

Lichenicolous Biota (Nos 1–20)

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HAFELLNER J. 2007: Lichenicolous Biota (Nos 1–20). – *Fritschiana* (Graz) 60: 35–49. - ISSN 1024-0306.

Abstract: The first fascicle (20 numbers) of the new exsiccata “Lichenicolous Biota” is published. The issue contains material of one lichenized and 18 non-lichenized fungal taxa (14 ascomycetes, 1 basidiomycete, 4 anamorphic fungi), including isotype material (no 9) and paratype material (no 20) of *Taeniolella atricerebrina* Hafellner.

Zusammenfassung: Der erste Faszikel (20 Nummern) eines neuen Exsikkates namens „Lichenicolous Biota“ wird veröffentlicht. Die Ausgabe enthält Proben von einem lichenisierten und 18 nicht-lichenisierten Taxa (14 Ascomyceten, 1 Basidiomycet, 4 anamorphe Pilze), einschließlich Isotypen (no. 9) und Dubletten eines Paratypus (no. 20) von *Taeniolella atricerebrina* Hafellner.

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Introduction

Lichenicolous biota, especially fungi, have attracted considerable interest since about 40 years, and a number of scientists devoted much of their efforts to studying such organisms.

One possible way to promote these interests is the distribution of an exsiccata. Prof. Rolf Santesson (Uppsala, Sweden) has been the first and so far only editor of an exsiccata restricted to lichenicolous fungi (starting with SANTESSON, R. 1984. *Fungilichenicoli exsiccati*. Fasc. I–II (No 1–50). Publications from the Herbarium, University of Uppsala, 13: 1–20). So far, 350 numbers have been distributed, and we all are very grateful to Prof. Santesson for this initiative. My colleagues and I have found this exsiccata most useful, and some of us are privileged in having easy access to it. For Santesson's exsiccata, at least 10 duplicates were necessary, a number of specimens, which is not always easy to obtain from a single collection. Therefore I accumulated collections of lichenicolous taxa with at least 5 but less than 10 duplicates over the years, and I now decided to distribute this material in a new exsiccata named “Lichenicolous Biota”, which is offered to several institutions on exchange basis.

As for all exsiccata, the aims are: to share knowledge about a particular group of organisms with colleagues, to make species concepts available and easier to check on the basis of a real specimen, to distribute the material of

even rather common taxa from various localities in order to facilitate comparative studies among populations, and to deposit rich collections in a useful manner.

Contrary to Santesson's 'Fungi lichenicoli exsiccati', the present exsiccata will cover all lichenicolous biota. One may assume that the majority will still be non-lichenized and lichenized fungi, but the exsiccata is also open to myxomycetes, bacteria, and even animals, whenever they cause a characteristic symptom on their host (e.g., discoloration or galls). Consequently, the exsiccata will contain both highly host-specific and plurivorous species, as long as the individuals clearly grow upon a lichen and the collection is homogeneous, so that identical duplicates can be prepared.

As the exsiccata will mainly contain fungi, I decided to distribute the sets primarily to institutions housing large collections of lichenized and non-lichenized fungi, including a representative stock of lichenicolous taxa. On the other hand, I want to spread out the material geographically. Therefore I decided to send the five complete sets to herbaria of the following regions: Central Europe (Graz [GZU]), Northern Europe (Uppsala [UPS]), Western Europe (Bruxelles [BR]), North America (New York [NY]), Australasia (Canberra [CANB]). Incomplete sets will preferably be distributed to institutions where at least one active researcher interested in lichenicolous fungi is affiliated, e.g., to Barcelona [BCC], Edinburgh [E], Leningrad [LE], Munich [M], and Prague [PRM] (herbarium acronyms sec. HOLMGREN & HOLMGREN 1998, onwards: Index Herbariorum. New York Botanical Garden. <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>). It is planned to publish at least one fascicle per year, consisting of a variable number of decades.

I would be very grateful to receive material of lichenicolous biota from my colleagues. The collections should be divided up into at least 5 (up to 10) duplicates, preferably already prepared. Unprepared collections should be rich enough to obtain at least 5 duplicates.

