

Miscellaneous records of lichens and lichenicolous fungi from Albania

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Abstract: HAFELLNER J. & KASHTA L. 2003. Miscellaneous records of lichens and lichenicolous fungi from Albania. – *Herzogia* 16: 135–142.

A list of 137 taxa of lichens and 15 species of lichenicolous fungi collected in recent years at various localities in Albania is presented. The majority represents new records for the country.

Zusammenfassung: HAFELLNER J. & KASHTA L. 2003. Diverse Nachweise von Flechten und lichenicolen Pilzen aus Albanien. – *Herzogia* 16: 135–142.

Eine Liste von 137 Taxa von Flechten und 15 Arten lichenicoler Pilze, die in den letzten Jahren an verschiedenen Fundpunkten in Albanien gesammelt wurden, wird zusammen mit geographischen und substratökologischen Daten präsentiert. Viele der erwähnten Arten (86 bzw. 15) stellen Erstmachweise für dieses Land dar.

Key words: Biodiversity, checklist of Mediterranean lichens, flora of Albania.

Introduction

Due to the long isolation of Albania, sources of information about the country are scarce. This is true for many fields of natural sciences including botany. On the other hand Albania is one of the countries, for which floristic data are foreseen to be included in a checklist of Mediterranean lichens (see e.g. NIMIS 1996), although little is known so far about the presence and distribution of lichenized fungi in that country. Initially it was planned to explore selected sites within the framework of OPTIMA but because of the politically unstable situation in the last years, this professional field work had to be postponed. Instead, the results presented below are based on fieldwork undertaken by Prof. L. Kashta who has been encouraged by the senior author. This is but a first step towards an improvement of our knowledge of the diversity of lichens in Albania and many further taxa wait to be recorded.

Geography

Albania is situated on the Balkan peninsula surrounded by the Adriatic Sea in the west and the Ionian Sea in the southwest, Montenegro in the north, Kosovo (at the time belonging to Serbia but with a strong movement to become independent) in the northeast, Macedonia in the east, and Greece in the south and southeast. Albania is mainly a mountainous country, with about 76 % of the land at an elevation of 200 m or higher (FREMUTH et al. 2000), and with about 61 % above an elevation of 600 m (BEGO 1997). In Northern and Central Albania geomorphologically coastal plains with some hill chains in the west and a number of mountain systems in the east can be distinguished. These mountains run in a number of subparallel ranges from northwest to southeast, separated by narrow valleys. Many of the mountain tops are higher than 2000 m, the highest peak in the Korab Range exceeding 2700 m. In Southern Albania a coastal plain

does not exist and the mountain systems representing the northern parts of the Epirus come close to the Ionian Sea.

The rivers all drain into the Adriatic Sea and, due to the mountains being near the coast, are relatively small. The largest river system is that of the Black and White Drin in the north of the country. Some major lakes, L. Shkodra in the north, and Lake Ohrid and L. Prespa in the east, are situated at the border and belong only partly to Albania.

Geology

A thorough treatment of Albanian geology was recently published by MEÇO & ALIAJ (2000).

The outcropping rocks are predominantly of Cretaceous age, but Triassic calcareous rock formations are also not rare. Similar to other parts of the western Balkans, ophiolitic rocks (serpentinite) are quite common, especially in central Albania. In the western lowlands and in the south, soft rocks of the “flysch” formation contribute considerably to the hilly landscape, whereas the coastal plain is built mainly of quarternary and alluvial deposits (TURRILL 1929).

Climate

Whereas the coastal areas and lowlands have a Mediterranean climate, the Mediterranean influence diminishes eastwards. In Vlorë the mean monthly temperatures range from 8–9 °C in January to 25 °C in July. Along the coast the rainy season is from October to March. Frequently air masses of moderate temperature and high humidity move in from the Adriatic Sea causing cloud belts on the mountain slopes. In winter the central mountains are very cold as continental air masses regularly spread out over large parts of the Balkan area. Therefore much of the precipitation in the mountains is in the form of snow, resulting in a winter which lasts 5 to 6 months (TURRILL 1929). Four climatic zones (lowland-mediterranean, hilly-mediterranean, premontane-mediterranean, montane-mediterranean) are identified in the country (BEGO 1997).

