FRITSCHIANA

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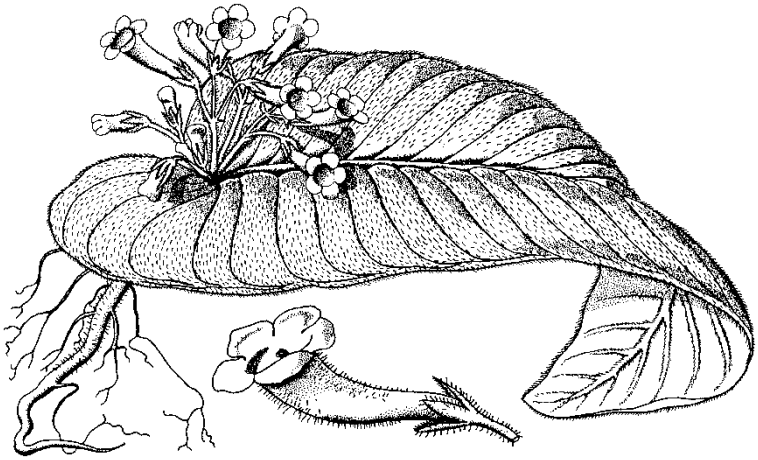

Veröffentlichungen aus dem
Institut für Pflanzenwissenschaften
der Karl-Franzens-Universität Graz

Graz, 23. Dezember 2015

Hofrat Prof. Dr. Karl FRITSCH

(∗ 24.2.1864 in Wien, † 17.1.1934 in Graz)

Karl FRITSCH studierte nach einem Jahr in Innsbruck an der Universität Wien Botanik und wurde dort 1886 zum Dr.phil. promoviert; 1890 habilitierte er sich. Nach Anstellungen in Wien wurde FRITSCH 1900 als Professor für Systematische Botanik an die Universität Graz berufen, wo er aus bescheidenen Anfängen ein Institut aufbaute. 1910 wurde er Direktor des Botanischen Gartens, 1916 konnte das neu errichtete Institutsgebäude bezogen werden. Aus der sehr breiten wissenschaftlichen Tätigkeit sind vor allem drei Schwerpunkte hervorzuheben: Floristisch-systematische Studien, besonders zur Flora von Österreich, monographische Arbeiten (besonders über *Gesneriaceae*) und Arbeiten zur systematischen Stellung und Gliederung der Monocotylen. An Kryptogamen interessierten ihn besonders Pilze und Myxomyceten.

Nachrufe: KNOLL F. 1934: Karl Fritsch. - Berichte der Deutschen Botanischen Gesellschaft 51: (157)–(184) [mit Schriftenverzeichnis]. - KUBART B. 1935: Karl Fritsch. - Mitteilungen des Naturwissenschaftlichen Vereins für Steiermark 71: 5–15 [mit Porträt]. - TEPPNER H. 1997: Faszination versunkener Pflanzenwelten. Constantin von Ettingshausen - ein Forscherportrait. - Mitteilungen Geologie und Paläontologie am Landesmuseum Joanneum 55: 133–136. - Im übrigen vgl. STAFLEU F.A. & COWAN R.S. 1976, Taxonomic Literature 1: 892 und BARNHART J.H. 1965: Biographical Notes upon Botanists 2: 12.

Graz, November 1997 Herwig TEPPNER

Die Serie FRITSCHIANA wurde als Publikationsorgan für die zahlreichen Aktivitäten im Zusammenhang mit der botanischen Sammlung des Institutes für Pflanzenwissenschaften, Bereich Systematische Botanik und Geobotanik (vormals Institut für Botanik), der Karl-Franzens-Universität Graz (GZU) gegründet. Vor allem Schedae-Hefte der von den Mitarbeitern herausgegebenen Exsiccatenwerke sollten hier erscheinen, aber auch Exkursionsberichte sowie Listen und Indices besonders wertvoller Bestände in GZU. Das Spektrum wurde mittlerweile auf floristische und kleinere taxonomische Arbeiten (zwischenzeitlich auch auf das Samentauschverzeichnis des Botanischen Gartens) ausgeweitet. Die Schedae-Hefte des von Prof. Dr. Josef POELT begründeten, inzwischen abgeschlossenen Exsiccatenwerkes Plantae Graecenses sind die Vorläufer dieser Schriftenreihe.

Gesamtredaktion:

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Umschlagsbild: *Carolofritschia diandra* ENGL. (= *Acanthonema strigosum* HOOK.f.); nach einer Zeichnung in HUTCHINSON, J. & HEPPER, F.N. 1963, Flora of West Tropical Africa, Ed. 2, Vol. II: 382.