For the first issue, I gratefully acknowledge the contribution of one collection by Javier Etayo and one by Walter Obermayer, and the help during fieldwork by Angela Hafellner, Jolanta Miadlikowska, Lucia Muggia, Pier Luigi Nimis, Mauro Tretiach, and Mikhail Zhurbenko. Christian Scheuer, Walter Obermayer, and Helmut Mayrhofer are thanked for critically reading the manuscript.

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1. *Biatoropsis usnearum* Räsänen

in Ann. Soc. Zool. Bot. Fenn. Vanamo 5(9): 8 (1934).

Host: *Usnea articulata* (thallus)

Africa, Canary Islands: Gran Canaria, along the road from Moya to Artenara, between Las Fontanales and the lookout point Los Pinos de Galdar, c. 1350 m alt., 28°02'20"N / 15°37'W; open pine forest, on branches of *Pinus canariensis*.

Note: The type host of *Biatoropsis usnearum* is *Usnea comosa* (syn. *U. subfloridana*). In the protologue three species are mentioned (*U. glabrescens*, *U. comosa*, *U. similis*). Diederich & Christiansen (Lichenologist 26: 49, 1994) have chosen a lectotype, the host of which is named *U. comosa*.

21. II. 1994 leg. J. Hafellner (53831) & A. Hafellner, det J. Hafellner
distributed to: BCC, BR, CANB, E, GZU, LE, M, NY, PRM, UPS

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2. *Catillaria mediterranea* Hafellner

in Herzogia 6: 293 (1982). – Bas.: *Scutula pleiospora* Vouaux in Pitard & Harmand, Bull. Soc. Bot. France 58, Mem. 22: 72 (1911), non *Catillaria pleiospora* (J.Steiner) J.Steiner (1898).

Host: *Ramalina bourgeana* (thallus)

Africa, Canary Islands: Gran Canaria, high above the west coast by the road from San Nicolás to Agaete, Andén Verde, c. 530 m alt., 28°01'30"N / 15°46'W; volcanic cliffs, on steep rock faces exposed to the W.

Note: *Ramalina bourgeana* is the type host of the species.

20. II. 1994 leg. J. Hafellner (41056) & A. Hafellner, det. J. Hafellner
distributed to: BCC, BR, CANB, E, GZU, LE, M, NY, PRM, UPS

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3. *Endococcus macrosporus* (Hepp ex Arnold) Nyl.

in Lamy, Bull. Soc. Bot. France 25: 504 (1878). – Bas.: *Tichothecium macrosporum* Hepp ex Arnold in Verh. K. K. Zool.-Bot. Ges. Wien 18: 960 (1868).

Host: *Rhizocarpon geographicum* (thallus)

Europe, Austria: Styria, Eastern Alps, Niedere Tauern, Triebener Tauern, Griesmoar Kogel SW of the village Wald am Schoberpaß, ridge exposed to the N above the saddle to Himmeleck, 47°25'15"N / 14°36'10"E, c. 1950 m alt., GF 8553/4; low outcrops of mica schist in alpine vegetation.

Note: The type host of *Endococcus macrosporus* is *Rhizocarpon alpicola*.

20. VIII. 2002 leg. J. Hafellner (58888) & J. Miadlikowksa, det. J. Hafellner
distributed to: BR, CANB, GZU, LE, M, NY, UPS

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4. *Lichenochora obscuroides* (Linds.) Triebel & Rambold

in Rambold & Triebel, Biblioth. Lichenol. 48: 168 (1992). – Bas.: *Lecidea obscuroides* Linds. in Trans. Roy. Soc. Edinburgh 22: 112, 247 (1859). – Syn.: *Lichenochora thallina* (Cooke) Hafellner in Nova Hedwigia 48: 363 (1989).

Host: *Phaeophyscia orbicularis* (thallus)

Europe, Austria: Styria, Oststeirisches Hügelland, Graz, Ragnitztal E of the town, Dr. Hanisch-Weg, 47°04'35"N / 15°28'50"E, c. 380 m alt., GF 8958/2; old orchard, on canopy branches of *Juglans regia*.