Higher plants – flora and vegetation

Although the country is rather small, it supports about 30 % (c. 3250 species) of the European flora, with about 400 species restricted to the Balkans or part of it. Interestingly more than 550 plant species with a more northern distribution have their southern limit within Albania whereas only 150 plant species with a southern distribution pattern come to their northern limit in Albania. This clearly indicates the stronger linkage to the meridional zone rather than to the mediterranean one.

The vegetation of Albania was studied in detail by MARKGRAF (1927, 1932, 1949). The lowland vegetation up to about 300–400 m altitude is mediterranean, a maquis and *Pinus halepensis* forests being the more common and most natural types, but large areas with better soils are under cultivation. In swampy areas *Quercus robur* was an important tree species but actually is in retreat, as is *Platanus orientalis* along the rivers. Maquis-like vegetation types are more widely distributed in Southern Albania and there, mixed with patches of *Pinus nigra* stands, they also reach higher altitudes of up to about 1000 m. Further inland *Quercus pubescens* and *Carpinus orientalis* dominate the lower part of a vegetation belt of deciduous forests that above about 600 m are replaced by a mixed deciduous forest often dominated by *Quercus cerris*, but which regularly also contains *Fraxinus ornus*, *Tilia tomentosa*, *Ostrya carpinifolia*, *Acer obtusatum* and *Aesculus hippocastanum*. However, natural stands of *Aesculus*

hippocastanum nowadays are very rare in Albania. Over serpentinite these forests can be replaced by a coniferous forest of *Pinus nigra*. Above about 1000 m the relatively dry oak forests are replaced by beech forests (*Fagus sylvatica* often mixed with *Abies alba*) with patches of *Pinus peuce* and *Pinus heldreichii* at the upper limit, but these temperate cloud forests reach their southern limit in southern Central Albania. Further south, at the same elevation under the influence of a marked dry period in the summer, oromediterranean coniferous forests with *Abies borisii-regis* and *Pinus nigra* can be seen, but calcareous mountain chains closer to the sea can also have stands of *Pinus heldreichii*. Alpine grasslands and herbfields are found in general above about 2000 m; in Northern and Central Albania they have a central European character whereas those of Southern Albania show kryomediterranean features.

Previous lichen records from Albania

As regards the knowledge of diversity and distribution of lichenized fungi, Albania is still one of the least well known countries in Europe. Up to now not even one paper has been published that deals entirely with Albanian lichens. There are a few historical lichenological contributions of which two, those of KÖRBER (1867) and ZAHLBRUCKNER (1897), do not contain any records from present-day Albania despite “Albania” appearing in their titles. The localities mentioned there now belong to the neighbouring countries of Montenegro, Serbia (autonomous region of Kosovo) or Macedonia respectively.

Previous records of lichens in Albania with its current political borders are very few. I. Szyszyłowicz, who had mainly collected in Montenegro, also entered into Albania and gathered some lichen specimens which were later determined and published by ZAHLBRUCKNER (1889). A number of species including some from high altitudes were collected by J. B. Kümmerle and later published by SZATALA & TIMKO (1926). Also F. Markgraf collected lichens as part of his studies of the vegetation of Albania in 1924 and 1928. These specimens were mostly determined by J. Hillmann and are mentioned by MARKGRAF (1927, 1931) in lists of herbarium specimens and in his vegetation relevés. The floristic data describing Albanian vegetation types were partly republished by MARKGRAF (1932). Further species records turn up in the taxonomic literature, in which occasionally an Albanian specimen is also cited (e.g. HILLMANN 1930, HANKO et al. 1986), but some of them, although cited under Albania, refer to bordering countries (e.g. ROPIN & MAYRHOFER 1993). More recently only one smaller floristic contribution was published (MURATI 1979).

