

Lichens of Malatya, Elazığ and Adıyaman provinces (Turkey)

MEHMET CANDAN & AYŞEN ÖZDEMİR TÜRK

mecandan@anadolu.edu.tr, aturk@anadolu.edu.tr
Department of Biology, Faculty of Science, Anadolu University
Eskişehir, Turkey

Abstract—The lichenized and lichenicolous fungi of Malatya, Elazığ and Adıyaman provinces of Turkey, based on the authors' collections and literature records, are listed, of which 20 are new for Turkey and 187 are new for the study area. As a consequence of this study, there are 315 infrageneric taxa recorded from these provinces.

Key words—lichenized fungi, new records, biodiversity

Introduction

An increasing number of studies on the lichen flora of Turkey have been carried out in the last two decades; most of these focus on the central, western and northern Turkey, but there are still unexplored areas even in these parts of the country. The present floristic study of Malatya, Elazığ and Adıyaman provinces, previously overlooked, redresses to some extent this situation.

The first lichen records of six independent researchers from the study area, concerned with the distribution and uses of manna lichens undertaken during 1864-1897, are reviewed by Donkin (1981). Steiner (1921) reported 74 taxa from Elazığ and Adıyaman provinces, based on Handell-Mazetti's collections from Mesopotamia, Syria and Iraq. Szatala (1960) recorded 8 lichens from Elazığ Province, as well as records from other parts of Turkey. Szatala's paper (1960) based on the lichen collection of zoologist Victor Pietschmann, all contained lichen records from Syria and Iraq. Recently, Candan & Özdemir Türk (2000) recorded 50 infrageneric taxa from eastern part of Malatya City. Other records for the study area are two exsiccates (Lumbsch & Feige 1999, John 1999), two by Degelius (1954), one by Steiner & Poelt (1982), one by Timdal (1991) and new lichenicolous fungi by Halıcı et al. (2007a,b) and Halıcı & Candan (2007).

Like other parts of Turkey, the natural vegetation of Malatya, Elazığ and Adıyaman provinces has been subjected to anthropogenic stress for many years, mainly due to heavy grazing, afforestation, farming and urbanisation. Furthermore, many large dams have been built in southeastern Anatolia during the last 30 years and others are currently under construction. Hence, a relatively large portion of the study area is covered by dam lakes. As well as determining the current lichen diversity of Malatya, Elazığ and Adıyaman provinces, this article also includes previous records from the region dating

back to the 1860s. It is also hoped that this study will provide a database for monitoring the effects of the climate change on the lichen flora due the development of dams and their resultant lakes.

Study Area: Malatya, Elazığ and Adıyaman provinces are located in Anatolia and are part of the Irano-Turanian Phytogeographical Region of Turkey. According to Davis (1965), Malatya and Elazığ are in the Upper Euphrates and Adıyaman is in the Mesopotamian area. The study area (Fig. 1) is located between 37°25' 39°11' N and 37°25' 40°21' E at altitudes ranging from 500 m in the south of Adıyaman Province to 2650 m in the Malatya Mountains lying on the border of Adıyaman and Malatya provinces. The northern part of the study area, including Malatya and Elazığ provinces, is mainly covered by highlands, the lowest altitudes of c. 800 m being found in valleys.

The study area also covers the eastern side of the Nurhak Mountains, the Malatya Mountains, the Maden Mountains and Akdağ located in the Southeast Taurus Mountains, the highest altitudes being the summits of Akdağ (2650 m), Bey (2545 m), Hazar (2347 m), Akçababa (2052 m) and Hasan (1864 m). The south side of Yama Mountain (2402 m), situated between Malatya and Sivas provinces, is also included in the study area. The Upper Fırat, Tohma Stream, Sürgü Stream, Sultan Creek, Murat, and Dicle Valleys are located between the high mountains. Although Hazar Lake is the largest natural lake in the area, the lakes of Keban, Karakaya, Atatürk, Sürgü and Çat Dams cover a much larger area collectively.

The rich topographical diversity of the study area provides varied climatic conditions, which are further modified the effects of the dam lakes; to date, no research has been carried out to determine these effects. The study area has a Mediterranean climate. According to Emberger's principles, Akman (1990) reported that precipitation-temperature coefficients (Q_2) are 36.2, 39.6 and 75.4 and aridity indices (S) are 0.7, 0.5 and 0.2 for Malatya, Elazığ and Adıyaman provinces, respectively.

The dominant vegetation of the region is steppe in character. For anthropological reasons, no large forests are to be found in the study area; *Quercus* spp. are sparsely distributed. The most eastern distribution of *Pinus brutia* Ten. in Turkey is located at the junction of the borders of Kahramanmaraş, Malatya and Adıyaman provinces which coincides with the southeastern part of the study area. In spite of poor forest cover, there is intensive apricot (*Prunus armeniaca* L.) agriculture in some parts of Malatya Province and pistacio (*Pistacia vera* L.) agriculture in Adıyaman Province. Wild *Prunus*, *Crataegus* and *Rosa* spp. are also common in the

study area, and *Salix* spp., *Populus* spp., and *Platanus orientalis* L. are found in wet habitats such as valleys.

Materials and Methods

This study is based on an evaluation of the authors' lichen collections made between 2003 and 2005 and on literature sources relating to Malatya, Elazığ and Adıyaman provinces of Turkey. The specimens were examined with a Leica MZ6 stereomicroscope and an Olympus BX51 microscope with standard identification methods for lichens and lichenicolous fungi (Purvis et al. 1992, Wirth 1995). Also TLC analyses of the specimen were carried out when needed. Voucher specimens are stored in ANES (Herbarium of Anadolu University, Anadolu University, Faculty of Science, Eskişehir, Turkey).

List of the Taxa

In the alphabetical list of lichens and lichenicolous fungi below, the names of the provinces are abbreviated to **M** for Malatya, **E** for Elazığ, and **A** for Adıyaman, followed by the locality numbers and substrate types. # indicates a new record for Turkey, * indicates a new record for the study area. Detailed list of the localities is given in Table 1.

**Acarospora bullata* Anzi

M: 27, **E:** 83, 96, 100, 111, **A:** 118, silicious rocks.

Acarospora cervina A. Massal.

Common on calcareous rocks throughout the study area. Steiner (1921): Adıyaman (as *A. percaena*), Adıyaman (as *A. theobromina*); Candan & Türk (2000): Malatya.

**Acarospora fuscata* (Nyl.) Th. Fr.

M: 5, **E:** 83, 90, 97, 98, 102, 112, on silicious rocks.

Acarospora glaucocarpa (Wahlenb. ex Ach.) Körb.

E: 84, schist, 104, on calcareous rocks; Candan & Türk (2000): Malatya.

**Acarospora hospitans* H. Magn.

A: 117, and 119, on *Aspicilia* sp. and *A. cinerea* respectively.

Acarospora laqueata Stizenb.

M: 2, 7, 51, 65, 72, **E:** 88, 104, 110, **A:** 120, 128, on calcareous rocks; Steiner (1921): Elazığ, Adıyaman; Magnusson (1921): Adıyaman; Candan & Türk (2000): Malatya.

**Acarospora macrospora* (Hepp) A. Massal. ex Bagl. subsp. *macrospora*

M: 53, on calcareous rocks.

#*Acarospora macrospora* subsp. *murorum* (A. Massal.) Cauzade & Cl.
Roux

M: 8, **A:** 116, on calcareous rocks.

#*Acarospora peliscypha* Th. Fr.

E: 97, 99, 100, 111, on silicious rocks.

**Acarospora strigata* (Nyl.) Jatta

M: 41, on calcareous rocks.

**Acarospora sulphurata* (Arnold) Arnold

E: 111, 112, **A:** 118, on silicious rocks.

**Acarospora umbilicata* Bagl.

M: 26, **E:** 83, 91, 98, 99, on silicious rocks, **E:** 84, on schist.

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

M: 11, on silicious rocks.

**Anthracoarpon virescens* (Zahlbr.) Breuss

A: 119, soil (Det. O.Breuss).

**Arthonia clemens* (Tul.) Th. Fr.

M: 44, on *Lecanora dispersa*.

Arthonia epimela (Almq.) I.M. Lamb

E: 84, on *Caloplaca saxicola*.

**Arthonia glaucomaria* (Nyl.) Nyl.

E: 90, on *Rhizoplaca melanophtalma* and on *Lecanora garovaglii*, **E:** 91, on
R. melanophtalma and on *L. rupicola*.

**Arthonia lapidicola* (Taylor) Branth & Rostr.

E: 80, on calcareous rocks.

Arthonia molendoi (Heufl. Ex Frauenf.) R. Sant.

M: 6, on *Caloplaca* sp.; Halıcı & Candan (2007); Malatya.

Aspicilia caesiocinerea (Nyl. ex Malbr.) Arnold

M: 5, 11, 13, 29, 38, 43, **E:** 86, 90, 91, 92, 93, 96, 102, 112, **A:** 130, 131, 118, on silicious rocks; Steiner (1921): Adıyaman (as *Lecanora caesiocinerea* var. *planior*).

Aspicilia calcarea (L.) Mudd

Commonly found on calcareous rocks throughout the study area. Steiner (1921): Elazığ (as *Lecanora calcarea*); Candan & Türk (2000): Malatya.

**Aspicilia cheresina* (Müll. Arg.) Hue

M: 8, 67, on calcareous rocks (Det. V.Rico).

**Aspicilia cinerea* (L.) Körb.

M: 11, 43, **E:** 96, 119, on silicious rocks.

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

M: 39, 41, 44, 46, 50, 68, 78, **E:** 80, 88, 96, 110, **A:** 116, 119, 120, 121, 124, 126, 127, 128, 133, 139, on calcareous rocks; Candan & Türk (2000): Malatya.

Aspicilia contorta subsp. *hoffmanniana* Ekman & Fröberg

Very common on calcareous rocks; Steiner (1921): Adıyaman (as *Lecanora contorta* var. *albocincta*).

**Aspicilia coronata* (A. Massal.) Anzi

M: 8, 33, on calcareous rocks.

**Aspicilia cupreoglauca* de Lesd.

E: 112, on silicious rocks.

Aspicilia desertorum (Kremp.) Mereschk.

