Contribution to the flora of Portugal: lichens and lichenicolous fungi 5

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Abstract: A survey of lichens and lichenicolous fungi at a site in western Portugal, near Nazaré, the small hill São Bartolomeu, has been carried out. 22 lichen species or lichenicolous fungi are reported as new to Portugal. From this relatively small area, in total 228 lichens and lichenicolous fungi are currently known from a wide range of substrata. Epiphytic, lignicolous, terricolous as well as saxicolous species were recorded. An annotated list with notes on morphology, chemistry and ecology is given.

Zusammenfassung: Ein Überblick über die Flechten und flechtenbewohnende Pilze des kleinen Hügels Sao Bartolomeu nahe Nazaré in Westportugal wird gegeben. 22 Flechten oder flechtenbewohnende Pilze werden als neu für Portugal gemeldet. Von diesem relativ kleinen Gebiet sind somit insgesamt 228 Flechten und flechtenbewohnende Pilze von unterschiedlichen Substraten bekannt. Epiphytische, lignicole, terricole sowie saxicole Arten wurden beobachtet. Eine Liste mit kurzen Notizen zu Morphologie, Chemie und Ökologie ist angeschlossen.

Since 1983, the author carried out lichenological fieldwork during short visits throughout Portugal. Some floristic surveys were published: from the upper belt in Serra da Estrela, lichens are recorded by VAN DEN BOOM & JANSEN (2002); a preliminary checklist of lichens and lichenicolous fungi from Montesinho Natural Park can be found in VAN DEN BOOM (2003); a first list of lichenicolous fungi was published from Portugal by VAN DEN BOOM & ETAYO (2000).

A steep rocky hill near the village Nazaré with the name "São Bartolomeu" (Prov. Estremadura, Fig. 1) was visited in 2001 and 2005 for studying lichens and lichenicolous fungi. A floristic list, including 64 lichen records from the study area has recently been published by SALES & HEDGE (2000). Although the richness in lichens of this area must have been known by earlier Portuguese lichenologists, a survey for this site has never been made. Collections made by TAVARES are preserved in LISB and in GIRALT (2001), *Rinodina beccariana* BAGL. was published from the study area. *Coccocarpia erythroxyli* (SPRENG.) SWINSCOW & KROG was published by TAVARES (1960), as *C. parmelioides* (HOOK.) TREVIS. and *Roccella tinctoria* DC. as *R. tuberculata* VAIN. em. C. TAV. var. *vicentina* VAIN. (TAVARES 1958). Checking literature of two other lichenologists, G. SAMPAIO, who was working at Porto and A. COUTINHO, who was working at Lisbon, shows that they never published any record from the study area (SAMPAIO 1970, COUTINHO 1916). The Dutch lichenologist MAARTEN BRAND visited the hill in spring of 2003 and made several interesting collections. Additional records by him are enclosed in the list below.

Fig. 1. Situation of the study area in Portugal. Bar: 50 km.

The study area shows an interesting combination of Mediterranean, Euro-Siberian and Macaronesian elements. The two most important sites of the hill are the steep western and the steep eastern rocky slope, on which the most important phorophytes are *Quercus coccifera* L., *Arbutus unedo* L. and *Erica arborea* L. Among the rare vascular plants, *Davallia canariensis* (L.) SIM. and *Myrica faya* AITON. represent Macaronesian elements (SALES & HEDGE 2000). Several species with a mainly North European distribution, such as *Teucrium scorodonia* L., *Bromus sterilis* L. and *Digitalis purpurea* L. are present. Exclusively Iberian plants such as *Aristolochia paucinervis* POMEL, *Fumaria sepium* BOISS. & REUTER, *Silene scabrifolia* BROTERO and *Narcissus bulbocodium* L. are poorly represented. Far more than half of the taxa have a Mediterranean component in their distribution (SALES & HEDGE 2000). In SALES & HEDGE (2000), c. 150 vascular plants, 64 lichen species, 11 musci, and 5 hepaticae are recorded. Because of the floristical and phytogeographical importance of the study area, it has a conservation status as "Classified Site".

