

Lichen Flora of Amanos Mountain and the Province of Hatay

Volker JOHN

Pfalzmuseum für Naturkunde, Hermann-Schäfer-Str. 17, D-67098 Bad Dürkheim, DEUTSCHLAND

Pier Luigi NIMIS

Dipartimento di Biologia, Università di Trieste, Via Giorgeri 10, I-34127 Trieste, ITALIA

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Abstract: Two hundred forty-three lichen taxa are reported from the province of Hatay. Of these, 223 species are reported for the first time for the province of Hatay, 74 species are new records for the mediterranean region of Turkey, and 35 species are new records for Turkey. New range diagnoses are provided for these species.

Key Words: Lichens, flora, Amanos Mountain, range diagnoses.

Hatay İli ve Amanos Dağları'nın Liken Florası

Özet: Bu araştırmada Hatay ilinde yayılış gösteren Likenler incelemiş, türlerin tanısında yeni yöntemler uygulanmıştır. Çalışmamızda Hatay ilinde 243 Liken taksonu saptanmıştır. Bunlardan 223 takson Hatay ilinde ilk defa bulunmuştur. 74 takson Türkiye'nin Akdeniz Bölgesi için yeni, bunlardan 35 takson da Türkiye için yeni kayıttır.

Anahtar Sözcükler: Likenler, flora, Amanos Dağları, teshis yöntemleri.

Introduction

Up to the present decade, there has been only one paper on original lichen collections from the province of Hatay (1). In later monographs, material of this expedition has been reinvestigated (2, 3, 4). Because the Hatay province was previously part of Syria, historical collections are cited as having been collected in Syria (1), even in 1981 by Kiliyas (3). In recent years 6 lichen species from Amanos Mountain have been chemically investigated (5, 6, 7).

The lichen flora presented herein is of special interest towards a checklist of mediterranean lichens (8) under the auspices of O.P.T.I.M.A. and aims at contributing to a future checklist of Turkish lichens.

Study area

The study area covers the province of Hatay. The climate is mediterranean (Fig. 1), with precipitation exceeding 1500 mm. The province, which has an area of 5402.61 km², is in eastern mediterranean Turkey adjoining the gulf of Iskenderun (Fig.2). The highest elevations of Amanos Mountain are 2262 m in the north

and 1750 m in the south. Amanos Mountain is part of the mountain system of the Outer Eastern Taurus.

Collecting sites (see Fig.2):

1. NE of Dört Yol, NE of Kızlar Ufacık Yaylası, 1500 m, 36°56' N 36°25' E, leg. V. John 29.07.1990.
2. E of Dört Yol, NE of Tohtak Yaylası, 1450 m, 36°52' N 36°24' E, leg. V. John 01.08.1990.
3. NE of Dört Yol, SE of Üçkoz Yaylası, 1650 m, 36°58' N 36°26' E, leg. V. John 17.03.1989.
4. NE of Dört Yol, road to Üçkoz Yaylası, 1250 m, 36°56' N 36°20' E, leg. V. John 17.03.1989.
5. NE of Dört Yol, road to Üçkoz Yaylası, 800 m, 36°55' N 36°17' E, leg. V. John 20.03.1989.
6. NE of Dört Yol, wadi near Erzin, 180 m, 36°54' N 36°125' E, leg. V. John 20.03.1989.
7. E of Dört Yol, Deliçay E of Kuzuculu, 320 m, 36°53' N 36°18' E, leg. V. John 15.03.1989.

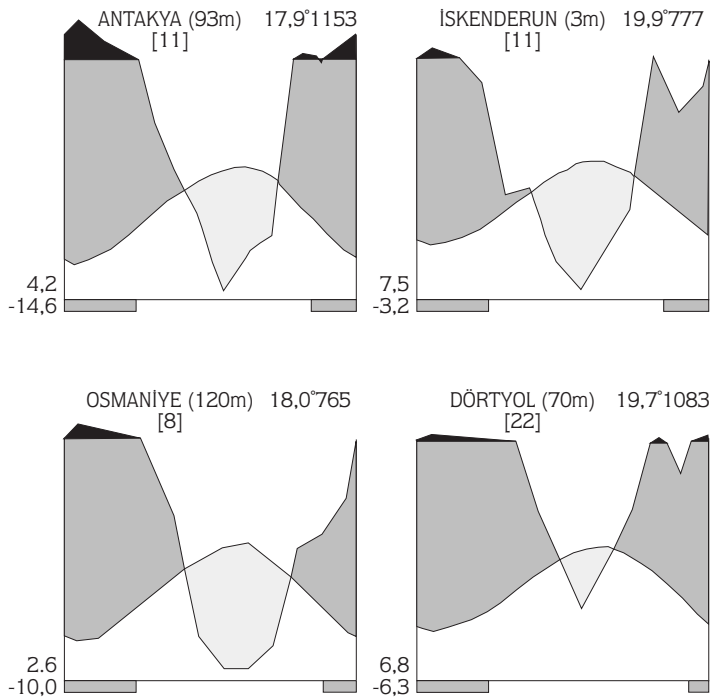


Figure 1. Climatic diagrams of four selected localities; from Walter & Lieth 1960 (9)

8. E of Dörtöyl, SE of Tohtak Yaylası, Şmittin yeri, 1650 m, 36°51' N 36°23' E, leg. V. John 16.03.1989.
9. Between Dörtöyl and Hassa, Fındıklıdere, 1400 m, 36°50' N 36°26' E, leg. V. John 21.03.1989.
10. W of Hassa, road to Fındıklıdere, 1100 m, 36°50' N 36°29' E, leg. V. John 21.03.1989.
11. E of Payas, road to Fındıklı Yaylası, 600 m, 36°47' N 36°17' E, leg. V. John 12.03.1989.
12. E of Arsuz, near Uluçınar, Akçalı köyü, 950 m, 36°20' N 35°59' E, leg. V. John 22.03.1989.
13. S of Uluçınar, SW-part of Kızıldağ, 1100-1400 m, 36°17' N 35°52' E, leg. V. John 23.03.1989.
14. SE of Antakya, near Dursunlu, 180 m, 36°10' N 36°10' E, leg. V. John 18.03.1989.
15. S of Harbiye, Sofularköyü, Ömerin Tepesi 550 m, 36°02' N 36°08' E, leg. V. John 18.03.1989.
16. E of Payas, 1350 m, 36°46' N 36°20' E, leg. V. John 13.03.1989.
17. E of Dörtöyl, Deliçay E of Kuzuculu, Karakaya, 600 m, 36°53' N 36°20' E, leg. V. John 16.03.1989.
18. W of Hassa, near Çardak, 1500 m, 36°50' N 36°28' E, leg. V. John 21.03.1989.

Collecting sites according to literature:

- A Kalkfelsen bei Beilan ober Iskenderun (Alexandretta), 600 m, 1910; leg. H. v. Handel-Mazzetti (W).
- B Inter Oppidum Iskenderun (Alexandretta) et Haleb (Aleppo), prope Kyryk Han ad pedem orientalem Amani, ad rupes, substrate serpentinico, ca. 180 m, 1910; leg. H. v. Handel-Mazzetti (W).

Data and Methods

Reference specimens for all species are stored in the private herbarium of V. John, Bad Dürkheim, some specimens and some doublets are stored in the Faculty of Pharmacy at Ege University, Izmir (IZEF), and the Botany Department at Trieste University (TSB).

