

## Lichens of the Akşehir District (Konya)

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**Abstract:** Eighty-nine lichen species belonging to 33 genera from Akşehir District of Konya were determined. *Staurothele frustulenta* Vainio is a new record for the lichen flora of Turkey.

**Key Words:** lichen, flora, Turkey

### Akşehir İlçesi (Konya) Likenleri

**Özet:** Konya ili, Akşehir ilçesinde yapılan çalışmada 33 cinse ait 89 liken türü belirlenmiştir. Bu türlerden *Staurothele frustulenta* Vainio Türkiye Liken Florası için yeni kayıttır.

**Anahtar Sözcükler:** liken, flora, Türkiye

### Introduction

There are three papers in the literature which briefly mention the lichens of Akşehir region along with the lichens of the various regions of Turkey (1-3). Referring to the literature, Verseggy (4) gives some of these records of the Akşehir region in her paper. These papers give some records of the lichen floras of Sultan and Saray Mountains.

In this study, recently collected lichens from the Akşehir district are described with their localities and substrates. Therefore, this study is a contribution to the Lichen Flora of Turkey.

### Description of the Study Area

The Akşehir district is located at the junction of the borders of the Central Anatolian, Mediterranean and Aegean geographical regions of Turkey (Figure1). Its area measures 1442 square kilometers. In the western part of the district are the feet of the Sultan Mountains and in the northern part is the lake of Akşehir. The rest of the district is composed of plains.

According to Akman (5), Akşehir has a semi-arid Mediterranean climate with rain mainly in spring and winter.

The dominant rocks on the feet of the Sultan Mountains are calcareous. The plains are mainly covered with agricultural fields. In these fields, fruit trees and rocks are suitable substrata for lichens to grow. In the mountainous part, lichens grow on pine and oak trees.

### Material and Method

The lichen samples were collected from the study area during several field trips in 1995 and 1996. The samples were identified with aid of flora books (6-9) and identification keys (10, 11). The specimen are kept at the Herbarium of Faculty of Sciences, Anadolu University, Eskişehir.

### Results

The system of orders and families used here is the system of Purvis et al. (7).

In the text, the latitude and longitude of any locality along with its locality number are given only when mentioned the first time. New records for the study area are indicated with an asterisk.