Commonly found on parts of calcareous and silicious rocks close to the ground throughout the study area. Steiner (1921): Adıyaman, Elazığ (as *Lecanora sphaerothallina*) and Elazığ (as *L. sphaerothallina* var. *marginata*); John (1999): Adıyaman.

#*Aspicilia emiliae* (Tomin) Savicz

M: 44, on soil (Det. M.Sohrabi).

Aspicilia esculenta (Pall.) Flagey

M: 40, 44, 49, 50, 53, **A:** 139, on soil; Donkin (1981) and literature therein: Malatya, Elazığ.

Aspicilia farinosa (Flörke) Motyka

Common on calcareous rocks throughout the study area; Candan & Türk (2000): Malatya.

**Aspicilia fruticulosa* (Eversm.) Flagey

M: 40, 44, 49, 50, 53, **E:** 79, on soil.

**Aspicilia hispida* Mereschk.

M: 3, 4, 7, 25, 30, 35, 39, 40, 41, 44, 46, 47, 48, 49, 50, 53, 61, 64, 71, **E:** 79, 82, 108, **A:** 139, on soil.

Aspicilia intermutans (Nyl.) Arnold

M: 12, 27, 29, 39, 45, **E:** 83, 84, 86, 90, 91, 93, 98, 111, 112, **A:** 117, 129, 130, 132, on silicious rocks; Steiner (1921): Elazığ (as *Lecanora reticulata*).

Aspicilia polychromoides (J. Steiner) Hue

Steiner (1921): Adıyaman, Elazığ (as *Lecanora polychromoides*).

**Aspicilia simoënsis* Räsänen

A: 114, on calcareous rocks (Det. V.Rico).

**Aspicilia viridescens* (A. Massal.) Hue

A: 118, 129, on silicious rocks, 115, 127, 133, 136, 138, on calcareous rocks.

Biatorella pusilla Anzi

Steiner (1921): Adıyaman.

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

M: 11, 29, **E:** 102, on *Xanthoparmelia pulla*, **M:** 43, 77, **E:** 86, 112, **A:** 118, on *X. tinctina*, **M:** 12, on *X. tinctina* and *Aspicilia intermutans*, **M:** 27, on *A. intermutans*, **M:** 78, on *X. tinctina* and *X. conspersa*, **E:** 83, on *X. tinctina* and *X. delisei*, **M:** 69, **E:** 111, *X. tinctina* and *X. loxodes*, **E:** 106, on *X. conspersa*.

Buellia dubyana (Hepp) Rabenh.

Steiner (1921): Adıyaman.

**Buellia epigaea* (Hoffm.) Tuck.

M: 6, 42, 51, **E:** 80, 110, on soil.

#*Buellia imshaugii* Hafellner

E: 93, on *Dimeleana oreina*.

**Buellia insignis* (Nägeli ex Hepp) Th. Fr.

E: 92, on mosses.

#*Buellia pulverulenta* (Anzi) Jatta

M: 29, **E:** 111 (Det. P.Diederich), on *Physcia* sp.

Caloplaca agardhiana (A. Massal.) Clauzade & Cl.Roux

Steiner (1921): Adıyaman (as *C. agardhiana* var. *isabellina*).

**Caloplaca albolutescens* (Nyl.) H. Olivier

M: 2, calcareous rocks.

Caloplaca alociza (A. Massal.) Mig.

M: 40, **A:** 114, 132, 139, calcareous rocks; Steiner (1921): Adıyaman (as *C. agardhiana* var. *alociza*).

**Caloplaca aractina* (Fr.) Häyrén

E: 92, on silicious rocks.

Caloplaca arenaria (Pers.) J. Steiner var. *macrocarpa* (Anzi) J. Steiner

Steiner (1921): Adıyaman, Malatya.

**Caloplaca atroflava* (Turner) Mong.

M: 13, 11, **E:** 91, 92, **A:** 129, 131, on silicious rocks

**Caloplaca aurantia* (Pers.) Hellb.

A: 114, 116, 121, 124, 127, 137, on calcareous rocks.

Caloplaca biatorina (A. Massal.) J. Steiner

M: 12, on silicious rocks, 45, **E:** 80, **A:** 132, on calcareous rocks; Steiner (1921): Adıyaman (as *C. biatorina* var. *cacuminum*); Candan & Türk (2000): Malatya.

**Caloplaca carphinea* (Fr.) Jatta

E: 112, on silicious rocks.

Caloplaca cerina (Ehrh. ex Hedw.) Th. Fr. var. *cerina*

M: 4, 15, 19, 35, 44, 62, 70, 77, 78, **E:** 90, 95, 104, **A:** 119, 131, 136, on bark; Szatala 1960: Elazığ (as *Placodium cerinum*); Candan & Türk (2000): Malatya.

**Caloplaca cerina* var. *chloroleuca* (Sm.) Th. Fr.

M: 12, 29, 30, 39, 56, **E:** 91, 92, 93, on mosses.

**Caloplaca cerina* var. *muscorum* (A. Massal.) Jatta

M: 11, 13, 45, 56, **E:** 87, 93, 102, on mosses.

Caloplaca cerinella (Nyl.) Flagey

Candan & Türk (2000): Malatya.

Caloplaca chalybaea (Fr.) Müll. Arg.

M: 4, 6, 7, 8, 44, 46, 52, 61, 75, **E:** 79, 88, 104, 105, 110, **A:** 114, 121, 123, 124, 127, 136, 137, 140, on calcareous rocks; Candan & Türk (2000): Malatya.

**Caloplaca chrysodeta* (Vain. ex Räsänen) Dombr.

A: 136, on mosses.

**Caloplaca citrina* (Hoffm.) Th. Fr.

M: 2, 6, on calcareous rocks, **A:** 136, on *Crataegus* sp.

**Caloplaca coronata* (Kremp. ex Körb.) J. Steiner

M: 46, **E:** 82, 104, 108, on calcareous rocks, 84, schist.

Caloplaca crenularia (With.) J.R. Laundon

M: 16, 23, 27, 29, 45, 60, 78, **A:** 117, 119, 131, on silicious rocks; Steiner (1921): Elazığ (as *C. festiva*).

Caloplaca decipiens (Arnold) Blomb. & Forssell

M: 2, 6, 8, 23, 30, 52, **E:** 79, on calcareous rocks; Candan & Türk (2000): Malatya.

Caloplaca dolomiticola (Hue) Zahlbr.

M: 1, 8, 61, 65, 71, **E:** 88, 104, on calcareous rocks; Candan & Türk (2000): Malatya.

**Caloplaca epithallina* Lyngé

M: 56, on *Dimelaena oreina*.

#*Caloplaca erodens* Tretiach, Pinna & Grube
M: 2, 50, **E:** 108, on calcareous rocks.

****Caloplaca erythrocarpia*** (Pers.) Zwackh
A: 138, on calcareous rocks.

Caloplaca flavescens (Hudson) J.R. Laundon
Candan & Türk (2000): Malatya.

****Caloplaca grimmiae*** (Nyl.) H. Olivier
M: 12, 13, 29, 38, 45, 56, **E:** 83, on *Candelariella vitellina*, **M:** 43, on *C. coralliza*.

Caloplaca haematites (Chaub. ex St.-Amans) Zwackh
Steiner (1921): Adıyaman (as *C. pyracea* var. *haematites*).

Caloplaca holocarpa (Hoffm.) A.E. Wade
M: 7, 15, 67, on bark; Candan & Türk (2000): Malatya.

****Caloplaca inconnexa*** (Nyl.) Zahlbr.
M: 6, 16, **E:** 105, on *Aspicilia calcarea*, **M:** 44, 61, **A:** 121, on *Acarospora cervina*, **A:** 138, on *Aspicilia viridescens*.

Caloplaca inspersa J. Steiner
Steiner (1921): Elazığ.

Caloplaca lactea (A. Massal.) Zahlbr.
M: 1, 2, 7, 44, 61, 64, 68, 71, 75, **E:** 88, 99, **A:** 115, 123, 124, 137, on calcareous rocks; Candan & Türk (2000): Malatya.

****Caloplaca lobulata*** (Flörke) Hellb.
M: 17, **E:** 81, 95, 99, **A:** 124, 130, 136, on bark.

Caloplaca norrliniana (Hue) J. Steiner
Steiner (1921): Elazığ.

Caloplaca persica (J. Steiner) M. Steiner & Poelt
M: 15, 57, 60, **E:** 93, on bark; Steiner ve Poelt (1982): Adıyaman.

****Caloplaca polycarpa*** (A. Massal.) Zahlbr.
A: 114, 124, 127, 133, on *Verrucaria calciseda*.

**Caloplaca saxicola* (Hoffm.) Nordin

M: 8, 67, 71, 74, **E:** 108, **A:** 116, 121, on calcareous rocks, **M:** 5, 27, 46, **E:** 83, 86, 98, on silicious rocks.

**Caloplaca scopularis* (Nyl.) Lettau

M: 6, 8, 44, 71, on calcareous rocks, **E:** 83, 112, on silicious rocks.

Caloplaca teicholyta (Ach.) J. Steiner

M: 2, 6, 36, 42, 63, on calcareous rocks, **E:** 84, on schist; Steiner (1921): Elazığ (as *C. lallavei*).

Caloplaca variabilis (Pers.) Müll. Arg.

M: 1, 6, 7, 8, 30, 41, 71, 74, 75, **E:** 80, 88, 99, **A:** 113, 115, 119, 121, 123, 124, 133, 138, on calcareous rocks; Steiner (1921): Adıyaman (as *C. variabilis* var. *fusca*, *C. variabilis* var. *lecideina* and *C. paepalostoma* var. *variabilis*); Candan & Türk (2000): Malatya.

**Caloplaca xantholyta* (Nyl.) Jatta

M: 46, **A:** 120, 137, 140, on calcareous rocks.

**Calvitimela armeniaca* (DC.) Hafellner

M: 28, 43, **E:** 86, **A:** 112, on silicious rocks.

Candelariella aurella (Hoffm.) Zahlbr.

M: 5, 13, 15, 19, 38, 40, 41, 42, 44, 51, 52, 54, 57, 62, 63, 64, 67, 70, 71, **E:** 80, 81, 84, 94, **A:** 104, 113, 123, 124, 131, 133, 136, 140, on rocks and bark; Steiner (1921): Adıyaman (as *C. subsimilis*); Candan & Türk (2000): Malatya.

