

**SOME LICHENICOLOUS FUNGI COLLECTED
ON A PRE-EXCURSION TO THE 22TH MEETING OF THE SOCIETÀ
LICHENOLOGICA ITALIANA IN BRESCIA**

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INTRODUCTION

In 2009 the meeting of the Società Lichenologica Italiana took place in Brescia, Lombardia. In the impressive Sala Conferenze del Museo di Santa Giulia we heard a lot of lectures on ecophysiology, ecotoxicology, and taxonomy. The meeting began with a presentation of the European project KeyToNature. Two highlights among other interesting contributions were the lectures of Ana Crespo de Las Casas (Madrid) on molecular studies on *Parmelina* and of Eva Barreno (Valencia) on the *Trebouxia* algae in *Ramalina farinacea*. In the end a workshop on a European perspective of environmental monitoring was held. Besides all science – we were in Italy – the cultural aspect was not forgotten. On Thursday we had a tour through the ancient center of Brescia guided by Andrea Moro, who gave us particular information on the antique roots and the development and politics of the city in medieval times. In the evening we met for a dinner in one of the trattorie and enjoyed traditional Lombardian kitchen.

Brescia is situated between the plain of the Po in the south and the Alps in the north. C. 50 km north of the town the Adamello Massif is situated, an important protected area ("Parco dell'Adamello"). I used two days on the journey from Bavaria to visit this region: on the first day the Valle dell'Avio in the north and on the second day the Val Malga in the west of the park. The lichenicolous fungi found during these excursions (including two algicolous ascomycetes) are listed below. The list comprises 28 species and two undescribed taxa. Ten of the listed species may be new for Italy.

RESULTS

All specimens: Italy, Lombardia, Provincia di Brescia, Parco Naturale dell'Adamello, leg. et det. Wolfgang von Brackel. The specimens (except of the most common) are deposited in the herbarium of the author in the private Institute for Landscape Ecology and Vegetation Studies (hb ivl).

Abrothallus bertianus De Not.

Val Malga SE Sónico, on *Alnus incana*, on *Melanohalea elegantula*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009 (hb ivl 5228).

A worldwide distributed, almost common species, probably restricted to green/brown species of *Parmelia* s. l. In Italy it is known from Trentino-Alto Adige and Sicilia (DE NOTARIS 1845, LETTAU 1958, BRACKEL 2008b).

Arthrorhaphis aeruginosa R. Sant. & Tønsberg

Val Malga SE Sónico, on soil above boulders, on *Cladonia monomorpha*, 1360 m, 46°07'51"N, 10°23'42"E, 08.09.2009 (hb ivl 5234).

A worldwide distributed species, common in montane and boreal forests. I don't know any records from Italy.

Athelia arachnoidea (Berk.) Jülich

Val Malga SE Sónico, on *Alnus incana*, on *Melanelixia subaurifera*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009

A worldwide distributed aggressive parasite on many crustose and foliose lichens as well as on algae and bryophytes, mainly in more or less polluted areas. In Italy it was noted for Sicilia (BRACKEL 2008b).

Cladosporium licheniphilum Heuchert & U. Braun

Valle dell'Avio S Temù, on *Alnus incana*, on *Melanelixia subaurifera*, 1200 m, 46°13'46"N, 10°28'38"E, 07.09.2009 (hb ivl 5225).

This recently described hyphomycete (HEUCHERT & BRAUN 2006) is known until now only from a few European countries and from Russia, but surely it is widespread. In Italy it was found in the Toscana and in Sicilia (BRACKEL 2008b, 2008c).

Cornutispora lichenicola D. Hawksw. & B. Sutton

Val Malga SE Sónico, on *Larix decidua*, on *Tuckermanopsis chlorophylla*, 1240 m, 46°07'52"N, 10°23'28"E, 08.09.2009 (hb ivl 5233).