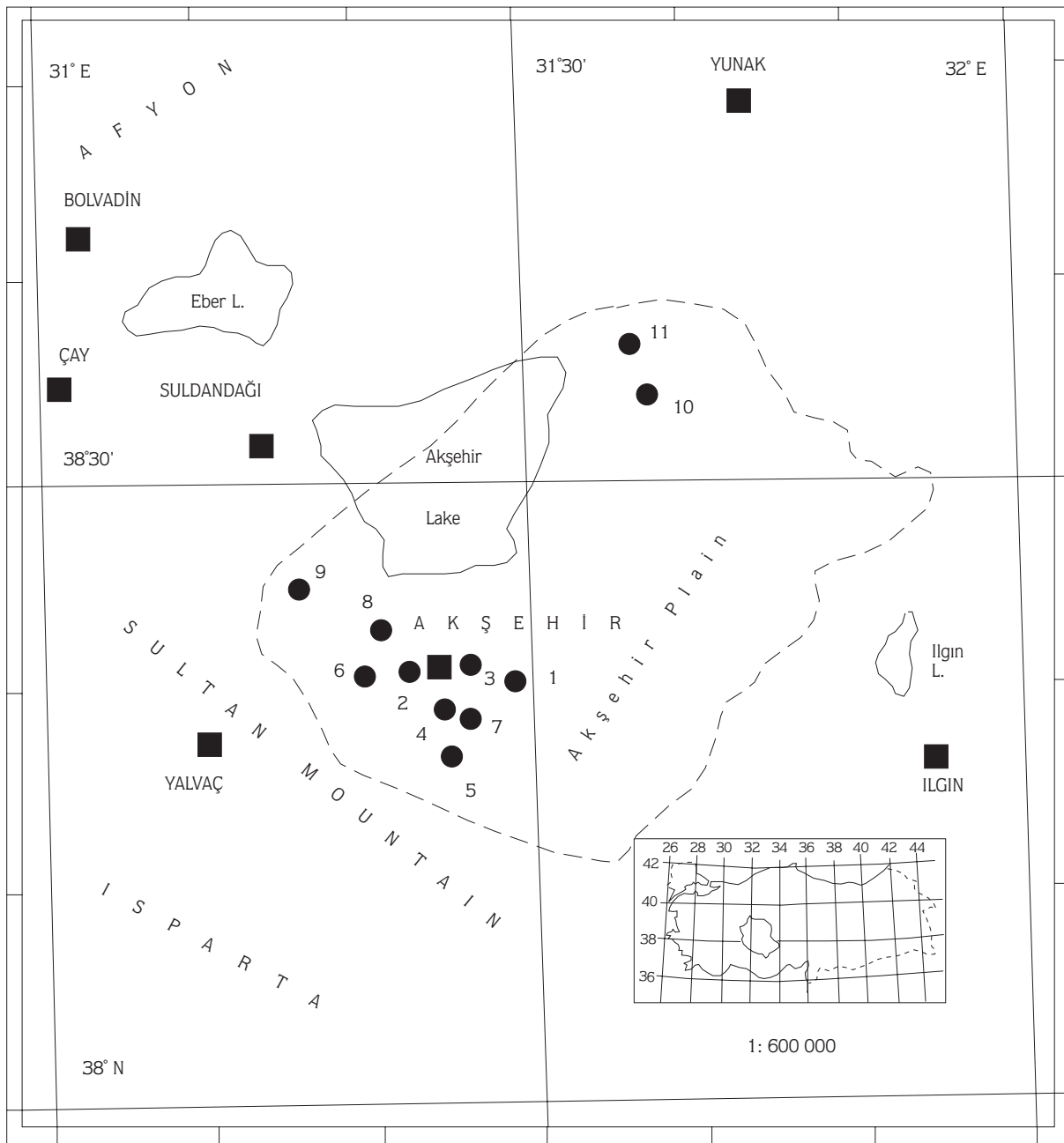


Figure 1. Map of the study are (Numbers on map indicate the locality number in the text.)

**Ascomycotina**  
**Order. Lecanorales**  
**Family Acarosporaceae**  
 \**Sarcogyne regularis* Körb.  
 Ayritepe village, 1050m, 23.2.1996,  
 38°40'N 31°39'E (11); Savaş village, Bağlar

place, 1040 m, 25.2.1996, 38°20'N  
 31°26'E (4). Saxicolous.  
**Family Bacidiaceae**  
 \**Lecania cyrtella* (Ach.) Th.Fr.  
 Doğrugöz village, 1020m., 22.2.1996,  
 38°20'N 31°32'E (1). Corticolous

\**Lecania fuscella* (Schaer.) Körb.  
 Akşehir, north of Akşehir stream,  
 Körçeğiz place, 1300m., 19.7.1995,  
 38°27'N 31°19'E (6), Atakent village,  
 1100m., 29.10.1995, 38°23'N 31°23'E  
 (8), Doğrugöz village, 1020 m.,  
 22.2.1996. Corticolous.

**\*Toninia sedifolia** (Scop.) Timdal

Akşehir Nasreddin Cemetery, 1050 m., 15.7.1995, 38°20'N 31°26'E (2), terricolous; around Ayritepe village, 1030m., 23.2.1996, muscicolous.

**Family Candelariaceae****\*Candelariella aurella** (Hoffm.) Zahlbr.

Akşehir, North of Akşehir stream, Körceğiz place, 1300m., 19.7.1995; Akşehir Nasreddin Cemetery, 1050m., 15.7.1995; Savaş village cemetery, 1100m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995, 38°24'N 31°21'E (9); Doğrugöz village, 1020m., 22.2.1996; Ayritepe village, 1030m., 23.2.1996. On barks and rocks.

