-74).  
 Kaynarca; N of Müezzinler Village, 30m., 7.4.1995, (75, 76, 80, 82, 83, 85).  
 Akyazı; E of Karaçalılık Village, 150m., 8.4.1995, (102-104, 108, 109).  
 Hendek; N of Keltepe, Sazlıgöl Stream bank, 500m., 4.4.1995, (115, 116, 119, 122, 126, 127, 129).  
 Taraklı; W of İçdedeler Village, 700m., 3.4.1995, (132, 137).  
*On coniferous and deciduous tree bark.*  
**L. chlarotera** Nyl.  
 Adapazarı; W of Nasuhlar Village, 20m., 5.10.1994, (5, 7, 11, 19).  
 Pamukova; W of Hayrettin Village, 60m., 4.10.1994, (24, 25, 27, 28).  
 Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 52).  
 Karasu; SW of Kurudere, Çayırılı Hill, 350m., 5.4.1995, (59, 61-63).  
 Kocaali; Kirazlı Village, 250m., 16.1.1996, (71-74).  
 Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 82, 84-87).  
 Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96, 106, 107).  
 Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117).

*On coniferous and deciduous tree bark.*

**L. crenulata** (Dickson) Hooker

Adapazarı; SW of Kazımpaşa Town, 60m., 6.10.1994, (6, 9).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).

Kocaali; Karadere-Çakmaklı, 2.km., 360m., 5.4.1995, (68).

Kaynarca; Ofiak Hill, 250m., 17.1.1996, (89).

*On calcareous rock and mosses.*

**L. dispersa** (Pers.) Sommerf.

Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77).

*On calcareous rock.*

**L. hageni** (Ach.) Ach.

Adapazarı; Çaltıcak Lake, picnic area, 20m., 7.10.1994, (12).

Geyve; N of Şükürler, Harmanakaya Hill, 980m., 3.4.1995, (49).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53, 56, 60, 61, 65).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 73).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 82, 83, 85).

Akyazı; S of Mediciye Village, 480m., 19.1.1996, (105).

Hendek; Çobanyatak Village, 150m., 18.1.1996, (119, 121, 126).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136).

*On coniferous and deciduous tree bark.*

**L. intumescens** (Rebent.) Rabenh.

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10).

On deciduous tree bark.

**L. mughicola** Nyl.

Geyve; N of Şükürler, Harmanakaya Hill, 980m., 3.4.1995, (49).

*On coniferous tree bark.*

**L. muralis** (Schreb.) Rabenh.

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7, 14).

Pamukova; Şahmelek Village, 50m., 4.10.1994, (25, 29).

Geyve; Ali Fuat Paşa - Epçeler, 1.km., 50m., 4.10.1994, (34, 39, 48).

Karasu; N of Kurudere, 230m., 16.1.1996, (61).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; SE of Turnalı Village, 30m., 17.1.1996, (85, 88, 89).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96, 109).

Hendek; N of Kazımiye, Çam Dağı, 200m., 18.1.1996, (117, 126, 128).

Taraklı; Kayadibi-Doğançıl, 4.km., 1100m., 3.4.1995, (130).

*On calcareous and siliceous rock.*

**L. pallida** (Schreb.) Rabenh.

Taraklı; Tuzla, Karlık Hill, 1320m., 3.4.1995, (131).

*On deciduous tree bark.*

**L. pulicaris** (Pers.) Ach.

Akyazı; W of Bıçkıdere Village, 280m., 19.1.1996, (104).

Hendek; Kızkalesi, Keltepe - Kızkalesi Hill, 800m., 4.4.1995, (114).

*On deciduous tree bark.*

**L. saligna** (Schrader) Zahlbr.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 10).

Geyve; Doğançay, Halaçdoruk Hill, 760m., 9.10.1994, (44).

Karasu; Camitepe, Acarlar Lake shore, 10m., 17.1.1996, (64).

*On deciduous tree bark.*

**L. sordida** (Pers.) Th. Fr.

Geyve; Ali Fuat Paşa-Epçeler, 1.km., 50m., 4.10.1994, (34).

*On siliceous rock.*

**L. sulphurea** (Hoffm.) Ach.

Akyazı; Karapürçek, Kızılcapınar hill, 630m., 8.10.1994, (96).

*On siliceous rock.*

**L. symmicta** Ach.

Hendek; Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114).

*On deciduous tree bark.*

**L. umbrina** (Ehrh.) Massal.

Adapazarı; Camili Village, graveyard, 30m., 5.10.1994, (4, 7, 8, 13).

Karasu; SW of Kurudere, Çayırılı Hill, 350m., 5.4.1995, (59).

Kaynarca; SE of Turnalı Village, 30m., 17.1.1996 (85).

*On deciduous tree bark.*

**L. varia** (Hoffm.) Ach.

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10, 19).

Karasu; Camitepe, Acarlar, Lake shore, 10m., 17.1.1996, (64).

S of Kocaali Town, 220m., 16.1.1996, (70).

