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Lichens in the North-East regions of Cyprus

With one Map

Summary

In this study, the samples collected from 58 localities in the North-East regions of Cyprus are described. 126 taxas belonging to 49 genera (119 species, 7 varieties) have been determined. 32 lichen taxa are new records from the island of Cyprus.

Zusammenfassung

In dieser Arbeit werden die Flechten beschrieben, die von 58 Fundorten in den nordöstlichen Regionen der Insel Zypern stammen. Die 126 Taxa gehören zu 49 Gattungen (119 Arten, 7 Varietäten), wurden bestimmt; von diesen sind 32 Taxa neu für Zypern.

Introduction

Cyprus is the third largest Mediterranean island after Sicily and Sardinia. It has an area of 9251 km^2. The maximum length is 225 km while its greatest width is 98 km. The island is dominated by two mountain ranges lying parallel to each other, in a general West-East direction, and separated by an extensive plain. To the North, the Pentadactylos mountain forms a continous wall that isolated the interior from the sea. The highest point of the Pentadactylos range is Selvilitepe (Kyparissovouno) (1024 m). In the southern half of Cyprus the Troodos range extends with peaks almost double the height of those of the Pentadactylos mountain. The highest summit is Khionistra or Olympos (1961 m).

The climate of Cyprus may be described as arid Mediterranean, with a relatively short, cool, wet winter followed by a long, dry, very hot summer. The vegetation of Cyprus is formed by typical Mediterranean types: the coniferous forest, the maquis, the garique and the batha vegetation.

The first lichen records from Cyprus were published by FLOTOW (1843), KÖRBER (1862) and KREMPELHUBER (1865) (cf. LITTERSKI & MAYRHOFER 1998). Recently, it has been done detail studies of Cyprus. 144 lichen species are reported from the south part of Cyprus (APTROOT 1996; LITTERSKI 1997). 77 lichen species are reported from the north part of Cyprus (GÜVENÇ & ÖZTÜRK 1994, 1995). A checklist of lichens and lichenicolous fungi of Cyprus was published by LITTERSKI & MAYRHOFER (1998). The checklist is composed of 365 taxa (352 species of lichenized fungi, 2 subspecies, 3 varieties and 8 lichenicolous fungi). Also, some *Rinodina* species are given to record from the island of Cyprus by GIRALT & MAYRHOFER (1994, 1995).

In this study, 126 taxa belonging to 49 genera are given. 32 lichen taxa of them are new records for Cyprus. Almost half of the taxa belong to 5 genera, the richest genera being *Caloplaca* (23 taxa), *Lecanora* (11 taxa), *Cladonia* (7 taxa), *Ramalina* and *Verrucaria* (6 taxa).

The localities (Map) which have the greatest numbers of species are situated at the forest area in the north slopes of Pentadactylus mountain: 31 (25 species), 33 (27 species), 34 (35 species) and 35 (29 species).

Materials and arrangement of list

The samples are collected from 58 localities in the North-East region of Cyprus in July 1993 – April 1998. The lichen samples were deposited within the herbarium of Biology Department, Faculty of Science and Art, Uludag University (BULU). The island of Cyprus has been divided into 8 Botanical Divisions (MEIKLE 1977). The study area is situated into IV, V, VII and VIII of the Divisions (Map). Species are listed alphabetically. For each lichen species, number of collected localities and substratum are given.

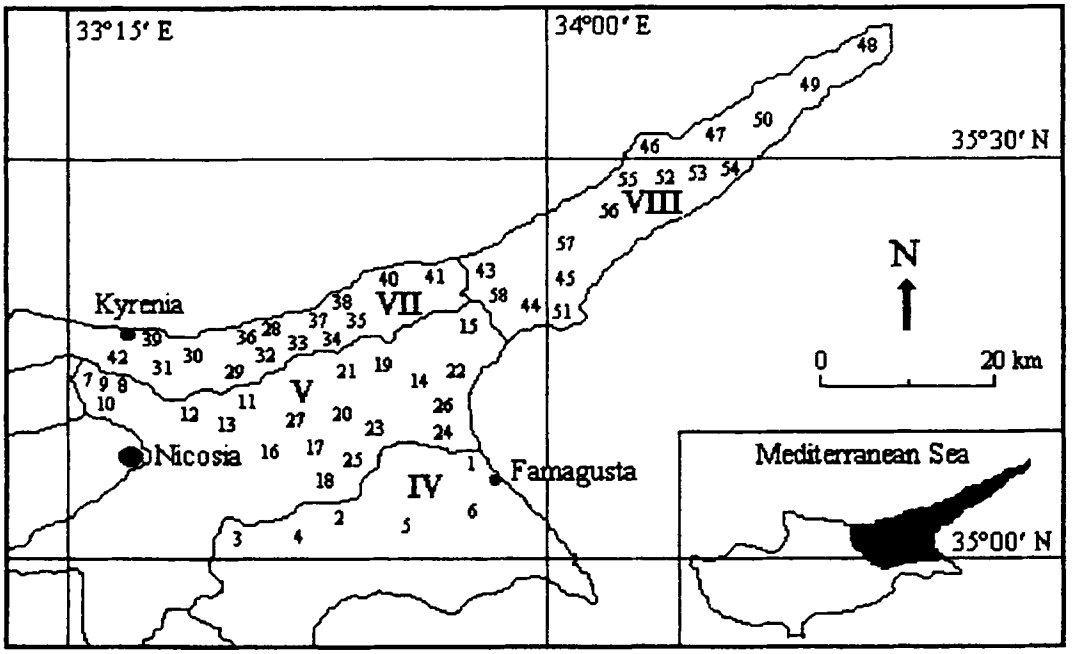
Collecting localities

IV. Region

1. Mesaoria plain: in the vicinity of Salamis, forest of *Pinus pinea* and *Acacia cyanophylla*, 5 m, 02. 09. 1995, 33°54′ E–35°10′ N.
2. Mesaoria plain: Türkmenköy village, agriculture field, 50 m, 13. 08. 1997, 33°40′ E–35°06′ N.
3. Mesaoria plain: Kırıkkale village, agriculture field, 75 m, 12. 04. 1998, 33°35′ E–35°05′ N.
4. Mesaoria plain: Yiğitler village, agriculture field, 50 m, 12. 04. 1998, 33°38′ E–35°06′ N.
5. Mesaoria plain: Çayönü village, agriculture field, 5 m, 12. 04. 1998, 33°38′ E–35°06′ N.
6. Mesaoria plain: Güvercinlik village, agriculture field, 5 m, 12. 04. 1998, 33°52′ E–35°06′ N.