Note: *Phaeophyscia orbicularis* is the type host of the species. The thalli are partly also infested by *Arthonia phaeophysciae* Grube & Matzer (e.g., the specimen in GZU).

8. IX. 2006 leg. et det. J. Hafellner (67536)
distributed to: BCC, BR, CANB, E, GZU, LE, M, NY, PRM, UPS

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5. *Nigropuncta rugulosa* D.Hawksw.

in Bull. Brit. Mus. (Nat. Hist.), Bot. 9(1): 46 (1981).

Host: *Bellemeria cinereorufescens* (thallus)

Europe, Austria: Styria, Eastern Alps, Gurktaler Alpen, surroundings of the pass Turracherhöhe, hill N above the lake Turrachsee, ENE above the hotel Seewirt, 46°55'30"N / 13°52'40"E, c. 1850 m alt., GF 9049/3; open forest with codominant *Picea abies*, *Larix decidua*, and *Pinus cembra*, in overhangs of boulders and outcrops of a Palaeozoic conglomerate.

Note: *Bellemeria cinereorufescens* is the type host of *Nigropuncta rugulosa* (isotype in GZU). However, the host had remained undetermined when the lichenicolous fungus was described, because the infection strongly suppresses the formation of host apothecia.

27. VII. 2002

leg. et det. J. Hafellner (61656)

distributed to: BCC, BR, CANB, GZU, LE, M, NY, UPS

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6. *Paranectria oropensis* (Ces.) D.Hawksw. & Piroz.

in Can. J. Bot. 55: 2555 (1977). – Bas.: *Sphaeria oropensis* Ces. in Rabenh., Bot. Zeitung 15: 406 (1857).

Host: sterile corticolous crustose lichen (thallus)

Europe, Austria: Styria, Oststeirisches Hügelland, 7 km E of the centre of Graz, 2.9 km SW of Hönigtal, forested area between Ragnitzstraße and Höhenstraße, 47°04'45"N / 15°31'45"E, 460–480 m alt., GF 8959/1, mixed lowland forest with *Fagus sylvatica*, *Pinus sylvestris*, and *Picea abies*, on bark of *Carpinus betulus*.

Note: The type host of *Paranectria oropensis* are sterile squamules of a so far undetermined lichen.

25. IX. 2006

leg. W. Obermayer (11358), det. J. Hafellner

distributed to: BCC, BR, CANB, E, GZU, LE, M, NY, PRM, UPS

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7. *Phacopsis vulpina* Tul.

in Ann. Sci. Nat., Bot., sér. 3, 17: 126 (1852).

Host: *Letharia vulpina* (thallus)

Europe, Austria: Styria, Eastern Alps, Niedere Tauern, Triebener Tauern, Gamskögel SW above the refuge Mödringhütte, on slopes exposed to the N, 47°22'25"N / 14°33'20"E, c. 1700 m alt., GF 8653/1; subalpine forest with *Larix decidua* and *Picea abies*, on bark of *Larix decidua*.

Note: *Letharia vulpina* is the type host of the species.

1. V. 2006 leg. J. Hafellner (65963), L. Muggia & A. Hafellner, det. J. Hafellner
distributed to: BCC, BR, CANB, GZU, LE, M, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - Fritschiana 60: 35–49.

8. *Sphaerellothecium minutum* Hafellner

in Herzogia 9: 760 (1993).

Host: *Sphaerophorus fragilis* (thallus)

Europe, Austria: Styria, Eastern Alps, Niedere Tauern, Wölzer Tauern, mountains c. 8,5 km WNW of the village Pusterwald, Großhansl, close to the summit, 47°19'10"N / 14°15'55"E, c. 2300 m alt., GF 8651/4; cliffs of metal-rich siliceous rock on steep slope exposed to the E, on inclined rock faces.

Note: *Sphaerophorus fragilis* is the type host of the species.