*On coniferous and deciduous tree bark.*

**Lecidella elaeochroma** (Ach.) Hazsl.

Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1, 2, 16, 17, 19).

Geyve; Ali Fuat Paşa - Epçeler, 1km., 50m., 4.10.1994, (34, 49, 51, 52).

Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54, 60-65).

S of Kocaali Town, 220m., 16.1.1996, (70-72, 74).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79-85, 88).

Akyazı; Kuzuluk, Thermal springs, 160m., 8.10.1994, (97, 98, 103-108).

Hendek; Kızkalesi, Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114, 116-119, 122, 124, 125, 127).

N of Taraklı Town, Aksu Stream bank, 220m., 21.1.1996, (134, 136-138).

*On coniferous and deciduous tree bark.*

**Le. stigmatea** (Ach.) Hertel & Leuck.

Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54).

*On siliceous rock.*

**Megalaria laureri** (Hepp ex Th. Fr.) Hafellner

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3).

Kaynarca; Oflak Hill, 250m., 17.1.1996, (89).

*On deciduous tree bark.*

**Tephromela atra** (Huds.) Hafellner

Adapazarı; W of Nasuhlar Village, 20m., 5.10.1994, (5).

Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).

Geyve; S of Kumbaşı, Soğuksu Hill, 800m., 3.4.1995, (48).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

Hendek; Kayalık Hill, 420m., 18.1.1996, (126).

*On calcareous and siliceous rock.*

#### Familia: Lecideaceae

**Hypocenomyce scalaris** (Ach.) Choisy

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10).

Geyve; Karataşdere Implantation Area, 160m., 9.10.1994, (41).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On coniferous and deciduous tree bark.*

**Porpidia speirea** (Ach.) Krempelh.

Geyve; Dereköy-Kızılkaya, 1km., 650m., 4.10.1994, (36).

*On calcareous rock.*

#### Familia: Parmeliaceae

**Cetraria aculeata** (Schreb.) Fr.

Adapazarı; Akarca, Poyrazlar Lake Shore, 30m., 7.10.1994, (9, 10).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27, 29).

Geyve; Dereköy-Kızılkaya, 1km., 650m., 4.10.1994, (36, 41).

Karasu; East of Akgöl Lake, 30m., 7.10.1994, (56, 64).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

*On soil.*

**Cetraria chlorophylla** (Willd.) Vain.

Geyve; karataşdere Afforestation Area, 140m., 9.10.1994, (41).

*On deciduous tree bark.*

**Ce. islandica** (L.) Ach.

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On soil.*

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

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 7, 9, 10).

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 52).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56, 62, 65).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 72, 74).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 83, 86, 89).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m, 8.4.1995, (96, 104).

Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116, 117, 121, 124, 127-129).

N of Taraklı Town, Aksu Stream bank, 220m., 21.1.1996, (134-136).

*On coniferous and deciduous tree bark.*

**Flavoparmelia caperata** (L.) Hale

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 10).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

Geyve; Northeast of Doğançay, 250m., 3.4.1995, (47).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53, 60-64).

Kocaali; S of Kocaali Town, 7.km., 220m., 16.1.1996, (70, 74).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79-81, 84, 86, 89).

Akyazı; E of Taşyatak Village, 460m., 19.1.1996, (109).

Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116, 118, 119).

*On deciduous tree bark.*

**Hypogymnia farinacea** Zopf

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 13, 19, 21).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27, 29).

Kocaali; E of Selahiye Village, 270m., 16.1.1996, (72).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136).

*On coniferous and deciduous tree bark.*

**H. laminisorediata** Hawksw. & Poelt

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10, 17).

Geyve; Northeast of Doğançay, 250m., 3.4.1995, (47, 48).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56).

*On deciduous tree bark.*

**H. physodes** (L.) Nyl.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 7, 9, 10).

Pamukova; N of Katırözü Village, 250m., 4.10.1994, (23).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 41).

Karasu; E of Sinanoğlu Village, 10m., 7.10.1994, (53, 61).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71).

Sapanca; Arifiye-Sapanca Road, 3.km., 30m., 10.10.1994, (92).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 104-106).

Hendek; N of Kâzımıye, Çam Dağı, 200m., 18.1.1996, (117, 122, 126, 129).

*On coniferous and deciduous tree bark.*

**H. tubulosa** (Schaerer) Havaas

Adapazarı; Camili Village, Kozdere 20m., 5.10.1994, (2-4, 6, 7, 9, 19).

Pamukova; W of Hayrettin Village, 60m., 4.10.1994, (24).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 37, 39, 41).

Karasu; N of Kurudere, 230m., 16.1.1996, (61).

Sapanca; Arifiye-Sapanca Road, 3.km., 30m., 10.10.1994, (92).

Akyazı; W of Bıçkıdere Village, 280m., 19.1.1996, (104).

Hendek; Sivritepe, 200m., 18.1.1996, (120, 121).