V. Region

7. Mesaoria plain: in vicinity of Gönyeli lake, uncovered area, 100 m, 08. 04. 1998, 33°18′ E–35°14′ N.
8. Mesaoria plain: Taşkent village, forest of sparsely *Cupressus* sp., 200 m, 08. 04. 1998, 33°21′ E–35°17′ N.
9. Mesaoria plain: along the road Yukarı Dikmen – Taşkent, uncovered area, 150 m, 08. 04. 1998, 33°21′ E–35°18′ N.
10. Mesaoria plain: Hamitköy village, uncovered area, 100 m, 08. 04. 1998, 33°23′ E–35°14′ N.
11. Mesaoria plain: Kalavaç village, agriculture field, 50 m, 12. 04. 1998, 33°33′ E–35°15′ N.
12. Mesaoria plain: Balıkesir village, agriculture field, 50 m, 12. 04. 1998, 33°28′ E–35°12′ N.
13. Mesaoria plain: Çukurova village, agriculture field, 25 m, 12. 04. 1998, 33°33′ E–35°14′ N.



Map
Localities of the collected lichens

14. Mesaoria plain: Boğaziçiköyü village, agriculture field, 50 m, 02. 09. 1995, 33°50′ E–35°16′ N.
15. Mesaoria plain: Topçuköy village, agriculture field, 100 m, 02. 09. 1995, 33°52′ E–35°20′ N.
16. Mesaoria plain: Gaziköy village, agriculture field, 50 m, 13. 08. 1997, 33°35′ E–35°09′ N.
17. Mesaoria plain: Paşaköy village, agriculture field, 50 m, 13. 08. 1997, 33°37′ E–35°09′ N.
18. Mesaoria plain: Vadili village, agriculture field, 50 m, 13. 08. 1997, 33°40′ E–35°08′ N.
19. Mesaoria plain: Geçitkale village, agriculture field, 25 m, 10. 04. 1998, 33°44′ E–35°15′ N.
20. Mesaoria plain: Pinarlı village, agriculture field, 10. 04. 1998, 33°38′ E–35°15′ N.
21. Mesaoria plain: Çamlıca village, forest of *Pinus brutia*, 100 m, 10. 04. 1998, 33°41′ E–35°17′ N.
22. Mesaoria plain: İskele village, agriculture field, 5 m, 10. 04. 1998, 33°53′ E–35°17′ N.
23. Mesaoria plain: Alaniçi village, uncovered area, 5 m, 12. 04. 1998, 33°45′ E–35°13′ N.
24. Mesaoria plain: Mutluyaka village, uncovered area, 5 m, 12. 04. 1998, 33°50′ E–35°10′ N.
25. Mesaoria plain: Dilekkaya village, agriculture field, uncovered area, 50 m, 12. 04. 1998, 33°33′ E–35°07′ N.
26. Mesaoria plain: Atlılar village, uncovered area, 5 m, 12. 04. 1998, 33°50′ E–35°12′ N.
27. Mesaoria plain: Serdalı village, agriculture field, 30 m, 12. 04. 1998, 33°36′ E–35°15′ N.

VII. Region

28. Pentadactylos mountain: along the road Karaağaç–Alevkayası, forest area, 480 m, 28. 07. 1993, 33°33′ E–35°18′ N.
29. Pentadactylos mountain: road to Değirmenlik–Girne; south slopes of Pentadactylos mountain: uncovered area, 350 m, 24. 08. 1994, 33°28′ E–35°15′ N.
30. Pentadactylos mountain: in vicinity of Pentadactylos hill, forest area, 530–570 m, 24. 08. 1994, 33°28′ E–35°17′ N.
31. Pentadactylos mountain: road to Değirmenlik–Girne; north slopes of Pentadactylos mountain, forest area, 470–500 m, 24. 08. 1994, 33°26′ E–35°17′ N.
32. Pentadactylos mountain: road to Değirmenlik–Alevkayası; south slopes of Pentadactylos mountain, forest area, 430 m, 24. 08. 1994, 33°29′ E–35°16′ N.
33. Pentadactylos mountain: Alevkayası, in vicinity of picnic place, forest area, 600 m, 31. 08. 1994, 33°32′ E–35°17′ N.
34. Pentadactylos mountain: in vicinity of Alevkayası hill, forest area, 720 m, 27. 08. 1995, 33°35′ E–35°18′ N.
35. Pentadactylos mountain: east slopes of Alevkayası hill, forest area, 850–870 m, 27. 05. 1995, 33°37′ E–35°18′ N.
36. Pentadactylos mountain: between Pentadactylos hill–Alavkayası hill, forest area, 645 m, 17. 08. 1996, 33°30′ E–35°16′ N.
37. Pentadactylos mountain: in the north of Pentadactylos mountain, road to Karaagaç–Esentepe, forest area, 500 m, 24. 08. 1994, 33°34′ E–35°19′ N.
38. Coastal belt: in vicinity of Esentepe village, sparsely forest area, 300 m, 24. 08. 1994, 33°35′ E–35°20′ N.
39. Coastal belt: in vicinity of Power Station, 100 m, 24. 08. 1994, 33°25′ E–35°20′ N.
40. Coastal belt: Tatlısu village, road side, 5 m, 31. 08. 1994, 33°45′ E–35°20′ N.
41. Coastal belt: between Tatlısu–Mersinlik, road side, 110 m, 31. 08. 1994, 33°48′ E–35°34′ N.
42. Pentadactylos mountain: Boğaz region, north slope of Komando hill, forest area, 275–280 m, 08. 04. 1998, 3°19′ E–35°18′ N.