FRITSCHIANA

Veröffentlichungen aus dem
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(Bereich Systematische Botanik und Geobotanik)
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Graz, 23. Dezember 2015

Neukombinationen in diesem Heft / new combinations in this issue:

Didymocyrtis physciae (Brackel) Hafellner combinatio nova (p. 68). [Mycobank 815444]

Polycoccum stellulatae (Vouaux) Hafellner combinatio nova (p. 74) [Mycobank 815445]

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Dupla Graecensia Lichenum (2015, numbers 961–1020)

Walter OBERMAYER*

OBERMAYER W. 2015: Dupla Graecensia Lichenum (2015, numbers 961–1020). - Fritschiana (Graz) 80: 1–20. – ISSN 1024-0306.

Abstract: The present shipment of the exsiccata 'Dupla Graecensia Lichenum' (2015, numbers 961–1020) comprises 60 collections (348 specimens) of lichen duplicates from 11 countries: Albania (districts of Mat and Dibër), Australia (state Queensland), Austria (states Carinthia, Lower Austria, Salzburg, Styria, Upper Austria, and Vorarlberg), France (region Rhône-Alpes), Germany (state Bavaria), Greece (Corfu Island), Italy (region Lombardia), Slovenia, Switzerland (canton of Grisons), Ukraine (oblast of Transcarpathia), and U.S.A. (state Alaska),. TLC-investigations were carried out for 18 lichenized taxa. Isotype specimens of *Miriquidica invadens* Hafellner, Obermayer & Tretiach (parasitic on *Sporastatia polyspora*) are distributed.

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The dwarf-exsiccata 'Dupla Graecensia Lichenum' is issued by the herbarium of the Institute for Plant Sciences of the Karl-Franzens-University, Graz, Austria (international herbarium acronym: GZU). It includes lichens from all over the world, with at least five duplicates of each collection. Each institution receiving a duplicate is cited (at the bottom line of each individual label) with its international herbarium acronym: The herbaria in Canberra (CANB), Graz (GZU), Munich (M), New York (NY), and Uppsala (UPS) are receiving specimens of all distributed numbers continuously. 'Dupla Graecensia Lichenum' is published as text version (with online corrections) under http://www-classic.uni-graz.ac.at/ walter.obermayer/dupl-graec.htm. A downloadable PDF-file can be found under https://static.uni-graz.at/fileadmin/nawi-institute/Botanik/Fritschiana/fritschiana-80/dupla-graecensia-lichenum-2015.pdf. Label texts originally drafted in a local language have been translated into English by the author. The names of authors of lichenized fungi are given in a NOT abbreviated style and are (mostly) taken from 'The International Plant Names Index' (IPNI) (see http://www.ipni.org/ipni/plantnamesearchpage.do). The geographical classification system of the European Alps follows a four-part subdivision (applying the terms 'Western Alps', 'Central Alps', 'Eastern Alps', and 'Southern Alps') used by e.g. STÜWE, Kurt & HOMBERGER, Ruedi 2011: Die Geologie der Alpen aus der Luft. - Gnas: Weishaupt Verlag.

I wish to thank all the collectors and keepers of private herbaria for their contributions, in particular Josef HAFELLNER, Helmut MAYRHOFER, Florian MÜHLBACHER, Roman TÜRK, Jan VONDRÁK, and Silke WERTH. The determinations provided by the following colleagues are gratefully acknowledged: Ivan FROLOV (*Athallia*), Martin GRUBE (*Arthonia*), Josef HAFELLNER (lichenicolous fungi), and Philipp RESL (*Trapelia*).

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961. **Acrocordia gemmata** (Acharius) Abramo Massalongo

SLOVENIA, [Primorska], Goriška, Southern Alps, Julian Alps, 2 km south of the centre of Bovec, southeast above the village Cezsoča, 46°19'10"N, 013°33'20"E, elevation 380 m, solitary trees (at the roadside), on bark of *Juglans regia*. – 4 July 2003, collected and determined by Helmut Mayrhofer (20420).

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962. **Alyxoria varia** (Persoon) Ertz & Tehler

[Synonym: *Opegrapha varia*)

AUSTRIA, Steiermark (=Styria), Eastern Alps, Ennstal Alps, 4.8 km northwest of Hieflau, 3 km southwest of Großreifling, Tamischbachgraben, 47°38'13"N, 014°41'46"E, (grid number 8354/3), elevation 700 m, mixed forest (with *Picea abies, Abies alba, Acer pseudoplatanus* and *Betula pendula*), on bark of *Acer pseudoplatanus*. – 30 September 2015, collected and determined by Silke Werth (A12-10b2).

Note: Partly intermixed with Zwackhia viridis.