*On coniferous and deciduous tree bark and calcareous rock.*

**Letharia vulpina** (L.) Hue

Geyve; Karaçam, roadside, 110m., 3.4.1995, (46).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On deciduous tree bark.*

**Melanelia elegantula** (Zahlbr.) Essl.

Syn.: *Parmelia elegantula* (Zahlbr.) Szat.

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

Karasu; W of İhsaniye Village, 10m., 17.1.1996, (62).

Kocaali; E of Selahiye Village, 270m., 16.1.1996, (72).

Kaynarca; Yeşilova Village, 40m., 17.1.1996, (87, 88).

Hendek; N of Kazımıye, Çam Dağı, 200m., 18.1.1996, (117, 121, 126).

*On deciduous tree bark.*

**M. exasperata** (de Not.) Essl.

Syn.: *Parmelia exasperata* de Not.

Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1).

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29, 31).

Karasu; N of Denizköy, 10m., 17.1.1996, (63, 65).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 84).

Sapanca; Kartepe, 900m., 6.4.1995, (95).

Akyazı; Keremali Mountain, 800m., 8.4.1995, (103, 105).

Hendek; Kırktepe, 350m., 18.1.1996, (129).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136).

*On deciduous tree bark.*

**M. exasperatula** (Nyl.) Essl.Syn.: *Parmelia exasperatula* Nyl.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 19).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35).

Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71-73).

Akyazı; S of Mecidiye Village, 480m., 19.1.1996, (105).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136).

*On deciduous tree bark.***M. glabratula** (Lamy) Essl.Syn.: *Parmelia glabratula* (Lamy) Nyl.

Geyve; Boğazköy-Kışlaçay, 1.km., 40m., 4.10.1995, (40).

Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62).

Kocaali; S of Kocaali Town, 7km., 220m., 16.1.1996, (70, 74).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 89).

Sapanca; Kartepe, 850m., 6.4.1995, (95).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 105, 108).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112, 122).

Taraklı; SW of Esenyurt Village, 820m., 3.4.1995, (133, 135).

*On deciduous tree bark.***M. subaurifera** (Nyl.) Essl.Syn.: *Parmelia subaurifera* Nyl.

Adapazarı; N of Salmanlı Village, 130m., 7.4.1995, (19).

Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On deciduous tree bark.***Neofuscelia pulla** (Ach.) Essl.Syn.: *Parmelia pulla* Ach.

Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).

Geyve; S of Melekşesolak, 80m., 4.10.1994, (33).

Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Taraklı; Kayadibi-Doğançıl, 4.km., 1100m., 3.4.1995, (130).

*On siliceous rock.***Parmelia saxatilis** (L.) Ach.

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).

Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54).

*On siliceous rock.***P. sulcata** Tayl.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 4, 19).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).

Karasu; N of Kurudere, 230m., 16.1.1996, (61, 63).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 81, 85).

Akyazı; S of Mecidiye Village, 480m., 19.1.1996, (105, 107).

Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116, 118-120, 122, 124, 126, 128, 129).

West of Taraklı, Göynük Stream bank, 230m., 21.1.1996, (135, 136).

*On coniferous and deciduous tree bark.***Parmelina quercina** (Willd.) HaleSyn.: *Parmelia quercina* (Willd.) Vainio

Pamukova; N of Eski Yayla, Kiraz Hill, 1150m., 2.4.1995, (29, 31).

Kaynarca; Ortaköy Village, 20m., 17.1.1996, (81, 85).

Akyazı; S of Mecidiye Village, 480m., 19.1.1996, (105).

*On coniferous and deciduous tree bark.***Pa. tiliacea** (Hoffm.) HaleSyn.: *Parmelia tiliacea* (Hoffm.) Ach.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56).

Kocaali; E of Selahiye Village, 270m., 16.1.1996, (72).

Kaynarca; Ortaköy Village, 20m., 17.1.1996, (81).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117).

*On deciduous tree bark and siliceous rock.***Parmeliopsis ambigua** (Wulf.) Nyl.

Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).

*On deciduous tree bark.*

**Parmotrema chinense** (Osbeck) Hale et Ahti

Syn.: *Parmelia perlata* (Huds.) Ach.

Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10).

Karasu; E of Kızılılık Village, 20m., 16.1.1996, (60, 63).

*On deciduous tree bark.*

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

Syn.: *Parmelia acetabulum* (Necker) Duby

Adapazarı; W of Nasuhlar Village, 20m., 5.10.1994, (5, 6).

Pamukova; Turgutlu, Karakavak, 90m., 2.4.1995, (31).

Geyve; Doğanstepe, Halaçdoruk Hill, 760m., 9.10.1994, (44).

Karasu; E of Kızılılık Village, 20m., 16.1.1996, (60-62, 64).

Kocaali; S of Kocaali Town, 7km., 220m., 16.1.1996, (70).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 80, 83-85).

Akyazı; Keremali Mountain, 800m., 8.4.1995, (103, 104, 107, 108).

Hendek; Uzuncaorman Village, 18.1.1996, (116, 117, 119, 121, 124, 126, 129).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136, 138).