In the floristic list, the following information is provided:

- 1) Species name: When no synonym is specified, nomenclature follows Nimis 1993 (10).
Authors' abbreviations are according to Brummitt & Powell 1992 (11).
- 2) Localities: They are designated by their respective numbers (see previous section).
- 3) Life-form: The following abbreviations are used:
Cr: Crustose,

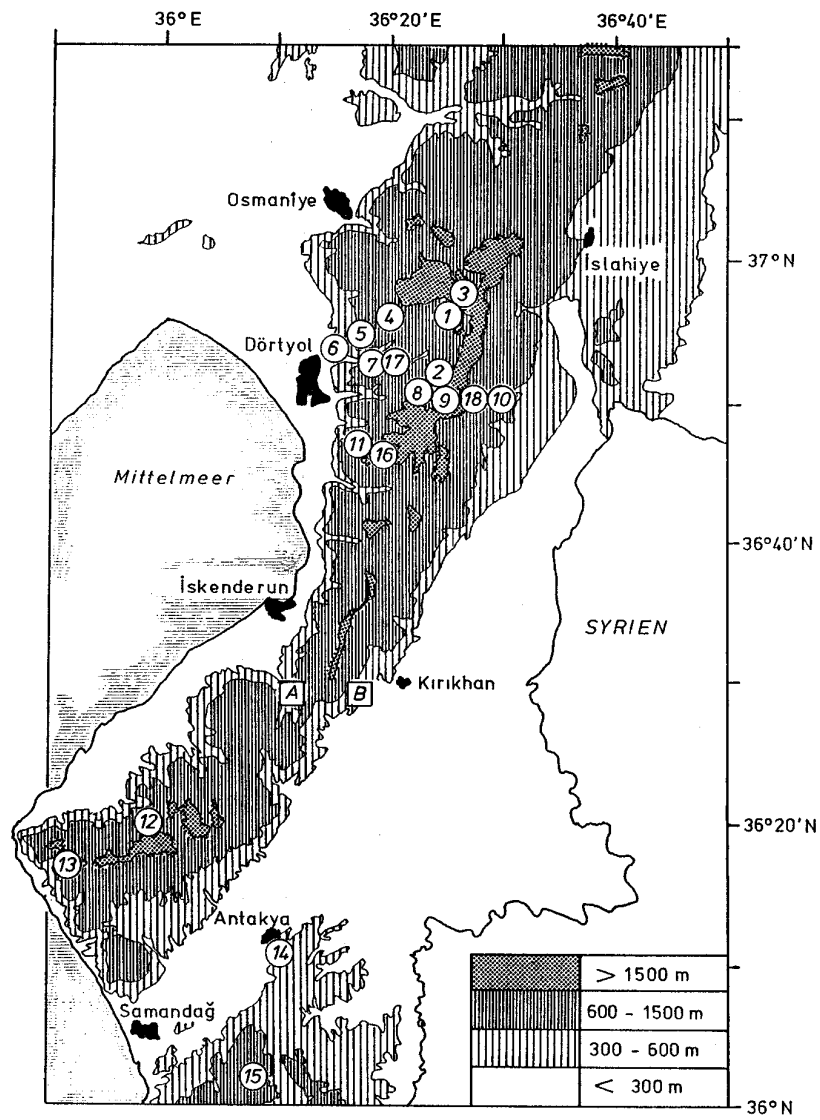
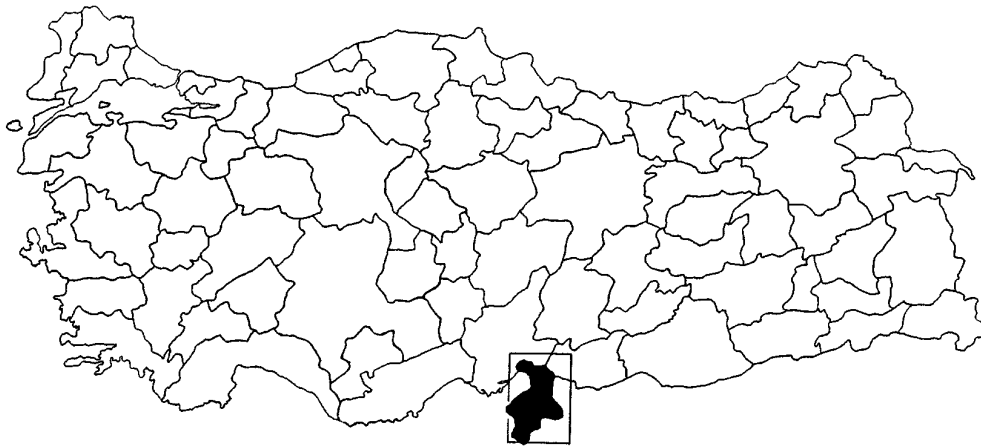


Figure 2. Location of the sampling sites

- Cr.pl: Crustose placodiomorph,
 Cr.end: Crustose endolithic.
 Fol: Foliose,
 Fol.u: Foliose umbilicate.
 Frut: Fruticose,
 Frut.f: Fruticose filamentous.
 Lepr: Leporse.
 F: non-lichenized fungus.
- 4) Algal partner
 Ch: *Chlorophyta* except *Trentepohlia*.
 Tr: *Trentepohlia*.
 Cy: *Cyanobacteria*.
 Cy.h: *Hormogonales* (mainly *Nostoc*),
 Cy.c: *Chroococcales*.
- 5) Main reproductive strategy
 S: sexual reproduction prevalent.
 A.i: reproduction mainly by isidia, or isidia-like structures (e.g./ schizidia).
 A.s: reproduction mainly by soredia, or soredia-like structures (e.g. blastidia)
- 6) Main substratum
 Calc: calcareous rocks, dolomite.
 Sil: all types of siliceous rocks, when on base-rich rocks this information is provided in parenthesis.
 Epiph: epiphytic.
 Terr: Terricolous and muscicolous.
- 7) Distributional range

We have used range diagnoses, following the approach proposed by Wirth (12), with several modifications, which are briefly commented on below:

- a) All diagnoses are new, and take into consideration the increased knowledge of lichen distribution in the Mediterranean area.
 b) The diagnoses are constructed "from south to north" (e.g. from the Mediterranean zone to the southern part of the Temperate Zone), because we think that this expression better reflects the migration trends of lichens in postglacial times, from southern, unglaciated areas towards the northern parts of the continents (see Nimis 1996) (8).

c) Two sets of Operational Geographic Units (OGUs) were used:

- The first set includes the main vegetation belts within the Mediterranean Region (altitude),
- The second set includes the main vegetation zones of the Northern Hemisphere (latitude); in the latter case only the northernmost extension of the taxon is specified, excluding isolated outposts.

Main OGUs in the first set are:

Med: Mediterranean belt proper, with evergreen sclerophyllous vegetation.

Subm: belt of the deciduous oaks.

Med.mont: montane belt, including beech, mixed and coniferous forests (e.g. the *Cedrus*-belt).

Oromed: vegetation above timberline.

Main OGUs of the second set are (besides Med, already included in the first set):

S Temp: southern part of the Temperate Zone outside the Mediterranean region (deciduous oak zone).

N Temp: northern and montane parts of the Temperate Zone (mainly the beech zone in Europe).

Bor: Boreal zone.

Arct: Arctic zone.

The altitudinal range in the Mediterranean region is given by the lowest and highest belts, separated by "-".

The two sets of OGUs are separated by "/".

The suffix "subc" indicates that a species is most common in areas with suboceanic climate, the suffix "subc" that it has a continental tendency.

The diagnoses do not reflect the distribution outside Europe and the Mediterranean region.

Where this information has been judged sufficiently reliable, it is placed in parentheses after the diagnosis.

8) For some species only, and especially for critical taxa, further information is provided in a short note.