**Candelariella coralliza* (Nyl.) H. Magn.

M: 29, on *Aspicilia caesiocinerea*, 43, **E:** 92, **A:** 132, on silicious rocks, **M:** 2, 6, on calcareous rocks.

**Candelariella medians* (Nyl.) A.L. Sm.

M: 8, on calcareous rocks.

**Candelariella viae-lactea* G. Thor & V. Wirth

M: 4, 44, 60, **E:** 93, 95, 99, **A:** 124, on bark.

Candelariella vitellina (Hoffm.) Müll. Arg.

M: 44, 67, 74, **E:** 104, **A:** 114, 119, 122, on calcareous rocks, **M:** 5, 11, 12, 16, 23, 24, 25, 27, 29, 30, 38, 39, 45, 73, 56, 60, **E:** 87, 90, 91, 92, 93, 94, 98, 100, 106, **A:** 117, 118, on silicious rocks; Steiner (1921): Adiyaman, Elazığ.

**Carbonea vitellinaria* (Nyl.) Hertel

M: 13, 29, 39, 45, 56, 60, **E:** 92, 93, **A:** 118, on *Candelariella vitellina*.

**Catapyrenium daedaleum* (Kremp.) Clauzade & Cl. Roux

M: 39, **E:** 92, on soil (Det. O.Breuss).

**Cercidospora caudata* Kernst.

M: 2, on *Caloplaca lactea* (Det. P.Diederich).

**Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros.

E: 105, on *Protoparmeliopsis muralis* (Det. P.Diederich).

**Cetraria aculeata* (Schreb.) Fr.

M: 39, on soil.

**Cladonia pyxidata* (L.) Hoffm.

M: 15, on mosses, **E:** 91, on soil.

Collema auriforme (With.) Coppins & Laundon

Candan & Türk (2000): Malatya.

**Collema crispum* (L.) Weber ex F.H. Wigg.

M: 2, **A:** 136, on soil.

Collema cristatum (L.) Weber ex F.H. Wigg.

M: 6, 8, 33, 53, 74, 76, **E:** 79, 105, 110, **A:** 115, 116, 119, 120, 121, 123, 124, 128, 132, 133, 136, 137, 138, 139, 140, on calcareous rocks, **E:** 84, on schist, 88, calcareous rocks and mosses; Steiner (1921): Adiyaman (as *C. multifidum*); Degelius (1954): Adiyaman.

**Collema flaccidum* (Ach.) Ach.

M: 11, **A:** 136, on mosses.

**Collema polycarpon* Hoffm.

M: 33, 44, **E:** 88, on calcareous rocks.

Collema tenax (Sw.) Ach.

M: 8, **A:** 119, on soil, **M:** 51, on calcareous rocks; Steiner (1921): Adiyaman; Degelius (1954): Adiyaman.

Dermatocarpon miniatum (L.) Mann

M: 13, 29, 39, **E:** 92, 112, on silicious rocks, **M:** 33, 68, **A:** 121, 128, 136, 140, on calcareous rocks; Steiner (1921): Adiyaman (as *Catapyrenium rufescens*).

**Dermatocarpon pellitum* (Poelt & V. Wirth) Breuss

M: 56, on silicious rocks (Det. V. John), 8, **A:** 137, on calcareous rocks.

#*Dermatocarpon rivulorum* (Arnold) Dalla Torre & Sarnth.

E: 92, 93, on silicious rocks.

**Dimelaena oreina* (Ach.) Norman

M: 12, 28, 38, 39, 46, 56, 60, **E:** 83, 93, 102, 111, on silicious rocks.

**Diploschistes diacapsis* (Ach.) Lumbsch

M: 88, on soil, 93, on silicious rocks near ground.

**Diploschistes gypsaceus* (Ach.) Zahlbr.

M: 30, **E:** 110, on calcareous rocks.

**Diploschistes muscorum* (Scop.) R. Sant

E: 91, on soil and plant debris.

**Diploschistes ocellatus* (Vill.) Norman

M: 42, 51, **E:** 110, **A:** 119, 120, 124, 125, 127, 129, on calcareous rocks.

**Diploschistes scruposus* (Schreb.) Norman

M: 13, 46, **E:** 86, 92, 112, **A:** 118, 129, on silicious rocks.

Diplotomma alboatrum (Hoffm.) Flot.

M: 3, 4, 33, 36, 44, 45, 54, 62, **E:** 79, 108, **A:** 114, 132, on calcareous rocks; Candan & Türk (2000): Malatya.

Diplotomma epipolium (Ach.) Arnold

M: 2, 8, 40, 46, 68, **E:** 88, on calcareous rocks, 84, on schist; Steiner (1921): Elazığ (as *Buellia epipolia* f. *calcaria*); Candan & Türk (2000): Malatya.

**Diplotomma venustum* (Körb.) Lettau

A: 140, on calcareous rocks.

Endocarpon adscendens (Anzi) Müll. Arg.

M: 11, 51, **E:** 112, on mosses, 88, 93, 105, on soil, **A:** 121, on calcareous rocks; Candan & Türk (2000): Malatya.

**Endocarpon pusillum* Hedw.

M: 8, 44, on soil, **A:** 138, on soil and mosses.

Endococcus propinquus (Körb.) D. Hawksw.

Halıcı et al. (2007a): Adıyaman.

Endococcus rugulosus (Borrer ex Leight.) Nyl.

Halıcı et al. (2007a): Malatya.

Endococcus verrucosus Hafellner

Halıcı & Candan (2007): Malatya.

**Fulgensia bracteata* (Hoffm.) Räsänen

M: 71, on mosses and calcareous rocks, 46, on mosses, 54, **E:** 105, calcareous rocks, 88, **A:** 114, on soil and mosses, 133, on calcareous rocks and soil.

**Fulgensia desertorum* (Tomin) Poelt

M: 30, 42, **A:** 127, on soil.

**Fulgensia fulgida* (Nyl.) Szatala

A: 121, 132, on calcareous rocks.

#*Fulgensia pruinosa* (Körb.) Poelt

M: 8, soil, **A:** 132, on soil over calcareous rocks, **M:** 51, on calcareous rocks and mosses.

Fulgensia schistidii (Anzi) Poelt

M: 8, 12, 17, 33, 42, 51, 76, **E:** 80, 82, 88, 90, 105, 107, **A:** 125, 132, 140, on mosses; Candan & Türk (2000): Malatya.

**Fulgensia subbracteata* (Nyl.) Poelt

M: 8, on soil and mosses, 51, on mosses, **A:** 120, on calcareous rocks.

**Glypholechia scabra* (Pers.) Müll. Arg.

M: 3, 7, 8, 42, 46, 47, 51, 53, 67, 68, **E:** 108, 110, **A:** 140, on calcareous rocks.

Gyalidea lecideopsis (A. Massal.) Lett. ex Vězda var. *kurdistanica* (J. Steiner) Vězda

M: 2, **A:** 121, on calcareous rocks, **E:** 84, on schist; Steiner (1921): Adiyaman, Elazığ (as *Gyalecta albocrenata* var. *kurdistanica*).

Immersaria cupreoatra (Nyl.) Calatayud & Rambold

Steiner (1921): Adiyaman, Elazığ (as *Lecanora cupreoatra*).

#*Immersaria usbekica* (Hertel) M. Barbero

E: 112, on silicious rocks (Det. V.Rico).

Intralichen cristiansenii (D. Hawksw.) D. Hawksw. & M.S. Cole

Halıcı & Candan (2007): Adiyaman.

Lecanora agardhiana Ach.

M: 33, **E:** 108, on calcareous rocks; Steiner (1921): Adiyaman; Candan & Türk (2000): Malatya.

Lecanora albescens (Hoffm.) Branth & Rostr.

Steiner (1921): Adiyaman (as *L. albescens* f. *deminuta*).

Lecanora argopholis (Ach.) Ach.

M: 13, 29, 38, 39, 43, 45, **E:** 86, 93, 102, **A:** 131, on silicious rocks; Steiner (1921): Adiyaman (as *L. thiodes*).

Lecanora bicincta Ramond

Steiner (1921): Elazığ (as *L. stenhammari*).

**Lecanora bolcana* (Pollini) Poelt

M: 7, 11, 12, 13, 16, 29, 73, **E:** 83, 86, 87, 102, **A:** 119, 121, 129, 131, on silicious rocks.

**Lecanora crenulata* (Dicks.) Hook.

M: 6, 8, 42, 44, 52, 54, 74, **E:** 79, 80, 82, 108, 110, **A:** 123, on calcareous rocks, **M:** 5, 46, 57, on silicious rocks.

Lecanora dispersa (Pers.) Sommerf.

M: 44, **A:** 133, on calcareous rocks; Steiner (1921): Adiyaman, Elazığ.

Lecanora garovaglii (Körb.) Zahlbr.

M: 5, 11, 12, 13, 24, 27, 28, 29, 38, 45, 56, 57, 60, **E:** 83, 86, 94, 96, 104, 106, 112, on silicious rocks, **M:** 43, on serpentine, **E:** 84, on schist, 90, on granite; Steiner (1921): Adiyaman.

Lecanora garovaglii var. *diffractella* J. Steiner

Steiner (1921): Elazığ.

Lecanora hagenii (Ach.) Ach.

M: 17, 44, **E:** 81, 90, 94, 95, **A:** 130, 131, 136, on bark.

Lecanora kjachtensis J. Steiner

Steiner (1921): Adiyaman.

Lecanora kurdistanica J. Steiner

Steiner (1921): Adiyaman.

#*Lecanora laatokkaensis* (Räsänen) Poelt

M: 29, **E:** 91, 102, **A:** 118, on *Aspicilia caesiocinerea*, **M:** 45, **A:** 117, on *A. intermutans*, **E:** 92, *Aspicilia* sp., **A:** 131, *Aspicilia* sp. and *Lecidea* sp.

Lecanora pavimentans Nyl.

Steiner (1921): Adiyaman.

**Lecanora polytropa* (Hoffm.) Rabenh.

M: 45, 60, **A:** 131, on silicious rocks.

#*Lecanora reuteri* Schaer.

M: 8, on calcareous rocks.

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

M: 28, 29, 39, 45, 56, 60, **E:** 91, 92, 93, on silicious rocks.

**Lecanora rupicola* subsp. *subplanata* (Nyl.) Leuckert & Poelt

M: 38, 43, 73, **E:** 92, 102, **A:** 131, on silicious rocks.