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

Akşehir Nasreddin Cemetery, 1050m., 15.7.1995; Savaş village cemetery, 1100m., 17.7.1995, 38°20'N 31°26'E (4); Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; around Ayritepe village, 1030m., 23.2.1996. Saxicolous.

**\*Candelariella xanthostigma** (Ach.) Lettau

Southeast of Engilli village, Kızıldere place, 1200m., 17.7.1995, 38°18'N 31°27'E (5); Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Savaş village, Bağlar place, 1040m., 25.2.1996. Corticolous.

**Family Collemataceae****\*Leptogium plicatile** (Ach.) Leighton

Ayritepe village, 1030m., 23.2.1996. Saxicolous.

**Family Hymeneliaceae**

**\*Aspicilia caesiocinerea** (Malbr.) Arnold

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

**Aspicilila calcarea** (L.) Mudd

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Ayritepe village, 1030m., 23.2.1996; Savaş village, Bağlar

place, 1080m., 25.2.1996. Saxicolous.

**Aspicilia contorta** (Hoffm.) Kremp.

Mevlütü village, Hayrat place, 1100m., 20.6.1995, 38°37'N 31°38'E (10); Savaş village, Bağlar place, 1080m., 25.2.1996, Savaş village cemetery, 1100m., 17.7.1995; around Ayritepe village, 1050m., 23.2.1996. Saxicolous.

**Lobothallia radiosa** (Hoffm.) Hafellner

Savaş village cemetery, 1100m., 17.7.1995; Akşehir, North of Akşehir stream, Körceğiz place, 1250m., 19.7.1995, Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; around Ayritepe village, 1050m., 23.2.1996. Saxicolous.

**\*Megasporea verrucosa** (Ach.) Hafellner & Wirth

Akşehir Nasreddin cemetery, 1050m., 15.7.1995, terricolous; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Corticolous.

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

Southeast of Engilli village, Kızıldere place, 1300m., 17.7.1995. Saicolous.

**\*Lecanora argentata** (Ach.) Malme

Around Doğrugöz village, 1020m., 22.2.1996. Corticolous.

**\*Lecanora campestris** (Schaer.) Hue

Savaş village, Armutlu place, 1300m., 3.9.1995, 38°20'N 31°26'E (7); Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

**\*Lecanora carpinea** (L.) Vainio

Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Savaş village, Armutlu place, 1300m., 3.9.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Corticolous.

**\*Lecanora cenisia** Ach.

Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

**\*Lecanora chlarotera** Nyl.

Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

**\*Lecanora crenulata** (Dicks.) Hook

Savaş village cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., 3.9.1995, Bağlar place, 1080m., 25.2.1996; around Ayritepe village, 1050m., 23.2.1996. Saxicolous.

**Lecanora dispersa** (Pers.) Sommerf.

Akşehir Nasreddin cemetery, 1050m., 15.7.1995; Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Ayritepe village, 1030m., 23.2.1996; Savaş village, Bağlar place, 1080m., 25.2.1996, Doğrugöz village, 1020m., 22.2.1996. Saicolous.

**\*Lecanora hageni** (Ach.) Ach.

Savaş village cemetery, 1100m., 17.7.1995; Southeast of Engilli village, Kızıldere place, 1300m., 17.7.1995; Atakent village, 1100m., 29.10.1995, Doğrugöz village, 1020m., 22.2.1996. Corticolous.

**Lecanora muralis** (Schreber) Rabenh.

Akşehir Nasreddin cemetery, 1050m., 15.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Savaş village cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., 3.9.1995; Mevlütü village, Hayrat place, 1100m., 20.6.1995; Ayritepe village, 1050m., 23.2.1996. Saxicolous.

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

Southeast of Engilli village, Kızıldere place, 1300m., 17.7.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

**\*Lecanora umbrina** (Ach.) A. Massal.

Doğrugöz village, 1020m., 22.2.1996. Corticolous.

