

Lichenized and lichenicolous fungi from the valley 'Ochsental' (Eastern Alps, Vorarlberg, Austria)

Peter Othmar BILOVITZ* & Helmut MAYRHOFER*

BILOVITZ Peter Othmar & MAYRHOFER Helmut 2014: Lichenized and lichenicolous fungi from the valley 'Ochsental' (Eastern Alps, Vorarlberg, Austria). - *Fritschiana* (Graz) 78: 47–51. - ISSN 1024-0306

Abstract: A list of 100 lichen species and 4 lichenicolous fungi from the valley 'Ochsental' is presented. *Lecidea laboriosa* is new to Austria. *Lecanora swartzii*, *Orphniospora moriopsis*, *Protothelenella corrosa* and the lichenicolous fungus *Cercidospora stereocaulorum* are new to the province of Vorarlberg.

*Institut für Pflanzenwissenschaften, NAWI Graz, Karl-Franzens-Universität, Holteigasse 6, A-8010 Graz, AUSTRIA.
e-mail: pe.bilovitz@uni-graz.at, helmut.mayrhofer@uni-graz.at

Introduction

Vorarlberg, the westernmost province of Austria, covers an area of about 2,600 km². The most significant mountain ranges are the Rätikon, the Silvretta and the Verwall. Ochsental, a high alpine valley south of the mountain pass Bielerhöhe, is situated in the Silvretta mountain range (Fig. 1). The majority of the peaks in the Silvretta are elevated above three thousand meters and are surrounded by glaciers. There are two glaciers in the south end of the valley: the Vermunt and the Ochsentaler glacier. The latter is situated at the foot of the Piz Buin (3,312 m above sea level), the highest mountain of Vorarlberg, at the border to the Swiss canton of Graubünden. Due to the screening effect of the surrounding mountains, the climate of the valley is less oceanic than in many other parts of Vorarlberg. The bedrock consists of siliceous rocks, thus the soils have an acid character.

MAYRHOFER et al. (1989) provided a comprehensive list of 629 lichens and 21 lichenicolous fungi for Vorarlberg, as a result of the field meeting of the 'Bryological and Lichenological Association for Central Europe (BLAM)' in July 1986. Right after this meeting, the co-author together with Erika HINTEREGGER visited the valley 'Ochsental' for a one day excursion. HINTEREGGER (1994) recorded 20 lichen species on the stems of *Rhododendron ferrugineum* from this valley, including the saxicolous species *Bellemeria cinereorufescens*, *Lecanora cenisia*, *L. polytropa*, *L. subintricata*, *Rhizocarpon geographicum*, *R. grande* and *R. polycarpum*. The results of the field trip – not including the records published in HINTEREGGER (1994) – are presented in this paper.

A compilation of the lichens of Vorarlberg was presented by PFEFFERKORN-DELLALI & TÜRK (2005), listing 1069 lichen taxa based on literature data and field work. Since then, only a few additions have been published, of which KAUFMANN (2013) is the most comprehensive one.

Material and methods

Sampling location: Austria, Vorarlberg, Silvretta mountain range, valley 'Ochsental' south of 'Bielerhöhe', 46°52'26"–46°53'28"N, 10°05'40"–10°06' 26"E, 2100–2200 m above sea level, collected by Helmut MAYRHOFER, 31 July 1986.

Lichens were collected on plant debris or decaying terricolous mosses (deb), on silicious rocks (sil), on acid soil (ter-sil) and, exceptionally, on dead wood (xyl).

The specimens were identified with the aid of WIRTH et al. (2013) and IHLEN & WEDIN (2008), using routine light microscopy techniques. Some of the identifications required verification by using standardized thin-layer chromatography (TLC), following the protocols of WHITE & JAMES (1985) and ORANGE et al. (2001). The specimens are preserved in the herbarium of the Institute of Plant Sciences, University of Graz (GZU). The nomenclature mainly follows WIRTH et al. (2013), or other modern treatments.