9) First records for the mediterranean part of Turkey (13) are followed by an asterisk "*", First records for Turkey are marked by "#".

Results

Acarospora gallica H. Magn.

Loc: 6.-Cr, Ch, S, Sil (base-rich rocks, nitroph). Subm/S Temp.*

Acrocordia gemmata (Ach.) A. Massal.

Loc: 5.-Cr, Tr, S, Epiph. Med-Med.mont/Temp, suboc.*

Amandinea punctata (Hoffm.) Coppins & Scheid.

Loc: 8.-Cr, Ch, S, Sil, Epiph. Med-Oromed/Arct (Subcosmop). Note: probably this taxon is heterogeneous, and needs revision.

Anaptychia ciliaris (L.) A. Massal.

Loc: 2, 3, 8, 13, 16, 18. Frut, Ch, S, Epiph (*Xanthorion*). Subm-Med.mont/Temp.

Arthonia endlicheri (Garov.) Oxner

Loc: 7.-Cr, Tr, S, Calc (vertical or overhanging surfaces). Med/S Temp, suboc.*#

Arthonia radiata (Pers.) Ach.

Loc.: 5, 16.-Cr, Tr, S, Epiph. Med-Med.mont/temp (holarctic).*

Arthonia varians (Davies) Nyl.

Loc.: 1, 9.-Cr, Tr, S, Sil (parasite of *Lecanora rupicola s.lat.*). Med.mont-Oromed/Temp (holarctic).

Aspicilia caesiocinerea (Malbr.) Arnold

Loc.: 6.-Cr, Ch, S, Sil. Med.mont-Oromed/Bor (holarctic). Note: this taxon needs revision; we are not certain that samples from the Mediterranean belt are conspecific with those from the Oromediterranean belt, or of the Boreal zone.

Aspicilia calcarea (L.) Mudd

Loc.: 14.-Cr, Ch, S, Calc. Med-Med.mont/S Temp (holarctic).

Aspicilia contorta (Hoffm.) Kremp.

Loc.: B (Steiner 1921: 36, 37), 6, 15.-Cr, Ch, S, Calc (nitroph). Med-Oromed/Bor (holarctic). Note: see also note to *A. viridescens*.

Aspicilia farinosa (Flörke) Arnold

Loc.: 14.-Cr. end. Ch, S, Calc (hard rocks). Med.mont-Oromed/S Temp.

Aspicilia ferruginea J. Steiner

Loc.: B (Steiner 1921: 43).-Known only from the type collection.

Aspicilia hoffmannii (Ach.) Flagey

Loc.: 6.-Cr, Ch, S, Calc (nitroph, mostly antropochore). Med-Smed/Bor.

Aspicilia intermutans (Nyl.) Arnold

Loc.: 12.-Cr, Ch, S, Sil. Med-Smed/S Temp.

Aspicilia radiosa (Hoffm.) Poelt & Leuckert

Loc.: 6, 12, 15, 17.-Cr.pl, Ch, S, Sil and Calc (nitroph). Med-Oromed/Arct (Subcosmop) (Holarctic).

Aspicilia viridescens (A. Massal.) Kremp.

Loc.: 14.-Cr, Ch, S, Calc. Med-Smed/S Temp. Note: this seems to be a well-distinguished species, differing from typical *A. contorta* and *A. hoffmannii*.*#

Bacidia beckhausii Körb.

Loc.: 3.-Cr, Ch, S, Epiph (base-rich bark). Med.mont/N Temp (holarctic).*#

Bacidia naegelii (Hepp) Zahlbr.

Loc.: 16.-Cr, Ch, S, Epiph (smooth bark). Med-Smed/S Temp, suboc (holarctic).*#

Bacidia rubella (Hoffm.) A. Massal.

Loc.: 16.-Cr, Ch, S, Epiph. Med-Smed/S Temp (Eur, N Amer).*

Bagliettoa parmigera (J. Steiner) Vezda & Poelt

Loc.: 16, 17.-Cr. end, Ch, S, Calc. Med-Med.mont/S Temp.

Bagliettoa parmigerella (Zahlbr.) Vezda & Poelt

Loc.: 11.-Cr. end, Ch, S, Calc (rather shaded situations). Med-Med.mont/Temp.

Bryoria fuscescens (Gyeln.) Brodo & D. Hawksw.

Loc.: 11.-Frut.f, Ch, A.s, Epiph. Med.mont/Temp (holarctic). For the chemistry of this specimen see Huneck et al. 1992 (5).

Buellia erubescens Arnold

Syn.: *Buellia zahlbruckneri* J. Steiner. Loc.: 3.-Cr, Ch, S, Epiph (acidoph).

Med.mont/N Temp (-Bor). For the chemistry of this specimen see Huneck et al. 1992 (5).

Buellia griseovirens (Sm.) Almb.

Loc.: 2, 4, 13.-Cr, Ch, S, Epiph. Smed-Med.mont/N Temp (-Bor), suboc.*

Buellia stellulata (Taylor) Mudd

Loc.: 12, 17.-Cr, Ch, S, Sil (base-rich rocks). Med-Smed/S Temp.*

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

Loc.: 16.-Cr. end, Ch, S, Calc. Med-Oromed/Temp.

Caloplaca aractina (Fr.) Häydrén

Loc.: 12.-Cr, Ch, S, Sil (mainly coastal). Med/S Temp, suboc.

Caloplaca aurantia (Pers.) J. Steiner

Loc.: 14, 15.-Cr.Pl, Ch, S, Calc (nitroph). Med-Smed/S Temp (holarctic).

Caloplaca carphinea (Fr.) Jatta

Loc.: B (Steiner 1921: 65).

Caloplaca cerina (Hedw.) Th. Fr.

Loc.: 3, 8, 14, 16, 18.-Cr, Ch, S, Epiph (*Xanthorion*). Med-Med.mont/Temp (holarctic).

Caloplaca cerinelloides (Erichsen) Poelt

Loc.: 14.-Cr, Ch, S, Epiph (base-rich bark, *Xanthorion*). Med-Smed/Temp.

Caloplaca cerinoides (Anzi) Jatta

Loc.: 17.-Cr, Ch, S, Sil, Med?. Note: for further information see Wetmore (14).

Caloplaca crenularia (With.) J. R. Laundon

Loc.: B (Steiner 1921: 51, as *C. festiva*), 12, 16.-Cr, Ch, S, Sil. Med-Smed/S Temp (Eur, Caribbean).

Caloplaca crenulatella (Nyl.) H. Olivier

Loc.: 17.-Cr, Ch, S, Calc. Med-Smed/S Temp.

Caloplaca dolomiticola (Hue) Zahlbr.

Loc.: 3, 15, 16.-Cr, Ch, S, Calc. Med-Oromed/Temp.

Caloplaca flavescens (Huds.) J.R. Laundon

Loc.: 14, 15.-Cr.pl, Ch, S, Calc (nitroph). Med-Med.mont/Temp.

Caloplaca flavorubescens (Huds.) J. R.