**Lecanora swartzii* (Ach.) Ach.

M: 39, **E:** 92, 93, on silicious rocks.

Lecanora umbrina (Ach.) A. Massal.

Steiner (1921): Adiyaman (as *L. hagenii* var. *umbrina*).

Lecidea atrobrunnea (Ramond) Schaer.

M: 29, 39, 45, 56, **E:** 91, 92, 93, **A:** 131, on silicious rocks; Steiner (1921):
Elazığ.

Lecidea fuscoatra (L.) Ach.

M: 5, 29, 56, **E:** 102, **A:** 117, on silicious rocks; Steiner (1921): Elazığ,
Adiyaman.

Lecidea inturgescens Nyl.

Steiner (1921): Elazığ.

Lecidea umbonata (Hepp) Mudd

Szatala (1960): Elazığ.

Lecidella carpathica Körb.

M: 11, 13, 24, 26, 27, 29, 30, 31, 38, 39, 43, 45, 55, 56, 60, 73, **E:** 84, 86,
90, 91, 94, 102, 107, 112, **A:** 119, 130, 131, on silicious rocks, **M:** 8,
71, **A:** 121, 132, on calcareous rocks; Steiner (1921): Adiyaman (as
Lecidea latypaea).

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

M: 15, **A:** 131, on *Quercus* sp., **M:** 40, on *Pyrus* sp., **A:** 119, on *Pinus*
brutia.

Lecidella patavina (A. Massal.) Knoph & Leuckert

Steiner (1921): Elazığ (as *Lecidea enteroleuca* var. *cacuminum*).

Lecidella stigmatea (Ach.) Hertel & Leuck.

M: 16, 18, 40, 68, **E:** 80, 82, 104, 108, on calcareous rocks; Steiner (1921):
Elazığ (as *Lecidea enteroleuca*), Adiyaman (as *L. enteroleuca* var.
egea).

**Lecidella wulfenii* (Ach.) Körb.

M: 91, on mosses.

**Lepraria caesioalba* (de Lesd.) J.R. Laundon

M: 8, **E:** 80, 91, 93, on mosses.

**Lepraria vouauxii* (Hue) R.C. Haris

M: 15 (Det. V.John), **E:** 110, 112, **A:** 136, on mosses.

**Leptochidium albociliatum* (Desm.) M. Choisy

M: 11, 12, 13, 78, **E:** 90, **A:** 131, on mosses.

**Leptogium diffractum* Nyl.

A: 119, 128, on calcareous rocks.

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

M: 11, 78, on mosses.

**Leptogium lichenoides* (L.) Zahlbr.

M: 11, **A:** 119, 123, 124, 137, 138, on mosses.

Leptogium lichenoides (L.) Zahlbr. var. *lichenoides*

Steiner (1921): Adiyaman (as *L. atrocoeruleum* var. *lophaeum*).

Leptogium lichenoides var. *pulvinatum* (Hoffm.) Zahlbr.

Steiner (1921): Adiyaman (as *L. atrocoeruleum* var. *pulvinatum*).

**Leptogium massiliense* Nyl.

M: 40, **A:** 119, 121, 128, on calcareous rocks.

**Leptogium plicatile* (Ach.) Leight.

M: 8, **E:** 110, **A:** 123, 133, on calcareous rocks.

**Leptogium subtile* (Schrad.) Torss.

A: 119, on soil, mosses and plant debris.

**Leptogium teretiusculum* (Flörke) Arnold

M: 88, **E:** 112, on mosses.

**Lichenostigma triseptata* Halıcı & D. Hawksw.

M: 77, on *Aspicilia intermutans* (Det. M.G.Halıcı).

**Lichinella nigrifella* (Lettau) P.P. Moreno & Egea

M: 64, **E:** 112, **A:** 120, 121, 128, on silicious rocks.

**Lobothallia alphoplaca* (Wahlenb.) Hafellner

E: 93, on silicious rocks.

**Lobothallia praeradiosa* (Nyl.) Hafellner

M: 12, 13, 23, 39, 42, 59, **E:** 83, 90, 112, **A:** 117, on silicious rocks.

Lobothallia radiosa (Hoffm.) Hafellner

M: 9, 11, 12, 13, 14, 18, 23, 24, 27, 28, 29, 43, 46, 47, 48, 52, 59, 60, **E:** 83, 90, 92, 93, 94, 103, 106, **A:** 117, 129, 130, 131, on silicious rocks, 6, 8, 25, 30, 32, 42, 61, 62, 63, 64, 74, **E:** 79, 80, 82, 84, 88, 108, 110, **A:** 113, 114, 119, 120, 121, 122, 125, 127, 128, 132, 133, 135, 137, 138, 139, 140, on calcareous rocks; Steiner (1921): Adiyaman (as *Lecanora circinata* var. *nigricans*, *L. subcircinata* var. *myrrhina*); Candan & Türk (2000): Malatya.

Megaspora verrucosa (Ach.) Hafellner & Wirth

M: 39, **E:** 92, 93, on mosses; Steiner (1921): Adiyaman (as *Lecanora verrucosa*).

****Melanohalea elegantula*** (Zahlbr.) O. Blanco et al.

M: 8, on *Prunus* sp., 15, 44, on *Pyrus* sp., **E:** 92, on silicious rocks and mosses.

Melanohalea exasperata (De Not.) O. Blanco et al.

M: 4, 15, on *Pyrus* sp. and *Quercus* sp., 38, 62, **E:** 90, on *Quercus* sp., 94, on *Salix* sp.; Steiner (1921): Adiyaman (as *Parmelia aspidota*).

****Melanohalea infumata*** (Nyl.) O. Blanco et al.

M: 11, 13, **E:** 86, 90, 107, on silicious rocks.

****Muellerella pygmaea*** (Körb.) D. Hawksw. var. ***pygmaea***

M: 6, on *Aspicilia contorta*, 12, on *Acarospora* sp., **E:** 108, on *Glypolecchia scabra* (Det. P.Diederich); Halıcı & Candan (2007): Malatya.

****Muellerella pygmaea*** var. ***athallina*** (Müll.Arg.) Triebel

M: 8, on *Aspicilia cheresiana*, 44, on *A. hispida* (Det. P.Diederich).

****Mycobilimbia lurida*** (Ach.) Hafellner & Türk

M: 78, on soil (Det. O.Breuss), 51, on calcareous rocks.

****Neocatapyrenium rhizinosum*** (Müll. Arg.) Breuss

M: 64, **A:** 139, on soil (Det. O.Breuss).

****Parmelina tiliacea*** (Hoffm.) Hale

M: 11, 28, 72, **E:** 90, 92, 93, 94, 102, 111, **A:** 119, 131, found on mosses, silicious rocks, *Juniperus* sp., *Pinus brutia* and *Quercus* sp.

****Peltigera membranacea*** (Ach.) Nyl.

E: 102, on mosses.

***Peltigera ponojensis** Gyeln.

M: 8, 11, 78, **E:** 105, **A:** 131, 140, on mosses.

Pertusaria chiodectonoides Bagl. ex A. Massal.

M: 77, on silicious rocks (Det. V.Rico); Steiner (1921): Adiyaman (as *P. nolens*).

***Phacopsis fusca** (Triebel & Rambold) Diederich

M: 12, **E:** 111 (Det. P.Diederich), on *Xanthoparmelia tinctoria*.

Phaeophyscia ciliata (Hoffm.) Moberg

Szatala (1960): Elazığ (as *Physcia ciliata*).

***Phaeophyscia nigricans** (Flörke) Moberg

E: 105, on calcareous rocks.

Phaeophyscia orbicularis (Neck.) Moberg

M: 13, 15, 19, 38, 44, 51, 62, 66, 67, 77, 78, 81, 90, **E:** 93, 94, **A:** 119, 124, 130, 131, 140, on the bark of free-standing trees; Candan & Türk (2000): Malatya.

Phaeophyscia sciastra (Ach.) Moberg

Steiner (1921): Adiyaman (as *Physcia lithotea*).

Physcia adscendens (Fr.) H. Olivier

M: 7, 15, 40, 67, 71, 72, 77, 78, **A:** 119, 131, on bark; Candan & Türk (2000): Malatya.

Physcia aipolia (Ehrh. ex Humb.) Hampe

Steiner (1921): Adiyaman; Szatala (1960): Elazığ.

Physcia albinea (Ach.) Malbr.

Steiner (1921): Elazığ.

Physcia biziana (A. Massal.) Zahlbr.

M: 4, 44, 15, 38, 57, 60, 62, 71, **E:** 81, 93, 94, 95, **A:** 136, 140, on bark; Candan & Türk (2000): Malatya.

***Physcia dimidiata** (Arnold) Nyl.

M: 2, 6, 11, 23, 39, 42, 46, **E:** 84, **A:** 140, on mosses and rocks.

Physcia dubia (Hoffm.) Lettau

M: 8, on *Prunus* sp., 39, **E:** 91, 102, on silicious rocks; Candan & Türk (2000): Malatya.

****Physcia semipinnata*** (J.F. Gmel.) Moberg

A: 119, on *Pinus brutia*.

Physcia stellaris (L.) Nyl.

M: 13, 15, 17, 28, 66, 67, 69, 70, 71, 72, 77, 78, **E:** 93, 94, 104, **A:** 119, 124, 130, 131, on bark; Szatala (1960): Elazığ; Candan & Türk (2000): Malatya.

****Physcia tribacia*** (Ach.) Nyl.

M: 8, on calcareous rocks.

Physconia distorta (With.) J.R. Laundon

M: 4, 13, 15, 16, 17, 66, 69, 70, 71, 72, **E:** 90, 94, 105, **A:** 130, 131, 136, on bark; Steiner (1921): Adıyaman (as *Physcia pulverulenta*); Szatala (1960): Elazığ (as *P. pulverulenta*); Candan & Türk (2000): Malatya.

****Physconia enteroxantha*** (Nyl.) Poelt

M: 11, 12, 15, **E:** 83, 86, 90, 92, 93, 94, 112, **A:** 121, 129, on mosses, 119, on *P. brutia*.

****Physconia perisidiosa*** (Erichsen) Moberg

M: 11, 39, 43, **E:** 86, 92, 102, **A:** 121, on mosses.

#*Placidiopsis custnani* (A. Massal.) Körb.