Fig. 1. Location of the valley "Ochsental" in Austria

Results and discussion

Lichenized fungi

Acarospora badiofusca: sil
Acarospora fuscata: sil
Alectoria ochroleuca: ter-sil
Amandinea punctata: deb
Arthrorhaphis citrinella: on *Baeomyces rufus*
Aspicilia simoensis: sil
Baeomyces placophyllus: ter-sil
Baeomyces rufus: ter-sil
Bellemerea alpina: sil
Brodoa intestiniformis: sil
Bryonora castanea: deb

Caloplaca ammiospila: deb
Calvitimela armeniaca: sil
Candelariella vitellina: sil
Catolechia wahlenbergii: ter-sil
Cetraria ericetorum: ter-sil
Cetraria islandica: ter-sil
Cetraria muricata: ter-sil
Cladonia arbuscula subsp. *squarrosa*:
ter-sil
Cladonia chlorophaea: ter-sil
Cladonia cf. *furcata*: ter-sil
Cladonia gracilis: ter-sil

Cladonia pyxidata: ter-sil
Cladonia rangiferina: ter-sil
Cladonia stellaris: ter-sil
Cladonia uncialis: ter-sil
Cornicularia normoerica: sil
Dimelaena oreina: sil – chemotype I
(with fumarprotocetraric acid)
Diploschistes scruposus: sil
Epilichen scabrosus: on *Baeomyces placophyllus*
Flavocetraria cucullata: ter-sil
Flavocetraria nivalis: ter-sil
Fuscidea kochiana: sil
Helocarpon pulverulum: deb
Icmadophila ericetorum: deb
Lecanora bicincta: sil
Lecanora intricata: sil
Lecanora polytropa: sil
Lecanora rupicola: sil
Lecanora swartzii: sil – **new to Vorarlberg**
Lecidea fuscoatra: sil
Lecidea laboriosa: sil – **new to Austria**
Lecidea lactea: sil
Lecidea lapicida: sil
Lecidea silacea: sil
Lecidoma demissum: ter-sil
Lobaria linita: ter-sil
Melanelia hepatizon: sil
Melanelia stygia: sil
Micarea lignaria: deb
Miriquidica garovaglii: sil
Ophioparma ventosa: sil
Orphniospora moriopsis: sil – **new to Vorarlberg**
Parmelia omphalodes: sil
Parmelia saxatilis: sil
Parmeliella triptophylla: deb, sil
Peltigera leucophlebia: ter-sil
Pertusaria corallina: sil
Placynthiella oligotropha: deb
Pleopsidium chlorophanum: sil
Porpidia crustulata: sil

Porpidia macrocarpa: sil
Porpidia tuberculosa: sil
Protomicarea limosa: ter-sil
Protopannaria pezizoides: ter-sil
Protoparmelia badia: sil
Protothelenella corrosa: sil – **new to Vorarlberg**
Protothelenella sphinctrinoides: deb
Pseudephebe pubescens: sil
Psorinia conglomerata: sil
Psoroma hypnorum: ter-sil
Pycnothelia papillaria: ter-sil
Ramalina capitata: sil
Rhizocarpon copelandii: sil
Rhizocarpon geographicum: sil
Rhizocarpon lecanorinum: sil
Rhizocarpon polycarpum: sil
Rhizocarpon superficiale: sil
Rhizoplaca chrysoleuca: sil
Rhizoplaca melanophthalma: sil
Rimularia furvella: on *Fuscidea kochiana*
Rimularia gibbosa: sil
Rinodina conradii: deb
Rinodina mniaraea var. *mniaraea*: ter-sil
Schaereria fuscocinerea: sil
Solorina crocea: ter-sil
Sporastatia testudinea: sil
Stereocaulon alpinum: ter-sil
Tephromela atra: sil
Thamnotia vermicularis: ter-sil
Trapeliopsis granulosa: deb, ter-sil
Tremolecia atrata: sil
Umbilicaria crustulosa: sil
Umbilicaria cylindrica: sil
Umbilicaria deusta: sil
Umbilicaria leiocarpa: sil
Umbilicaria vellea: sil
Varicellaria lactea: sil
Xanthoria elegans: sil
Xylographa parallela: xyl