- Laundon
Loc.: 18.-Cr, Ch, S, Epiph. Smed-Med.mont/Temp.
- Caloplaca herbidella** (Hue) H. Magn.
Loc.: 13.-Cr, Ch, A.i, S, Epiph, Smed-Med.mont/Temp.*
- Caloplaca haematites** (St.-Amans) Zwackh
Loc.: 14, 16, 18.-Cr, Ch, S, Epiph (*Xanthorion*). Med-Smed/S Temp.
- Caloplaca irrubescens** (Arnold) Zahlbr.
Loc.: 17.-Cr, Ch, S, Sil (base-rich rocks, steeply inclined, sunny surfaces). Med-Smed/S Temp.
- Caloplaca lactea** (A. Massal.) Zahlbr.
Loc.: 6, 15.-Cr, Ch, S, Calc (pioneer, often on pebbles). Med-Oromed/Arct (Subcosmop).*
- Caloplaca marmorata** (Bagl.) Jatta
Loc.: 14.-Cr, Ch, S, Calc (pioneer, often on pebbles). Med.*#
- Caloplaca ochracea** (Schaer.) Flagey
Loc.: 14.-Cr.end, Ch, S, Calc (rather shaded rocks). Med-Med.mont/S Temp.
- Caloplaca oxfordensis** Hedr.
Syn.: *Caloplaca subpallida* H. Magn., *C. scotoplaca* f. *depauperata* H. Magn. Loc.: 17.-Cr, Ch, S, Sil. Med-Oromed/Arct (Subcosmop)? Note: for further information see Wetmore 1996 (13).
- Caloplaca paulsenii** (Vainio) Zahlbr.
Loc.: B (Steiner 1921: 55, as *C. variabilis* var. *lecideina* Müll. Arg., see: Wunder 1974: 89 (2)).
- Caloplaca pollinii** (A. Massal.) Jatta
Loc.: 7.-Cr, Ch, S, Epiph. Med-Smed/S Temp, suboc.*#
- Caloplaca polycarpa** (A. Massal.) Zahlbr.
Loc.: 16.-Cr.end, Ch, S, Calc (paras *Bagliettoa* spp.). Med-Smed/S Temp.
- Caloplaca pyracea** (Ach.) Th. Fr.
Loc.: 14.-Cr, Ch, S, Epiph, Med-Med.mont/Bor. Note: pending further research, we prefer to treat epiphytic samples as specifically distinct from the calcicolous *C. holocarpa*.
- Caloplaca variabilis** (Pers.) Müll. Arg.
Loc.: 17.-Cr, Ch, S, Calc. Med-Oromed/Temp (Eur, N Amer).
- Candelariella aurella** (Hoffm.) Zahlbr.
Loc.: B (Steiner 1921: 50, as *C. subsimilis*).
- Candelariella vitellina** (Hoffm.) Müll. Arg.
Loc.: 1, 3, 9, 16, 18.-Cr, Ch, S, Sil. Med-Oromed/Arct (Subcosmop).
- Candelariella xanthostigma** (Ach.) Lettau
Loc.: 16, 18.-Cr, Ch, S, Epiph. Smed-Med.mont/Temp.
- Catillaria chalybeia** (Borrer) A. Massal
Loc.: 9, 12.-Cr, Ch, S, Sil. Smed-Med.mont/Temp (holarctic).
- Catillaria minuta** (A. Massal.) Lettau
Loc.: 14.-Cr, Ch, S, Calc. Med-Smed/S Temp.
- Catillaria nigroclavata** (Nyl.) Schuler
Loc.: 7.-Cr, Ch, S, Epiph. Med-Smed/S Temp, suboc.*
- Chrysothrix chlorina** (Ach.) J. R. Laundon
Loc.: 1.-Lepr, Ch, S, Sil. Med.mont/Bodr (circum-).*#
- Cladonia convoluta** (Lam.) Anders
Loc.: 6.-Frut, Ch, S, Terr (calc). Med-Med.mont/S Temp.
- Cladonia fimbriata** (L.) Fr.
Loc.: 13.-Frut, Ch, A.s., Terr, Lign, Epiph. Med-Oromed/Arct (Subcosmop).
- Cladonia foliacea** (Huds.) Willd.
Loc. B (Steiner 1921: 13), 6.-Frut, Ch, S, Terr (sil). Med-Smed/Temp, suboc.
- Cladonia pocillum** (Ach.) O. J. Rich.
Loc.: 3, 17.-Frut, Ch, S, Terr (calc). Med-Oromed/Arct (Subcosmop).
- Cladonia pyxidata** (L.) Hoffm.
Incl.: *C. chlorophaea* (Flörke) Spreng. *p.p.* Loc: 1, 5, 9, 11, 13, 15, 16.-Frut, Ch, A.s, Terr, Lign, Epiph. Med-Oromed/Arct (Subcosmop).
- Cladonia rangiformis** Hoffm.
Loc.: 6, 11, 16, 17.-Frut, Ch, S, Terr (calc). Med-Med.mont/S Temp.
- Clauzadea immersa** (Weber) Hafellner & Bellem.
Loc.: 14.-Cr.end, Ch, S, Calc. Med-Oromed/N Temp.
- Clauzadea metzleri** (Körkber) D. Hawksw.
Loc.: 14.-Cr.end, Ch, S, Calc, Med-Med.mont/N Temp (holarctic).
- Collema auriforme** (With.) Coppins & J. R. Laundon
Loc.: 5, 16.-Fol, Cy.h, A.i, Calc, musc. Smed-Med.mont/Temp (holarctic).
- Collema cristatum** (L.) Wigg.
Loc.: B (Steiner 1921: 22, as *Collema multifidum*), 16, 17.-Fol, Cy.h, S, Calc. Med-Oromed/Bor (holarctic).
- Collema flaccidum** (Ach.) Ach.
Loc. 5, 9, 16.-Fol, Cy.h, A.i, Epiph, Sil (base-rich rocks). Smed-Med.mont/Bor, suboc.*
- Collema furfuraceum** (Arnold) Du Rietz
Loc.: 13, 16, 18.-Fol, Cy.h, A.i, Epiph. Smed/Temp, suboc.
- Collema fuscovirens** (With.) J. R. Laundon
Loc.: 16.-Fol, Cy.h, A.i, Calc. Med-Oromed/Bor (holarctic).
- Collema nigrescens** (Huds.) DC.
Loc.: 18.-Fol, Cy.h, A.i, Epiph. Med-Med.mont/N Temp, suboc.
- Collema polycarpon** Hoffm.
Loc.: A (Steiner 1921: 22, as *Collema orbiculare* (Schaer.) Tonglet).
- Collema subflaccidum** Degel.
Loc.: 18.-Fol, Cy.h, A.i, Epiph. Smed-Med.mont/S Temp, suboc.*#
- Collema tenax** (Sw.) Ach.
Loc.: 5, 14, 16.-Fol, Cy.h, S, Terr (calc). Med-Oromed/Arct (Subcosmop).
- Cyphelium lecideinum** (Nyl.) Trevisan
L.: 1.-Cr, Ch, S, Sil. Smed/S Temp, suboc.*#
- Degelia atlantica** (Degel.) P. M. Joerg. & P. James
Loc.: 13.-Fol, Cy.h, A.i, Epiph. Med-Med, mont, suboc.
- Degelia plumbea** (Lightf.) P. M. Joerg. & P. James
Loc.: 13.-Fol, Cy.h, S, Epiph. Med-Med.mont/S Temp, suboc.