25. VIII. 2005 leg. J. Hafellner (68069), L. Muggia & A. Hafellner, det. J. Hafellner
distributed to: BR, CANB, GZU, LE, M, NY, UPS

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9. ***Taeniolella atricerebrina*** Hafellner

Isotype

in Biblioth. Lichenol. 96: 115 (2007).

Host: *Tephromela atra* (thallus)

Europe, Austria: Styria, Eastern Alps, Niedere Tauern, Triebener Tauern, Griesmoar Kogel SW of the village Wald am Schoberpaß, ridge exposed to the N above the saddle to Himmeleck, 47°25'15"N / 14°36'10"E, c. 1950 m alt., GF 8553/4; low outcrops of mica schist in alpine vegetation.

Note: The infection of *Tephromela atra* with *Taeniolella atricerebrina* induces the formation of conspicuous galls.

20. VIII. 2002 leg. J. Hafellner (59165) & J. Miadlikowska, det. J. Hafellner
distributed to: BR, CANB, E, GZU, NY, UPS

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10. ***Teloggalla olivieri*** (Vouaux) Nik.Hoffm. & Hafellner

in Biblioth. Lichenol. 77: 109 (2000). – Bas.: *Laestadia olivieri* Vouaux in Bull. Soc. Mycol. France 28: 216 (1912) nomen novum for *Verrucaria xanthoriae* Wedd. f. *megaspora* H.Olivier in Princ. Paras. Lich. Fr. Suppl. 1: 14 (1907).

Host: *Xanthoria parietina* (thallus)

Europe, Austria: Styria, Eastern Alps, Nördliche Kalkalpen, Hochschwab-Gruppe, Seetal W of the village Seewiesen, c. 10 km NE of Aflenz, 47°37'15"N / 15°15'20"E, c. 930 m alt., GF 8357/4; row of trees along the edge of a meadow, on lower canopy branches of *Fraxinus excelsior*

Note: *Xanthoria parietina* is the type host of the species.

18. XI. 2007 leg. et det. J. Hafellner (69273)
distributed to: BCC, BR, CANB, E, GZU, LE, M, NY, PRM, UPS

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11. *Arthonia digitatae* Hafellner

in Linzer Biol. Beitr. 31: 508 (1999).

Host: *Cladonia digitata* (thallus squamules)

Europe, Austria: Styria, Eastern Alps, Steirisches Randgebirge, Stubalpe, Größenberg S of Zeltweg, NW ridge towards the village Eppenstein, Pichlmoarkogel, between Griesmoarhütte and the mountain top, on slope exposed to the SW, 47°06'05"N / 14°46'05"E, c. 1560 m alt., GF 8854/4; montane forest with *Larix decidua* and *Picea abies*, on rotten stumps.

Note: *Cladonia digitata* is the type host of the species.

18. VIII. 2005

leg. et det. J. Hafellner (65869)

distributed to: BR, CANB, GZU, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - Fritschiana 60: 35–49.

12. *Carbonea herteliana* Hafellner & Matzer

in Hafellner, Linzer Biol. Beitr. 31: 509 (1999).

Host: *Rhizocarpon umbilicatum* (thallus)

Europe, Austria: Styria, Eastern Alps, Nördliche Kalkalpen, Ennstaler Alpen, Gesäuseberge SE of Admont, knoll between the mountains Riffel and Kalbling, 47°33'05"N / 14°31'05"E, c. 2000 m, GF 8453/1; outcrops of Triassic limestone in alpine meadows, on inclined rock faces of outcrops.

Note: *Rhizocarpon umbilicatum* is the type host of the species.

13. IX. 2006

leg. et det. J. Hafellner (67789)

distributed to: BR, CANB, GZU, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - Fritschiana 60: 35–49.

13. *Carbonea intrudens* (H.Magn.) Hafellner

in Fritschiana 52: 40 (2006). – Bas.: *Lecidea intrudens* H.Magn. in Ark. Bot. 33A(1): 53 (1946).