VIII. Region

43. Pentadactylos mountain: Kantara hill, in vicinity of picnic place, forest area, 600–650 m, 28. 07. 1993, 33°55′ E–35°25′ N.
44. Karpas Peninsula: Kalecik village, uncovered area, 5 m, 29. 08. 1994, 34°00′ E–35°20′ N.
45. Karpas Peninsula: Pamuklu village, cultivated field, 70 m, 29. 08. 1994, 34°05′ E–35°24′ N.
46. Karpas Peninsula: Yenierenköy village, agriculture field, 100 m, 29. 08. 1994, 34°11′ E–35°32′ N.
47. Karpas Peninsula: between Yenierenköy–Dipkarpaz, road side, forest area, 50–70 m, 29. 08. 1994, 34°16′ E–35°34′ N.
48. Karpas Peninsula: Zafer Burnu (Cape Andreas), shrubs area, 5 m, 29. 08. 1994, 34°34′ E–35°41′ N.
49. Karpas Peninsula: between Zafer Burnu–Dipkarpaz, slopes in the road side, uncovered area, 50 m, 29. 04. 1998, 34°28′ E–35°38′ N.
50. Karpas Peninsula: Dipkarpaz; Cape Işık, in vicinity of Ayios Philon Church, shrub area, 5–20 m, 10. 04. 1998, 34°21′ E–35°35′ N.
51. Karpas Peninsula: Cape Zeytin, agriculture field, 5 m, 10. 04. 1998, 34°03′ E–35°28′ N.
52. Karpas Peninsula: Ziyamet village, agriculture field, 75 m, 10. 04. 1998, 34°08′ E–35°28′ N.
53. Karpas Peninsula: Derince village, sparsely covered area, 100 m, 10. 04. 1998, 34°13′ E–35°29′ N.
54. Karpas Peninsula: Avtepe village, uncovered area, 125 m, 10. 04. 1998, 34°15′ E–35°30′ N.
55. Karpas Peninsula: Balalan village, agriculture field, 5 m, 10. 04. 1998, 34°07′ E–35°26′ N.

56. Karpas Peninsula: Yedikonuk village, agriculture field, 75 m, 10. 04. 1998, 34°02′ E–35°27′ N.
57. Karpas Peninsula: Büyükkonuk village, agriculture field, 50 m, 10. 04. 1998, 34°00″E–35°24′ N.
58. Karpas Peninsula: Yarköy village, agriculture field, 10 m, 10. 04. 1998, 33°53′ E–35°20′ N.

List of species

The symbol (*) was used for taxa which are new records for Cyprus.

Acarospora smaragdula (WAHLENB.) A.MASSAL.
On sandstone at 100 m alt.
7 *(no. 056357)*

Arthonia radiata (PERS.) ACH.
On *Olea* sp. at 5 m alt.
44 *(no. 037123)*

Aspicilia caesiocinerea (NYL.) ARNOLD
On limestone, sandstone and volcanic ultrabasic rock at 100–870 m alt.
15 *(no. 050321)*; 34 *(no. 047287)*; 35 *(no. 046248)*

Aspicilia calcarea (L.) MUDD
On limestone, sandstone and volcanic ultrabasic rock at 70–720 m alt.
10 *(no. 059401)*; 32 *(no. 03374)*; 33 *(no. 043214)*; 34 *(no. 047287)*; 39 *(no. 036110)*; 45 *(no. 038134)*; 46 *(no. 039149)*

Aspicilia cinerea (L.) KÖRB.
On vulcanic ultrabasic rock at 70–720 m alt.
34 *(no. 047288)*

Aspicilia contorta (HOFFM.) KREMP.
On limestone at 470–600 m alt.
31 *(no. 03253)*; 33 *(no. 043216)*

(*) *Bacidia naegelii* (HEPP) ZAHLBR.
On *Ceratonia* sp. at 75 m alt.
56 *(no. 071491)*

Bactrospora patellarioides (NYL.) ALMQ.
On *Ceratonia* sp. and *Cupressus* sp. at 5–500 m alt.
31 *(no. 03263)*; 43 *(no. 02913)*; 46 *(no. 039157)*; 47 *(no. 040162)*; 49 *(no. 042193)*; 50 *(no. 065429)*; 53 *(no. 068456)*; 54 *(no. 069462)*

Buellia disciformis (FR.) MUDD
On *Ceratonia* sp. at 500 m alt.
37 *(no. 03491)*

Caloplaca alociza (A. MASSAL.) MIGUL.
On limestone at 200 m alt.
8 *(no. 057376)*

Caloplaca aractina (FR.) HÄYRÉN
On calcareous rock (volcanic ultrabasic rock) at 470 m alt.
31 *(no. 03254)*

Caloplaca aurantia (PERS.) J.STEINER
On calcareus rock (volcanic ultrabasic rock and volcanic breccia), limestone, sandstone and travertine at 5–870 m alt.
1 *(no. 48313)*; 8 *(no. 057374)*; 9 *(no. 058381)*; 11 *(no. 078510)*; 14 *(no. 049316)*; 24 *(no. 082519)*; 29 *(no. 03032)*; 34 *(no. 047290)*; 35 *(no. 046250)*; 38 *(no. 035104)*; 39 *(no. 036111)*; 41 *(no. 045240)*; 48 *(no. 041178)*; 50 *(no. 065438)*; 53 *(no. 068458)*