The study area covers c. 200 m² and reaches an altitude of c. 150 m s. m. *Pinus pinaster* is planted in the surroundings, which are exceptionally poor in lichen biodiversity. Only trees very close to the hill are (more or less) covered with lichens. In total, 211 species of lichens and 17 lichenicolous fungi were discovered and recorded from the hill, including 22 new records for Portugal. This intensive exploration of lichens and lichenicolous fungi resulted in a important increase in the biodiversity of this locality from 230 (in SALES & HEDGE 2000) to 394 taxa.

Material and methods

During two fieldtrips in 2001 and 2005 to the area São Bartolomeu, E of Nazaré, P. & B. VAN DEN BOOM collected about 250 and 100 specimens of lichens and lichenicolous fungi, respectively. They are deposited in the private herbarium of the author. MAARTEN BRAND collected in 2003 on the E slope of the hill. His additional records are included as well.

All the known lichens species or lichenicolous fungi from this area are listed below. Identifications mostly follows HAWKSWORTH (2003), PURVIS & al. (1992), SANTESSON & al. (2004) or WIRTH (1995), except for recently monographed taxa. Specimens have been identified using standard microscopical techniques. Macroscopical measurements refer to dry herbarium specimens and microscopical measurements refer to material examined in water.

The taxa have been checked with the recent checklist for the Iberian Peninsula (LLIMONA & HLADUN 2001) and with VAN DEN BOOM (2003, 2005), VAN DEN BOOM & ETAYO (2000) and VAN DEN BOOM & JANSEN (2002). For selected specimens, the secondary metabolite content was investigated by TLC following ORANGE & al. (2001). Some specimens were identified by specialists (see annotated list and acknowledgements). Some lichens as well as some lichenicolous fungi are not yet identified.

Annotated list

* New record to Portugal.
\+ Lichenicolous fungus.
First capital letter after the species name indicates the collecting site:
W west-side of the hill, up to 125 m s. m., exposed steep rock-faces at higher part and sheltered or shaded by shrubs at lower part,
E east-side of the hill, up to 125 m s. m., steep rock-faces sheltered or shaded by *Arbutus*, *Quercus* and *Pinus* trees and mainly large shrubs,
S summit, 125-150 m s. m., with various exposed or sheltered rocks and some small shrubs,
T terricolous in open *Pinus* forest in the surrounding of the steep rock-faces.
The five digit number is the herbarium number of the specimen followed by the substrate.
(*f*) fertile.
(*ac*) accompanying material, not collected as a specimen.
(*S-H*) already published by SALES & HEDGE (2000).
(*MB*) specimens recorded and identified by M. BRAND and deposited in the herbarium of M. BRAND.
Substrata: Au *Arbutus unedo*; Qc *Quercus coccifera*; Pi *Pinus pinaster*; *s* acidic rock; *c* mortar; *t* terricolous.

*+***Abrothallus microspermus*** TUL.: W, 27520Pi, 27545Pi, 27767Pi, all on *Flavoparmelia caperata* (L.) HALE
Acarospora umbilicata BAGL.: E, 27644s.
****Acrocordia cavata*** (ACH.) R. C. HARRIS: W, 27501Qc.
Acrocordia gemmata (ACH.) A. MASSAL.: E, 35287Au; (S-H).
Agonimia opuntiella (BUSCHARDT & POELT) VĚZDA: W, 27567s.
Agonimia tristicula (NYL.) ZAHLBR.: E, 26981s on moss.
Amandinea lecideina (MAYRH. & POELT) SCHEID. & MAYRH.: W, 27754s, 27756s.
Anaptychia runcinata (WITH.) J. R. LAUNDON: S, 27636s.
Arthonia cinnabarina (DC.) WALLR.: W, 27556Qc; E 27619; (S-H).
****Arthonia elegans*** (ACH.) ALMQ.: S, 35336Qc.
****Arthonia stellaris*** KREMPELH.: E, 35311Au.
Aspicilia cf. ***caesiocinerea*** (NYL. ex MALBR.) ARNOLD: W, 27506s, 27490s.
Bacidia absistens (NYL.) ARNOLD: (S-H).
Bacidia friesiana (HEPP) KÖRBER: E, 27663Qc, 35301Au; (S-H).
Bacidia incompta (BORRER ex HOOKER) ANZI: (S-H).
Bacidia laurocerasi (DELISE ex DUBY) ZAHLBR.: W, on *Quercus coccifera* (ac).
****Bacidia viridifarinosa*** COPPINS & P. JAMES: W, 27475Qc.
Bactrospora patellarioides (NYL.) ALMQ.: E, on acidic outcrops (MB).