- \*Lecidella elaochroma** (Ach.) Hazsl.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996; Savaş village, Armutlu place, 1300m., 3.9.1995; Atakent village, 1100m., 29.10.1995. Corticolous.
- \*Lecidella stigmataea** (Ach.) Hertel & Leuckert  
Mevlütü village, Hayrat place, 1100m., 20.6.1995; Savaş village cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., Saicolous.
- Tephromela atra** (Huds.) Hafellner  
Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.
- \*Scoliciosporum umbrinum** (Ach.) Arnold  
Doğrugöz village, 1020m., 22.2.1996. Corticolous.
- Family Parmeliaceae**
- \*EVerinia prunastri** (L.) Ach.  
Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.
- \*Hypogymnia tubulosa** (Schaer.) Bitt.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995. Corticolous.
- \*Melanelia exasperata** (De Not.) Essl.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995. Corticolous.
- \*Melanelia exasperatula** (Nyl.) Essl.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995. Corticolous.
- \*Melanelia glabratula** (Lamy) Essl.  
Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995. Corticolous.
- \*Parmelia sulcata** Taylor  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995. Corticolous.
- \*Parmelina quercina** (Willd.) Vainio  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995. Corticolous.
- \*Parmelina tiliacea** (Hoffm.) Hale  
Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995
- \*Pleurosticta acetabulum** (Neck.) Elix & Lumbsch  
Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995. Corticolous.
- \*Pseudevernia furfuracea** (L.) Zopf  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995. Corticolous.
- \*Usnea florida** (L.) Wigg.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995. Corticolous.
- \*Xanthoparmelia somloensis** (Gyelnik) Hale  
Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saicolous.
- Family Physciaceae**
- \*Anapychia ciliaris** (L.) Körb.  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Savaş village, Armutlu place, 1300m., 3.9.1995. Corticolous.
- \*Diplotomma alboatrum** (Hoffm.) Flotow  
Savaş village cemetery, 1100m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.
- \*Diplotomma chlorophaeum** (Hepp ex Leighton) Szatala  
Ayritepe village, 1050m., 23.2.1996. Saxicolous.
- Diplotomma epipolium** (Ach.) Arnold  
Savaş village, Armutlu place, 1300m., 3.9.1995; Ayritepe village, 1050m., 23.2.1996. Saxicolous.
- Phaeophyscia orbicularis** (Neck.) Moberg  
Akşehir, north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Nearby Akşehir municipal water depot, 1150m., 16.7.1995, 38°21'N 31°24'E (3); Southeast of Engilli village, Kızıldere place, 1250m., 17.7.1995; Atakent village, 1100m., 29.10.1995; Savaş village, cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., 3.9.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.
- \*Physcia adscendens** (Fr.) H. Olivier  
Around Akşehir municipal water depot, 1200m., 16.7.1995; Savaş village cemetery, 1100m., 17.7.1995; Atakent village, 1100m., 29.10.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996; Ayritepe village, 1050m., 23.2.1996. Corticolous.
- \*Physcia aipolia** (Humb.) Hampe  
Around Akşehir municipal water depot, 1200m., 16.7.1995; Savaş village cemetery, 1100m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Corticolous.
- \*Physcia dimidiata** (Arnold) Nyl.  
Around Akşehir municipal water depot, 1200m., 16.7.1995. Corticolous.
- \*Physcia dubia** (Hoffm.) Lettau  
Savaş village cemetery, 1100m., 17.7.1995, corticolous; Ayritepe village, 1050m., 23.2.1996. Saxicolous.
- \*Physcia semipinnata** (J.F.Gmelin) Moberg

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

\**Physcia stellaris* (L.) Nyl.

Akşehir Nasreddin Cemeretry, 1050m., 15.7.1995; north of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Savaş village cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., 3.9.1995; Atakent village, 1100m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

\**Physcia tenella* (Scop.) DC.

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

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

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Corticolous.