Caloplaca cerina (HEDW.) TH.FR. var. *cerina*
On *Ceratonia* sp., *Cupressus* sp. and *Olea* sp. at 5–500 m alt.
8 *(no. 057366)*; 29 *(no. 03035)*; 37 *(no. 03492)*; 42 *(no. 060407)*; 44 *(no. 037124)*

(*) *Caloplaca cerina* (HEDW.) TH.FR. var. *chloroleuca* (SM.) TH.FR.
On *Olea* sp. at 5–200 m alt.
8 *(no. 057378)*; 24 *(no. 082523)*

Caloplaca cerinelloides (ERICHSEN) POELT
On *Acacia* sp. and *Olea* sp. at 5–75 alt.
3 *(no. 074499)*; 24 *(no. 083526)*

(*) *Caloplaca chalybaea* (FR.) MÜLL.ARG.
On dolomitic limestone and sandstone at 100–600 m alt.
10 *(no. 059398)*; 33 *(no. 043218)*

Caloplaca circumalbata (DELILE) WUNDER
On limestone and sandstone at 125–430 m alt.
29 *(no. 03031)*; 32 *(no. 03378)*; 54 *(no. 069475)*

Caloplaca citrina (HOFFM.) TH.FR.
On limestone, crystalline limestone and sandstone at 50–650 m alt.
7 *(no. 056363)*; 9 *(no. 058389)*; 15 *(no. 050325)*; *43 (no. 02927)*; *49 (no. 042206)*; *54 (no. 069472)*

Caloplaca crenularia (WITH.) J.R.LAUNDON
On sandstone at 50 m alt.
49 *(no. 042 204)*

(*) *Caloplaca dolomiticola* (HUE) ZAHLBR.
On limestone and sandstone at 5–125 m alt.
50 *(no. 065441)*; 54 *(no. 069477)*

Caloplaca erythrocarpa (PERS.) ZWACKH
On sandstone at 100 m alt.
7 *(no. 056360)*; 10 *(no. 059397)*; 21 *(no. 063424)*

Caloplaca ferruginea (HUDS.) TH.FR.
On *Ceratonia* sp. and *Pistacia* sp. at 50 m alt.
49 *(no. 042195)*

Caloplaca flavescens (HUDS.) J.R.LAUNDON
On limestone, crystalline limestone and sandstone at 70–600 m alt.
7 (no. 056361); *33 (no. 043217)*; *45 (no. 038136)*

Caloplaca flavorubescens (HUDS.) J.R.LAUNDON
On *Pinus* sp. at 600–650 alt.
43 *(no. 02911)*

Caloplaca flavovirescens (WULFEN) DALLA TORRE & SARNTH.
On limestone at 50–100 m alt.
11 *(no. 078533)*; 46 *(no. 039150)*

Caloplaca holocarpa (ACH.) A.E.WADE
On limestone, dolomitic limestone, sandstone, volcanic breccia and on different trees (*Ceratonia* sp., *Cupressus* sp., *Olea* sp., *Pinus* sp.) at 5–650 m alt.
15 *(no. 050323)*; 29 *(no. 03039)*; 30 *(no. 03141)*; 33 *(no. 043219)*; 37 *(no. 03493)*; 38 *(no. 035105)*; 40 *(no. 044235)*; 43 *(no. 02911)*; 45 *(no. 038138)*; 47 *(no. 040163)*; 48 *(no. 041180)*; 49 *(no. 0420194, no. 042196)*; 56 *(no. 071492)*

(*) *Caloplaca irrubescens* (ARNOLD) ZAHLBR.
On siliceous rock (volcanic rock) at 500 m alt.
31 *(no. 03255)*

Caloplaca lactea (A.MASSAL.) ZAHLBR.
On limestone and sandstone at 5–200 m alt.
7 *(no. 056359)*; 8 *(no. 057377)*; 9 *(no. 058285)*; 10 *(no. 059399)*; 21 *(no. 063425)*; 51 *(no. 066448)*

(*) *Caloplaca microthallina* (WEDD.) ZAHLBR.
On calcareous rock (volcanic ultrabasic rock) and limestone at 720–870 alt.
34 *(no. 047292)*; 35 *(no. 046251)*

Caloplaca saxicola (HOFFM.) NORDIN
On limestone at 5 m alt.
48 *(no. 041179)*

(*) *Caloplaca thallincola* (WEDD.) DURIETZ
On calcareous rock (volcanic ultrabasic rock) and limestone at 70–720 m alt.
34 *(no. 047291)*; 45 *(no. 038137)*

Caloplaca variabilis (PERS.) MÜLL.ARG.
On limestone and sandstone at 5–600 m alt.
9 *(no. 058383)*; 15 *(no. 050322)*; 24 *(no. 082524)*; 33 *(no. 043220)*; 39 *(no. 036112)*; 53 *(no. 068459)*

Candelariella aurella (HOFFM.) ZAHLBR.
On calcareous rock (volcanic ultrabasic rock), limestone and sandstone at 100–720 m alt.
7 *(no. 056 362)*; 9 *(no. 058 388)*; 21 *(no. 063426)*; 34 *(no. 047289)*

(*) *Catapyrenium squamulosum* (ACH.) BREUSS
On calcareous soil at 50 m alt.
11 *(no. 078505)*

(*) *Chrysothrix candelaris* (L.) J.R.LAUNDON
On *Pinus* sp. at 470–870 m alt.
28 *(no. 0282)*; 31 *(no. 03273)*; 33 *(no. 043230)*; 34 *(no. 047278)*; 35 *(no. 046261)*

Cladonia chlorophaea (FLÖRKE ex SOMMERF.) SPRENG.
On mosses at 645 m alt.
36 *(no. 051338)*

Cladonia convoluta (LAM.) ANDERS
On calcareous and siliceous soil together with mosses at 50–870 m alt.
28 *(no. 0286)*; 30 *(no. 03148)*; 32 *(no. 03384)*; 33 *(no. 043209)*; 35 *(no. 046246)*; 36 *(no. 051339)*; 38 *(no. 03599)*; 41 *(no. 045242)*; 42 *(no. 060410)*; 43 *(no. 02923)*; 45 *(no. 038128)*; 46 *(no. 039154)*; 47 *(no. 040168)*; 53 *(no. 068457)*