Material and methods

The samples were collected by one of the authors (L. K.) during his excursions that concentrated on higher plants and then sent to the senior author for identification. Clean specimens were prepared partly after remoistening and were determined by use of lichenological routine methods. Specimens are preserved in the herbarium of the Institute of Botany, Karl-Franzens-University Graz (GZU).

List of localities visited

- 01: Northern Albania, Shkodër distr.: Tarabosh near Shkodër, 42°03'N / 19°27'E, ca. 250 m; limestone outcrops in pasture land; 13.VI.2000, leg. L. Kashta
02: Northern Albania, Shkodër distr.: Qafa e Bordolecit (Bordoleci Pass), 42°32'N / 19°43'30"E, c. 1200–1300 m; beech forest; 13.VI.2000 and 25.V.2001, leg. L. Kashta

- 03: Northern Albania, Shkodër distr.: near the village Lëpushë, 42°31'30"N / 19°44'E, c. 1000 m; outcrops in a pasture; 13.VI.2000 and 25.VI.2001, leg. L. Kashta
- 04: Northern Albania, Shkodër distr.: Gryka e Rapshës (gorge of Rapsha), 42°24'N / 19°31'E, c. 750 m; limestone; 21.VI.2000, leg. L. Kashta
- 05: Northern Albania, Shkodër distr.: Shkalla Rapshës (gorge of Rapsha), 42°24'N / 19°31'E, c. 750 m; limestone; 24.VI.2000, leg. L. Kashta
- 06: Northern Albania, Shkodër distr.: Qafa e Shtogut (Shtogut Pass), 42°24'N / 19°44'E, c. 1750 m; subalpine pasture; 29.VII.2000, leg. L. Kashta
- 07: Northern Albania, Shkodër distr.: Qafa e Shtogut (Shtogut Pass), 42°24'N / 19°44'E, c. 1800 m; open coniferous forest; 29.VII.2000, leg. L. Kashta
- 08: Southern Albania, Vlorë distr.: near the village Palasë, 40°10'N / 19°37'30"E, c. 300 m; cultivated land with scattered trees; 9.VIII.2000 and 20.VIII.2001, leg. L. Kashta
- 09: Northern Albania, Shkodër distr.: Shkodër, Rozafa (hill of the castle) 42°02'30"N / 19°29'30"E, c. 100 m; limestone; 11. IV. 2001, leg. L. Kashta
- 10: Northern Albania, Shkodër distr.: Renc E of Shkodër, 42°03'30"N / 19°33'20"E, c. 100 m; rocky hills, serpentinite; 12.IV.2001, leg. L. Kashta
- 11: Northern Albania, Shkodër distr.: Rrjoll about 40 km NE of Shkodër, 42°14'N / 19°36'E, c. 300 m; chestnut forest with limestone outcrops; 9.V.2001, leg. L. Kashta
- 12: Northern Albania, Shkodër distr.: near the village Bogë about 50 km NNE of Shkodër, 42°24'N / 19°41'E, c. 900 m; calcareous outcrops in open woodland; 1.VI.2001, leg. L. Kashta
- 13: Northern Albania, Kukës distr.: near the village Bicaj about 11 km S of Kukës, 41°59'N / 20°25'E, c. 300 m; mixed forest with limestone outcrops; 4.VI.2001, leg. L. Kashta
- 14: Northern Albania, Kukës distr.: SE slopes of Pashtrik (Beshtriku) mountains, above the village Pogaj about 12 km NE of Kukës, 42°10'N / 20°32'E, c. 800 m; mixed forest with limestone outcrops; 6.VI.2001, leg. L. Kashta
- 15: Northern Albania, Kukës distr.: SE slopes of Pashtrik (Beshtriku) mountains, above the village Pogaj about 12 km NE of Kukës, 42°10'N / 20°32'E, c. 1200–1400 m; limestone outcrops; 6.VI.2001, leg. L. Kashta
- 16: Southern Albania, Vlorë distr.: Llogora National Park, near the village Llogora ca. 30 km SSE of Vlorë, 40°12'20"N / 19°36'E, c. 800–1000 m; mixed forest, 21.VIII.2001, leg. L. Kashta