\**Physconia enteroxantha* (Nyl.) Poelt

Savaş village cemetery, 1100m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Southeast of Engilli village, Kızildere place, 1250m., 17.7.1995; Atakent village, 1100m., 29.10.1995. Corticolous.

\**Physconia grisea* (Lam.) Poelt

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Savaş village, Armutlu place, 1300m., 3.9.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

\**Physconia perisidiosa* (Erichsen) Moberg

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızildere place, 1250m., 17.7.1995. Corticolous.

*Rinodina bischoffii* (Hepp) A. Massal.

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

*Rinodina calcarea* (Arnold) Arnold

Savaş village, Armutlu place, 1300m., 3.9.1995; Ayritepe village, 1050m., 23.2.1996. Saxicolous.

\**Rinodina exigua* (Ach.) S. Gray

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996. Corticolous.

\**Rinodina gennarii* Bagl.

Ayritepe village, 1050m., 23.2.1996. Saxicolous.

\**Rinodina pyrina* (Ach.) Arnold

Savaş village cemetery, 1100m., 17.7.1995, Armutlu place, 1300m., 3.9.1995; Doğrugöz village, 1020m., 22.2.1996; Atakent village, 1100m., 29.10.1995. Corticolous.

#### Family Ramalinaceae

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

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Southeast of Engilli village, Kızildere place, 1250m., 17.7.1995. Corticolous.

#### Family Rhizocarpaceae

*Rhizocarpon geminatum* Körb.

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

*Rhizocarpon geographicum* (L.) DC.

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995. Saxicolous.

#### Order Teloschistales

#### Family Teloschistaceae

\**Caloplaca alociza* (A.Massal.) Migula

Ayritepe village, 1050m., 23.2.1996. Saxicolous.

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

Savaş village cemetery, 1100m., 17.7.1995. Saxicolous.

\**Caloplaca biatorina* (A.Massal.) J.Steiner

Savaş village, Bağlar place, 1080m., 25.2.1996. Saxicolous.

\**Caloplaca boulyi* (Zahlbr.) M. Steiner et Poelt

Doğrugöz village, 1020m., 22.2.1996. Corticolous.

\**Caloplaca cerina* (Hedwig) Th.Fr.

Savaş village cemetery, 1100m., 17.7.1995; Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Doğrugöz village, 1020m., 22.2.1996; Southeast of Engilli village, Kızildere place, 1250m., 17.7.1995. Corticolous.

\**Caloplaca cerinella* (Nyl.) Flagey

Doğrugöz village, 1020m., 22.2.1996. Lignicolous.

\**Caloplaca chalybaea* (Fr.) Müll. Arg.

Ayritepe village, 1050m., 23.2.1996. Saxicolous.

\**Caloplaca cirrochroa* (Ach.) Th. Fr.

Ayritepe village, 1050m., 23.2.1996. Muscicolous.

*Caloplaca decipiens* (Arnold) Blomb. et Forssell

North of Akşehir stream, Körceğiz place, 1200m., 19.7.1995; Ayritepe village, 1050m., 23.2.1996; Savaş village, Bağlar place, 1080m., 25.2.1996; Doğrugöz village, 1020m., 22.2.1996. Saxicolous.

\**Caloplaca flavescens* (Huds.) J.R.Laundon

Savaş village cemetery, 1100m., 17.7.1995. Saxicolous.

\**Caloplaca flavovirescens* (Wulfen) Dalla Torre et Sarnth.

Saray Mountain, Kirazlıpınar place, 1450 m., 29.10.1995; Ayritepe village, 1050m., 23.2.1996. Saxicolous.

\**Caloplaca holocarpa* (Ach.) Wade

Saray Mountain, Kirazlıpınar place, 1450m., 29.10.1995; Savaş village cemetery, 1100m., 17.7.1995; Doğrugöz village, 1020m., 22.2.1996; Ayritepe village, 1050m., 23.2.1996. Saxicolous.

\**Caloplaca lactea* (A.Massal.) Zahlbr.