Cladonia foliacea (HUDS.) WILLD.
On calcareous and siliceous soil together with mosses at 5–720 m alt.
34 *(no. 047308)*; 48 *(no. 041189)*; 49 *(no. 041201)*

(*) *Cladonia humilis* (WITH.) J.R.LAUNDON
On siliceous soil among log and mosses at 270 m alt.
42 *(no. 060408)*

Cladonia pocillum (ACH.) O.J.RICH.
On calcareous soil together with mosses at 5–870 m alt.
28 *(no. 0287)*; 31 *(no. 03251)*; 32 *(no. 03383)*; 33 *(no. 043208, 043210)*; 35 *(no. 046247)*; 43 *(no. 02924)*; 46 *(no. 039153)*; 49 *(no. 041200)*; 54 *(no. 069468)*; 55 *(no. 070484)*

Cladonia pyxidata (L.) HOFFM.
On siliceous soil between mosses and log at 270–720 m alt.
34 *(no. 047309)*; 38 *(no. 035100)*; 42 *(no. 060409)*; 43 *(no. 02912)*

Cladonia rangiformis HOFFM.
On calcareous and siliceous soil between mosses at 50–720 m alt.
28 *(no. 0288)*; 31 *(no. 03252)*; 33 *(no. 043211)*; 34 *(no. 047310)*; 36 *(no. 051341)*; 43 *(no. 02925)*; 46 *(no. 039158)*; 47 *(no. 040169, 040177)*

(*) *Clauzadea monticola* (ACH.) HAFELLNER & BELLEM.
On limestone and sandstone at 100–600 m alt.
7 *(no. 056358)*; 10 *(no. 059400)*; 33 *(no. 043221)*

Collema auriforme (WITH.) COPPINS & J.R.LAUNDON
On calcareous soil together with mosses at 470 m alt.
31 *(no. 03256)*

Collema crispum (HUDS.) WEBER
On calcareous soil at 100–200 m alt.
8 *(no. 057370)*; 10 *(no. 059392)*

Collema cristatum (L.) WEBER
On calcareous soil, on soil between mosses and rock, limestone, crystalline limestone, gypsum, sandstone at 0–600 m alt.
1 *(no. 048314)*; 7 *(no. 056351)*; 11 *(no. 078511)*; 28 *(no. 0284)*; 30 *(no. 03146)*; 32 *(no. 03375, 03385)*; 33 *(no. 043222)*; 38 *(no. 035101)*; 39 *(no. 036115)*; 41 *(no. 045243)*; 42 *(no. 060414)*; 43 *(no. 02928)*; 44 *(no. 037116)*; 46 *(no. 039155)*; 47 *(no. 040171)*; 48 *(no. 041190)*; 50 *(no. 065435)*; 54 *(no. 069469)*

Collema tenax (SW.) ACH.
On calcareous soil at 50 m alt.
49 *(no. 042202)*

Diploicia canescens (DICKS.) A.MASSAL.
On limestone and sandstone at 5–430 m alt.
32 *(no. 03379)*; 45 *(no. 038140)*; 48 *(no. 041181)*; 54 *(no. 069473)*

Diploschistes candidissimus (KREMP.) WAHLBR.
On limestone 5–200 m alt.
9 *(no. 058386)*; 24 *(no. 082521)*

Diploschistes scruposus (VILL.) NORMAN
On calcareous soil, mosses, limestone, sandstone, volcanic ultrabasic rock and travertine at 5–600 m alt.
7 *(no. 056353)*; 8 *(no. 057375)*; 10 *(no. 059393)*; 11 *(no. 078506)*; 14 *(no. 049317)*; 24 *(no. 082520)*; 28 *(no. 0289)*; 32 *(no. 03376, 03386)*; 33 *(no. 043212)*; 34 *(no. 047294)*; 38 *(no. 035102)*; 41 *(no. 045238)*; 44 *(no. 037120)*; 45 *(no. 038131)*; 48 *(no. 041182)*; 50 *(no. 065434)*; 54 *(no. 069467)*; 55 *(no. 070482, 070487)*

Diplotomma alboatrum (HOFFM.) FLOT.
On different substrates (*Amygdalus* sp., *Ceratonia* sp., *Cupressus* sp., *Olea* sp., *Pinus* sp., *Pistacia* sp., limestone, sandstone, volcanic ultrabasic rock) at 50–720 m alt.
3 *(no. 074498)*; 11 *(no. 078508)*; 19 *(no. 061418)*; 24 *(no. 082517)*; 26 *(no. 084529)*; 29 *(no. 03034)*; 30 *(no. 03142)*; 34 *(no. 047295)*; 44 *(no. 037125)*; 54 *(no. 069478)*; 55 *(no. 070481)*

Diplotomma epipolium (ACH.) ARNOLD
On limestone and sandstone at 5–150 m alt.
7 *(no. 056356)*; 9 *(no. 058382)*; 10 *(no. 059394)*; 21 *(no. 063422)*; 48 *(no. 041183)*; 55 *(no. 070488)*

Dirina ceratoniae (ACH.) FR.
On *Ceratonia* sp. at 5–500 m alt.
31 *(no. 03265)*; 46 *(no. 039159)*; 49 *(no. 041197)*; 50 *(no. 065430)*

Dirina cretacea (ZAHLBR.) TEHLER
On limestone at 110 m alt.
41 *(no. 045239)*

Evernia prunastri (L.) ACH.
On *Pinus* sp. at 470–870 m alt.
31 *(no. 03264)*; 34 *(no. 047275)*; 35 *(no. 046259)*; 36 *(no. 051329)*

(*) *Farnoldia jurana* (SCHAER.) HERTEL
On limestone at 5 m alt.
51 *(no. 066450)*