This parasitic coelomycete is distributed worldwide on several foliose and fruticose lichens. In Italy it is known from Trentino-Alto Adige, Emilia Romagna, and Sicilia (HAWKSWORTH 1981, BRACKEL 2008b, TRETACH et al. 2008). The specimen from Val Malga was coinfecting with *Lichenocnium erodens*.

***Cornutispora* sp.**

Valle dell'Avio S Temù, on *Alnus incana*, on *Physcia* sp., 1200 m, 46°13'46"N, 10°28'38"E, 07.09.2009 (hb ivl 5224).

The specimen from Valle dell'Avio does not belong to any of the described seven species of *Cornutispora*. It has conidia with three arms of almost equal length, each 8–13 µm long and c. 2 µm wide, with gradually tapering appendages on each arm. In most of the conidia two arms tend to be a little shorter than the main axis (up to 20 %). The bases of the arms are not swollen. Unfortunately the material is too poor for a formal description.

***Epigloea bactrospora* Zokal**

Val Malga SE Sónico, on dead wood, on algae between *Cladonia pyxidata*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009 (hb ivl 5227, in the specimen of *Tremella cladoniae*).

This algicolous ascomycete is widely distributed over Europe. In Italy it was found in Trentino-Alto Adige (GRUMMANN 1969, DÖBBELER 1984).

***Epigloea* sp.**

Valle dell'Avio S Temù, on open soil on a forest path, on algae, 1345 m, 46°13'00"N, 10°28'38"E, 07.09.2009 (hb ivl 5218).

Among the 12 species described in the genus, no one fits to the specimen from Valle dell'Avio with 8-spored asci, 1-septate, ellipsoid ascospores without appendices and without a constriction between the almost equal cells, 13–15 × 5–6(–7) µm. I would like to see more material of this taxon for a description.

***Intralichen lichenum* (Diederich) D. Hawksw. & M. S. Cole**

Val Malga SE Sónico, on *Larix decidua*, on *Cladonia coniocraea*, 1200 m, 46°07'55"N, 10°23'04"E, 08.09.2009 (hb ivl 5231, in the specimen of *Phaeopyxis punctum*).

A worldwide distributed parasite on several different genera of lichens, probably a complex of more than one species. In Italy it is known from Sicily (BRACKEL 2008b).

***Lichenoconium erodens* M.S. Christ. & D. Hawksw.**

Valle dell'Avio S Temù, on *Alnus incana* in coppice forest, 1175 m, 46°14'18"N, 10°28'08"E, 07.09.2009 (hb ivl 5210, in the specimen of *Nectriopsis rubefaciens*); ibidem, on *Melanohalea elegantula*; Valle dell'Avio S Temù, on *Picea abies*, on *Hypogymnia physodes*, and on *Tremella hypogymniae*, 1235 m, 46°13'45"N, 10°28'30"E, 07.09.2009 (hb ivl 5215, in the specimen of *Tremella hypogymniae*); Val Malga SE Sónico, on *Larix decidua*, on *Cladonia coniocraea*, *Hypogymnia physodes*, *Flavoparmelia caperata*, *Parmelia saxatilis*, and *P. sulcata*, 1200 m, 46°07'55"N, 10°23'04"E, 08.09.2009; ibidem, on *Hypogymnia physodes* and *Tremella hypogymniae*, 1240 m, 46°07'52"N, 10°23'28"E,

08.09.2009 (hb ivl 5232, in the specimen of *Tremella hypogymniae*); ibidem, on *Tuckermanopsis chlorophylla* (hb ivl 5233, in the specimen of *Cornutispora lichenicola*).

A widespread and very common species on different lichen genera, preferably on foliose or fruticose lichens. In Italy it is known from Emilia Romagna, Toscana, and Sicilia (BRACKEL 2008a, 2008b, 2008 c, TRETIACH et al. 2008); surely it is spread all over the country.

Lichenoconium pyxidatae (Oudem.) Petr. & Syd.