Savaş village, Bağlar place, 1080m.,

25.2.1996; Doğrugöz village, 1020m.,  
22.2.1996; Ayritepe village, 1050m.,  
23.2.1996. Saxicolous.

\**Caloplaca teicholyta* (Ach.) J. Steiner  
Ayritepe village, 1050m., 23.2.1996.  
Saxicolous.

*Caloplaca variabilis* (Pers.) Müll. Arg.  
Mevlütü village, Hayrat place, 1100m.,  
20.6.1995; Savaş village, Bağlar place,  
1080m., 25.2.1996; Ayritepe village,  
1050m., 23.2.1996. Saxicolous.

\**Caloplaca xantholyta* (Nyl.) Jatta  
Ayritepe village, 1050m., 23.2.1996.  
Saxicolous.

\**Xanthoria calcicola* Oxner  
Saray Mountain, Kirazlıpınar place,  
1450m., 29.10.1995. Saxicolous.

\**Xanthoria candelaria* (L.) Th. Fr.  
Around Akşehir municipal water depot,  
1200m., 16.7.1995; Saray Mountain,  
Kirazlıpınar place, 1450m., 29.10.1995;  
Savaş village cemetery, 1100m., 17.7.1995,  
Armutlu place, 1300m., 3.9.1995; Atakent  
village, 1100m., 29.10.1995, Doğrugöz  
village, 1020m., 22.2.1996. Corticolous.

\**Xanthoria elegans* (Link.) Th. Fr.  
Savaş village cemetery, 1100m.,  
17.7.1995. Saxicolous.

\**Xanthoria parietina* (L.) Th. Fr.  
Saray Mountain, Kirazlıpınar place,  
1450m., 29.10.1995; Savaş village  
cemetery, 1100m., 17.7.1995; Southeast  
of Engilli village, Kızıldere place, 1250m.,  
17.7.1995; Doğrugöz village, 1020m.,  
22.2.1996. Corticolous.

## Order Verrucariales

### Family Verrucariaceae

\**Staurothele frustulenta* Vainio  
Savaş village cemetery, 1100m.,  
17.7.1995; on tile.

\**Verrucaria calciseda* DC.  
Ayritepe village, 1050m., 23.2.1996.  
Saxicolous.

\**Verrucaria muralis* Ach.  
Doğrugöz village, 1020m., 22.2.1996;  
Ayritepe village, 1050m., 23.2.1996.  
Saxicolous.

\**Verrucaria nigrescens* Pers.  
Savaş village, Bağlar place, 1080m.,  
25.2.1996; Ayritepe village, 1050m.,  
23.2.1996. Saxicolous.

## Discussion

All of the lichen species found in the Akşehir district belong to Ascomycotina (8). According to the literature (12-13), *Staurothele frustulenta* is a new record for the lichen flora of Turkey.

In the previous papers (1-4), the localities of the species are given as "Serai Dagh bei Konia" (altitude and "Sultan Dagh prope Akşehir" (altitude). Because of these vague locality definitions, the comparison between the previous result and those of this study may be in some doubt.

Due to the dominancy of the calcareous rocks in the study area, as expected, calcicole lichen species determined are *Aspicilia calcarea*, *A contorta*,

*Lobothallia radoisa*, *Lecanora dispersa*, *Diplotomma alboatrum*, *D. epipolium*, *Rinodina bischoffii*, *R. calcarea*, *R. gennarii*, *Caloplaca alociza*, *C. lactea*, *C. variabilis*, *Verrucaria calciseda*. In addition to these calcicole lichens, some silicicole species such as *Rhizocarpon geographicum*, *R. geminatum*, *Xanthoparmelia somloensis* and *Physcia dubia* were determined on silicious rocks in the study area.

Forty-four of the lichen species growing in the study area are corticolous. *Caloplaca*, *Xanthoria* and *Physcia* species, which are nitrophyls, grow on the barks of trees and on rocks around agricultural areas where nitrogen-containing fertilizers are used heavily. Three species out of 88 grow on more than one substrata.

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