Fulgensia fulgens (SW.) ELENKIN
On calcareous soil and rock (limestone, sandstone, travertine and volcanic breccia) at 50–430 m alt.
7 *(no. 056352)*; 8 *(no. 057373)*; 10 *(no. 059391, 059396)*; 11 *(no. 078504)*; 32 *(no. 03377)*; 38 *(no. 035106)*; 47 *(no. 040175)*

Lecania turicensis (HEPP) MÜLL.ARG.
On limestone at 70–100 m alt.
45 *(no. 038148)*; 46 *(no. 039152)*

(*) *Lecanora albescens* (HOFFM.) BRANTH & ROSTR.
On limestone and sandstone at 70–500 m alt.
7 *(no. 056364)*; 31 *(no. 03258)*; 45 *(no. 038139)*

Lecanora allophana NYL.
On *Cupressus* sp. at 500–870 m alt.
30 *(no. 03143)*; 35 *(no. 046260)*; 36 *(no. 051334)*; 43 *(no. 02914)*; 47 *(no. 040164)*

Lecanora argentata (ACH.) MALME
On *Ceratonia* sp. at 350 m alt.
29 *(no. 03036)*

Lecanora campestris (SCHAER.) HUE
On limestone and sandstone at 5–55 m alt.
33 *(no. 043224)*; 55 *(no. 070489)*

Lecanora chlarotera NYL.
On different trees (*Ceratonia* sp., *Olea* sp., *Pinus* sp., *Pistacia* sp.) at 50–720 m alt.
31 *(no. 03266)*; 33 *(no. 043299)*; 34 *(no. 047276)*; 36 *(no. 051333)*; 40 *(no. 044236)*; 42 *(no. 060406)*; 43 *(no. 02915)*; 47 *(no. 040165)*; 53 *(no. 068454)*

(*) *Lecanora crenulata* HOOK.
On limestone at 150 m alt.
9 *(no. 058387)*

Lecanora dispersa (L.) SOMMERF.
On dolomitic limestone, limestone at 150–870 m alt.
9 *(no. 058384)*; 35 *(no. 046252)*

Lecanora pruinosa CHAUB.
On limestone, dolomitic limestone and volcanic ultrabasic rock at 5–720 m alt.
1 *(no. 048315)*; 31 *(no. 03257)*; 33 *(no. 043223)*; 34 *(no. 047297)*

Lecanora pulicaris (PERS.) ACH.
On different trees (*Amygdalus* sp., *Caesalpina* sp., *Ceratonia* sp., *Olea* sp., *Pinus* sp.) at 5–650 m alt.
2 *(no. 052343)*; 3 *(no. 074497)*; 18 *(no. 055347)*; 19 *(no. 061417)*; 24 *(no. 082516)*; 26 *(no. 084530)*; 28 *(no. 0281)*; 31 *(no. 03269)*; 37 *(no. 03494)*; 42 *(no. 060405)*; 43 *(no. 02916)*; 44 *(no. 037126)*; 46 *(no. 039161)*; 51 *(no. 066444)*; 55 *(no. 070480)*; 56 *(no. 071493)*

(*) *Lecanora sambuci* (PERS.) NYL.
On *Acacia* sp. at 50 m alt.
25 *(no. 083527)*

Lecanora sulphurea (HOFFM.) ACH.
On dolomitic limestone and sandstone at 100–600 m alt.
7 *(no. 056355)*; 33 *(no. 043225)*

Lecidella elaeochroma (ACH.) M.CHOISY
On *Ceratonia* sp. and *Pinus* sp. at 275–645 m alt.
36 *(no. 051335)*; 42 *(no. 060404)*

(*) *Lepraria caesioalba* (B.DE LESD.) J.R.LAUNDON
On different substrates [*Pinus* sp., mosses and siliceous rock (volcanic breccia)] at 470–720 m alt.
31 *(no. 03259);* 34 *(no. 047298)*

(*) *Lepraria eburnea* J.R.LAUNDON
On *Pinus* sp. at 720 m alt.
34 *(no. 047277)*

(*) *Leproloma membranaceum* (DICKS.) VAINIO
On calcareous soil, limestone and siliceous rock (volcanic ultrabasic rock)with mosses at 50–879 m alt.
28 *(no. 02810);* 33 *(no. 043266);* 35 *(no. 046253);* 45 *(no. 038132);* 47 *(no. 040172)*

(*) *Leproplaca chrysodeta* (VAINIO ex RÄSÄNEN) J.R.LAUNDON
On limestone at 5 m alt.
44 *(no. 037119)*

(*) *Leptogonium schraderi* (ACH.) NYL.
On limestone, siliceous and calcareous soil together with mosses at 125–570 m alt.
30 *(no. 03145);* 42 *(no. 060413);* 54 *(no. 069465)*

Lobothallia radiosa (HOFFM.) HAFELLNER
On crystalline limestone, dolomitic limestone, limestone and sandstone at 50–870 m alt.
14 *(no. 049318);* 15 *(no. 050326);* 21 *(no. 063420);* 33 *(no. 043215);* 35 *(no. 046249);* 39 *(no. 036113);* 42 *(no. 060415);* 43 *(no. 02926)*

(*) *Opegrapha atra* PERS.
On *Ceratonia* sp. and *Pinus* sp. at 5–500 m alt.
31 *(no. 03267);* 50 *(no. 065442)*

Opegrapha varia PERS. var. *herbarium* (MONT.) KÄLLSTEN
On *Ceratonia* sp. at 100–125 m alt.
53 *(no. 068455);* 54 *(no. 069461)*

Parmelia saxatilis (L.) ACH.
On *Pinus* sp. at 850–870 alt.
35 *(no. 046262)*

Parmelia tiliacea (HOFFM.) HALE
On *Pinus* sp. at 600–870 m alt.
33 *(no. 043231);* 35 *(no. 046263)*