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963. **Amandinea punctata** (Hoffmann) Coppins & Scheidegger

SLOVENIA, [Primorska], Southern Alps, Julian Alps, Mangart Massif, northeast of Bovec, slopes of a large doline south of Mangartska koča (Mangart refuge), below Redča skala, 46°26'10"N, 013°38'45"E, elevation 1880 m, alpine vegetation and rocks of reddish limestone (partly slightly siliciferous), on plant debris. – 2 August 2003, collected by Helmut Mayrhofer (20128), Rok Mešl & Tanja Mrak, determined by Helmut Mayrhofer & Kathrin Ellmaier (2014).

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964. **Arthonia byssacea** (Weigel) Almquist

UKRAINE, Zakarpatska Oblast (=Transcarpathia), 24 km south-southeast of the centre of Mukacheve, 12.3 km east-northeast of the centre of Berehove, floodplain woodland 'Otok', 4 km southwest of the village Nyzhni Remety, 48°14'00"N, 022°48'20"E, elevation 125 m, ancient woodland, on bark of *Salix fragilis*. – 2 June 2013, collected and determined by Jan Vondrák & Ivan Frolov (without collector number).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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965. **Arthonia ferruginea** Vainio

AUSTRALIA, Queensland, east of the Tingarana Lookout southeast of Noosa Heads, 26°23'30''S, 153°06'E, elevation 160 m, edge of an evergreen forest, on bark of an unnamed tree. – 14 September 1986, collected by Josef Hafellner (16845) & Nell Stevens, determined by Martin Grube (2015).

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966. **Asahinea scholanderi** (Llano) William Culberson & Chicita Culberson

U.S.A., Alaska, North Slope Borough, Brooks Range, Endicott Mountains, south below the Atigun Pass, north of Chandalar Station, west above the James Dalton Highway (Alaska Highway 11), 68°06'30''N, 149°32'15''W, elevation 1120 m, east exposed slopes (with dwarf shrub tundra and low outcrops of siliceous schist), on boulders. – 19 August 2010, collected and determined by Josef Hafellner (79882) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

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967. **Athallia holocarpa** (Hoffmann) Arup, Frödén & Søchting
[other used name: *Caloplaca holocarpa*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, 11.3 km southwest of the centre of Judenburg, path from Winterleitenhütte along the northern shore of the lake 'Kleiner Winterleitensee' to 'Großer Winterleitensee', 200 m west of Winterleitenhütte, 47°05'40''N, 014°34'05''E, (grid number 8953/1), elevation 1785 m, edge of a forest with Picea abies, Larix decidua and Pinus cembra, on small siliceous rocks (eaves area of a tall *Picea abies*). – 30 November 2014, collected by Walter Obermayer (13307), determined by Ivan Frolov (2014).

Note: Some intermixed apothecia with a slightly more yellowish colour than the 'normal' orange ones contain asci with only (2-)4(-6) spores.

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968. **Blastenia ammiospila** (Wahlenberg) Arup, Søchting & Frödén
[other used name: *Caloplaca ammiospila*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, main ridge of Kemetgebirge, 3.8 km north-northwest of the centre of Gröbming, north facing slopes of Kammspitz, 70–100 meters in height below the summit, 47°28'37"N, 013°53'02"E, (grid number 8549/1), elevation 2020-2050 m, Caricetum firmae (at the base of a north-facing rock wall of Triassic limestone), on plant debris (mainly bryophytes). – 10 September 2015, collected and determined by Walter Obermayer (13473).

Note: Specimens partly intermixed with *Parvoplaca tiroliensis* and *Bilimbia accedens*.

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969. **Bryoplaca sinapisperma** (Lamarck) Søchting, Frödén & Arup
[other used name: *Caloplaca sinapisperma*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, Kemetgebirge, 6.5 km southwest of the centre of Bad Mitterndorf, halfway between Goseritzalm and Hochmühleck, 47°31'08"N, 013°51'45"E, (grid number 8449/3), elevation 1550 m, mixed forest, on bryophytes (above limestone rock). – 15 July 2015, collected and determined by Walter Obermayer (13421) [excursion together with Josef Hafellner and Florian Mühlbacher].

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970. **Cetrelia monachorum** (Zahlbruckner) William Culberson & Chicita Culberson

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Koralpe, 6.7 km northwest of 'St.Oswald ob Eibiswald', 4.5 km northwest of 'St.Katharina in der Wiel', right between Jägerwirt and Wirtbartl, 46°44'40.8"N, 015°04'26.8"E, (grid number 9256/3), elevation 1305 m, mountain ridge with a mixed forest (*Picea abies, Abies alba, Acer pseudoplatanus, Fagus sylvatica*), on stem bark of *Acer pseudoplatanus*. – 23 September 2015, collected by Silke Werth (A10-02d), determined by Walter Obermayer.