- Dendriscoaulon umhausense** (Auersw.) Degel.
Loc.: 18.-Frut. Cy.h, S, Epiph. Smed-Med.mont/S Temp, suboc. Note: this is a cyanobacterial morph of *Lobaria amplissima*.*#
- Deparmatocarpon miniatum** (L.) Mann
Loc.: 1, 9.-Fol.u, Ch, S, Calc. Med-Oromed/Arct (Subcosmop).
- Dimelaena oreina** (Ach.) Norman
Loc.: 9.-Cr.pl, Ch, S, Sil. Med-Oromed/Bor.subc (holarctic).
- Diploschistes scruposus** (Schreber) Norman
Loc.: 16.-Cr, Ch, S, Sil. Med-Smed/Temp.
- Diplotomma alboatrum** (Hoffm.) Flotow
Loc.: 8, 15.-Cr, Ch, S, Epiph. Med-Smed/S Temp (holarctic).
- Dirina cretacea** (Zahlbr.) Tehler
Loc.: 16.-Cr, Tr, S, Calc (coastal). Med (eastern).*#
- Enterographa zonata** (Körb.) Källsten
Loc.: 16.-Cr, Tr, A.s, Sil. Med-Smed/Temp, suboc.*#
- Evernia prunastri** (L.) Ach.
Loc.: 2, 3, 4, 8, 18.-Frut, Ch, A.s, Epiph. Med-Med.mont/Temp (holarctic)
- Fuscopannaria leucophaea** (Vahl) M. Jörg.
Syn.: *Pannaria leucophaea* (Vahl) P. M. Joerg. Loc: 9. Sq. Cy.h, S, Sil. Med.mont/N Temp (-Bor), suboc.; for the genus concept see Joergensen (15).
- Fuscopannaria leucosticta** (Tuck.) M. Jörg.
Syn.: *Pannaria leucosticta* (Tuck.) Nyl. Loc: 13. Sq. Cy.h, S, Epiph. Med.mont.*#
- Fuscopannaria olivacea** (M. Jörg.) M. Jörg.
Syn.: *Pannaria olivacea* P. M. Joerg. Loc: 13. Sq. Cy.h, S, Epiph. Med. suboc.
- Graphis scripta** (L.) Ach.
Loc.: 5.-Cr, Tr, S, Epiph. Smed-Med.mont/Temp.*
- Hyperphyscia adglutinata** (Flörke) H. Mayrhofer & Poelt
Loc.: 7.-Fol, Ch, A.s, Epiph, calc (nitroph). Med-Smed/S Temp,
- suboc.*
- Hypogymnia farinacea** Zopf
Loc.: 2, 13.-Fol, Ch, A.s, Epiph (acidoph). Med.mont/Bor. For the chemistry see Zeybek et al. 1993 (7)
- Hypogymnia physodes** (L.) Nyl.
Loc.: 2, 3, 4, 8, 13.-Fol, Ch, A.s, Epiph (acidoph). (Smed) Med.mont/N Temp (holarctic). For the chemistry see Zeybek et al. 1993 (7)
- Hypogymnia tubulosa** (Schaerer) Havaas
Loc.: 2, 3, 4, 8, 13.-Fol, Ch, A.s, Epiph (acidoph). (Smed) Med.mont/N Temp (holarctic). For the chemistry see Zeybek et al. 1993 (7)
- Julella sericea** (A. Massal.) Coppins
Loc.: 7.-F, S, Epiph. Smed/S Temp.*#
- Lecania cyrtella** (Ach.) Th. Fr.
Loc.: 14, 16.-Cr, Ch, S, Epiph. Med-Med.mont/Temp (holarctic).*
- Lecanora agardhiana** Ach.
Loc.: 14.-Cr.end, Ch, S, Calc. Med-Oromed/Arc (Subcosmop) holarctic).*#
- Lecanora argentata** (Ach.) Degelius
Syn.: *Lecanora subfuscata* H. Magn.: incl. *L. subrugosa* Nyl. Loc: 2.-Cr, Ch, S, Epiph. (Smed-) Med.mont/N Temp (holarctic).
- Lecanora campestris** (Schaer.) Hue
Loc.: 3.-Cr, Ch, S, Sil (base-rich rocks). Med-Med.mont/Bor.
- Lecanora carpinea** (L.) Vainio
Loc.: 8.-Cr, Ch, S, Epiph. Med-Med.mont/Bor (holarctic).
- Lecanora chlarotera** Nyl.
Loc.: 14, 16.-Cr, Ch, S, Epiph. Med-Med-mont/Bor (holarctic).
- Lecanora conizaeoides** Cromb.
Loc.: 7.-Cr, Ch, S, Epiph (acidophytic). Temp, suboc.*
- Lecanora dispersa** (Pers.) Sommerf.
Loc.: B (Steiner 1921: 46).
- Lecanora expallens** Ach.
Loc.: 13.-Cr, Ch, A.s, Epiph (acidoph). Smed-Med.mont/Temp.
- Lecanora glabrata** (Ach.) Malme
Loc.: 2.-Cr, Ch, S, Epiph. Smed/Temp (Eur, N Amer).*
- Lecanora horiza** (Ach.) Lindsay
Loc.: 14.-Cr, Ch, S, Epiph. Med-Smed/S Temp.
- Lecanora leptyroides** (Nyl.) Degel.
Loc.: 2, 8, 16, 18.-Cr, Ch, S, Epiph. Med.mont/N Temp.*#
- Lecanora lojkaeana** Szatala
Loc.: 1.-Cr, Ch, A.s, Sil (base-rich rocks). Med.mont-Oromed/Bor.*#
- Lecanora meridionalis** H. Magn.
Loc.: 2.-Cr, Ch, S, Epiph. Med-Smed/Temp.*#
- Lecanora muralis** (Schreber) Rabenh.
Loc.: B (Steiner 1921: 46), 1, 3, 6, 7, 9, 10, 11, 12, 16, 18.-Cr.pl, Ch, S, Sil, calc (nitroph). Med-Oromed/Arc (Subcosmop).
- Lecanora pseudistera** Nyl.
Loc.: 17.-Cr, Ch, S, Sil (base-rich rocks). Med-smed/S Temp?.*
- Lecanora rupicola** subsp. *sulphurata* (Ach.) Leuckert & Poelt
Loc.: 1, 9, 16.-Cr, Ch, S, Sil. Med, suboc-Oromed.
- Lecanora saligna** (Schrader) Zahlbr.
Loc.: 3.-Cr, Ch, S, Epiph (mostly on lignum). Med.mont/Bor (circum-).
- Lecanora schistina** (Nyl.) Arnold
Loc.: 16.-Cr, Ch, S, Sil, Med, suboc.*#
- Lecanora subcarnea** (Liljebblad) Ach.
Loc.: 1, 9, 16.-Cr, Ch, S, Sil (base-rich rocks). Med-Smed/S Temp, suboc.
- Lecanora subcarpinea** Szatala
Syn.: *L. nemoralis* Makar., *L. leptyroides* auct. p.p. Loc: 3, 8.-Cr, Ch, S, Epiph. Smed/Temp? Note: the distinction of this taxon at species level from *L. carpinea* and *L. leptyroides* is not clear to us. The whole group is in need of revision.*#
- Lecanora sulphurea** (Hoffm.) Ach.
Loc.: 9, 16.-Cr, Ch, S, Sil, calc (paras *Tephromela atra*). Med-Oromed/Arct (Subcosmop).