*On coniferous and deciduous tree bark.*

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

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

Geyve; Karataşdere Afforestation Area, 140m., 9.10.1994, (41, 48-50).

Sapanca; Kartepe, 1000m., 6.4.1995, (95).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96, 103).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112, 114).

Taraklı; W of İçdedeler Village, 700m., 3.4.1995, (132).

*On coniferous and deciduous tree bark.*

**Usnea florida** (L.) Wigg.

Sapanca; Kartepe, 1150m., 6.4.1995, (95).

*On deciduous tree bark.*

**U. fulvorenans** (Räs.) Räs.

Akyazı; Keremali Mountain, 800m., 8.4.1995, (103).

*On coniferous bark.*

**U. hirta** (L.) Wigg.

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On coniferous bark.*

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

Syn.: *Parmelia conspersa* (Ehrh. ex Ach.) Ach.

Pamukova; Turgutlu Stream bank, 100m., 2.4.1995, (30, 32).

Geyve; Doğanstepe, Halaçdoruk Hill, 760m., 9.10.1994, (44, 45, 47, 49, 52).

Karasu; Ballıkayalar, 10m., 7.10.1994, (55).

*On siliceous rock.*

**Xanthoparmelia somloensis** (Gyelnik) Hale

Syn.: *Parmelia taractica* Krempelh.

Geyve; NE of Doğançay, 250m., 3.4.1995, (47, 48).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77).

Sapanca; N of Uzunkum, 30m., 6.4.1995, (91, 95).

Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117).

*On calcareous rock.*

**X. tinctina** (Mah. et Gill.) Hale

Syn.: *Parmelia tinctina* Mah. & Gill.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39, 44, 47).

Kaynarca; SE of Turnalı Village, 30m., 17.1.1996, (85, 88).

Sapanca; Arifiye-Sapanca, 3.km., 30m., 10.10.1994, (92).

Akyazı; Keremali Mountain, 800m., 8.4.1995, (103).

Hendek; Karadere Hill, 390m., 4.4.1995, (111).

*On calcareous rock.*

**Famili: Physciaceae**

**Amandinea punctata** (Hoffm.) Coppins & Scheidegger

Adapazarı; E of Camili village, 30m., 5.10.1994, (3, 5-7).

Pamukova; Şahmelek Village, 50m., 4.10.1994, (25, 27, 28).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 38).

Karasu; SW of Kurudere, Çayırılı Hill, 350m., 5.4.1995, (59).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96).

Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117, 128).

*On coniferous and deciduous tree bark.*

**Anaptychia ciliaris** Körber ex Massal.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3).

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

Geyve; Ali Fuat Paşa, Gemidoruk Hill, 660m., 3.4.1995, (50-52).

Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62-64).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 73).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 80, 84, 86).

Sapanca; Kartepe, 950m., 6.4.1995, (95).

Akyazı; W of Bıçkıdere Village, 280m., 19.1.1996, (104, 106, 109).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112, 117, 118, 123, 125, 126, 128).

Taraklı; Hacıyakup Village, 650m., 21.1.1996, (136, 137).

*On coniferous and deciduous tree bark.*

**Buellia badia** (Fr.) Massal.

Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39, 47).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77).

*On siliceous rock.*

**Bu. disciformis** (Fr.) Mudd

Hendek; Keltepe-kızkalesi Hill, 800m., 4.4.1995, (114).

*On deciduous tree bark.*

**Dimelaena oreina** (Ach.) Norm.

Geyve; NE of Doğançay, 250m., 3.4.1995, (47).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On calcareous rock.*

**Diplotomma epipolium** (Ach.) Arnold

Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1, 3, 5, 7, 13, 14, 17, 19).

Pamukova; W of Hayrettin Village, 60m., 4.10.1994, (24, 27).

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On coniferous and deciduous tree bark and calcareous rock.*

**Phaeophyscia orbicularis** (Neck.) Moberg

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 6).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 72).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 81, 85, 87).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

*On deciduous tree bark.*

**Physcia adscendens** (Fr.) Oliv.

Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2, 3, 8, 17).

Geyve; Kızılkaya, East of Sakarya River, 50m., 4.10.1994, (37).

Karasu; Camitepe, Acarlar Lake shore, 10m., 17.1.1996, (64).

Kocaali; S of Kocaali Town, 7km., 220m., 16.1.1996, (70, 71).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 81).

Hendek; N of Soğuksu Village, 150m., 18.1.1996, (122, 124).

N of Taraklı town, Aksu Stream bank, 220m., 21.1.1996, (134).

*On deciduous tree bark.*

**Ph. aipolia** (Humb.) Fürnröhr.

Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1, 6-8, 11-13, 17).

Pamukova; İsabalı-Akçakaya, 7km., 50m., 4.10.1994, (22, 23, 26).

Geyve; Kızılkaya, East of Sakarya River, 50m., 4.10.1994, (37, 38, 41, 44, 51).

Karasu; W of Kızılkık Village, 20m., 16.1.1996, (60, 62, 64, 65).