Botryolepraria lesdainii (HUE) CANALS & al.: E, 26980s.
Buellia aethalea (ACH.) TH. FR.: W, 27538s; E, 26970s; (S-H).
Buellia saxorum A. MASSAL.: W, 27768s, 27791s.
Buellia spuria (SCHAERER) ANZI: W, 27605s, 27608s, 27537s.
Buellia stellulata (TAYLOR) MUDD: E, on acidic outcrop (MB).
Buellia subdisciformis (LEIGHT.) VIAN.: W, 35272s.
Buellia tesserata KÖRB.: S, 27639s, 35345s.
Byssoloma leucoblepharum (NYL.) VAINIO: E, 35359 on unidentified shrub; 27577 on exposed root of fallen *Arbutus unedo.*
Caloplaca aegatica GIRALT, NIMIS & POELT: W, 27553Qc; (S-H).
Caloplaca crenularia (WITH.) J. R. LAUNDON: W, 35257s; (S-H).
Caloplaca ferruginea (HUDS.) TH. FR.: E, 27539Qc; (S-H).
Candelariella reflexa (NYL.) LETTAU: E, on *Pinus pinaster* (ac).
Candelariella vitellina (HOFFM.) MÜLL. ARG.: W, on vertical outcrop (ac); (S-H).
****Canoparmelia crozalsiana*** (DE LESD.) ELIX & al.: W, 27785s.
Catillaria chalybeia (FR.) MÜLL. ARG.: W, 27752s; S 27624s.
Catillaria fungoides ETAYO & VAN DEN BOOM: E, 27620Qc.
Catillaria lenticularis (ACH.) TH. FR.: W, 27561s.
Chaenotheca brunneola (ACH.) MÜLL. ARG.: E, 27010Pi, 35371Pi. These records regard the rare form with P+o thallus; (S-H).
Chrysothrix candelaris (L.) J. R. LAUNDON: E, on base of *Pinus* (ac); (S-H).
****Chrysothrix xanthina*** (VAIN.) KALB: W, 27596s.
Cladonia ciliata STIRTON: T, 27793t.
Cladonia foliacea (HUDS.) WILLD.: W, 27591s; S, 27633s; T, 27780t.
Cladonia humilis (WITH.) J. R. LAUNDON: W, 27528t; T, 27775t.
Cladonia macilenta HOFFM.: W, 27518Pi.
Cladonia mediterranea P. A. DUVIGN. & ABBAYES: T, 27758t.
Cladonia ochrochlora FLÖRKE: T, 27771, terricolous in *Pinus* forest.
Cladonia pyxidata (L.) HOFFM. s. l.: W, 27546s, 27586s; E, 27640s, 26984s; (S-H).
Cladonia ramulosa (WITH.) J. R. LAUNDON: W, 27597s, 27527s; (S-H).
Cladonia rangiformis HOFFM.: W, 27526s.
Cladonia subcervicornis (VAIN.) KERNST.: W, 27530s.
****Cliostomum flavidulum*** HAFELLNER & K. KALB: E, 35320Pi. With some hesitation this species is recorded here because the specimen is sterile, however in the yellow green fine sorediate thallus, the two compounds atranorin and fumarprotocetraric acid have been found, and it has been compared with fertile material from the Canary Islands.
Coccocarpia erythroxyli (SPRENG.) SWINSCOW & KROG: W, 27558s, 35275s (f). Published in TAVARES (1960) from this locality.
Collema nigrescens (HUDS.) DC.: E, on acidic outcrop (MB).
Collema cf. ***ryssoleum*** (TUCK.) SCHNEIDER: W, 27473s, 35267s; (S-H).
Collema subflaccidum DEGL.: E, on *Quercus coccifera* (MB).
Degelia atlantica (DEGEL.) P. M. JØRG. & P. JAMES: W, 27610s.
Degelia plumbea (LIGHTF.) P. M. JØRG. & P. JAMES: E, on acidic outcrop (MB).
Dimerella lutea (DICKSON) TREVISAN: E, 27661Qc, 35361Qc, 35364 on stump; (S-H).
Dimerella pineti (ACH.) VĚZDA: W, 27576 on exposed root of fallen *Arbutus unedo*; E, 35367Au.
Dimerella tavaresiana VĚZDA : W, 27747 on *Erica arborea.*
Diploicia canescens (DICKS.) A. MASSAL.: E, on acidic outcrop (MB).
Diploschistes muscorum (SCOP.) R. SANT.: E, 26975s on *Cladonia* squamules.
Diploschistes scruposus (SCHREB.) NORMAN: S, 35353s.
Dirina massiliensis DURIEU & MONT. s. str.: W, 27796s.
Dirina massiliensis DURIEU & MONT f. ***sorediata*** (MÜLL. ARG.) TEHLER: W, 27797s; (S-H).
+***Endococcus propinquus*** (KÖRBER) D. HAWKSW.: W, 27827s on unidentified crust.
Enterographa crassa (DC.) FÉE: E, 27618Qc, 35324Au, 35302Au, 35358 on unidentified shrub; (S-H).
Enterographa elaborata (LEIGHT.) COPPINS & P. JAMES: W, 27474 on unidentified tree; (S-H).
Enterographa hutchinsiae (LEIGHT.) A. MASSAL.: E, 27656Qc.
Evernia prunastri (L.) ACH.: E, on *Pinus* (MB).