- Lecanora umbrina** (Ach.) A. Massal.
Loc.: 8.-Cr, Ch, S, Epiph. Smed/Temp (Eur, N Amer).
- Lecidea exigua** Chaub.
Loc.: 7.-Cr, Ch, S, Epiph. Med-Smed/S Temp.*
- Lecidea fuscoatra** (L.) Ach.
Loc.: 12.-Cr, Ch, S, Sil (base-rich rocks). Med-med.mont/Temp.
- Lecidea lurida** Ach.
Loc.: 10.-Sq, Ch, S, Terr (calc). Med-Oromed/Arct (Subcosmop).
- Lecidella achrostotera** (Nyl.) Hertel & Leuckert
Loc.: 2.-Cr, Ch, S, Epiph. Med-Smed/S Temp, suboc.
- Lecidella asema** (Nyl.) Knoph & Hertel
Loc.: 3, 9, 12, 17.-Cr, Ch, S, Sil. Med-Med.mont/Temp, suboc.*
- Lecidella elaeochroma** (Ach.) Hazsl.
Loc.: 2, 3, 4, 5, 7, 8, 13, 14, 16, 18.-Cr, Ch, Sh, Epiph. Med-Med.mont/Bor (holarctic).
- Lecidella patavina** (A. Massal.) Knoph & Leuckert
Loc.: 17.-Cr, Ch, S, Calc. Med.mont-Oromed/Arct.*
- Lecidella scabra** (Taylor) Hertel & Leuckert
Loc.: 9.-Cr, Ch, A.s, Sil. Med-Smed/Temp, suboc.
- Lecidella stigmatea** (Ach.) Hertel & Leuckert
Loc.: 16.-Cr, Ch, S, Sil (base-rich rocks). Med-Oromed/Arct (Subcosmop).*
- Lempholemma botryosum** (A. Massal.) Zahlbr.
Loc.: B (Steiner 1921: 22, as *Physma botryosa* (Massal.) Zahlbr.).
- Lepraria nivalis** J. R. Laundon
Loc.: 1.-Lepr, Ch, A.s, Calc (shaded, rain-protected rocks). Smed-Oromed-N Temp, suboc.
- Leprocaulon microscopium** (Vill.) D. Hawksw.
Loc.: 1, 3, 9.-Frut, Ch, A.i, Terr (sil, base-rich rocks), epiph. Med-Smed/S Temp, suboc.
- Leproloma membranaceum** (Diskson) Vainio
Loc.: 3.-Lepr, Ch, A.s, Sil. Med-Med.mont/Temp.
- Leptogium gelatinosum** (With.) J. R. Laundon
Loc.: 1, 5, 16.-Sq, Cy.h, S, Terr. Med-Oromed/Arct (Subcosmop).
- Leptogium lichenoides** (L.) Zahlbr.
Loc.: 5, 10, 11, 16, 17.-Sq, Cy.h, S, Terr. Med-Oromed/Arct (Subcosmop).
- Lobaria pulmonaria** (L.) Hoffm.
Loc.: 1, 2, 8, 18-Fol, Ch, A.s, Epiph, Sil. Med-Med.mont/Temp, suboc.
- Lobaria scrobiculata** (Scop.) DC.
Loc.: 1, 2, 18.-Fol, Cy.h, A.s, Epiph, sil. Med.mont/Bor, suboc.
- Megaspora verrucosa** (Ach.) Hafellner & V. Wirth
Loc.: 8.-Cr, Ch, S, Terr (calc). Med.mont-Oromed/Arct (circum-).*
- Miriquidica deusta** (Stenh.) Hertel & Rambold
Loc.: 9, 16, 17.-Cr, Ch, S, Sil. Med-Smed/S Temp, suboc.
- Mycobilimbia hypnorum** (Libert) Kalb & Hafellner
Loc.: 16.-Cr, Ch, Sr, Terr (Calc). Med-Oromed/Arct (Subcosmop).*
- Nephroma laevigatum** Ach.
Loc.: 9.-Fol, Cy.h, S, Epiph. Med-Med.mont/Temp, suboc (holarctic).
- Nephroma parile** (Ach.) Ach.
Loc.: 16.-Fol, Cy.h, A.s, Epiph. Smed-Med.mont/Temp, suboc (holarctic).*
- Nephroma resupinatum** (L.) Ach.
Loc.: 18.-Fol, Cy.h, A.i, Epiph. Med.mont/N Temp. suboc (holarctic).
- Nephroma tangeriense** (Mahaue & Gillet) Zahlbr.
Loc.: 13.-Fol, Cy.h, Sil, Epiph. Med/S Temp, suboc.
- Ochrolechia arborea** (Kreyer) Almb.
Loc.: 13.-Cr, Ch, A.s, Epiph. Smed-Med.mont/Temp.*#
- Ochrolechia balcanica** Vers.
Loc.: 2, 3, 4, 8.-Cr, Ch, S, Epiph. Med.mont.
- Ochrolechia pallescens** (L.) A. Massal.
Loc.: 3, 8.-Cr, Ch, S, Epiph. Smed-Med.mont/Temp.
- Opegrapha atra** Pers.
Loc.: 16.-Cr, Tr, S, Epiph. Med-Med.mont/Temp (holarctic).*
- Opegrapha lithyrga** Ach.
Loc.: 16.-Cr, Tr, S, Sil. Med-S Temp, suboc.*#
- Opegrapha rupestris** Pers.
Loc.: 14.-Cr, Tr, S, Calc. Med-Temp (holarctic).*#
- Opegrapha varia** Pers.
Loc.: 16.Cr, Tr, S, Epiph. Med-Smed/S Temp.*
- Opegrapha vulgata** Ach.
Loc.: 5.-Cr, Tr, S, Epiph. Med-Smed/S Temp (holarctic).*
- Parmelia acetabulum** (Neck.) Duby
Loc.: 2, 3, 4, 8, 18.-Fol, Ch, S, Epiph (*Parmelietum acetabulae*). Smed-Med.mont/S Temp.
- Parmelia caperata** (L.) Ach.
Loc.: 4, 7, 11, 13, 16.-Fol, Ch, A.s, Epiph. Smed/S Temp.
- Parmelia conspersa** (Ach.) Ach.
Loc.: 6, 9, 10, 11, 12, 16, 17.-Fol, Ch, A.i, Sil, Smed-Oromed/Bor.
- Parmelia exasperata** De Not.
Loc.: 2, 3, 18.-Fol, Ch, S, Epiph (*Parmelietum acetabulae* and pioneer on smooth, acid bark). Smed-Med.mont/Temp.
- Parmelia glabra** (Schaer.) Nyl.
Loc.: 2, 3, 4, 8, 18.-Fol, Ch, S, Epiph (*Parmelietum acetabulae*). Smed-Med.mont/S Temp.
- Parmelia glabratula** (Lamy) Nyl.
Loc.: 3, 4, 16, 18.-Fol, Ch, A.i, Epiph. Smed-Med.mont/Temp.
- Parmelia loxodes** Nyl.
Loc.: 6, 12.-Fol, Ch, A.s, Sil (base-rich rocks). Med-Smed/Temp.
- Parmelia pastillifera** (Harm.) Schub. & Klem.
Loc.: 8, 16, 18.-Fol, Ch, A.i, Epiph, Smed-Med.mont/Temp, suboc.
- Parmelia pulla** Ach.
Loc.: 6, 9, 10, 12, 16.-Fol, Ch, S, Sil.