Valle dell'Avio S Temù, shady granite wall in the forest, on *Cladonia* sp., 1255 m, 46°13'22"N, 10°28'45"E, 07.09.2009; Val Malga SE Sónico, on *Larix decidua*, on *C. coniocraea*, 1200 m, 46°07'55"N, 10°23'04"E, 08.09.2009 (hb ivl 5231, in the specimen of *Phaeopyxis punctum*).

A widespread and rather common parasite on the squamules of different *Cladonia* species (excl. *Cladina*). I don't know about any record from Italy.

Lichenopeltella peltigericola (D. Hawksw.) R. Sant.

Valle dell'Avio S Temù, on rock covered with soil and mosses, on *Peltigera horizontalis*, 1325 m, 46°13'05"N, 10°28'37"E, 07.09.2009 (hb ivl 5216); ibidem, on a shady granite wall in the forest, on *Peltigera leucophlebia*, 1255 m, 46°13'22"N, 10°28'45"E, 07.09.2009 (hb ivl 5222).

This widespread but not common species is restricted to hosts of the genus *Peltigera*. I don't know about any record from Italy. On *Peltigera horizontalis* the fungus was growing on the upper side of the thallus, on *Peltigera leucophlebia* on the underside of moribund parts of the thallus.

Lichenostigma cosmopolites Hafellner & Calatayud

Val Malga SE Sónico, on boulders in a scree slope, on *Xanthoparmelia conspersa*, 1360 m, 46°07'51"N, 10°23'42"E, 08.09.2009 (hb ivl 5235, and 5236, in the specimen of *Trematosphaeriopsis parmiana*).

As indicated by the epithet, this species is worldwide distributed and common in areas with siliceous rocks. In Italy it is known from Alto Adige, Sardegna, and Sicilia; in older records as *Echinothecium reticulatum*, which is restricted to *Parmelia* s. str. (LETTAU 1958, NIMIS & POELT 1987, BRACKEL 2008a, 2008b).

Muellerella erratica (A. Massal.) Hafellner & V. John

Valle dell'Avio S Temù, siliceous rock, on *Lecanora* cf. *poytropa*, 1345 m, 46°13'00"N, 10°28'38"E, 07.09.2009 (hb ivl 5220); Val Malga SE Sónico, boulders in a scree slope, on *Lecidea lapicida* var. *pantherina*, 1360 m, 46°07'51"N, 10°23'42"E, 08.09.2009 (hb ivl 5237).

A worldwide distributed, common species on several lichen genera. In Italy it is known from Trentino-Alto Adige, Lombardia (typus!), Veneto, Liguria, Toscana, Marche, Abruzzo, and Sicilia (TRIEBEL 1989, NIMIS et al. 1994, NIMIS & TRETIACH

1999, BRACKEL 2008a). In the specimen from Valle dell'Avio the fungus was growing on the thallus and immersed in the apothecial disc, which is unusual.

Nectriopsis rubefaciens (Ellis & Everh.) M. S. Cole & D. Hawksw.

Valle dell'Avio S Temù, on *Alnus incana* in coppice forest, on *Parmelia sulcata*, 1175 m, 46°14'18"N, 10°28'08"E, 07.09.2009 (hb ivl 5210); Val Malga SE Sónico, on *Alnus incana*, on *Parmelia sulcata*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009 (hb ivl 5229).

A widespread but not common species on foliose and fruticose lichens, preferably on members of the Parmeliaceae. In Italy known from Sicilia (BRACKEL 2008b).

Phoma cytospora (Vouaux) D. Hawksw.

Val Malga SE Sónico, on *Alnus incana*, on *Melanohalea elegantula*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009.

A worldwide distributed parasite on Parmeliaceae. In Italy it is known from Sardegna (NIMIS & POELT 1987).

Phaeopyxis punctum (A. Massal.) Rambold, Triebel & Coppins

Val Malga SE Sónico, on *Larix decidua*, on *Cladonia digitata*, 1200 m, 46°07'55"N, 10°23'04"E, 08.09.2009 (hb ivl 5230); ibidem, on *Cladonia coniocraea* (hb ivl 5231).