Kocaali; Ortaköy Village, 230m., 7.10.1994, (66, 70).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 81, 84, 87, 89).

Sapanca; Atatürk Recreation Area, 40m., 10.10.1994, (90, 92).

Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 104, 105).

Hendek, picnic area, 120m., 8.10.1994, (110, 111, 116-120, 123).

N of Taraklı town, Aksu Stream bank, 220m., 21.1.1996, (134, 137, 138).

*On coniferous and deciduous tree bark.*

**Ph. dubia** (Hoffm.) Lettau

Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).

Sapanca; Kartepe, 350m., 6.4.1995, (95).



*On calcareous, siliceous rock and mosses.*

**Ph. semipinnata** (Gmelin) Moberg

Adapazarı; W of Nasuhlar Village, 20m., 5.10.1994, (5, 9).

Pamukova; N of Eskiyaayla, Kiraz Hill, 1150m., 2.4.1995, (29).

Geyve; Kızılkaya, E of Sakarya River, 50m., 4.10.1994, (37).

Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62).

Kocaali; E of Selahiye Village, 270m., 16.1.1996, (72).

Kaynarca; Arifağa-Soğuksu, roadside, 20m., 17.1.1996, (82, 89).

Hendek; Kızkalesi, Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114, 116, 120, 121).

*On deciduous tree bark.*

**Ph. stellaris** (L.) Nyl.

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 12, 17).

Pamukova; İsabalı - Akçakaya, 7.km., 50m., 4.10.1994, (22).

Geyve; Kızılkaya, East of Sakarya River, 50m., 4.10.1994, (37, 38).

Karasu; E of Kızılılık Village, 20m., 16.1.1996, (60, 62).

Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 81).

Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116).

*On deciduous tree bark.*

**Ph. tenella** (Scop.) DC.

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7, 13).

Karasu; E of Kızılılık Village, 20m., 16.1.1996, (60).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 83, 84).

Akyazı; E of Taşyatak Village, 460m., 19.1.1996, (109).

Hendek; Keltepe-Kızkalesi Hill, 800m., 4.4.1995, (114, 118, 121, 122, 124, 127).

W of Taraklı, Göynük Stream bank, 230m., 21.1.1996, (135).

*On deciduous tree bark.*

**Physconia detersa** (Nyl.) Poelt

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7, 10, 12).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 42).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56).

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80, 88).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90, 95).

*On deciduous tree bark, siliceous rock and mosses.*

**Phy. distorta** (With.) Laundon

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 8).

Kaynarca; Ortaköy Village, 20m., 17.1.1996, (81).

Akyazı; S of Dokurcun Town, 350m., 19.1.1996, (107).

Hendek; Kayalık Hill, 420m., 18.1.1996, (126).

*On coniferous and deciduous tree bark.*

**Phy. grisea** (Lam.) Poelt

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3).

*On deciduous tree bark.*

**Phy. muscigena** (Ach.) Poelt

Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2, 7, 10).

Geyve; Dereköy-Kızılkaya, 1km., 650m., 4.10.1994, (36).

*On mosses.*

**Phy. perisidiosa** (Erichsen) Moberg

Kaynarca; S of Başoğlu Village, 30m., 17.1.1996, (80).

*On deciduous tree bark.*

**Rinodina exigua** (Ach.) Gray

Adapazarı; E of Camili Village, 30m., 5.10.1994, (3).

*On deciduous tree bark.*

**R. pyrina** (Ach.) Arnold

Adapazarı; Camili Village, graveyard, 30m., 5.10.1994, (4, 8, 17, 21).

Pamukova; İsabalı - Akçakaya, 7km., 50m., 4.10.1994, (22, 23).

Geyve; W of Akkaya Village, 60m., 4.10.1994, (35, 41, 49).

Karasu; SW of Kurudere, Çayırılı Hill, 350m., 5.4.1995, (59).

Kocaali; Kirazlı Village, 250m., 16.1.1996, (71).

Kaynarca; Arifağa-Soğuksu, roadside, 20m., 17.1.1996, (82).

Akyazı; W of Bıçkıdere Village, 280m., 19.1.1996, (104, 109).

Hendek; Kurtköy, 220m., 18.1.1996, (121).

*On deciduous tree bark.*

#### Familia: Ramalinaceae

**Ramalina calicaris** (L.) Fr.

Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).