Substrates investigated and the abbreviations used

| | | | |
|------------------------------|-----|-----------------------------|-----|
| <i>Abies borisii-regis</i> | Abb | <i>Juglans regia</i> | Jug |
| <i>Acer spec.</i> | Ace | <i>Olea europaea</i> | Ole |
| <i>Castanea sativa</i> | Cas | <i>Pinus leucodermis</i> | Pnl |
| <i>Citrus aurantium</i> | Cia | <i>Pinus nigra</i> | Pnn |
| <i>Crataegus heldreichii</i> | Cth | <i>Pyrus amygdaliformis</i> | Pya |
| <i>Fagus sylvatica</i> | Fag | <i>Quercus coccifera</i> | Qco |
| <i>Ficus carica</i> | Fic | | |

| | |
|---------|--|
| cor | on bark (used in case of phorophyte not identified) |
| cal | on limestone and calcareous schists, in the mediterranean region often superficially decalcified |
| sil | on siliceous rocks (excl. ophiolites) |
| oph | on ophiolitic rocks (mainly serpentinites) |
| ter-sil | on soil over siliceous rocks |
| ter-cal | on soil over calcareous rocks |
| bry/dtr | on bryophytes and plant remnants |
| bry-cor | on corticolous bryophytes |
| bry-cal | on saxicolous bryophytes over calcareous rocks |
| lic | lichenicolous, non-lichenized |
| \$ | non-lichenized, not lichenicolous |

The species

Species are arranged alphabetically. Numbers from 01 to 16 correspond to the localities; the abbreviations following this number correspond to the substrates listed above. Numbers in brackets are those of a consecutive numbering system used by the senior author and shall help to identify individual specimens. An asterisk (*) indicates a new record for Albania.