Lichenicolous fungi

Cercidospora stereocaulorum: on *Stereocaulon* sp. – new to Vorarlberg

Dactylospora urceolata: on *Protothelenella sphinctrinoides*

Muellerella pygmaea: on *Lecidea lapicida*

Rhagadostoma lichenicola: on *Solorina crocea*

A one day excursion to the valley 'Ochsental', situated in the Silvretta mountain range, yielded 100 lichen species and 4 lichenicolous fungi. All lichens found on *Rhododendron ferrugineum* were published earlier by HINTEREGGER (1994).

Lecidea laboriosa is new to Austria. In the Alps, this species was previously only recorded from the canton Valais in Switzerland (CLERC & TRUONG 2012). Because of the similarity to *Lecidea plana*, some specimens are probably filed under that species. HERTEL (1995) presumed that *Lecidea laboriosa* is heterogeneous.

Lecanora swartzii, *Orphniospora moriopsis*, *Protothelenella corrosa*, and the lichenicolous fungus *Cercidospora stereocaulorum* on *Stereocaulon* sp. are new to the province of Vorarlberg.

The majority of the lichenized species (58) was collected on siliceous rocks. Twenty-nine species occurred on acid soil, eleven species on plant debris or decaying terricolous mosses. *Arthrorhaphis citrinella*, *Epilichen scabrosus* and *Rimularia furvella* grew on other lichens and *Xylographa parallela* on a dead stem of a dwarf-shrub.

Acknowledgements

We would like to thank Anja WALLNER and Veronika TUTZER for supporting the determination and preparation of the lichen material, Josef HAFELLNER for drawing our attention to a literature reference, Peter KOSNIK for the TLC and Christian SCHEUER as well as Walter OBERMAYER for critically reading the manuscript. The co-author acknowledges the support of Michaela MAYRHOFER at field work. Financial support from the Austrian Science Foundation (FWF project P25078-B16) is gratefully acknowledged.

References

- CLERC P. & TRUONG C. 2012: Catalogue des lichens de Suisse. - <http://www.ville-ge.ch/musinfo/bd/cjb/cataloguelichen> (version 2.0, 11.06.2012).
- HERTEL H. 1995: Schlüssel für die Arten der Flechtenfamilie Lecideaceae in Europa. - *Bibliotheca Lichenologica* 58: 137–180.
- HINTEREGGER E. 1994: Krustenflechten auf den *Rhododendron*-Arten (*Rh. ferrugineum* und *Rh. hirsutum*) der Ostalpen unter besonderer Berücksichtigung der Gattung *Biatora*. - *Bibliotheca Lichenologica* 55: 1–346 + 79 Abbildungen.
- IHLEN P.G. & WEDIN M. 2008: An annotated key to the lichenicolous Ascomycota (including mitosporic morphs) of Sweden. - *Nova Hedwigia* 86: 275–365.

- KAUFMANN M. 2013. Seltene und bemerkenswerte Gesteinsflechten des Arlberggebietes (Vorarlberg, Tirol, Österreich). - *inatura – Forschung online* 5: 1–41.
- MAYRHOFER H., TÜRK R. & WITTMANN H. 1989: Ein Beitrag zur Flechtenflora von Vorarlberg (Österreich). - *Herzogia* 8: 207–247.
- ORANGE A., JAMES P.W. & WHITE F.J. 2001: Microchemical methods for the identification of lichens. - London: British Lichen Society.
- PFEFFERKORN-DELLALI V. & TÜRK R. 2005: Die Flechten Vorarlbergs. - *Vorarlberger Naturschau* 17: 7–247.
- WHITE F.J. & JAMES P.W. 1985: A new guide to microchemical techniques for the identification of lichen substances. - *Bulletin of the British Lichen Society* 57 (Suppl.): 1–41.
- WIRTH V., HAUCK M. & SCHULTZ M. 2013: Die Flechten Deutschlands. Bände 1 und 2. - Stuttgart: Ulmer.