- Med-Med.mont/Temp.
Parmelia quercina (Willd.) Vain.
 Loc.: 2.-Fol, Ch, S, Epiph. Med-Smed/S Temp.
- Parmelia saxatilis** (L.) Ach.
 Loc.: 2, 8, 9, 13, 16, 18.-Fol, Ch, A.i, Epiph-sil. Med.mont/N Temp (holarctic).
- Parmelia somloensis** Gyeln.
 Loc.: 9, 16, 17.-Fol, Ch, S, Med-Smed/ S Temp.
- Parmelia subaurifera** Nyl.
 Loc.: 4, 8.-Fol, Ch, A.s, Epiph. Smed/S Temp.
- Parmelia sulcata** Taylor
 Loc.: 2, 3, 4, 7, 8, 13, 16, 18.-Fol, Ch, A.s, Epiph. (Med-) Smed-Med.mont/Bor (holarctic).
- Parmelia tiliacea** (Hoffm.) Ach.
 Loc.: 1, 2, 3, 4, 8, 9, 13, 17, 18.-Fol, Ch, A.s, Sil. Smed/S Temp.
- Parmelia tinctoria** Maheu & A. Gillet
 Loc.: 6, 12.-Fol, Ch, A.i, Sil. Med-Smed/S Temp.
- Parmelia verruculifera** Nyl.
 Loc.: 1.-Fol, Ch, A.s, Sil. Smed-Med.mont/Temp.*
- Parmotrema chinense** (Osbeck) Hale & Ahti
 Loc.: 4, 13.-Fol, Ch, A.s, Epiph. Med-Smed/S Temp, suboc.
- Peltigera collina** (Ach.) Schrader
 Loc.: 3, 9, 16, 18.-Fol, Cy.h, A.s, Epiph. Med.mont/Bor (holarctic).
- Peltigera elisabethae** Gyelnik
 Loc.: 17.-Fol, Cy.h, S, Terr. Med.mont/N Temp (-Bor).*
- Peltigera horizontalis** (Huds.) Baumg.
 Loc.: 16.-Fol, Cy.h, S, Terr. Med.mont/Bor.*
- Peltigera praetextata** (Flörke ex Sommerf.) Zopf
 Loc.: 5, 11, 16.-Fol, Cy.h, A.i, Terr, epiph. Smed-Med.mont/Bor (holarctic).
- Peltigera rufescens** (Weiss) Humb.
 Loc.: 1.-Fol, Cy.h, S, Terr. Med-Oromed/Arct (Subcosmop).
- Pertusaria albescens** (Hudson) Choisy & Werner
 Loc.: 3, 4, 8, 13, 16, 18.-Cr, Ch, A.s, Epiph. Smed-Med-mont/Temp.
- Pertusaria amara** (Ach.) Nyl.
 Loc.: 1, 2, 4, 9, 13, 17.-Cr, Ch, A.s, Epiph. Med-Oromed/Arct (Subcosmop).
- Pertusaria coccodes** (Ach.) Nyl.
 Loc.: 2, 4, 8, 13, 18.-Cr, Ch, A.i, Epiph. Smed-Med.mont/Temp, suboc.*
- Pertusaria conglobata** (Ach.) Th. Fr.
 Loc.: 1, 16.-Cr, Ch, S, Epiph. Med-Smed/Temp, suboc.*#
- Pertusaria coronata** (Ach.) Th. Fr.
 Loc.: Cr, Ch, A.i, Epiph. Smed/S Temp.*#
- Pertusaria flavida** (DC.) J. R. Laundon
 Loc.: 2, 3, 4, 8, 18.-Cr, Ch, A.s, Epiph. Med-Med.mont/S Temp, suboc.*#
- Pertusaria hemisphaerica** (Flörke) Erichsen
 Loc.: 2, 4, 13.-Cr, Ch, A.s, Epiph. Smed-Med.mont/S Temp.
- Pertusaria heterochroa** (Müll. Arg.) Erichsen
 Loc.: 7.-Cr, Ch, S, Epiph. Med-Smed/S Temp.*#
- Pertusaria pertusa** auct.
 Loc.: 4, 13.-Cr, Ch, S, Epiph. Smed-Med.mont/Temp, suboc.
- Phaeophyscia ciliata** (Hoffm.) Moberg
 Loc.: 16.-Fol, Ch, S, Epiph (*Xanthorion*), calc (nitroph). Smed-Med.mont/Temp (holarctic).
- Phaeophyscia orbicularis** (Necker) Moberg
 Loc.: 7.-Fol, Ch, A.s, Epiph (*Xanthorion*), Sil, Calc (nitroph). Med-Oromed/Arct (Subcosmop).
- Phaeophyscia pusilloides** (Zahlbr.) Essl.
 Loc.: 16.-Fol, Ch, A.s, Epiph (*Xanthorion*). Smed-Med.mont/S Temp.*#
- Phlyctis argena** (Sprengel) Flotow
 Loc.: 4, 13.-Cr, Ch, A.s, Epiph. Smed-Med.mont/Temp.
- Physcia adscendens** (Fr.) Olivier
 Loc.: 7, 16.-Fol, Ch, A.s, Epiph, calc (nitroph). Med-Oromed/Arct (Subcosmop).
- Physcia aipolia** (Humb.) Hampe
 Loc.: 18.-Fol, Ch, S, Epiph (*Xanthorion*). Smed-Med.mont/Temp (holarctic).
- Physcia biziana** (A. Massal.) Zahlbr.
 Loc.: 14.-Fol, Ch, S, Epiph (*Xanthorion*). Med-Smed/S Temp.
- Physcia caesia** (Hoffm.) Fűrnrrohr
 Loc.: 3.-Fol, Ch, A.s, Calc (nitroph). Med-mont-Oromed/Arct (holarctic).*
- Physcia semipinnata** (J. F. Gmelin) Moberg
 Loc.: 18.-Fol, Ch, S, Epiph (*Xanthorion*). Med-Smed/S Temp (holarctic).
- Physcia stellaris** (L.) Nyl.
 Loc.: 2, 16.-Fol, Ch, S, Epiph. Med.mont/N Temp (holarctic).
- Physconia distorta** (With.) J. R. Laundon
 Loc.: 8, 16, 18.-Fol, Ch, S, Epiph (*Xanthorion*). Med-Smed/S Temp.
- Physconia grisea** (Lam.) Poelt
 Loc.: 18.-Fol, Ch, A.s, Epiph (*Xanthorion*), sil (nitroph). Med-Smed/S Temp (Med-Oromed/Arct (Subcosmop)).
- Physconia subpulverulenta** (Szatala) Poelt
 Loc.: 18.-Fol, Ch, S, Epiph (*Xanthorion*). Med (suboc ?).*#
- Physconia venusta** (Ach.) Poelt
 Loc.: 2.-Fol, Ch, S, Epiph (*Lobarion*). Med.mont.
- Placopyrenium bucekii** (Nadv. & Servit) Breuss
 Loc.: 9.-Cr, Ch, S, Sil (base-rich rocks), Calc. Med-Smed/S Temp.*
- Placynthium nigrum** (Hudson) Gray
 Loc.: 7, 11.-Cr, Cy, S, Calc, Sil (base-rich rocks). Med-Oromed/Arct (Subcosmop).
- Platismatia glauca** (L.) W. Culb. & C. Culb.
 Loc.: 2, 8, 13.-Fol, Ch, A.i, Epiph, Sil. Med.mont-Oromed/Bor (circum-)
- Polychidium muscicola** (Swartz) Gray
 Loc.: 1.-Cr, Cy, S, Terr (sil). Smed-med.mont/Temp, suboc.
- Polysporina lapponica** (Schaer.) Degel.