- **Agonimia tristicula* (Nyl.) Zahlbr.: 03 bry/dtr (54488)
- **Alectoria sarmentosa* (Ach.) Ach.: 07 Pnl (54535)
- **Amandinea punctata* (Hoffm.) Coppins & Scheid.: 08 Ole (54562), 16 Pns (57693)
- Anaptychia ciliaris* (L.) Körb. var. *ciliaris*: 02 Fag (57674), 03 Pya (57620), 14 Ace (57638)
- **Arthonia punctiformis* Ach.: 03 cor (54491)
- Aspicilia calcarea* (L.) Mudd: 09 cal (54895)
- Bryoria fuscescens* (Gyeln.) Brodo & D.Hawksw.: 07 Pnl (54536)
- **Caloplaca alociza* (A.Massal.) Migula: 01 cal (54551)
- **Caloplaca aurantia* (Pers.) Hellb.: 01 cal (54550)
- **Caloplaca cerina* (Ehrh. ex Hedw.) Th.Fr. var. *cerina*: 02 Fag (57670), 08 Fic (54570), 16 Pns (57650)
- **Caloplaca festiva* (Ach.) Zwackh: 10 oph (54939)
- Caloplaca flavescens* (Huds.) J.R.Laundon: 09 cal (54907)
- **Caloplaca haematites* (St.Amans) Zwackh: 08 Fic (54571)
- **Caloplaca ochracea* (Schaer.) Flagey: 09 cal (54897)
- **Caloplaca subpallida* H.Magn.: 10 oph (54931)
- **Caloplaca xantholyta* (Nyl.) Jatta: 04 cal (54525)
- **Candelariella faginea* Nimis, Poelt & Puntillo: 02 Fag (54504)
- **Candelariella vitellina* (Hoffm.) Müll.Arg.: 08 Fic (54576), 10 oph (54914), 12 cal (57604)
- **Catillaria lenticularis* (Ach.) Th.Fr.: 09 cal (54896)
- Cladonia chlorophaea* (Flörke ex Sommerf.) Spreng.: 11 bry-cal (58204), 15 ter-cal (57632)
- **Cladonia coniocraea* (Flörke) Spreng.: 03 sil (54484), 11 Cas (58210)
- Cladonia convoluta* (Lam.) Anders: 13 ter-cal (57610)
- **Cladonia fimbriata* (L.) Fr.: 06 ter-cal (54546), 11 ter-cal (58209), 13 ter-cal (57612)
- Cladonia foliacea* (Huds.) Willd.: 01 ter-cal (54559)
- Cladonia furcata* (Huds.) Schrad. ssp. *furcata*: 06 ter-cal (54547)
- **Cladonia macilenta* Hoffm. ssp. *macilenta*: 16 Pns (57692)
- Cladonia pyxidata* (L.) Hoffm.: 03 sil (54483), 04 bry-cal (54529), 06 ter-cal (54543), 13 ter-cal (57611), 16 Pns (57654)
- Cladonia rangiformis* Hoffm.: 01 ter-cal (54558), 13 ter-cal (57609)
- Collema auriforme* (With.) Coppins & J.R.Laundon: 03 sil (54479), 05 cal (54530)
- Collema flaccidum* (Ach.) Ach.: 16 Abb (57644)
- Collema fuscovirens* (With.) J.R.Laundon: 14 cal (57714)
- **Collema subflaccidum* Degel.: 16 Pns (57694)
- **Collema subnigrescens* Degel.: 08 Jug (57733) Ole (54568, 57734)
- **Collema tenax* (Sw.) Ach. emend. Degel. var. *tenax*: 09 cal (54909, 54904, 54899, 54903), 13 ter-cal (57614)
- **Dermatocarpon miniatum* (L.) W.Mann var. *miniatum*: 03 cal (54477), 09 cal (54885), 10 oph (54928), 13 cal (57607), 15 cal (57630)
- **Dimerella pineti* (Ach.) Vězda: 16 Pns (57652)
- **Diploschistes gypsaceus* (Ach.) Zahlbr.: 04 cal (54523)
- **Diploschistes muscorum* (Scop.) R.Sant.: 03 ter-par on *Cladonia pyxidata* (54489), 13 bry/dtr (57619)
- Diploschistes ocellatus* (Vill.) Norman: 01 cal (54555), 14 cal (57634)
- **Diploschistes scruposus* (Schreb.) Norman: 10 oph (54919)
- Evernia prunastri* (L.) Ach.: 03 Pya (57621)
- **Fulgensia fulgens* (Sw.) Elenkin: 04 ter-cal (54527), 11 ter-cal (58208), 13 ter-cal (57613)
- **Fuscopannaria olivacea* (M.Jørg.) M.Jørg.: 08 Ole (54567)
- **Gyalecta derivata* (Nyl.) H.Olivier: 16 Abb (57676)
- **Hyperphyscia adglutinata* (Flörke) H.Mayrhofer & Poelt: 08 Fic (54573) Cia (57640), 09 cor (54891)
- Hypogymnia physodes* (L.) Nyl.: 02 Fag (54501)
- Hypogymnia tubulosa* (Schaer.) Hav.: 02 Fag (57671), 07 Pnl (54531)
- **Lecanora argentata* (Ach.) Malme: 02 Fag (54507)
- Lecanora carpinea* (L.) Vain.: 02 Fag (57667), 03 cor (54492)