E: 88, 104, **A:** 119, on soil (Det. O.Breuss).

****Placidium lachneum*** (Ach.) de Lesd. var. ***oleosum*** (Breuss) Breuss

M: 8, **E:** 91, on soil (Det. O.Breuss).

****Placidium pilosellum*** (Breuss) Breuss

M: 8, **E:** 88, **A:** 137, on soil (Det. O.Breuss).

****Placidium rufescens*** (Ach.) A. Massal.

M: 50, **E:** 105, **A:** 121, on soil; Steiner (1921): Adıyaman; Candan & Türk (2000): Malatya (as *Catapyrenium rufescens*).

****Placidium squamulosum*** (Ach.) Breuss

M: 44, **E:** 80, on soil, **E:** 105, on mosses (Det. O.Breuss).

#*Placidium tenellum* (Breuss) Breuss

M: 78, on soil (Det. O.Breuss).

****Placocarpus schaeferi*** (Fr.) Breuss

M: 7, 8, 23, 30, 52, 53, 61, 62, 64, 66, 68, **E:** 82, 104, 105, 108, 110, **A:** 113, 115, 116, 120-123, 127, 128, 133, 134, 136, 138, 140, on calcareous rocks.

****Placopyrenium bucekii*** (Nádv. & Servít) Breuss

M: 12, 40, on silicious rocks.

****Placopyrenium tatrense*** (Vězda) Breuss

M: 12, **E:** 90 (Det. O.Breuss), on silicious rocks.

****Placopyrenium trachyticum*** (Hazsl.) Breuss

M: 112, on silicious rocks (Det. V.John).

****Placynthium nigrum*** (Huds.) Gray

M: 8, 30, 33, 35, 42, 51, 61, 64, **E:** 82, 104, 105, **A:** 121, 122, 116, 120, 123, 124, 127, 128, 132, 133, 135, 136, 137, 138, 139, 140, on calcareous rocks near the ground, 118, on silicious rocks near the ground.

Placynthium subradiatum (Nyl.) Arnold

Steiner (1921): Adıyaman.

Pleurosticta acetabulum (Necker) Elix & Lumbsch

M: 7, 8, 67, on bark; Candan & Türk (2000): Malatya.

#*Polyblastia albida* Arnold

E: 88, on calcareous rocks.

****Polyblastia dermatodes*** A. Massal.

A: 123, 137, on calcareous rocks.

Polycoccum acarosporicola Halıcı & D. Hawksw.

Halıcı et al. (2007a): Malatya (as *P. cartilagosum*); Halıcı et al. (2007b): Malatya.

Polycoccum crassum Vězda

Halıcı et al. (2007a): Malatya.

***Polysporina simplex** (Davies) Vězda

M: 2, 8, 52, **A:** 123, on calcareous rocks.

Protoparmeliopsis muralis (Schreb.) M. Choisy

Found in almost every localities on both calcareous and silicious rocks.

Steiner (1921): Adıyaman (as *Lecanora muralis* var. *areolata* and *L. albomarginata*); Candan & Türk (2000): Malatya.

Psora decipiens (Hedwig) Hoffm.

M: 2, 16, 22, 42, 53, 54, 68, 74, 78, **E:** 79, 82, 88, 89, 103, 105, 112, **A:** 121, 132, 137, 138, 139, on soil; Candan & Türk (2000): Malatya.

Psora globifera (Ach.) Nyl.

M: 8, 16, **A:** 123, on mosses; Candan & Türk (2000): Malatya.

***Ramalina pollinaria** (Westr.) Ach.

M: 56, on silicious rocks.

***Ramalina polymorpha** (Lilj.) Ach.

M: 56, on silicious rocks.

***Rhizocarpon badioatrum** (Flörke ex Spreng.) Th. Fr.

E: 92, on silicious rocks.

***Rhizocarpon geminatum** Körb.

M: 11, 12, 29, 46, 77, **E:** 86, 90, 92, 102, 111, **A:** 130, on silicious rocks; Steiner (1921): Elazığ.

Rhizocarpon geographicum (L.) DC.

M: 11, 28, 29, 37, 38, 39, 43, 60, **E:** 86, 90, 92, 93, 102, 112, **A:** 118, 130, 131, on silicious rocks; Steiner (1921): Adıyaman.

Rhizocarpon geographicum subsp. *kittilense* (Räsänen) R. Sant.

Szatala (1960): Elazığ (as *R. riparium*).

Rhizocarpon lecanorinum Anders

E: 93, 112, **A:** 118, 119, on silicious rocks; Szatala (1960) Elazığ (as *R. geographicum* var. *atrovirens*).

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

E: 112, on silicious rocks.

- *Rhizocarpon viridiatrum* (Wulfen) Körb.
M: 53, **E:** 84, 108, **A:** 117, on *Aspicilia* spp.
- *Rhizoplaca chrysoleuca* (Sm.) Zopf
M: 28, 38, 56, 58, 59, 60, on silicious rocks.
- *Rhizoplaca melanophthalma* (DC.) Leuckert
M: 28, 29, 38, 43, 45, 55, 56, 58, 59, 60, 73, **E:** 83, 89, 90, 91, 92, 93, 112,
on silicious rocks.
- *Rhizoplaca peltata* (Ramond) Leuckert & Poelt
M: 26, 43, 46, 60, **E:** 86, 89, 90, 93, 106, 112, on silicious rocks.
- *Rimularia insularis* (Nyl.) Rambold & Hertel
M: 43, 73, **E:** 91, 92, 93, 102, on *Lecanora rupicola*.
- Rinodina bischoffii* (Hepp) A. Massal.
M: 2, 4, 7, 8, 33, 44, 46, 52, 62, 68, 71, 75, **E:** 79, 84, 105, 110, **A:** 115,
116, 124, 132, 133, 137, 139, on calcareous rocks; Steiner (1921):
Adiyaman (as *R. bischoffii* var. *ochrata*).
- Rinodina calcarea* (Arnold) Arnold
E: 84, 104, **A:** 120, 121, 124, on calcareous rocks; Candan & Türk (2000):
Malatya.
- *Rinodina capensis* Hampe
M: 19, on *Robinia pseudoacacia*.
- *Rinodina castanomela* (Nyl.) Arnold
A: 136, on calcareous rocks.
- *Rinodina colobina* (Ach.) Th. Fr.
A: 130, on *Robinia pseudoacacia*, 136, on *Crataegus* sp.
- Rinodina confragosa* (Ach.) Körb.
E: 92, on silicious rocks; Steiner (1921): Adiyaman.
- Rinodina dubyana* (Hepp) J. Steiner
M: 8, on calcareous rocks; Candan & Türk (2000): Malatya.
- *Rinodina exigua* (Ach.) Gray

M: 51, on *Elaeagnus angustifolia*.

Rinodina gennarii Bagl.

M: 16, 30, 67, **E:** 104, 105, 110, **A:** 114, 116, 121, 124, 127, 132, 133, on calcareous rocks; Candan & Türk (2000): Malatya.

****Rinodina guzzinii*** Jatta

M: 30, **A:** 119, 123, on calcareous rocks.

****Rinodina immersa*** (Körb.) Arnold

M: 8, 33, 40, 41, 54, **E:** 104, 105, **A:** 116, 132, 136, 137, on calcareous rocks.

#*Rinodina interjecta* (Müll. Arg.) H. Mayrhofer, Scheid. & Sheard

M: 29, **E:** 86, 89, 102, on *R. geographicum*.

****Rinodina lecanorina*** (A. Massal.) A. Massal.

E: 82, 88, 105, 110, **A:** 113, 121, 127, 128, 138, on calcareous rocks.

#*Rinodina luridata* (Körb.) H. Mayrhofer

E: 110, on calcareous rocks.

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

M: 45, **E:** 91, 92, on silicious rocks.

****Rinodina obnascens*** (Nyl.) H. Olivier

E: 91, 93, on *A. caesiocinerea*.

****Rinodina occulta*** (Körb.) Sheard

E: 102, on silicious rocks.

****Rinodina oxydata*** (A. Massal.) A. Massal.

E: 91, **A:** 118, on silicious rocks.

****Rinodina pyrina*** (Ach.) Arnold

M: 8, 71, **E:** 95, 104, **A:** 119, on bark.

Rinodina roboris (Duff) Arnold

Steiner (1921): Adiyaman.

#*Rinodina roscida* (Sommerf.) Arnold

M: 39, on soil.

****Rinodina tunicata*** H. Mayrhofer & Poelt

A: 116, 127, on calcareous rocks.

****Rinodinella controversa*** (A. Massal.) H. Mayrhofer & Poelt

M: 11, on silicious rocks , **A:** 124, on calcareous rocks.

Rosellinula haplospora (Th.Fr. & Almqu. ex Th.Fr.)

Halıcı & Candan (2007): Malatya.

****Sarcogyne clavus*** (DC.) Kremp.

M: 5, on silicious rocks, 8, 44, 75, **E:** 84, **A:** 114, 123, 132, 136, on calcareous rocks.

Sarcogyne privigna (Ach) A. Massal.

M: 30, 43, 62, **E:** 93, **A:** 138, on calcareous rocks; Candan & Türk (2000): Malatya.

Sarcogyne regularis Körb.

M: 4, 8, 41, 53, 54, 63, 67, 75, **E:** 80, 105, 110, **A:** 123, 124, 126, 136, 137, 139, on calcareous rocks; Steiner (1921): Adiyaman, (as *Biatorella pruinosa*); Candan & Türk (2000): Malatya.

****Sporastatia testudinea*** (Ach.) A. Massal.

M: 93, on silicious rocks.

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

M: 35, 42, 51, 67, **E:** 88, 104, 105, 110, 112, **A:** 113, 114, 116, 119, 120, 121, 124, 125, 127, 128, 129, 132, 137, 138, on calcareous rocks, soil and mosses.

****Squamarina lentigera*** (Weber) Poelt

M: 2, 42, **A:** 119, on soil, **E:** 110, on mosses.

****Staurothele areolata*** (Ach.) Lettau

M: 2, 4, 6, 57, on calcareous rocks.

#*Staurothele bacilligera* (Arnold) Arnold

M: 2, 8, on calcareous rocks.

****Staurothele caesia*** (Arnold) Arnold

A: 120, on calcareous rocks.