Flavoparmelia caperata (L.) HALE: W, 27492, 27483, on stump, 27594s; (S-H).
Fuscopannaria mediterranea (TAV.) P. M. JØRG.: E, on *Olea europaea* (MB).
Graphis elegans (BORRER) ACH.: W, 27601Qc; E, 35366 on an unidentified tree.
Gyalecta derivata (NYL.) H. OLIVIER: (S-H).
****Gyalecta schisticola*** WERNER: W, 27557s.
Gyalecta truncigena (ACH.) HEPP: (S-H).
Hafelia leptoclinoides (NYL.) SCHEID. & MAYRHOFER: W, 27540s; S, 26976s.
Heterodermia leucomelos (L.) POELT: E, 27658Qc; S, 26979s.
Heterodermia speciosa (WULFEN) TREVIS.: W, 27569s; E, 35317s.
Heteroplacidium imbricatum (NYL.) BREUSS: W, 27568s; S, 27628s, 35356s.
Hyperphyscia adglutinata (FLÖRKE) H. MAYRHOFER & POELT: E, 27625Qc.
Hypogymnia physodes (L.) NYL.: E, 35319Pi.
Koerberia biformis A. MASSAL.: W, 27566s.
Lasallia pustulata (L.) MÉRAT: S, 27641s, 35352s; (S-H).
Lecania inundata (HEPP ex KÖRB.) M. MAYRHOFER: W, 27573s.
Lecania naegelii (HEPP) DIEDERICH & VAN DEN BOOM: W, 27821Qc.
****Lecania hutchinsiae*** (NYL.) A. L. SM.: W, 27544s.
Lecanographa grumulosa (DUFOUR) EGEA & TORRENTE: W, 27762s, 27760s; E, 35282s.
Lecanora campestris (SCHAERER) HUE: W, 27505s; (S-H).
Lecanora dispersa (L.) SUMMERF.: W, 27830s.
Lecanora gangaleoides NYL.: W, 27508s; E, 26972s.
Lecanora intricata (ACH.) ACH.: T, 35258, on exposed root of *Pinus pinaster*.
Lecanora meridionalis H. MAGN.: W, 27548Qc.
Lecanora pseudistera NYL.: W, 27563s.
****Lecanora ripartii*** LAMY sensu POELT: S, 35327s.
Lecanora rubicunda BAGL. s. l.: E, 26993Qc, 35286Au.
Lecanora rupicola (L.) ZAHLBR. var. ***sulphurata*** (ACH.) CLAUZADE & CL. ROUX: W, 27814s, 27829s.
Lecanora schistina (NYL.) ARNOLD: E, on acidic outcrop (MB).
Lecanora strobilina (SPRENG.) KIEFF.: W, 27510Pi; E, 35295 on fir-cone, on path; T, 35254 on exposed root of *Pinus pinaster*.
Lecanora sulphurella HEPP: W, 27828s.
Lecanora symmicta (ACH.) ACH.: W, 35250Qc, 35251Au.
Lecidea aff. ***aprohroeella*** NYL.: W, 27825 on exposed root of fallen *Arbutus unedo*. This is a small specimen but fits well with the previous collection from Portugal (BOOM & GIRALT 1999).
****Lecidea doliiformis*** COPPINS & P. JAMES: W, 27750 on *Erica arborea*; E, 27014Pi, 35372Pi.
Lecidella asema (NYL.) KNOPH & HERTEL: W, 27787s.
Lecidella elaeochroma (ACH.) M. CHOISY s. l.: W, 27555Qc, 27826Qc; E, 27630Qc; (S-H).
Lepraria jackii TØNSB.: W, 27006Au; (S-H).
Lepraria lobificans NYL.: W, 26982s, 27559 on unidentified tree; (S-H).
Lepraria nivalis J. R. LAUNDON: W, 27755s.
Leprocaulon microscopicum (VILL.) GAMS & D. HAWKSW.: W, on steep acidic outcrop (ac); (S-H).
Leptogium cyanescens (RABENH.) KÖRBER: E, 26991s; (S-H).
Leptogium lichenoides (L.) ZAHLBR.: W, 27543s on moss.
Leptogium teretiusculum (WALLR.) ARNOLD: W, 27611s.
****Leptogium turgidum*** (ACH.) CROMBIE: E, 26973s.
+***Lichenoconium erodens*** M. S. CHRIST. & D. HAWKSW.: S, 35343Qc, 35335Qc on *Ramalina* spec.
Lobaria scrobiculata (SCOP.) DC.: W, 27533s, 27593s.
+***Marchandiomyces corallinus*** (ROBERGE) DIEDERICH & D. HAWKSW.: W, 27815 on *Tephromela*, saxicolous; W, 27575 on *Pertusaria*, saxicolous; E, 27626 on *Pertusaria* spec. on *Quercus*; S, 35588 on *Ramalina* spec.
Massalongia carnosa (DICKS.) KÖRB.: W, 27571s.
Melanelixia fuliginosa (DUBY) O. BLANCO, A. CRESPO, DIVAKAR, ESSL., D. HAWKSW. & LUMBSCH subsp. ***fuliginosa***: W, vertical facing outcrops (ac); (S-H).
*+***Melaspilea canariensis*** D. HAWKSW.: W, 27757s on *Pertusaria* spec., 35260 on *Pertusaria* spec.
****Micarea micrococca*** (KÖRB.) GAMS ex COPPINS: W, 27769 on exposed root of fallen *Arbutus unedo*.