- **Lecanora horiza* (Ach.) Linds.: 02 Fag (57710)
Lecanora intumescens (Rebent.) Rabenh.: 02 Fag (57666)
 **Lecanora polytropa* (Ehrh. ex Hoffm.) Rabenh. var. *polytropa*: 12 cal (57602)
 **Lecanora pulicaris* (Pers.) Ach.: 07 Pnl (54533)
 **Lecanora umbrina* (Ach.) A.Massal.: 03 cor (54498)
 **Lecidea fuscoatra* (L.) Ach. var. *fuscoatra*: 10 oph (54925)
 **Lecidella achrostera* (Nyl.) Hertel & Leuckert: 16 Qco (57700)
Lecidella elaeochroma (Ach.) M.Choisy: 02 Fag (54502, 54513, 57711), 16 Cth (57695)
 **Lecidella scabra* (Taylor) Hertel & Leuckert: 10 oph (54924)
 **Lecidella stigmathea* (Ach.) Hertel & Leuckert: 12 cal (57724)
 **Leptogium coralloideum* (Meyen & Flot.) Vain.: 08 Ole (57736)
 **Leptogium lichenoides* (L.) Zahlbr. var. *lichenoides*: 11 bry-cal (58203)
 **Leptogium microphyloides* Nyl.: 08 Ole (57737)
Lobaria amplissima (Scop.) Forssell: 02 Fag (54511)
Lobaria pulmonaria (L.) Hoffm.: 02 Fag (54512), 03 Pya (57622), 16 Pns (57653)
Lobothallia radiosa (Hoffm.) Hafellner: 10 oph (54929), 15 cal (57631)
 **Megalaria grossa* (Pers. ex Nyl.) Hafellner: 16 Abb (57677)
Melanelia exasperata (De Not.) Essl.: 02 Fag (57658), 03 cor (54493) Pya (57627)
Melanelia exasperatula (Nyl.) Essl.: 02 Fag (57661)
Melanelia fuliginosa (Fr. ex Duby) Essl. ssp. *glabratula* (Lamy) Coppins: 02 Fag (54498, 57660), 08 Ole (54564)
Melanelia glabra (Schaer.) Essl.: 02 Fag (57659), 03 Pya (57626), 08 Ole (54563)
Mycobilimbia lurida (Ach.) Hafellner & Türk: 01 ter-cal (54560), 03 ter-cal (54481), 09 cal (54884), 12 ter-cal (57606), 15 ter-cal (57633)
 **Myxobilimbia lobulata* (Sommerf.) Hafellner: 06 ter-cal (54542)
 **Myxobilimbia sabuletorum* (Schreb.) Hafellner var. *sabuletorum*: 03 bry/dtr (54487), 13 bry/dtr (57618)
 **Naetrocymbe punctiformis* (Pers.) R.C.Harris: 02 Fag (54505)
 **Neofuscelia pulla* (Ach.) Essl. var. *pulla*: 10 oph (54926), 14 cal (57636)
 **Nephroma laevigatum* Ach.: 11 bry-cal (58205), 16 Abb (57675)
 **Ochrolechia androgyna* (Hoffm.) Arnold var. *androgyna*: 16 Pns (57691)
 **Ochrolechia pallescens* (L.) A.Massal.: 14 Ace (57713)
 **Ochrolechia subviridis* (Høeg) Erichsen: 16 Abb (57643)
 **Opegrapha varia* Pers.: 16 Qco (57699)
Parmelia saxatilis (L.) Ach.: 16 Pns (57649)
 **Parmelia submontana* Nádv. ex Hale: 02 Fag (54515)
Parmelia sulcata Taylor: 02 Fag (54514, 57664), 03 Pya (57625)
 **Parmelina pastillifera* (Harm.) Hale: 02 Fag (57662), 03 Pya (57624), 10 oph (54927), 12 cor (57605)
Parmelina quercina (Willd.) Hale: 02 Fag (57663)
Parmelina tiliacea (Hoffm.) Hale: 08 Ole (54565) Cia (57642), 11 Cas (58213)
 **Peltigera horizontalis* (Huds.) Baumg.: 02 bry-cor (54517), 11 bry-cal (58206)
Peltigera praetextata (Flörke ex Sommerf.) Zopf: 02 Fag (54516), 03 bry/dtr (54490), 11 bry-cal (58207)
Peltigera rufescens (Weiss) Humb.: 01 ter-cal (54561), 03 sil (54485), 13 bry/dtr (57617)
 **Pertusaria albescens* (Huds.) M.Choisy & Werner var. *albescens*: 02 Fag (54500), 11 Cas (58214)
 **Pertusaria hymenea* (Ach.) Schaer.: 08 Ole (54566)
Pertusaria pertusa (Weigel) Tuck. var. *pertusa*: 02 Fag (54510)
 **Phaeophyscia orbicularis* (Neck.) Moberg: 16 Abb (57678)
 **Phlyctis argena* (Spreng.) Flot.: 11 Cas (58211)
 **Physcia adscendens* (Fr.) H.Olivier: 08 Cia (57641), 09 cal (54887) cor (54890), 16 Pns (57651)
 **Physcia biziana* (A.Massal.) Zahlbr. var. *biziana*: 08 Fic (54572) Cia (57729) Jug (57730) Ole (57731)
 **Physcia biziana* (A.Massal.) Zahlbr. var. *phyllidiata* Poelt & Vězda: 09 cor (54913), 10 oph (54917)
 **Physcia caesia* (Hoffm.) Fürnr. var. *caesia*: 10 oph (54916)
 **Physcia dubia* (Hoffm.) Lettau var. *dubia*: 10 oph (54915)
 **Physcia semipinnata* (J.F.Gmelin) Moberg: 16 Abb (57643) Qco (57626)
Physcia stellaris (L.) Nyl.: 03 cor (54494), 14 Ace (57712)
 **Physcia tribacia* (Ach.) Nyl.: 10 oph (54938)
Physconia distorta (With.) J.R.Laundon: 03 Pya (57717)