Host: *Rhizocarpon geographicum* (thallus)

Europe, Italy: Piemonte, Cuneo, Western Alps, Alpi Cozie, crest SW above Colle dell' Agnello, 44°40'55"N / 06°58'35"E, c. 2830 m; outcrops of calcareous schist on steep slope exposed to the SE, on banks of schist partly rich in calcium.

Note: *Rhizocarpon geographicum* is the type host of the species.

25. VII. 2000

leg. et det. J. Hafellner (60264)
(together with M. Tretiach and P. L. Nimis)

distributed to: BR, CANB, GZU, NY, UPS

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14. *Cercidospora crozalsiana* (H.Olivier) Nav.-Ros., Cl.Roux & Casares

in Cryptogamie, Bryol.-Lichénol. 16: 100 (1995). – Bas.: *Sphaeria crozalsiana* H.Olivier in Bull. Acad. Int. Géogr. Bot. 17: 168 (1907).

Host: *Squamarina cartilaginea* (thallus)

Europe, Spain: Aragón, Zaragoza, La Retverta, Pina de Ebro c. 35 km SE of Zaragoza, UTM 30TYL29-97, c. 200 m alt., on gypsum soil.

Note: The type host of the species is *Squamarina lentigera*.

11. III. 1991

leg. et det. J. Etayo

distributed to: BR, CANB, GZU, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - Fritschiana 60: 35–49.

**15. *Illosporopsis christiansenii* (B.L.Brady & D.Hawksw.)
D.Hawksw.**

in Sikaroodi et al., Mycol. Res. 105: 457 (2001). – Bas.: *Hobsonia christiansenii* B.L.Brady & D.Hawksw. in Lowen et al., Mycologia 78: 842 (1986).

Host: *Physcia adscendens* (thallus)

Europe, Austria: Styria, Eastern Alps, Steirisches Randgebirge, Fischbacher Alpen, on the saddle between the mountains Ederkogel and Aibel, NE of the village St. Jakob bei Mixnitz, 47°25'00"N / 15°27'50"E, c. 1100 m alt., GF 8558/4; row of trees along the edge of a pasture, on bark of *Fraxinus excelsior*.

Note: The type host of the species is *Candelaria concolor*.

29. IX. 1999

leg. et det. J. Hafellner (59545)

distributed to: BR, CANB, GZU, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - Fritschiana 60: 35–49.

16. *Lichenoconium lecanorae* (Jaap) D.Hawksw.

in Bull. Brit. Mus. (Nat. Hist.), Bot. 6(3): 270 (1979). – Bas.: *Coniosporium lecanorae* Jaap in Lindau, Verh. Bot. Vereins Prov. Brandenburg 47: 71 (1906).

Host: *Lecanora saligna* (hymenia)

Europe, Austria: Styria, Eastern Alps, Nördliche Kalkalpen, Hochschwab group, massif of Meßnerin c. 25 km NW of the town Kapfenberg, Rabenstein S above the inn Bodenbauer, 47°34'15"N / 15°06'35"E, c. 1480 m alt., GF 8456/2; forest with *Picea abies* and *Larix decidua*, on slope exposed to the E, on wood of snags.

Note: The type host of the species is *Lecanora chlorotera*.

4. VII. 2004

leg. et det. J. Hafellner (63723)

distributed to: BR, CANB, GZU, NY, UPS

Hafellner J. 2007: Lichenicolous Biota (Nos 1–20). - *Fritschiana* 60: 35–49.

17. *Skyttea nitschkei* (Körb.) Sherwood, D.Hawksw. & Coppins

in *Trans. Brit. Mycol. Soc.* 75: 488 (1981, "1980"). – Bas.: *Nesolechia nitschkei* Körb. in *Parerga Lichenol.*: 462 (1865).

Host: *Thelotrema lepadinum* (thallus, apothecial margins)

Europe, Austria: Styria, Eastern Alps, Ennstaler Alpen, Gesäuse, in the valley Hartelsgraben c. 3 km W of the village Hieflau, somewhat before the second bridge over the creek, 47°35'15"N / 14°42'25"E, c. 660 m alt., GF 8454/1; montane forest with *Fagus sylvatica*, *Abies alba*, and *Picea abies*, on bark of *Fagus sylvatica*.