**Staurothele hymenogonia* (Nyl.) Th. Fr.
M: 51, **A:** 119, 124, 136, on calcareous rocks.

Staurothele praecedens J. Steiner
Steiner (1921): Adiyaman.

Staurothele rugulosa (A. Massal.) Arnold
M: 30, 40, 75, **A:** 121, 126, on calcareous rocks; Candan & Türk (2000):
Malatya.

Stigmidium tabacinae (Arnold) Triebel
Halıcı et al. (2007a): Elazığ.

**Synalissa symphorea* (Ach.) Nyl.
M: 2, 8, 42, 51, **A:** 121, 127, 129, on calcareous rocks and soil.

**Tephromela atra* (Huds.) Hafellner
M: 11, 43, 46, **A:** 93, on silicious rocks.

#Thelidium incavatatum (Nyl.) Mudd
M: 44, **A:** 137, on calcareous rocks.

Thyrea confusa Henssen
M: 51, **A:** 128, 136, on calcareous rocks; Steiner (1921): Adiyaman (as *T. pulvinata*).

**Toninia aromatica* (Sm.) A. Massal.
A: 129, on soil (Det.Timdal).

Toninia athallina (Hepp) Timdal
Steiner (1921): Adiyaman (as *Lecidea athallina*).

Toninia candida (Weber) Th.Fr.
M: 8, 17, 68, 69, **E:** 88, 104, 105, 108, 110, 112, **A:** 132, 137, 140, on soil
and mosses; Candan & Türk (2000): Malatya.

**Toninia diffracta* (A. Massal.) Zahlbr.
M: 6, **E:** 80, 88, 104, **A:** 119, on soil.

Toninia sedifolia (Scop.) Timdal

M: 2, 17, 30, 46, 68, **E:** 80, **A:** 119, 121, 133, on soil; Steiner (1921): Adiyaman (as *T. caeruleonigricans*); Candan & Türk (2000): Malatya.

Toninia taurica (Szatala) Oksner

M: 8, 12, 33, 42, 51, **E:** 80, 105, **A:** 123, 132, 140, on soil and mosses; Timdal (1991): Malatya; Candan & Türk (2000): Malatya.

Toninia toniniana (Massal.) Zahlbr.

Candan & Türk (2000): Malatya.

**Umbilicaria decussata* (Vill.) Zahlbr.

M: 56, **E:** 92, on silicious rocks.

**Umbilicaria leiocarpa* DC.

E: 93, on silicious rocks.

Verrucaria calciseda DC.

E: 105, **A:** 114, 119, 124, 127, 133, 136, 137, on calcareous rocks; Steiner (1921): Adiyaman.

**Verrucaria compacta* (A. Massal.) Jatta

M: 39, **E:** 84, on silicious rocks, **A:** 128, 138, on calcareous rocks (Det. O.Breuss).

**Verrucaria fuscella* (Turner) Winch

E: 80, 110, **A:** 119, 128, 136, 137, 138, on calcareous rocks.

**Verrucaria hochstetteri* Fr.

M: 128, on calcareous rocks.

Verrucaria interrupta J. Steiner

Steiner (1921): Adiyaman.

Verrucaria lecideoides (A. Massal.) Trevis.

M: 27, on silicious rocks, 8, **E:** 104, 110, on calcareous rocks; Candan & Türk (2000): Malatya.

**Verrucaria macrostoma* Dufour ex DC.

E: 88, **A:** 119, 126, 136, on calcareous rocks.

Verrucaria marmorea (Scop.) Arnold

M: 4, **E:** 110, **A:** 116, 120, 128, 136, on calcareous rocks; Steiner (1921): Adiyaman.

Verrucaria muralis Ach.

A: 133, on calcareous rocks; Candan & Türk (2000): Malatya.

Verrucaria nigrescens Pers.

M: 1, 2, 7, 12, 44, **E:** 100, 104, 112, **A:** 119, 120, 123, 127, 139, on calcareous rocks; Candan & Türk (2000): Malatya.

Verrucaria sphaerospora Anzi

M: 12, 39 (Det. O.Breuss), on silicious rocks; Steiner (1921): Adiyaman.

Verrucaria transiliens Arnold

Steiner (1921): Adiyaman.

Weddellomyces turcicus Halıcı & Orange

Halıcı et al. (2007a): Malatya

Xanthomendoza fulva (Hoffm.) Söchting, Kärnefelt & S. Kondr.

M: 4, 8, 13, 15, 19, 62, 67, **E:** 94, on bark; Candan & Türk (2000): Malatya (as *Xanthoria fulva*).

**Xanthomendoza ulophyllodes* (Gyeln.) Söchting, Kärnefelt & S. Kondr.

M: 51, 57, 67, 71, **E:** 81, 93, 95, on deciduous trees.

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

M: 77, **E:** 86, 90, 106, **A:** 119, 130, on silicious rocks.

**Xanthoparmelia delisei* (Duby) O. Blanco et al.

M: 77, **E:** 83, 112, **A:** 129, on silicious rocks.

#*Xanthoparmelia glabrans* (Nyl.) O. Blanco et al.

M: 29, **E:** 83, **A:** 118, 119, on silicious rocks.

**Xanthoparmelia loxodes* (Nyl.) O. Blanco et al.

M: 5, 27, 29, 42, 60, **E:** 90, 92, 112, **A:** 130, on silicious rocks.

**Xanthoparmelia mexicana* (Gyeln.) Hale

M: 118, on silicious rocks.

Xanthoparmelia pulla (Ach.) O. Blanco et al.

M: 9, 11, 12, 14, 24, 29, 43, 73, 77, **E:** 93, 102, 112, **A:** 117, 119, 130, on silicious rocks; Steiner (1921): Adıyaman (as *Parmelia prolixa*).

**Xanthoparmelia stenophylla* (Gyeln.) Hale

E: 86, 111, 112, on silicious rocks.

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

M: 12, 26, 27, 38, 43, 77, 78, **E:** 83, 86, 90, 94, 96, 102, 106, 107, 111, 112, **A:** 118, 130, on silicious rocks.

**Xanthoparmelia verruculifera* (Nyl.) O. Blanco et al.

M: 11, 27, 43, **E:** 94, 102, 112, **A:** 118, 119, 130, on silicious rocks.

**Xanthoria elegans* (Link) Th. Fr.

M: 10, 13, 24, 26, 29, 38, 39, 43, 45, 46, 56, 58, 59, 60, **E:** 90, 91, 92, 93, 112, **A:** 140, on silicious rocks.

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

M: 67, on *Juglans regia*.

Zwackhiomyces sphinctrinoides (Zwackh) Grube & Hafellner

Halıcı & Candan (2007): Elazığ, Adıyaman.

Results and Discussion

Twenty lichens in the above list are new for Turkey: *Acarospora macrospora* subsp. *murorum*, *A. peliscypha*, *Aspicilia emiliae*, *Buellia imshaugii*, *B. pulverulenta*, *Caloplaca erodens*, *Dermatocarpon rivulorum*, *Fulgensia pruinosa*, *Immersaria usbekica*, *Lecanora laatokkaensis*, *L. reuteri*, *Placidiopsis custnani*, *Placidium tenellum*, *Polyblastia albida*, *Rinodina interjecta*, *R. luridata*, *R. roscida*, *Staurothele bacilligera*, *Thelidium incavatum*, and *Xanthoparmelia glabrans*.

According to the literature, 128 lichens and lichenicolous fungi have been previously recorded from the study area. As a consequence of this study, this number has increased to 315. However, some early papers (Donkin 1981, Steiner 1921, Szatala 1960) provide only vague locality details (many of which have changed their names), making it difficult to evaluate distributional changes of lichens.

The study area is a transition region between the Mediterranean and the Irano-Turanian Phytogeographical Regions, the western and southwestern parts bordered by the former in Turkey where the distribution of *Pinus brutia* ends. This is why some authors delimit this region by the distribution

of *P. brutia* while others delimit it by the Mediterranean sclerophyll forests, but both have a very similar phytogeographical boundary.

Because of the interesting geographical position of the study area, lichens commonly distributed in Central Asia, Middle East and Europe also occur with local lichens, leading to a rich lichen diversity. Furthermore the altitude of the study area starts from 500 m in Adıyaman Province and 800 m in Elazığ Province, and reaches higher than 2000 m in some localities. Therefore, high mountain lichens also make a significant contribution to the lichen flora of the area. However, lichen diversity is modified by the limited forest cover which reduces humid and shade loving species; most lichen epiphytes grow on free-standing trees and are nitrophilic and heliophilic.

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Literature cited

- Akman Y. 1990. İklim ve Biyoiklim. Ankara, Palme.
- Davis P. 1965. Flora of Turkey. Vol: 1. Edinburgh, Edinburgh University Press.
- Candan M, Özdemir Türk A. 2000. Orduzu-Malatya bölgesi likenleri. OT Sistematiik Botanik Dergisi 7: 219-230.
- Degelius G. 1954. The lichen genus *Collema* in Europe. Symb. Bot. Upsal. 13 (2): 183, 329.
- Donkin RA. 1981. Reports and Comments, The Manna Lichen: *Lecanora esculenta*. Anthropos 76: 562-572.
- Halıcı MG, Candan M. 2007. Notes on some lichenicolous fungi from Turkey. Turkish Journal of Botany 31: 353-356.
- Halıcı MG, Özdemir Türk A, Candan M. 2007a. New records of pyrenocarpous lichenicolous fungi from Turkey. Mycotaxon 99: 201-206.
- Halıcı MG, Atienza V, Hawksworth DL. 2007b. Two new *Polycoccum* (*Dothideales*, *Dacampiaceae*) species from Turkey. Mycotaxon 101: 157-163.
- John V. 1999. Lichenes Anatolici Exsiccati. Arnoldia Fasc. 1-3 (No. 1-75): 44.
- Lumbsch HT, Feige GB. 1999. Exsiccat. Lecanoroid lichens. Univ. Essen, Essen, Fasc. 5: 1-9.
- Purvis OW, Coppins BJ, Hawksworth DL, James PW, Moore DM. 1992. The Lichen Flora of Great Britain and Ireland. London, Natural History Museum Publications in Association with The British Lichen Society.
- Steiner J. 1921. Lichenes aus Mesopotamien un Kurdistan sowie Syrien und Prinkipo. Gesammelt von Dr. Heinrich Frh. v. Handell-Mazzetti (wissenschaftliche Ergebnisse der Expedition nach Mesopotamien 1910). Ann. des Naturhist. Museums in Wien 34: 1-68.
- Steiner M, Poelt J. 1982. *Caloplaca* sect. *Xanthoriella*, sect. nov: Untersuchungen über 'Xanthoria lobulata-Gruppe' (*Lichenes*, *Teloschistaceae*). Plant Systematics and Evolution 140: 151-177.
- Szatala Ö. 1960. Lichenes Turcicae Asiaticae ab Victor Pietschmann collect. Sydowia 14: 312-325.
- Timdal E. 1991. A monograph of the genus *Toninia* (*Lecideaceae*, *Ascomycetes*). Opera Botanica 110: 1-137.