A worldwide distributed species, dwelling on the squamules of different *Cladonia* species. *Phaeopyxis punctum* was described as *Nesolechia punctum* from Italy by MASSALONGO (1856), but he gave no locality.

Phoma peltigerae (P. Karsten) D. Hawksw.

Valle dell'Avio S Temù, coppice forest, boulder covered with mosses, on *Peltigera praetextata*, 1175 m, 46°14'25"N, 10°28'06"E, 07.09.2009, coinfecting with *Intralichen* sp. (hb ivl 5211).

This coelomycete is widespread over the northern hemisphere but not common. It is restricted to hosts of the genus *Peltigera*. I don't know any records from Italy. The hyphomycete, which occurs as coinfection, is similar to *I. baccisporus* but because of the different host (*I. baccisporus* was described on *Caloplaca*) surely another, still undescribed species of the genus *Intralichen*.

Polycoccum arnoldii (Hepp) D. Hawksw.

Valle dell'Avio S Temù, siliceous rock, on *Diploschistes scruposus*, 1345 m, 46°13'00"N, 10°28'38"E, 07.09.2009 (hb ivl 5219).

This worldwide distributed species is dwelling on *Diploschistes* spp. and *Rhizocarpon geminatum*. In Italy it is known from Lombardia, Provincia di Sondrio, Val di Sotto (ANZI 1860).

Pronectria echinulata Lowen

Valle dell'Avio S Temù, on solitary *Fraxinus excelsior*, on the thallus of *Phaeophyscia ciliata*, 1170 m, 46°14'17"N, 10°28'25"E, 07.09.2009 (hb ivl 5213).

A rare species, restricted to members of the Physciaceae. In the specimen from Valle dell'Avio the fungus was found almost exclusively on the thallus. The apothecia were only infected when the hymelial layer had been removed by snails or slugs. In Italy the species is known from Sicilia (BRACKEL 2008b).

Pronectria erythrinella (Nyl.) Lowen

Valle dell'Avio S Temù, on a shady granite wall in the forest, on *Peltigera praetextata*, 1250 m, 46°13'28"N, 10°28'44"E, 07.09.2009 (hb ivl 5223); ibidem, 1200 m, 46°13'46"N, 10°28'38"E (hb ivl 5226).

This species is known from several (mostly northern) countries in Europe and North America, but not common. It is restricted to hosts of the genus *Peltigera*. I don't know about any record from Italy.

Pronectria terrestris Lowen & Diederich

Valle dell'Avio S Temù, open soil with rubble, on unidentified crusts, c. 1300 m, 46°13'13"N, 10°28'42"E, 07.09.2009 (hb ivl 4972).

The species was described from Luxembourg living on the terrestrial lichen *Thrombium epigaeum* (LOWEN & DIEDERICH 1990). Later it was found in Northern France on an unidentified crust on soil (DIEDERICH et al. 2006). This is the third known locality of this obviously very rare fungus. The specimen from Adamello was living immersed in thin crusts on soil, mixed of several algae, fungi and other biota; *Thrombium epigaeum* could not be identified. The spores were a little larger than indicated by LOWEN & DIEDERICH (17–20 x 6–8 µm vs. 12–17 x 5.5–7 µm).

Reichlingia leopoldii Diederich & Scheid.

Valle dell'Avio S Temù, on rotten wood, on an unidentified leprose white crust with *Trentepohlia*, 1325 m, 46°13'05"N, 10°28'37"E, 07.09.2009 (hb ivl 5217).

This hyphomycete, probably dwelling on mostly sterile *Lecanactis abietina*, is known only from a few European countries. I don't know about any record from Italy.

Stigmatidium fuscatae (Arnold) R.Sant.

Val Malga SE Sónico, on boulders in a scree slope, on *Acarospora fuscata*, 1360 m, 46°07'51"N, 10°23'42"E, 08.09.2009.