- Loc.: 6, 12.-Cr, Ch, S, Sil (base-rich rocks, parasit of *Acarospora* ssp.). Med-Smed/S Temp.
- Polysporina simplex** (Davies) Vezda
Loc.: 17.-Cr, Ch, S, Sil. Med-Oromed/Arct (Subcosmop).*
- Porpidia cinereoatra** (Ach.) Hertel & Knoph
Loc.: 3.-Cr, Ch, S, Sil. Smed/Temp.
- Porpidia crustulata** (Ach.) Hertel & Knoph
Loc.: 16.-Cr, Ch, S, Sil. Med-Oromed/Arct (Subcosmop).
- Protobastenia rupestris** (Scop.) J. Steiner
Loc.: 7, 11, 15.-Cr, Ch, S, Calc. Med-Oromed/Bor.
- Protoparmelia badia** (Hoffm.) Hafellner
Loc.: 9.-Cr, Ch, S, Sil. Med.mont-Oromed/Arch (holarctic).
- Pseudevernia furfuracea** (L.) Zopf
Loc.: 2, 3, 8, 13, 18.-Fol, Ch, A.i, Epiph, sil. Med.mont/Bor.
- Psora decipiens** (Hedw.) Hoffm.
Loc.: 10.-Sq, Ch, S, Terr. Med-Oromed/Arct (Subcosmop).
- Psora testacea** Hoffm.
Loc.: 15.-Sq, Ch, S, Calc, Terr (calc). Smed-Oromed/S Temp.subc.
- Pyrenula macrospora** (Degel.) Coppins & P. James
Loc.: 5.-Cr, Tr, S, Epiph. Med/S Temp, suboc.*#
- Pyrrhospora quernea** (Dicks.) Körb.
Loc.: 13.-Cr, Ch, A.s, Epiph. Med, suboc.*#
- Ramalina calicaris** (L.) Fr.
Loc.: 3, 8.-Frut, Ch, A.s, Epiph. Med.mont/N Temp.
- Ramalina farinacea** (L.) Ach.
Loc.: 2, 3, 4, 7, 8, 16, 18.-Frut, Ch, A.s, Epiph. Med-Med.mont/Temp.
- Ramalina fastigiata** (Pers.) Ach.
Loc.: 3, 8.-Frut, Ch, A.s, Epiph, Med-Med.mont/Temp.
- Ramalina fraxinea** (L.) Ach.
Loc.: 2, 3, 8, 18.-Frut, Ch, S, Epiph. Smed-Med-mont/Temp.
- Rhizocarpon geminatum** Körb.
Loc.: 1.-Cr, Ch, S, Sil. Med.mont-Oromed/Arct (holarctic).*
- Rhizocarpon geographicum** (L.) DC.a
Loc.: 1, 3, 9, 12, 16.-Cr, Ch, S, Sil. Med.mont-Oromed/Arct (holarctic).
- Rhizocarpon obscuratum** (Ach.) A. Massal.
Loc.: 9, 16, 17.-Cr, Ch, S, Sil. Smed-Med.mont/N Temp (-Bor).
- Rhizocarpon polycarpum** (Hepp) Th. Fr.
Loc.: 12.-Cr, Ch, S, Sil. Med.mont/Bor (-Arct).
- Rhizocarpon viridiatrum** (Wulfen) Körb.
Loc.: 12, 17.-Cr, Ch, S, Sil. Med-Smed/S Temp.
- Rinodina dubyana** (Hepp) J. Steiner
Loc.: 14, 16.-Cr, Ch, S, Calc. Med-Med.mont/S Temp.*
- Rinodina sophodes** (Ach.) A. Massal.
Loc.: 16, 18.-Cr, Ch, S, Epiph. Med-Med.mont/Temp.*
- Rinodinella dubyanoides** (Hepp) H. Mayrhofer & Poelt
Loc.: 14.-Cr, Ch, S, Calc. Med-Med.mont/S Temp.*
- Sarcogyne regularis** Körb.
Loc.: 6, 7, 11.-Cr, Ch, S, Calc. Med-Oromed/Arct (Subcosmop).
- Scoliosporum umbrinum** (Ach.) Arnold
Loc.: 16.-Cr, Ch, S, Epiph, Sil. Med-Oromed/Arct (Subcosmop).*
- Solenopsora candicans** (Dicks.) J. Steiner
Loc.: 15.-Cr.pl, Ch, S, Calc. Med-Med.mont/S Temp, suboc.
- Squamarina cartilaginea** (With.) P. James
Loc.: B (Steiner 1921: 48, as *Lecanora crassa* f. *dufourae*), 14, 15.-Sq, Ch, S, Calc, terr (calc). Med-Med.mont/S Temp.
- Squamarina lentigera** (G. H. Weber) Poelt
Loc.: 10.-Cr.pl, Ch, S, Terr (calc, sil base-rich soil). Med-Smed/S Temp.subc (xeric subtrop).
- Staurothele hymenogonia** (Nyl.) Th. Fr.
Loc.: 6, 12.-Cr, Ch, S, Calc. Smed/Temp.*#
- Teloschistes chrysophthalmus** (L.) Th. Fr.
Loc.: 13.-Frut, Ch, S, Epiph. Med (xeric subtrop).
- Tephromela atra** (Huds.) Hafellner
Loc.: 1, 9, 12, 16.-Cr, Ch, S, Sil. Med-Oromed/Arct (Subcosmop).
- Tomasellia arthonioides** (A. Massal.) A. Massal.
Loc.: 7.-F, S, Epiph (esp. on *Fraxinus ornus*). Med-Smed/S Temp.*#
- Toninia philippia** (Mont.) Tindal
Loc.: B (In Tindal 1991: 82 "Syria" refers to Hatay-material cited in Steiner 1921: 12, 13, Kiliyas 1981: 360, as *Catillaria chalybaea*, *C. lutosa* and *C. riparia*). -Cr, Ch, S, Calc. Med-Med.mont/S Temp.subc.
- Toninia taurica** (Szatala) Oxner
Loc.: 10.-Sq, Ch, S, Terr (calc), Med-Med.mont/S Temp.subc.
- Tornabea scutellifera** (With.) J. R. Laundon
Loc.: 1.-Frut, Ch, A.s, Epiph (sil, calc). Med (xeric subtrop). For the chemistry of this specimen see Huneck et al. 1994 (6).
- Usnea articulata** (L.) Hoffm.
Loc.: 3, 8, 13.-Frut, Ch, A, Epiph. Med, suboc. For the chemistry of these specimens see Huneck et al. 1992 (5).
- Verrucaria calciseda** DC.
Loc.: 14.-Cr.end, Ch, S, Calc.Smed/S Temp (Eur, N Amer).
- Verrucaria dufourii** DC.
Loc.: 11.-Cr.end, Ch, S, Calc. Smed-Med.mont/Bor.
- Verrucaria macrostoma** DC.
Loc.: 16.-Cr, Ch, S, Calc (nitroph). Med-Smed/S Temp.*#
- Verrucaria marmorea** (Scop.) Arnold
Loc.: 14, 15, 16.-Cr.end, Ch, S, Calc. Smed/S Temp.
- Verrucaria muralis** Ach.
Loc.: 7.-Cr, Ch, S, Calc. Med-Smed/Temp.
- Verrucaria nigrescens** Pers.
Loc.: 6, 7, 11, 14, 15, 17.-Cr, Ch, S, Calc. Med-Oromed/Arct (Subcosmop) (holarctic).
- Verrucaria subfuscella** Nyl.
Loc.: 16.-Cr, Ch, S.*#
- Xanthoria candelaria** (L.) Th. Fr.
Loc.: 18.-Fol, Ch, A.s, Sil. Med.mont/Bor.subc.*
- Xanthoria parietina** (L.) Th. Fr.
Loc.: 7, 14, 16.-Fol, Ch, S, Epiph (*Xanthorion*). Med-Med.mont/bor.

Discussion and conclusions

The presented list of 243 lichen taxa is still far from being complete. Most of the records are well known from the mediterranean countries. The high numbers of 223 species new to the province, 74 species new to mediterranean Turkey and even 35 species new to Turkey

merely emphasize the urgent need for detailed lichen studies in other parts of Turkey some provinces of which are lichenologically completely unexplored. This paper will play a role in the increase of the number of known species in Turkey from about 800 in 1995 (16) to about 3000 in the future.

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