Wirth V. 1995. Die Flechten Baden Württembergs. Teil 1-2, Stuttgart, Ulmer.

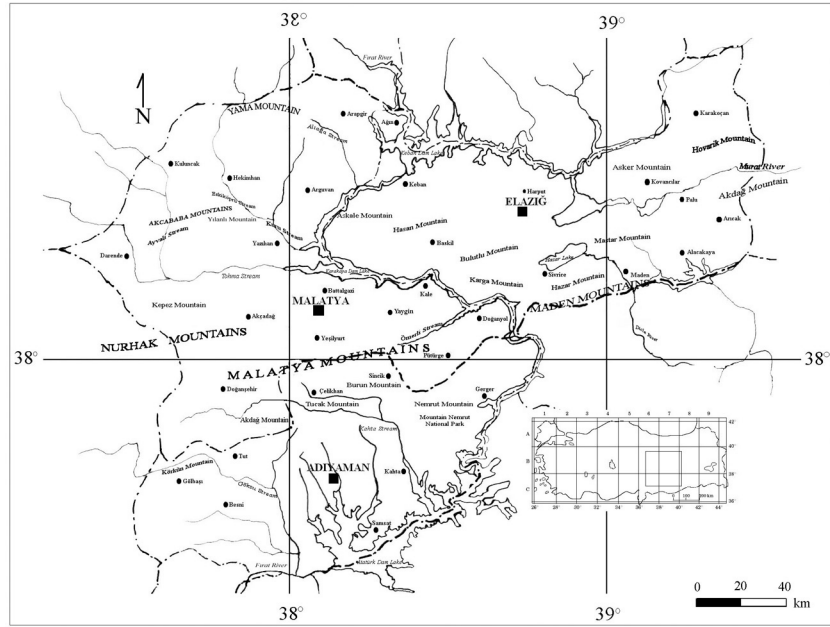


Figure 1. Map of the study area

Table 1. Detailed list of the localities

No	Localities	Altitudes (m)	Coordinates	Dates
1.	Malatya, Malatya-Kayseri junction, South faced slopes	980	38°19'N 38°09'E	27.08.2003
2.	East of Aksaray Village	900	38°25'N 38°08'E	15.08.2005
3.	Malatya, Southwest of Karamağara Village	1270	38°26'N 38°00'E	15.08.2005
4.	Malatya, East of Derinboğaz Village, Derinboğaz place	1470	38°28'N 38°00'E	15.08.2005
5.	Malatya, North of Yukarı Örükçü Village	1100	38°26'N 38°01'E	15.08.2005
6.	Malatya, North of Kırkpınar Village	900	38°30'N 38°08'E	15.08.2005
7.	Malatya, Around Pınarbaşı recreation area	931	38°21'N 38°22'E	19.08.2003
8.	Malatya, South of Venk Village, North slopes of Bey Hill	1450-1550	38°19'N 38°22'E	21.07.2004
9.	Malatya, Yeniköy, southwest of Yeniköy	1065	38°19'N 38°30'E	26.08.2003
10.	Malatya, East of Hisar Village	1170	38°19'N 38°35'E	22.07.2004
11.	Malatya, East of Bulut Village, Hisar Hill	1170	38°19'N 38°34'E	22.07.2004
12.	Malatya, North of Tokluca village	1104	38°17'N 38°31'E	24.08.2003
13.	Malatya, Yaygın Town, Yaygın plateau, Çat place	1622	38°14'N 38°32'E	17.08.2003
14.	Malatya, Kale, West of Meydancık village	850	38°22'N 38°36'E	26.08.2003
15.	Malatya, Pütürge, vicinity of Düverlik village	1500	38°16'N 38°32'E	23.08.2003
16.	Malatya, Pütürge, Southeast of Kerar village	925	38°13'N 38°50'E	23.08.2003
17.	Malatya, Pütürge, East of Pütürge	1210	38°12'N 38°52'E	24.08.2003
18.	Malatya, Pütürge, West of Belen village	1100	38°11'N 38°51'E	24.08.2003
19.	Malatya, Pütürge, Garden of Pütürge Yatılı Bölge School	1123	38°13'N 38°52'E	24.08.2003
20.	Malatya, Pütürge, Tepehan, South of Yazlıca village	1028	38°10'N 38°44'E	24.08.2003
21.	Malatya, Pütürge, East of Bakımlı (Sakımlı) village	775	38°16'N 38°53'E	23.08.2003

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
22.	Malatya, Doğanyol, East of Gökçe village	950-970	38°17'N 39°00'E	23.08.2003
23.	Malatya, Yazihan, Southeast of Boztepe Village	830	38°39'N 38°09'E	03.08.2004
24.	Malatya, Yazihan, North of Fethiye Village	1200	38°38'N 38°06'E	19.08.2005
25.	Malatya, Yazihan, Southeast of Alican Village	153	38°39'N 38°02'E	19.08.2005
26.	Malatya, Yazihan, Malatya-Hekimhan 55 th km	920	38°41'N 38°07'E	19.08.2005
27.	Malatya, Arguvan, East of Arguvan	1250	38°44'N 38°17'E	03.08.2004
28.	Malatya, Arguvan, Southeast of Armutlu Village	1152	38°49'N 38°11'E	03.08.2004
29.	Malatya, Arguvan, Southeast of Güngören Village	1260	38°52'N 38°14'E	03.08.2004
30.	Malatya, Arguvan, North of İçmece Village	871	38°44'N 38°25'E	03.08.2004
31.	Malatya, Arapgir, Northwest slopes of Karagez Mountain, West of Çifte Köprüler Fountain	1267	38°53'N 38°34'E	03.08.2004
32.	Malatya, Arapgir, West of Yaylacık Village	1025	39°04'N 38°31'E	04.08.2004
33.	Malatya, Arapgir, Karababa Pass	1570	39°02'N 38°24'E	04.08.2004
34.	Malatya, Arapgir, Arapgir-Kemaliye road, around Kozluk Stream Bridge	925	39°04'N 38°30'E	04.08.2004
35.	Malatya, Hekimhan, Malatya-Hekimhan, junction Midemuşağı (Mollaibrahim) Village	1205	38°43'N 38°04'E	23.07.2004
36.	Malatya, Hekimhan, North of Hekimhan	1100	38°49'N 37°55'E	23.07.2004
37.	Malatya, Hekimhan, Southwest of Hasançelebi Town	1250	38°56'N 37°53'E	23.07.2004
38.	Malatya, Hekimhan, Hekimhan-Sivas 28 th km	1400	39°05'N 37°37'E	23.07.2004
39.	Malatya, Kangal, Abdal Boğan Pass	1760	39°05'N 37°37'E	23.07.2004
40.	Malatya, Kangal, Hekimhan-Sivas 46 th km	1530	39°04'N 37°41'E	23.07.2004
41.	Malatya, Hekimhan, Hekimhan-Arguvan 9 th km	1300	38°49'N 38°00'E	24.07.2004
42.	Malatya, Hekimhan, North of Aşağıkırmanlı Village	1030	38°46'N 37°57'E	24.07.2004

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
43.	Malatya, Hekimhan, Southeast of Sakız Village	1260	38°49'N 37°51'E	24.07.2004
44.	Malatya, Hekimhan, Yılanlı Mountain, East of Kurşunlu Village	1820-1840	38°40'N 37°52'E	19.08.2005
45.	Malatya, Hekimhan, Northeast of Güzelyayla Village	1830	38°44'N 37°50'E	19.08.2005
46.	Malatya, Malatya, Kuluncak, East of Darlı Village	1280	38°53'N 37°38'E	24.07.2004
47.	Malatya, Malatya, Darende, Northwest of Ayvalı Town, Hasan Ağa Fontain	1460	38°43'N 37°36'E	24.07.2004
48.	Malatya, Darende, West of Akpınar Village	1440	38°36'N 37°31'E	24.07.2004
49.	Malatya, Darende, Northeast of Darende	1470	38°36'N 37°31'E	24.07.2004
50.	Malatya, Darende, Southeast of Zengibar Castle	1105	38°33'N 37°30'E	24.07.2004
51.	Malatya, Darende, North of Zengibar Castle, Somuncu Baba Recreation Area, Tohma Stream Valley	1050	38°34'N 37°30'E	21.08.2005
52.	Malatya, Darende, South of Gürpınar village	1400	38°32'N 37°26'E	24.07.2004
53.	Malatya, Darende, North of Darende, Ezanlı Mountain	1475	38°36'N 37°28'E	24.07.2004
54.	Malatya, Darende, North of Karadeğın Village	1010	38°30'N 37°31'E	25.07.2004
55.	Malatya, Darende, Kepez Mountain, South of Aşağı Ulupınar Village	1450-1500	38°26'N 37°36'E	25.07.2004
56.	Malatya, Darende, Kepez Mountain (across the Radio-Link station)	1820-1890	38°20'N 37°37'E	28.08.2003
57.	Malatya, Akçadağ, Northwest of Kürecik Town	1640	38°21'N 37°43'E	25.07.2004
58.	Malatya, Akçadağ, Yukarı Darıca Village, Kaldırma place	1622	38°18'N 37°39'E	28.08.2003
59.	Malatya, Kahraman Maraş, Elbistan, North of Sevdili Village	1640	38°16'N 37°34'E	25.07.2004
60.	Malatya, Akçadağ, Gürkaynak Village, Karahan Pass	1800	38°20'N 37°47'E	28.08.2003
61.	Malatya, Akçadağ, Levent-Malatya 10 th km	1430	38°23'N 37°55'E	28.08.2003
62.	Malatya, Akçadağ, East of Levent Town	1267	38°24'N 37°54'E	25.07.2004
63.	Malatya, Akçadağ, Sultansuyu, East of Sultansuyu State Farm Organization	900-920	38°20'N 38°38'E	28.08.2003