Micarea prasina FR. s. str.: E, 27000Pi, 27514Pi, 27008 among exposed roots of *Quercus coccifera*, 35370 Pi.

Micarea prasina FR. s. l.: W, 27492, 27482 on stump; E, 27013 on fallen branch. These collections have discrete punctiform soralia, but only a few small pale apothecia are found. The chemistry is different from *M. prasina* s. str. It belongs probably to an undescribed taxon.

Micarea viridileprosa COPPINS & VAN DEN BOOM: W, 27580 on exposed root of fallen *Arbutus unedo*.

*+***Minutoexcipula mariana*** V. ATIENZA: S, 27615Qc on *Pertusaria* spec.

+***Nectria lecanodes*** RABENH.: E, 35314s on *Nephroma* spec.

Neofuscelia loxodes (NYL.) ESSL.: W, 27486s (f).

Neofuscelia pulla (ACH.) ESSL.: W, 27600s; (S-H).

Nephroma laevigatum ACH.: (S-H).

Nephroma tangeriensis (MAHEU & A. GILLET) ZAHLBR.: W, 27765s.

Normandina pulchella (BORRER) NYL.: E, 26985s on moss; (S-H).

Ochrolechia alboflavescens* (WULFEN) ZAHLBR.: W, 35259 on exposed roots of *Pinus pinaster*.

Ochrolechia inversa* (NYL.) J. R. LAUNDON: E, on *Quercus coccifera* (MB).

Ochrolechia parella (L.) A. MASSAL.: W, 27517s; (S-H).

Ochrolechia tartarea (L.) A. MASSAL.: E, 27634s.

Opegrapha atra PERS.: W, 27552Qc; (S-H).

Opegrapha gyrocarpa FLOT.: E, on acidic outcrops (MB).

Opegrapha varia PERS.: (S-H).

Opegrapha vermicellifera* (KUNZEL) J. R. LAUNDON: E, 35369Pi.

Pannaria conoplea (ACH.) BORY: E, 27660Qc.

Parmelia saxatilis (L.) ACH.: W, 27491s.

Parmelina tiliacea (HOFFM.) HALE: W, 27480s; (S-H).

Parmelinopsis minarum (VAIN.) ELIX & HALE: E, 27009 on *Erica arborea*; 35360s.

Parmotrema crinitum (ACH.) M. CHOISY: E, 27669Qc.

Parmotrema hypoleucinum (J. STEINER) HALE: W, 27532Pi.

Parmotrema perlatum (HUDS.) M. CHOISY: S, on E exposed outcrops (ac); (S-H).

Parmotrema reticulatum (TAYLOR) M. CHOISY: W, 27565s; E, 27616Qc, 35281s (f); (S-H).

Parmotrema robustum (DEGEL.) HALE: W, 27764Pi, 27504Qc; (S-H).

Peltigera praetextata (SUMMERF.) ZOPF: W, 27588s; E, 26983s.

Pertusaria albescens (HUDS.) M. CHOISY & WERNER: W, 27502Qc.

Pertusaria amara (ACH.) NYL.: W, 27509s; E, 27665Qc; (S-H).

Pertusaria excludens NYL.: W, 27606s; (S-H).

Pertusaria ficorum ZAHLBR.: E, on *Olea europaea* (MB).

Pertusaria hemisphaerica (FLÖRKE) ERICHSEN: E, on *Pinus* (MB).

Pertusaria heterochroa (MÜLL. ARG.) ERICHSEN: E, 27646 on dead trunk of *Aeonium arboretum*.

Pertusaria melanochlora (DC.) NYL.: W, 27487s.

Pertusaria pluripuncta NYL.: E, 35285s.

Pertusaria pseudocorallina (LILJ.) ARNOLD: E, on exposed vertical outcrop (ac).

Pertusaria pustulata (ACH.) DUBY: W, 27547Qc.

Pertusaria velata (TURNER) NYL.: E, 27632Qc, 27007Qc.

Phaeographis dendritica (ACH.) MÜLL. ARG.: W, 27476Qc; E, 26996Au; (S-H).

Phlyctis agelaea (ACH.) FLOT.: E, 27653 on *Quercus faginea* LAM.

+***Phoma cytospora*** (VOUAUX) D. HAWKSW.: W, 35252, on *Flavoparmelia caperata*.

Physcia adscendens (FR.) OLIV.: W, vertical shaded outcrops (ac).