Pertusaria albescens (HUDS.) M.CHOISY & WERNER
On *Cupressus* sp. at 850–870 alt.
35 *(no. 046264)*

Pertusaria hemisphaerica (FLÖR.) ERICHSEN
On *Pinus* sp. at 600–870 m alt.
35 *(no. 046266)*

Pertusaria pertusa (WEIGEL) TUCK.
On *Cupressus* sp. and *Pinus* sp. at 600–870 m alt.
34 *(no. 047279);* 35 *(no. 046265)*

Physcia adscendens (FR.) H.OLIVIER
On different trees (*Ceratonia* sp., *Cupressus* sp., *Olea* sp., *Pinus* sp., *Pistacia* sp.) and shrubs at 5–720 m alt.
7 *(no. 056349);* 29 *(no. 03037);* 31 *(no. 03268);* 34 *(no. 047280);* 36 *(no. 051336);* 37 *(no. 03495);* 42 *(no. 060403);* 43 *(no. 02917);* 51 *(no. 066446)*

Physcia aipolia (ERH. ex HUMB.) FÜRNR.
On *Olea* sp. at 500 m alt.
37 *(no. 03497)*

Physcia dubia (HOFFM.) LETTAU
On *Cupressus* sp. at 200 m alt.
8 *(no. 057367)*

Physcia semipinnata (J.F.GMELIN) MOBERG
On partly silicified limestone at 850–870 m alt.
35 *(no. 046255)*

Physcia stellaris (L.) NYL.
On different trees (*Ceratonia* sp., *Cupressus* sp., *Olea* sp.) at 200–500 m alt.
8 *(no. 057368);* 29 *(no. 03040);* 37 *(no. 03496)*

Physconia grisea (LAM.) POELT
On calcareous soil together with mosses at 600 m alt.
33 *(no. 043213)*

Physconia perisidiosa (ERICHSEN) MOBERG
On mosses at 470–500 m alt.
31 *(no. 03260)*

Placynthium nigrum (HUDS.) GRAY
On limestone and travertine at 5–200 m alt.
8 *(no. 057371);* 47 *(no. 040173);* 50 *(no. 065432)*

(*) *Polyblastia albida* ARNOLD
On limestone and sandstone at 50–100 m alt.
11 *(no. 078509);* 21 *(no. 063421)*

Pseudevernia furfuracea (L.) ZOPF var. *furfuracea*
On *Pinus* sp. at 850–870 m alt.
35 *(no. 046268)*

Psora decipiens (HEDW.) HOFFM.
On calcareous soil at 5–430 m alt.
8 *(no. 057369);* 11 *(no. 078503);* 24 *(no. 082518);* 32 *(no. 03387);* 39 *(no. 306114);* 41 *(no. 045244);* 42 *(no. 060 412);* 44 *(no. 037121);* 45 *(no. 038133);* 46 *(no. 039156);* 48 *(no. 041151);* 49 *(no. 042203);* 51 *(no. 066447);* 54 *(no. 069463)*

Psora lurida (ACH.) DC.
On limestone at 70 m alt.
45 *(no. 038142)*

Ramalina calicaris (L.) FR. var. *subfastigiata* NYL.
On *Pinus* sp. at 720 m alt.
34 *(no. 047281)*

Ramalina canariensis J.STEINER
On different trees (*Acacia* sp., *Ceratonia* sp., *Cistus* sp., *Cupressus* sp., *Pinus* sp., *Pistacia* sp.) at 5–870 m alt.
1 *(no. 048311);* 28 *(no. 0283);* 31 *(no. 03272);* 33 *(no. 043233);* 34 *(no. 047282);* 35 *(no. 046270);* 36 *(no. 051332);* 43 *(no. 02918);* 47 *(no. 040166);* 53 *(no. 068453)*

Ramalina farinacea (L.) ACH.
On *Pinus* sp. at 500 m alt.
31 *(no. 03270)*

Ramalina fastigiata (PERS.) ACH.
On different trees (*Cupressus* sp., *Pinus* sp., *Pistacia* sp.) at 600–870 m alt.
33 *(no. 043232)*; 34 *(no. 047283)*; 35 *(no. 046269)*; 36 *(no. 051331)*; 43 *(no. 02922)*

Ramalina fraxinea (L.) ACH.
On *Pinus* sp. at 500 m alt.
31 *(no. 03271)*

Ramalina subfarinacea (NYL. ex CROMBIE) NYL.
On *Pinus* sp. at 600–870 m alt.
33 *(no. 043234)*; 34 *(no. 047284)*; 35 *(no. 046271)*; 36 *(no. 051330)*

Rinodina bischoffii (HEPP) A.MASSAL.
On calcareous rock (volcanic ultrabasic rock), limestone and sandstone at 100–870 m alt.
21 *(no. 063423)*; 34 *(no. 047299)*; 35 *(no. 046256)*

Rinodina exigua (ACH.) S.GRAY
On *Ceratonia* sp. and *Olea* sp. at 5–350 m alt.
29 *(no. 03038)*; 49 *(no. 041198)*, 51 *(no. 066445)*

Rinodina gennarii BAGL.
On *Ceratonia* sp. and *Olea* sp. at 70–650 m alt.
43 *(no. 02919)*; 45 *(no. 038129)*

Sarcogyne regularis KÖRB.
On limestone at 5–300 m alt.
38 *(no. 035107)*; 51 *(no. 066446)*

Solenospora candicans (DICKS.) J.STEINER
On calcareous rock (vulcanic ultrabasic rock), limestone at 470–870 m alt.
31 *(no. 03261)*; 33 *(no. 043227)*; 34 *(no. 047200)*; 35 *(no. 046257)*

(*) *Solenospora holophaea* (MONT.) G.SAMP.
On limestone at 5–110 m alt.
41 *(no. 045241)*; 45 *(no. 038141)*; 48 *(no. 041184)*