Note: *Thelotrema lepadinum* is the type host of the species.

26. VIII. 2002 leg. J. Hafellner (60630) & J. Miadlikowska, det. J. Hafellner
distributed to: BR, CANB, GZU, NY, UPS

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18. *Stigmidium congestum* (Körb.) Triebel

in *Triebel et al., Mycotaxon* 42: 290 (1991). – Bas.: *Pharcidia congesta* Körb. in *Parerga Lichenologica*: 470 (1865).

Host: *Lecanora chlarofera* (hymenia)

Europe, Austria: Styria, Eastern Alps, Steirisches Randgebirge, Stubalpe, Teigitsch-Graben NW of the village Hirscheegg, c. 1 km NW of the inn Spengervirt, 47°02'40"N / 14°55'20"E, c. 990 m alt., GF 8955/4; row of trees along the brook side, on bark of *Alnus incana*.

Note: *Lecanora chlarofera* (f. *rugosella*) is the type host of the species.

29. X. 2006 leg. et det. J. Hafellner (66896)
distributed to: BR, CANB, GZU, NY, UPS

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19. ***Stigmidium pumilum*** (Lettau) Matzer & Hafellner

in Biblioth. Lichenol. 37: 115 (1990). – Bas.: *Rosellinia pumila* Lettau, Repert. Spec. Nov. Regni Veg. 61(2): 150 (1958).

Host: *Physcia caesia* (thallus)

Europe, Austria: Styria, Eastern Alps, Steirisches Randgebirge, Stubalpe W of the town Köflach, SW ridge of the Rappoldkogel N above the pass Hirschegger Sattel, 47°04'35"N / 14°52'40"E, c. 1660 m alt., GF 8955/1, low outcrops of marble in a pasture field surrounded by subalpine *Picea abies* forest, on inclined rock faces, partly over saxicolous bryophytes.

Note: *Physcia caesia* is the type host of the species.

18. VIII. 2006

leg. et det. J. Hafellner (66699)

distributed to: BR, CANB, GZU, NY, UPS

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20. ***Taeniolella atricerebrina*** Hafellner Paratype material

in Biblioth. Lichenol. 96: 115 (2007).

Host: *Tephromela atra* (thallus)

Europe, Austria: Styria, Eastern Alps, Niedere Tauern, Seckauer Tauern, Hämmerkogel N of the village Seckau, above the small lake Goldlacke, on slopes exposed to the S, c. 2100 m alt.; 47°20'30"N / 14°45'05"E; GF 8654/4; low outcrops of siliceous rocks in alpine meadows, on inclined rock faces.

Note: *Tephromela atra* is the type host of the species. Isotypes of *Taeniolella atricerebrina* have been distributed as "Lichenicolous Biota no. 9".

20. X. 2001

leg. et det. J. Hafellner (64099)

distributed to: BR, CANB, GZU, NY, UPS

Taxon Synopsis:

Taxon	Exs. no.
Ascomycota	
Lecanoromycetes (incl. Ostropales)	
<i>Carbonea herteliana</i>	12
<i>Carbonea intrudens</i>	13
<i>Catillaria mediterranea</i>	2
<i>Phacopsis vulpina</i>	7
<i>Skyttea nitschkei</i>	17
Arthoniomycetes	
<i>Arthonia digitatae</i>	11
Leotiomycetes	
Sordariomycetes (incl. Hypocreales, Sordariales)	
<i>Lichenochora obscuroides</i>	4
<i>Paranectria oropensis</i>	6
Eurotiomycetes (incl. Verrucariales)	
<i>Endococcus macrosporus</i>	3
<i>Telogalla olivieri</i>	10
Dothideomycetes	
<i>Cercidospora crozalsiana</i>	14
<i>Sphaerellothecium minutum</i>	8
<i>Stigmatidium congestum</i>	18
<i>Stigmatidium pumilum</i>	19
Anamorphic Fungi	
Hyphomycetes	
<i>Illosporopsis christiansenii</i>	15
<i>Taeniolella atricerebrina</i>	9, 20
Coelomycetes	
<i>Licheniconium lecanorae</i>	16
<i>Nigropuncta rugulosa</i>	5
Basidiomycota	
Homobasidiomycetes	
Heterobasidiomycetes	
<i>Biatoropsis usnearum</i>	1