Physcia caesia (HOFFM.) FÜRNR.: W, 27766s; (S-H).

Physcia tribacia (ACH.) NYL.: W, 27472s; S, 35354s; (S-H).

Physcia tribacioides NYL.: W, 35256s.

Placidium boccanum (SERVIT) BREUSS: S, 35590, on mortar, on the south side of an old wall.

Placynthiella dasaea (STIRT.) TØNSBERG: W, 27483, 27489 on stump.

Placynthiella icmalea (ACH.) COPPINS & P. JAMES: W, 27629 terricolous in *Pinus* forest.

Placynthium nigrum (HUDS.) GRAY: S, 35329 on mortar of vertical exposed surface of wall.

Porina atlantica (ERICHS.) P. M. JØRG.: E, 26998Au.

Porina borreri (TREVISAN) D. HAWKSW. & P. JAMES: E, 27627Qc, 35310Au; (S-H).

Porina chlorotica (ACH.) MÜLL. ARG. f. ***tenuifera*** (NYL.) SWINSCOW: W, on vertical shaded outcrop; S, on exposed vertical outcrop (ac); (S-H).
Porina coralloidea P. JAMES: W, 27761s, 27751 on *Erica arborea*; E, 27672Au; (S-H).
Porina leptospora NYL.: W, 27582 on exposed root of fallen *Arbutus unedo.*
Porpidia platycarpoides (BAGL.) HERTEL: W, 27513s; (S-H).
Protoparmelia montagnei (FR.) POELT & NIMIS: W, 27794s.
Pseudocyphellaria aurata (ACH.) VAINIO: E, 26990Au, 35362Qc; (S-H).
Punctelia borreri (SM.) TURNER: E, 27631s, 35310Au; W, 35268s.
Punctelia subrudecta (NYL.) KROG: W, 27788s.
Pyrenula chlorospila ARNOLD: E, 27664Qc; W, 27477Qc; (S-H).
Pyrrhospora quernea (DICKSON) KÖRBER: W, 27511Pi.
Pyxine subcinerea STIRTON: W, 27603s; (S-H).
Ramalina baltica LETTAU: E, on *Quercus coccifera* (MB).
Ramalina canariensis STEINER: E, 27621Qc.
Ramalina farinacea (L.) ACH.: E, 26989Qc, 27525s chemotype b, usnic, norstictic, tr. connorstictic acids.
Ramalina fastigiata (PERS.) ACH.: W, 27499Qc, 35342Qc, usnic, evernic acids.
Ramalina implectens NYL.: E, 27005Qc; (S-H).
Ramalina pusilla LE PRÉV. ex DUBY: W, 27497Qc; E, 27622Qc; (S-H).
Ramalina siliquosa (HUDS.) A. L. SM.: W, 27779s, chemotype a, usnic, protocetraric acids.
Ramalina subfarinacea (NYL. ex CROMB.) NYL.: E, on acidic outcrops (MB).
Ramalina subgeniculata NYL.: (S-H).
Rhizocarpon reductum TH. FR.: W, 27831s.
Rimularia aff. ***insularis*** (NYL.) RAMBOLD & HERTEL: S, 27635s on *Pertusaria melanochlora.* The genus *Rimularia* is in need of revision, especially for the flora of Iberia.