Squamarina cartilaginea (WITH.) P.JAMES var. *cartilaginea*
On limestone, travertine and calcareous soil at 5–570 m alt.
14 *(no. 049319)*; 30 *(no. 03147)*; 32 *(no. 03381, 03389)*; 41 *(no. 045245)*; 44 *(no. 037117)*; 45 *(no. 038143)*; 47 *(no. 040174)*; 55 *(no. 070483)*

Squamarina cartilaginea (WITH.) P.JAMES var. *pseudocrassa* (MATTICK) D.HAWKS.
On partly siliceous rock (volcanic ultrabasic rock), limestone, sandstone, travertine and calcareous soil at 5–720 m alt.
7 *(no. 056350)*; 8 *(no. 057372)*; 10 *(no. 059395)*; 15 *(no. 050327)*; 28 *(no. 0285)*; 29 *(no. 03033)*; 31 *(no. 03262)*; 32 *(no. 03380, 03388)*; 34 *(no. 047301)*; 38 *(no. 035103, 035108)*; 47 *(no. 040170)*; 48 *(no. 041192)*; 49 *(no. 042207)*; 50 *(no. 065433)*; 54 *(no. 069466, 069474)*; 55 *(no. 070485)*

Squamarina lentigera (WEBER) POELT
On calcareous soil at 5 m alt.
44 *(no. 037122)*

Tephromela atra (HUDS.) HAFELLNER
On partly siliceous rock (volcanic ultrabasic rock), dolomitic limestone, limestone, sandstone at 50–720 m alt.
7 *(no. 056354)*; 9 *(no. 058380)*; 11 *(no. 078507)*; 33 *(no. 043228)*; 34 *(no. 047296, 047303)*

Thelopsis isiaca STIZENB.
On *Ceratonia* sp. at 5 m alt.
50 *(no. 065431)*

Toninia diffracta (A.MASSAL.) ZAHLBR.
On calcareous rock (volcanic ultrabasic rock), limestone at 430–720 m alt.
32 *(no. 03382)*; 34 *(no. 047304)*

(*) *Toninia pennina* (SCHAER.) GYELNIK
On limestone at 5 m alt.
48 *(no. 041186)*

Toninia sedifolia (SCOP.) TIMDAL
On sandstone and calcareous soil at 5–430 m alt.
10 *(no. 059390)*; 15 *(no. 050328)*; 32 *(no. 0339)*; 45 *(no. 038144)*; 47 *(no. 040176)*; 50 *(no. 065436)*; 54 *(no. 069464, 069476)*

Tornabea scutellifera (WITH.) J.R.LAUNDON
On different trees (*Ceratonia* sp., *Cupressus* sp., *Pinus* sp.) at 600–870 m alt.
34 *(no. 047285)*; 35 *(no. 046272)*; 43 *(no. 02920)*

(*) *Usnea articulata* (L.) HOFFM.
On *Cupressus* sp. and *Pinus* sp. at 850 m alt.
35 *(no. 046273)*

(*) *Verrucaria dufourii* DC.
On limestone at 100 m alt.
46 *(no. 039151)*

(*) *Verrucaria hochstetteri* FR.
On limestone at 5–70 m alt.
45 *(no. 038145)*; 50 *(no. 065437)*

Verrucaria nigrescens PERS.
On limestone at 5–70 m alt.
45 *(no. 038146)*; 48 *(no. 041185)*; 50 *(no. 065440)*

(*) *Verrucaria parmigera* J.STEINER
On limestone at 5 m alt.
48 *(no. 041187)*

(*) *Verrucaria subfuscella* NYL.
On calcareous rock (volcanic breccia) at 300 m alt.
38 *(no. 035109)*

(*) *Verrucaria viridula* (SCHRADER) ACH.
On partly siliceous rock (volcanic ultrabasic rock), limestone at 5–720 m alt.
34 *(047305)*; 50 *(no. 065439)*

Xanthoria calcicola OXNER
On limestone and sandstone at 5–720 m alt.
34 *(no. 047306)*; 44 *(no. 037118)*; 45 *(no. 038147)*; 48 *(no. 041188)*; 54 *(no. 069471)*

Xanthoria elegans (LINK) TH.FR.
On crystalline limestone at 650 m alt.
43 *(no. 02930)*

Xanthoria parietina (L.) TH.FR.
On different trees (*Acacia* sp., *Amygdalus* sp., *Caesalpina* sp., *Ceratonia* sp., *Cistus* sp., *Crataegus* sp., *Cupressus* sp., *Olea* sp., *Pinus* sp., *Pistacia* sp.) and shrubs at 5–870 m alt.
1 *(no. 048312)*; 2 *(no. 052342)*; 3 *(no. 074496)*; 4 *(no. 075500)*; 5 *(no. 076501)*; 6 *(no. 077502)*; 7 *(no. 056348)*; 8 *(no. 057365)*; 9 *(no. 058379)*; 12 *(no. 079512)*; 13 *(no. 080513)*; 16 *(no. 053344)*; 17 *(no. 054345)*; 18 *(no. 055346)*; 19 *(no. 061416)*; 20 *(no. 062419)*; 22 *(no. 064427)*; 23 *(no. 081514)*; 24 *(no. 082515)*; 26 *(no. 084528)*; 27 *(no. 085531)*; 30 *(no. 03144)*; 34 *(no. 047286, 047307)*; 35 *(no. 046274)*; 36 *(no. 051340)*; 37 *(no. 03498)*; 40 *(044237)*; 42 *(no. 060402)*; 43 *(no. 02921)*; 44 *(no. 037127)*; 45 *(no. 038130)*; 46 *(no. 039160)*; 47 *(no. 040167)*; 49 *(no. 041199)*; 50 *(no. 065428)*; 51 *(no. 066443)*; 52 *(no. 067451)*; 53 *(no. 068452)*; 54 *(no. 069460)*; 55 *(no. 070479)*; 56 *(no. 071490)*; 57 *(no. 072494)*; 58 *(no. 073495)*

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