Host Index:

Host taxon	Lichenicolous taxon	Exs. no.
<i>Bellemeria cinereorufescens</i>	<i>Nigropuncta rugulosa</i>	5
<i>Cladonia digitata</i>	<i>Arthonia digitatae</i>	11
<i>Lecanora chlarotera</i>	<i>Stigmidium congestum</i>	18
<i>Lecanora saligna</i>	<i>Lichenocodium lecanorae</i>	16
<i>Letharia vulpina</i>	<i>Phacopsis vulpina</i>	7
<i>Phaeophyscia orbicularis</i>	<i>Lichenochora obscuroides</i>	4
<i>Physcia adscendens</i>	<i>Illosporopsis christiansenii</i>	15
<i>Physcia caesia</i>	<i>Stigmidium pumilum</i>	19
<i>Ramalina bourgeana</i>	<i>Catillaria mediterranea</i>	2
<i>Rhizocarpon geographicum</i>	<i>Carbonea intrudens</i>	13
<i>Rhizocarpon geographicum</i>	<i>Endococcus macrosporus</i>	3
<i>Rhizocarpon umbilicatum</i>	<i>Carbonea herteliana</i>	12
<i>Sphaerophorus fragilis</i>	<i>Sphaerellothecium minutum</i>	8
<i>Squamarina cartilaginea</i>	<i>Cercidospora crozalsiana</i>	14
<i>Tephromela atra</i>	<i>Taeniolella atricerebrina</i>	9, 20
<i>Thelotrema lepadinum</i>	<i>Skyttea nitschkei</i>	17
<i>Usnea articulata</i>	<i>Biatoropsis usnearum</i>	1
<i>Xanthoria parietina</i>	<i>Telogalla olivieri</i>	10
<i>sterile crustose lichen</i>	<i>Paranectria oropensis</i>	6

Geographic Index:

BIOGEOGRAPHIC UNITS*

Country (or Archipelago)	Lichenicolous taxon	Exs. no.
1. EUROPE		
Austria		
	<i>Arthonia digitata</i>	11
	<i>Carbonea herteliana</i>	12
	<i>Endococcus macrosporus</i>	3
	<i>Illosporiopsis christiansenii</i>	15
	<i>Lichenochora obscuroides</i>	4
	<i>Lichenocodium lecanorae</i>	16
	<i>Nigropuncta rugulosa</i>	5
	<i>Paranectria oropensis</i>	6
	<i>Phacopsis vulpina</i>	7
	<i>Skyttea nitschkei</i>	17
	<i>Sphaerellothecium minutum</i>	8
	<i>Stigmidium congestum</i>	18
	<i>Stigmidium pumilum</i>	19
	<i>Taeniolella atricerebrina</i>	9, 20
	<i>Teloggalla olivieri</i>	10
Italy		
	<i>Carbonea intrudens</i>	13
Spain (see also Africa, Canary Islands)		
	<i>Cercidospora crozalsiana</i>	14
2. AFRICA		
Canary Islands		
	<i>Biatoropsis usnearum</i>	1
	<i>Catillaria mediterranea</i>	2
3. ASIA TEMPERATE		
4. ASIA TROPICAL		
5. AUSTRALASIA		
6. PACIFIC		
7. NORTHERN AMERICA		
8. SOUTHERN AMERICA		
9. ANTARCTIC		

* The nomenclature of the biogeographic units follows BRUMMITT, R.K. 2001: World Geographical Scheme for Recording Plant Distributions. Edition 2. - Pittsburg: Hunt Institute for Botanical Documentation Carnegie Mellon University.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Fritschiana](#)

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