Rinodina atrocinerea (HOOK.) KÖRBER: (S-H).
Rinodina beccariana BAGL.: E, 26974s; W, 27484s, 27604s, 35289s; published in GIRALT (2001) from this area; (S-H); some of the saxicolous specimens seems to be related to *Rinodina roboris* (ACH.) KÖRB. (W, 27763s, 27541s).
Rinodina ericina (NYL.) GIRALT: W, 27583 on exposed root of fallen *Arbutus unedo.*
Rinodina oxydata (A. MASSAL.) A. MASSAL.: E, on acidic outcrops (MB).
Roccella fuciformis (L.) DC.: E, 27651s.
Roccella phycopsis (ACH.) ACH.: W, 27781s; E, 26967s, 35292s.
Roccella tinctoria DC.: W, 35261s. Recorded in TAVARES (1958).
Schismatomma decolorans (TURNER & BORRER) CLAUZADE & VĚZDA: E, 27614Qc.
****Schismatomma niveum*** D. HAWKSW. & P. JAMES: E, on *Quercus coccifera* (MB).
Sclerophyton circumscriptum (TAYLOR) ZAHLBR.: W, 27816s; S, 35350s.
****Scoliciosporum*** aff. ***schadeanum*** (ERICHS.) VĚZDA: E, 35368Qc. This specimen is very inconspicuous and fits well in habitus with material from Central Europe (hb V. D. BOOM) however the ascospores are somewhat larger (30-37 × 2 µm).
Scoliciosporum umbrinum (ACH.) ARNOLD: W, 27772s.
Solenopsora holophaea (MONT.) SAMP.: W, 27777s.
Solenopsora vulturiensis A. MASSAL.: W, 27562s, 27790s.
+***Sphinctrina tubiformis*** A. MASSAL.: W, 27554Qc; S, 35332Qc both on *Pertusaria.*
Sticta fuliginosa (HOFFM.) ACH.: E, 27002Au; (S-H).
Strangospora ochrophora (NYL.) R. A. ANDERSON: E, 35304Au.
+***Syzygospora bachmannii*** DIEDERICH & M. S. CHRIST.: T, 27782t on *Cladonia rangiformis.*
+***Syzygospora physciacearum*** DIEDERICH: W, 27759s on *Physcia tribacia,* 35273s on *Physcia adscendens.*
Teloschistes chrysophthalmus (L.) TH. FR.: S, 27647Qc, 35334Qc.
Thelomma mammosum (HEPP) A. MASSAL.: S, 27581s, 35349s.
Toninia aromatica (SM.) A. MASSAL.: S, 35589s.
*+***Toninia subfuscae*** (ARNOLD) TIMDAL: W, on vertical rock on *Lecania inundata.*
Trapelia coarctata (SM.) CHOISY: W, 27535s; (S-H).
Trapeliopsis granulosa (HOFFM.) LUMBSCH: W, on burnt bark of a *Pinus* trunk (ac).
+***Tremella parmeliarum*** DIEDERICH: E, 27012Qc on *Parmotrema reticulatum.*