This species is widely distributed in Europe and North America, restricted to brown *Acarospora* hosts. In Italy it was found in Sicilia (BRACKEL 2008b).

Taeniolella phaeophysciae D. Hawksw.

Valle dell'Avio S Temù, on solitary *Fraxinus excelsior*, on *Phaeophyscia ciliata*, 1170 m, 46°14'17"N, 10°28'25"E, 07.09.2009 (hb ivl 5212).

A widespread parasite on species of *Phaeophyscia* and *Physconia*. I don't know about any record from Italy.

Teloggalla olivieri (Vouaux) Nik. Hoffm. & Hafellner

Valle dell'Avio S Temù, on solitary *Salix* sp., on *Xanthoria parietina*, 1175 m, 46°14'14"N, 10°28'55"E, 07.09.2009 (hb ivl 5214).

A widespread but not common species, living commensalistic on *Xanthoria* species. In Italy it is known from Sicily (BRACKEL 2008a, 2008b).

Trematosphaeriopsis parmeliiana (Jacz.) Elenkin

Val Malga SE Sónico, on boulders in a scree slope, on *Xanthoparmelia conspersa*, 1360 m, 46°07'51"N, 10°23'42"E, 08.09.2009 (hb ivl 5236).

A worldwide distributed but perhaps rare gall forming species, restricted to hosts of the genus *Xanthoparmelia*. In Italy it was found in Trentino-Alto Adige (HAFELLNER 2001). The specimen from Val Malga was coinfecting with *Lichenostigma cosmopolites*, that grew also on the galls induced by *Trematosphaeriopsis parmeliiana*.

Tremella cladoniae Diederich & M.S. Christ.

Valle dell'Avio S Temù, on *Picea abies*, on *Cladonia polydactyla*, 1265 m, 46°13'16"N, 10°28'37"E, 07.09.2009 (hb ivl 5221); Val Malga SE Sónico, on dead wood, on *Cladonia pyxidata*, 1170 m, 46°07'59"N, 10°22'59"E, 08.09.2009 (hb ivl 5227).

A worldwide distributed but not very common species, restricted to the genus *Cladonia* (excl. *Cladina*). I don't know about any record from Italy.

On a nearby trunk of *Picea abies* was growing the bryophyte *Buxbaumia viridis*, which is listed in the appendix of the Natura 2000-law of the European Community (hb ivl 5041).

Tremella hypogymniae Diederich & M.S. Christ.

Valle dell'Avio S Temù, on *Picea abies*, on *Hypogymnia physodes*, 1235 m, 46°13'45"N, 10°28'30"E, 07.09.2009 (hb ivl 5215); Val Malga SE Sónico, on *Larix decidua*, on *Hypogymnia physodes*, 1240 m, 46°07'52"N, 10°23'28"E, 08.09.2009 (hb ivl 5232).

A widespread and rather common species in Europe, also in North America and on the Canary Islands. In both specimens *Hypogymnia physodes* was coinfecting with *Lichenocodium erodens*, which also infected the basidiomata of *Tremella hypogymniae*. I don't know about any record of *Tremella hypogymniae* from Italy.

Trichonectria anisospora (Lowen) P. Boom & Diederich

Valle dell'Avio S Temù, on *Picea abies*, on *Hypogymnia physodes*, 1235 m, 46°13'45"N, 10°28'30"E, 07.09.2009; Val Malga SE Sónico, on *Larix decidua*, on *Hypogymnia physodes*, 1200 m, 46°07'55"N, 10°23'04"E, 08.09.2009; ibidem, 1240 m, 46°07'52"N, 10°23'28"E, 08.09.2009 (hb ivl 5232, in the specimen of *Tremella hypogymniae*).

This species, restricted to hosts of the genus *Hypogymnia*, is widespread and common in Europe and also known from North America. In Italy it was found in Trentino-Alto Adige and Toscana (BRACKEL 2006, 2008c).

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