- **Placopyrenium bucekii* (Nádv. & Servit) Breuss: 09 cal (54909)
- **Placynthiella icmalea* (Ach.) Coppins & P. James: 11 Cas (58212)
- **Placynthiella uliginosa* (Schrad.) Coppins & P. James: 11 Cas (58217)
- **Placynthium tremniacum* (A.Massal.) Jatta: 09 cal (54900)
- Platismatia glauca* (L.) W.L.Culb. & C.F.Culb.: 07 Pnl (54534)
- **Pleurosticta acetabulum* (Neck.) Elix & Lumbsch: 02 Fag (57665), 14 Ace (57639)
- Protoparmeliopsis muralis* (Schreb.) M.Choisy var. *muralis*: 09 cal (54892), 12 cal (57603)
- Pseudevernia furfuracea* (L.) Zopf var. *furfuracea*: 02 Fag (54521, 57673), 03 Pya (57623), 07 Pnl (54532)
- **Pseudosagedia aenea* (Wallr.) Hafellner & Kalb: 16 Cth (57698) Qco (57701)
- Psora decipiens* (Hedw.) Hoffm.: 04 ter-cal (54526), 06 ter-cal (54545), 14 ter-cal (57637)
- **Punctelia subrudecta* (Nyl.) Krog: 08 Fic (54574)
- Ramalina farinacea* (L.) Ach. var. *farinacea*: 16 Cth (57655)
- **Ramalina fastigiata* (Pers.) Ach.: 02 Fag (54519)
- Ramalina fraxinea* (L.) Ach. var. *fraxinea*: 02 Fag (54520, 57672)
- Rhizocarpon geographicum* (L.) DC. ssp. *geographicum*: 03 sil (54480), 10 oph (54918)
- **Rinodina sophodes* (Ach.) A.Massal.: 03 cor (54497)
- **Scoliciosporum umbrinum* (Ach.) Arnold var. *corticolum* (Anzi) Bagl. & Carestia: 02 Fag (54506)
- Solorina bispora* Nyl. ssp. *bispora*: 06 ter-cal (54541)
- Solorina saccata* (L.) Ach.: 04 ter-cal (54528), 13 ter-cal (57615), 16 ter-cal (57657)
- **Squamarina cartilaginea* (With.) P.James: 01 cal (54553), 04 cal (54522), 09 cal (54888), 10 oph (54920), 13 ter-cal (57616), 14 ter-cal (57716)
- Squamarina gypsacea* (Sm.) Poelt: 03 bry/dtr (54486), 06 ter-cal (54544)
- **Tephromela atra* (Huds.) Hafellner var. *torulosa* (Flot.) Hafellner: 02 Fag (57668)
- Toninia candida* (Weber) Th.Fr.: 14 cal (57635)
- **Toninia physaroides* (Opiz) Zahlbr.: 13 ter-cal (57727)
- **Verrucaria marmorea* (Scop.) Arnold: 01 cal (54555), 09 cal (54883)
- **Verrucaria nigrescens* Pers.: 09 cal (54894)
- **Xanthoparmelia somloensis* (Gyeln.) Hale: 10 oph (54923)
- **Xanthoparmelia tinctina* (Maheu & A.Gillet) Hale: 10 oph (54922)
- **Xanthoria calcicola* Oksner: 09 cal (54886), 10 oph (54921)
- Xanthoria elegans* (Link) Th.Fr. var. *elegans*: 15 cal (57628)
- **Xanthoria fulva* (Hoffm.) Poelt & Petutschnig: 02 Fag (54503)
- **Xanthoria papillifera* (Vain.) Poelt: 01 cal (54552)
- Xanthoria parietina* (L.) Th.Fr.: 02 Fag (54499), 08 Fic (54575), 09 cal! (54889), 16 Abb (57647)