*+***Tremella ramalinae** DIEDERICH: E, 35293Qc on *Ramalina* spec.
+***Trichonectria rubefaciens*** (ELLIS & EVERH.) DIEDERICH & SCHOERS: E, 27655Qc, on *Parmotrema* cf. *reticulatum*; W, 27549Qc on *Ramalina* spec.; S, 27649s on *Ramalina* spec. These two latter specimens fit well in habitus with material growing on *Parmeliaceae*, on which the species is usually found. The material recorded here on *Ramalina* shows the 1-septate ascospores but they are somewhat smaller (10-15 × 2.6-3 µm).
Usnea cornuta KÖRBER: E, on *Pinus* (MB).
Usnea esperantiana CLERC: E, 27613Qc.
Usnea rubicunda STIRTON: E, 26987Qc; (S-H).
Usnea subscabrosa NYL. ex MOTYCA: (S-H).
Verrucaria macrostoma DC.: E, 35313s.
+***Vouauxiella lichenicola*** (LINDS.) PETR. & SYD.: W, 27607s on *Lecanora* spec.
Xanthoparmelia conspersa (ACH.) HALE : W, 27495s, usnic, norstictic, stictic, cryptostictic acids.
Xanthoparmelia protomatrae (GYELN.) HALE: W, 27488s, 27536s, usnic, fumarprotocetraric, protocetraric acids.
Xanthoparmelia somloensis (GYELN.) HALE: W, 27595s, usnic, norstictic, salazinic acids.
Xanthoparmelia sublaevis (COUTINHO) HALE: (S-H).
Xanthoria parietina (L.) TH. FR.: W, on weakly sloping acidic outcrop (ac); (S-H).

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