*On deciduous tree bark.*

**Ra. farinacea** (L.) Ach.

- Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 10).
- Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).
- Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62, 65).
- Kocaali; S of Kocaali Town, 7km., 220m., 16.1.1996, (70, 72).
- Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 83).
- Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 105-107).
- Hendek; Kurtköy, 220m., 18.1.1996, (121, 123, 127).
- On coniferous and deciduous tree bark.*
- Ra. fastigiata** (Pers.) Ach.
- Adapazarı; Camili Village, graveyard, 30m., 5.10.1994, (4, 7, 8).
- Geyve; Karataşdere Afforestation Area, 140m., 9.10.1994, (41, 46, 52).
- Karasu; Camitepe, Acarlar Lake shore, 10m., 17.1.1996, (64).
- Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 72).
- Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79-81, 84).
- Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96, 105, 107, 108).
- Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117, 118, 120, 125, 127).
- On coniferous and deciduous tree bark.*
- Ra. fraxinea** (L.) Ach.
- Adapazarı; Poyrazlar, Sakarya Hatıra Ormanı, 50m., 7.10.1994, (10).
- Geyve; Karataşdere Afforestation Area, 140m., 9.10.1994, (41, 51, 52).
- Karasu; W of Ihsaniye Village, 10m., 17.1.1996, (62, 64).
- Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 80, 89).
- Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96, 105, 107, 109).
- Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116-118, 120, 123, 125).
- On deciduous tree bark.*
- Ra. obtusata** (Arnold) Bitter
- Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).
- Akyazı; S of Dokurcun Town, 350m., 19.1.1996, (107).

*On coniferous and deciduous tree bark.*

**Ra. pollinaria** (Westr.) Ach.

Adapazarı; Camili Village, graveyard, 30m., 5.10.1994, (4).

Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).

Hendek; Çobanyatak Village, 150m., 18.1.1996, (119, 129).

*On deciduous tree bark.*

**Ra. polymorpha** (Lilj.) Ach.

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On coniferous tree bark.*

**Ra. subfarinacea** (Nyl. ex Cromb.) Nyl.

Karasu; SW of Kurudere, Çayırılı Hill, 350m., 5.4.1995, (59).

Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).

*On deciduous tree bark.*

#### Familia: Rhizocarpaceae

**Rhizocarpon geographicum** (L.) DC.

Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2, 7).

Pamukova; Şahmelek Village, 50m., 4.10.1994, (25, 30).

Geyve; of Melekşesolak, 80m., 4.10.1994, (33, 39, 41, 43, 45, 52).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77, 88).

Akyazı; Dokurcun, Mayapınar Hill, 850m., 19.1.1996, (106).

Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117).

Taraklı; Kayadibi-Doğançıl, 4km., 1100m., 3.4.1995, (130).

*On siliceous rock.*

**Rh. lecanorinum** Anders

Adapazarı; N of Söğütlü, 20m., 7.10.1994, (14).

Kocaali; Şerbet Village, Fındık Hill, 550m., 16.1.1996, (74).

*On siliceous rock.*

**Rh. viridiatrum** (Wulf.) Koerb.

Karasu; Ballıkayalar, 10m., 7.10.1994, (55).

Kocaali; Karadere-Çakmaklı, 2km., 360m., 5.4.1995, (68).

*On siliceous rock.*

#### Familia: Rimulariaceae

**Rimularia insularis** (Nyl.) Rambold & Hertel

Geyve; Safibey - Umurbey, roadside, 130m., 9.10.1994, (43).

*On siliceous rock.*

**Familia: Trapeliaceae**

**Trapeliopsis flexuosa** (Fr.) Coppins & P. James

Pamukova; N of Karapınar, Yörük Hill, 1200m., 2.4.1995, (27).

*On deciduous tree bark.*

**Familia: Umbilicariaceae**

**Umbilicaria crustulosa** (Ach.) Frey

Pamukova; Şahmelek Village, 50m., 4.10.1994, (25).

*On siliceous rock.*

**Ordo: Leotiales**

**Familia: Baeomycetaceae**

**Baeomyces rufus** (Huds.) Rebert.

Sapanca; Kartepe, 850m., 6.4.1995, (95).

*On soil.*

**Ordo: Peltigerales**

**Familia: Lobariaceae**

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

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On mosses.*

**Familia: Peltigeraceae**

**Peltigera canina** (L.) Willd.

Sapanca; Atatürk Recreation Area, 40m., 10.10.1994, (90).

*On mosses.*

**Pe. horizontalis** (Huds.) Baumg.

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On mosses.*

**Pe. praetextata** (Sommerf.) Zopf.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 10).

Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90).

*On mosses.*

**Pe. rufescens** (Weiss) Humb.

Sapanca; Kartepe, 850m., 6.4.1995, (95).

*On mosses.*

**Familia: Placynthiaceae**

**Placynthium nigrum** (Hudson) Gray

Adapazarı; N of Taşkırsığı Village, 20m., 7.10.1994, (11).

*On calcareous rock.*

**Ordo: Pertusariales**

**Familia: Pertusariaceae**

**Ochrolechia turneri** (Sm.) Hasselr.

Adapazarı; Dağyoncalı Village, 250m., 6.10.1994, (7).

Kaynarca; Yeşilova Village, 40m., 17.1.1996, (87).

*On coniferous and deciduous tree bark.*

**Pertusaria albescens** (Hudson) Choisy & Werner

Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).

Geyve; S of Kumbaşı, Soğuksu Hill, 800m., 3.4.1995, (48).

*On deciduous tree bark.*

**Per. amara** (Ach.) Nyl.

Adapazarı; Akarca, Poyrazlar Lake shore, 30m., 7.10.1994, (9, 12).

Pamukova-Bilecik, Fevziye cossroads, 60m., 4.10.1994, (26).