Lichenicolous fungi

- **Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros.: 09 lic on *Protoparmeliopsis muralis* (54902)
- **Lichenocmium lecanorae* (Jaap) D.Hawksw.: 02 lic on *Lecanora intumescens* (57709)
- **Lichenosticta alcicorniaria* (Linds.) D.Hawksw.: 03 lic on *Cladonia* spec. (57600), 06 lic on *Cladonia furcata* (54540)
- **Lichenostigma elongata* Nav.-Ros. & Hafellner: 15 lic on *Lobothallia radiosa* (57629)
- **Lichenostigma maureri* Hafellner: 02 lic on *Pseudevernia furfuracea* (54518)
- **Lichenostigma rouxii* Nav.-Ros., Calatayud & Hafellner: 14 lic on *Squamarina cartilaginea* (57715)
- **Muellerella pygmaea* (Körb.) D.Hawksw.: 03 lic on cf. *Lecidella* spec. (54478)
- **Opegrapha pulvinata* Rehm: 13 lic on *Dermatocarpon minutum* (57608)
- **Phoma physciicola* Keissl.: 03 lic on *Physcia stellaris* (54495)
- **Polycoccum pulvinatum* (Eitner) R.Sant.: 10 lic on *Physcia tribacia* (54936)
- **Pyrenidium actinellum* Nyl.: 10 lic on *Aspicilia* spec. (54934)
- **Syzygospora physciacearum* Diederich: 08 lic on *Physcia biziana* (57732)
- **Telogalla olivieri* (Vouaux) Nik.Hoffm. & Hafellner: 09 lic on *Xanthoria parietina* (54908)
- **Unguiculariopsis thallophila* (P.Karst.) W.Y. Zhuang: 02 lic on *Lecanora carpinea* (57669)
- **Zwackhiomyces sphinctrinaeiformis* Grube & Hafellner: 09 lic on *Mycobilimbia lurida* (54893)

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