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
64.	Malatya, Akçadağ, Develi, Malatya-Kayseri-Akçadağ junction	11420	38°22'N 37°53'E	25.08.2003
65.	Malatya, Akçadağ, Akçadağ-Develi road, 1 st km, roadside	1204	38°21'N 37°57'E	25.08.2003
66.	Malatya, Akçadağ, East of Polatdere village	1285	38°12'N 37°53'E	25.08.2003
67.	Malatya, Yeşilyurt, Gündüzbey Town, Kapulu	1080	38°13'N 38°16'E	15.08.2003
68.	Malatya, Yeşilyurt, Kozluca, end of the irrigation pipeline of Çat Dam, Southern slopes	1400-1430	38°12'N 38°16'E	21.08.2003
69.	Malatya, Malatya, Yeşilyurt, West of Üçgöze village	1600-1650	38°13'N 38°18'E	21.08.2003
70.	Malatya, Yeşilyurt, West of Sarsı willage	1700	38°10'N 38°18'E	21.08.2003
71.	Malatya, Doğanşehir, Malatya-Gaziantep-Eskiköy junction	1100	38°10'N 37°57'E	27.08.2003
72.	Malatya, Doğanşehir, West of Kelhalil village	1200	38°08'N 37°57'E	27.08.2003
73.	Malatya, Doğanşehir, Doğanşehir-Gaziantep junction	1330	38°03'N 37°53'E	27.08.2003
74.	Malatya, Doğanşehir, Malatya Mountains, West of Kurucuova Village	1410	37°59'N 38°03'E	30.07.2004
75.	Malatya, Doğanşehir, Sürgü, Reşadiye Pass	1510	37°58'N 38°00'E	27.08.2003
76.	Malatya, Doğanşehir, West of Erkenek Town	1328	37°55'N 37°55'E	27.08.2003
77.	Malatya, Doğanşehir, near the border of Malatya-Adıyaman Provinces	820	37°54'N 37°48'E	27.07.2004
78.	Malatya, Doğanşehir, near the border of Adıyaman-Malatya Provinces	870	37°54'N 37°48'E	14.08.2005
79.	Elazığ, East of Yukarı Çakmak Village, Çakmak Pass	1390	38°42'N 38°57'E	04.08.2004
80.	Elazığ, Southwest of Hıdırbaba Village	1120	38°45'N 39°00'E	04.08.2004
81.	Elazığ, Harput, vicinity of old Harput	1425	38°42'N 39°15'E	04.08.2004
82.	Elazığ, Harput, North of Serince Village	1580	38°43'N 39°17'E	04.08.2004
83.	Elazığ, Elazığ-Diyarbakır, North of Bekçitepe Village	1160	38°29'N 39°14'E	05.08.2004
84.	Elazığ, South of Gölardı Village	1270	38°31'N 39°28'E	05.08.2004
85.	Elazığ, Sivrice, West of Plajköy Village	1250	38°28'N 39°26'E	05.08.2004

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
86.	Elazığ, Elazığ-Bingöl road, Çaybağı place	900	38°35'N 39°26'E	06.08.2004
87.	Elazığ, Keban, South of Denizli Village	1073	38°49'N 38°41'E	03.08.2004
88.	Elazığ, Keban, Southeast of Soğanlı Village	950	38°44'N 38°47'E	04.08.2004
89.	Elazığ, Sivrice, Hazar Mountain, North of Karaçal Village	1370	38°26'N 39°18'E	05.08.2004
90.	Elazığ, Sivrice, Hazar Mountain, West of Karaçal Village	1470	38°25'N 39°18'E	16.08.2005
91.	Elazığ, Sivrice, Hazar Mountain, Northwest of Ski Center	1700	38°25'N 39°18'E	16.08.2005
92.	Elazığ, Sivrice, Hazar Mountain, Northwest of Alaattin Village	1860-1880	38°24'N 39°17'E	16.08.2005
93.	Elazığ, Sivrice, Top of Hazar Mountain, Yedikardeş place	2000	38°24'N 39°17'E	16.08.2005
94.	Elazığ, Sivrice, Hazar Mountain, Northeast of Sürek Village	1225	38°27'N 39°23'E	05.08.2004
95.	Elazığ, Sivrice, South side of Hazar Lake	2000	38°31'N 39°25'E	17.08.2005
96.	Elazığ, Maden, Southwest of Tekevler Village	1200-1230	38°27'N 39°36'E	05.08.2004
97.	Elazığ, Maden-Ergani 5 th km	936	38°21'N 39°40'E	05.08.2004
98.	Elazığ, East of Maden	1070	38°23'N 39°40'E	05.08.2004
99.	Elazığ, Maden, Maden Mountain, vicinity of copper mine	1200	38°23'N 39°33'E	07.08.2005
100.	Elazığ, Maden, South slopes of Maden Mountain	1300	38°22'N 39°38'E	07.08.2005
101.	Elazığ, Maden, Maden Mountain, Değirmendere	1300	38°22'N 39°38'E	07.08.2005
102.	Elazığ, Karakoçan, Northwest of Yenice Village	1180	38°54'N 40°03'E	06.08.2004
103.	Elazığ, Kovancılar, Çakırkaş Village, Hoşmat Recreation Area	1100	38°46'N 39°58'E	06.08.2004
104.	Elazığ, Palu, Northeast of Pınarbaşı Village	850-900	38°38'N 39°50'E	06.08.2004
105.	Elazığ, Palu, North of Keklikdere Village	860-880	38°36'N 39°49'E	06.08.2004
106.	Elazığ, Palu, West of Keban Dam Lake, near Güllüşgör Bridge	900	38°38'N 39°43'E	06.08.2004
107.	Elazığ, Baskil, West of Şahaplı Village	1100	38°33'N 38°48'E	07.08.2004
108.	Elazığ, Baskil, Hasan Mountain, East of Akdemir Village	1600	38°36'N 38°41'E	07.08.2004

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
109.	Elazığ, Baskil, East of Kayabeyli Village	1500	38°35'N 38°53'E	07.08.2004
110.	Elazığ, Baskil, West of Topaluşağı Village	830	38°27'N 38°50'E	07.08.2004
111.	Elazığ, Baskil, Kömürhan, South side of Karakaya Dam Lake	800-850	38°26'N 38°50'E	07.08.2004
112.	Elazığ, Baskil, Kömürhan, South slopes of Karakaya dam lake	750-800	38°26'N 38°50'E	26.08.2003
113.	Adıyaman, Adıyaman-Kahta 5 th km, roadside	700	37°46'N 38°20'E	30.07.2004
114.	Adıyaman, South of Kuyulu Village	535	37°29'N 38°13'E	28.07.2004
115.	Adıyamanx Northwest of Akpınar Village	610	37°35'N 38°13'E	28.07.2004
116.	Adıyaman, Northeast of Payamlı (Palanlı) Village	950	37°50'N 38°18'E	30.07.2004
117.	Adıyaman, Varlık Village, South of Yoğurtul	1160	37°54'N 38°17'E	30.07.2004
118.	Adıyaman, Southeast of Doğanlı Village	1110	37°56'N 38°17'E	30.07.2004
119.	Adıyaman, Gölbaşı, North of Harmanlı Village	810-850	37°51'N 37°45'E	14.08.2005
120.	Adıyaman, Gölbaşı, Aktoprak Village, Göksu place	820	37°50'N 37°41'E	14.08.2005
121.	Adıyaman, Gölbaşı, West of Balkar Village	1000	37°41'N 37°31'E	27.07.2004
122.	Adıyaman, Gölbaşı, North of Belören Village	1015	37°39'N 37°33'E	27.07.2004
123.	Adıyaman, Gölbaşı, Southeast of Yarbaşı Village	910	37°46'N 37°41'E	28.07.2004
124.	Adıyaman, Besni, Southeast of Karagöl Village	860	37°38'N 37°46'E	27.07.2004
125.	Adıyaman, Besni, Southwest of Çilboğazı Village	900	37°44'N 37°48'E	27.07.2004
126.	Adıyaman, Besni, Harmanardı Village, South of Çörmük Spa	620	37°42'N 37°55'E	28.07.2004
127.	Adıyaman, Besni, South of Atmalı Village	710	37°42'N 38°00'E	28.07.2004
128.	Adıyaman, Tut, Southwest of Tut	630	37°47'N 37°51'E	28.07.2004
129.	Adıyaman, Tut, East of Çiftlik Village, Southeast side of Göksu Stream	700	37°46'N 37°50'E	28.07.2004
130.	Adıyaman, Sincik, Northwest of Çatbahçe Village	1000	37°59'N 38°36'E	29.07.2004
131.	Adıyaman, Sincik, West of Serince	1450-1500	38°03'N 38°35'E	29.07.2004

Table 1, continued

No	Localities	Altitudes (m)	Coordinates	Dates
132.	Adiyaman, Sincik, Southwest of Sincik	1300	38°01'N 38°37'E	29.07.2004
133.	Adiyaman, Kahta, North of İslam Village	590	37°42'N 38°32'E	28.07.2004
134.	Adiyaman, Kahta, Southeast of Karakuş Tumulus	830	37°52'N 38°35'E	28.07.2004
135.	Adiyaman, Kahta, Southeast of Kocahisar (Eski Kahta) Village	655	37°59'N 38°36'E	29.07.2004
136.	Adiyaman, Kahta, Nemrut Dağı National Park, vicinity of Arsemia	890	37°56'N 38°39'E	29.07.2004
137.	Adiyaman, Kahta, Southeast of Narince Village, around Lilan Stream	840	37°54'N 38°48'E	29.07.2004
138.	Adiyaman, Kahta, Nemrut Dağı, North of Karadut Village	1150-1200	37°56'N 38°46'E	29.07.2004
139.	Adiyaman, Çelikhan, Southwest slopes of Burun Mountain	1315	38°00'N 38°13'E	30.07.2004
140.	Adiyaman, Çelikhan, Poyra, West of Çat Dam Lake	1432	38°08'N 38°19'E	21.08.2003
141.	Adiyaman, Çelikhan, West of Kasımuşağı Village	1453	37°59'N 38°09'E	30.07.2004