Geyve; S of Melekşesolak, 80m., 4.10.1994, (33, 35, 51).

Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56, 60, 61, 65).

Kaynarca; Kadıköy, 20m., 7.4.1995, (77, 81, 84, 89).

Akyazı; W of Bıçkıdere Village, 280m., 19.1.1996, (104).

Hendek; Muradiye Hill, 250m., 18.1.1996, (125, 126).

Taraklı; Kayadibi-Doğançıl, 4km., 1100m., 3.4.1995, (130, 135).

*On coniferous and deciduous tree bark and calcareous rock.*

**Per. dealbescens** Erichsen

Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54).

Hendek; N of Kazimiye, Çam Dağı, 200m., 18.1.1996, (117).

*On deciduous tree bark and siliceous rock.*

**Per. pertusa** (Weigel) Tuck.

Geyve; Sarıgazi Village, 130m., 9.10.1994, (42).  
 Karasu; N of Kurudere, 230m., 16.1.1996, (61, 63).  
 Hendek; N of Hüseyinşeyh Village, 250m., 18.1.1996, (124).  
*On deciduous tree bark.*

**Ordo: Teloschistales**

**Familia: Teloschistaceae**

**Calopplaca aurantia** (Pers.) Steiner  
 Akyazi; Dokurcun, Mayapınar hill, 850m., 19.1.1996, (106).  
*On calcareous rock.*

**Cal. biatorina** (Massal.) Steiner  
 Sapanca; Kartepe, 850m., 6.4.1995, (95).  
*On calcareous rock.*

**Cal. boulyi** (Zahlbr.) M. Steiner & Poelt  
 Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2, 5, 9, 12, 13).  
 Pamukova; İsabalı-Akçakaya, 7km., 50m., 4.10.1994, (22).  
 Geyve; Karataşdere Afforestation Area, 160m., 9.10.1994, (41).  
 Karasu; Resuller Village, 20m., 17.10.1996, (65).  
 Kocaali; E of Selahiye Village, 270m., 16.1.1996, (72).  
 Kaynarca; Ortaköy Village, 20m., 17.1.196, (81, 84, 87).  
 Sapanca; S of Mahmudiye, 40m., 6.4.1995, (93, 95).  
 Akyazi; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 103).  
 Hendek; Çobanyatak Village, 150m., 18.1.1996, (119).  
 Taraklı; Tuzla, Karlık Hill, 1320m., 3.4.1995, (131, 133).  
*On coniferous and deciduous tree bark.*

**Cal. cerina** (Ehrht. ex Hedw.) Th. Fr.  
 Adapazarı; E of Camili Village, 30m., 5.10.1994, (3, 6, 12, 13).  
 Geyve; W of Akdoğan Village, 250m., 20.1.1996, (51).  
 Karasu; Ballıkayalar, 10m., 7.10.1994, (55, 64).  
 Kocaali; Karadere - Çakmaklı, 2km., 360m., 5.4.1995, (68, 74).  
 Kaynarca; Ortaköy Village, 20m., 17.1.1996, (81, 83).  
 Sapanca; Kartepe, 600m., 6.4.1995, (95).  
 Akyazi; W of Bıçkıdere Village, 280m., 19.1.1996, (104).

Hendek; Dereköy-Kocatöngel, roadside, 160m., 18.1.1996, (123).  
*On coniferous and deciduous tree bark.*

**Cal. chalybaea** (Fr.) Müll. Arg.  
 Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
*On calcareous rock.*

**Cal. chrysodeta** (Vainio ex Räsänen) Dombr.  
 Karasu; Ballıkayalar, 10m., 7.10.1994, (55).  
*On calcareous rock.*

**Cal. citrina** (Hoffm.) Th. Fr.  
 Karasu; Ballıkayalar, 10m., 7.10.1994, (55).  
*On calcareous rock.*

**Cal. crenularia** (With.) London  
 Akyazi; Taşburun Village, Beldibi, 90m., 8.4.1995, (101).  
 Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).  
*On siliceous rock.*

**Cal. decipiens** (Arnold) Blomb. & Forss.  
 Adapazarı; W of Nasuhlar Village, 20m., 5.10.1994, (5).  
 Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).  
*On calcareous rock.*

**Cal. flavescens** (Huds.) Laundon  
 Pamukova; S of Mekece, Cambazkaya, 400m., 2.4.1995, (32).  
*On calcareous rock.*

**Cal. holocarpa** (Hoffm.) Wade  
 Adapazarı; Camili Village, Kozdere, 20m., 5.10.1994, (2-5, 11, 14).  
 Pamukova-Bilecik, Fevziye crossroads, 60m., 4.10.1994, (26, 29).  
 Geyve; Karataşdere Afforestation Area, 140m., 9.10.1994, (41, 49, 52).  
 Karasu; W of İhsaniye Village, 10m., 17.1.1996, (62, 63).  
 Kocaali; Kirazlı Village, 250m., 16.1.1996, (71, 73, 74).  
 Kaynarca; N of Sülüklü Lake, 30m., 17.1.1996, (79, 83).  
 Sapanca; Kartepe, 680m., 6.4.1995, (95).  
 Akyazi; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96, 107).  
 Hendek; Uzuncaorman Village, 60m., 18.1.1996, (116, 120, 126).

Taraklı; Kayadibi-Doğanlı, 4.km., 1100m., 3.4.1995, (130).  
*On coniferous and deciduous tree bark and calcareous rock.*  
**Cal. lactea** (Massal.) Zahlbr.  
Karasu; Tuzla, Sakarya River bank, 0m., 7.10.1994, (54, 55).  
*On calcareous rock.*  
**Cal. saxicola** (Hoffm.) Nordin  
Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
Kaynarca; S of İmamlar Village, 30m., 17.1.1996, (88).  
*On calcareous rock.*  
**Fulgensia schistidii** (Anzi) Poelt.  
Akyazı; Karapürçek, Kızılcapınar Hill, 630m., 8.10.1994, (96).  
*On mosses.*  
**Xanthoria calcicola** Oxner  
Karasu; Ballıkayalar, 10m., 7.10.1994, (55).  
Hendek; Dikmen Hill, 1300m., 4.4.1995, (112).  
*On calcareous rock.*  
**Xa. candelaria** (L.) Th. Fr.  
Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1, 3).  
Kaynarca; S of İmamlar Village, 30m., 17.1.1996, (88).  
*On deciduous tree bark.*  
**Xa. elegans** (Link) Th. Fr.  
Sapanca; Kartepe, 1150m., 6.4.1995, (95).  
Hendek; Harmantepe, 200m., 18.1.1996, (128).  
*On calcareous rock.*  
**Xa. parietina** (L.) Th. Fr.  
Adapazarı; Evrenköy, Çark Stream bank, 20m., 5.10.1994, (1-12, 15-21).  
Pamukova; İsbalı - Akçakaya, 7.km., 50m., 4.10.1994, (22, 25-31).  
Geyve; S of Melekşesolak, 80m., 4.10.1994, (33-35, 37, 38, 40-42, 44-47, 49-52).  
Karasu; E of Akgöl Lake, 30m., 7.10.1994, (56-65).  
Kocaali; Ortaköy Village, 230m., 7.10.1994, (66, 67, 69-74).  
Kaynarca; N of Müezzinler Village, 30m., 7.4.1995, (75-80, 82-84, 86).  
Sapanca; Atatürk Recreation Area, 60m., 10.10.1994, (90-95).  
Akyazı; Karapürçek, Kızılcapınar Hill, 480m., 8.4.1995, (96-109).

Hendek, picnic area, 120m., 8.10.1994, (110-129).  
Taraklı; Tuzla, Karlık Hill, 1320m., 3.4.1995, (131-138).  
*On coniferous and deciduous tree bark.*

#### Ordo: Verrucariales

##### Familia: Verrucariaceae

**Catapyrenium lachneum** (Ach.) R. Sant.  
Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
Hendek; Kayalık Hill, 420m., 18.1.1996, (126).  
*On calcareous rock.*  
**Cat. rufescens** (Ach.) Breuss  
Camili village, Kozdere, 20m., 5.10.1994, (2).  
*On calcareous rock.*  
**Dermatocarpon miniatum** (L.) Mann  
Adapazarı; N of Taşkısığı Village, 20m., 7.10.1994, (11).  
Geyve; Doğançay, Sakarya River bank, 60m., 3.4.1995, (39).  
Karasu; Ballıkayalar, 10m., 7.10.1994, (55, 61).  
Akyazı; E of Taşyatak Village, 460m., 19.1.1996, (109).  
*On calcareous rock.*

#### Order Uncertain

##### Familia: Phlyctidaceae

**Phlyctis argena** (Ach.) Flotow  
Hendek; Karadere Hill, 390m., 4.4.1995, (111).  
*On deciduous tree bark.*

#### Discussion

In this study, 159 lichen species collected from 138 sites in Sakarya were identified. These species grow on tree bark, rocks, soil and mosses. Although there has been no other study with the specific purpose of determining the lichen flora of this area, one study (8) has reported some lichen species from Karasu along with others from various parts of Turkey. These ones reported from Karasu are *Cladonia chlorophaea*, *C. pyxidata*, *C. rangiformis* and *Lobaria pulmonaria*. The study presented here also found at least one of these *Cladonias* at 19 sites and *Lobaria pulmonaria* at only one site, around Sapanca Lake. However, the species *Cladonia carniola* (Fr.) Fr., *Lobaria vi-*

*rens* (With) Laundon, *Nephroma parile* (Ach.) Ach. and *Peltigera didactyla* (With) Laundon reported by Szatala (8) were not found in this study. Since Szatala's study, inhabited regions have expanded and this may

have caused the destruction of the substrata of these species.

Of 159 species, 76 species are epiphytic, 33 species are calcicole and 15 species are silicicole. The others were found on two or more substrata.

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