Note: TLC (all specimens tested): Atranorin (traces; in soralia in higher concentration), imbricaric acid (major), perlatolic acid (minor). The specimen in GZU is intermixed with some small thalli of *Cetrelia cetrarioides* s.str. [TLC: Atranorin (traces), perlatolic acid (major), imbricaric acid (traces)], which are separately mounted on the cardboard.

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971. **Chaenotheca trichialis** (Acharius) Theodor Fries

SWITZERLAND, Graubünden (=Canton of Grisons), Eastern Alps, Alps of Engadin, Sesvenna Group, 12 km northeast of Scuol, San Niclà, just southeast of the church, 46° 51'25"N, 010°25'45"E, elevation 1150 m, mixed forest dominated by *Picea abies* and *Pinus sylvestris* (on steep north-exposed slopes with outcrops of calcareous schist), on bark of *Picea abies*. – 22 August 2006, collected and determined by Josef Hafellner (77295).

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972. **Cladonia macroceras** (Delise) Ahti

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northwestern part of Kemetgebirge, 11 km northwest of the centre of Gröbming, 1.8 km southwest of the summit of Hierzberg, Plankenalm (northern part of the hut-area), 47°29'28"N, 013°46'18"E, (grid number 8548/2), elevation 1710 m, subalpine pastures above limestone (north-exposed faces of a small knoll), on ground. – 2 October 2015, collected by Walter Obermayer (13607) & Florian Mühlbacher, determined by Walter Obermayer.

Note: All issued specimens with apothecia. TLC: Fumarprotocetraric acid, [no atranorin].

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973. **Cyphelium inquinans** (Smith) Trevisan

AUSTRIA, Kärnten (=Carinthia), Southern Alps, Carnic Alps, 2.2 km southwest of 'Liesing im Lesachtal', road from Obergail to 'Obergailer Alm', 46°40'47"N, 012°47'42"E, (grid number 9342/2), elevation 1150 m, on wood of a hayloft. – 28 August 2013, collected and determined by Roman Türk (52176).

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974. **Dactylina arctica** (Hooker [son]) Nylander

U.S.A., Alaska, North Slope Borough, Brooks Range, Philip Smith Mountains, Atigun Pass, east above the James Dalton Highway (Alaska Highway 11), 68°07'45"N, 149° 28'40"W, elevation 1450 m, gentle slopes in arctic-alpine tundra-vegetation (with boulder strips of siliceous sandstone), on ground (amongst plant remnants). – 19 August 2010, collected and determined by Josef Hafellner (79873) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

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975. **Dactylina ramulosa** (Hooker [son]) Tuckerman

U.S.A., Alaska, North Slope Borough, Brooks Range, Endicott Mountains, west-facing foothills of the Sukakpak Mountain, 67°35'35"N, 149°46'00"W, elevation 580 m, boulders of calcareous sandstone in open boreal forest, on ground (amongst plant remnants). – 21 August 2010, collected and determined by Josef Hafellner (79952) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

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976. **Diploschistes muscorum** (Scopoli) Rolf Santesson

SLOVENIA, [Primorska], Southern Alps, Julian Alps, Bavšica valley, northeast of Bovec, above Planina Bukovec, 46°22'30"N, 013°39'30"E, elevation 1340 m, low outcrops of limestone in open stands of young *Acer pseudoplatanus*, on plant debris. – 3 August 2003, collected and determined by Helmut Mayrhofer (20188).

Note: TLC: Lecanoric acid. The juvenile stages, which are parasitic on squamules of *Cladonia pyxidata* (TLC: gyrophoric acid, fumarprotocetraric acid), are well developed in each specimen. One sample with additional *'Lecidea' polytrichinella* (thallus and hymenium C+ red, spores 7 x 3 µm) has been separated (Mayrhofer 20188b) and is housed in GZU.

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977. **Icmadophila ericetorum** (Linnaeus) Zahlbruckner

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northwestern part of Kemetgebirge, 10 km northwest of the centre of Gröbming, 2.5 km southwest of the summit of Hierzberg, path from Schildenwangalm to Plankenalm, southwest facing slopes of Mooseck, 47°28'35-59"N, 013°46'15-30"E, (grid number 8548/2), elevation 1650–1730 m, scattered coniferous forest (with dominant *Pinus cembra*, subdominant *Larix decidua* and intermixed *Picea abies*), on strongly rotten wood and bryophytes (vertical faces). – 2 October 2015, collected by Walter Obermayer (13601), determined by Walter Obermayer.

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978. **Lecanora bryopsora** (Doppelbaur & Poelt) Hafellner & Türk

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, ridge area between Wenzelalpe and Kreiskogel, just south above the saddle (height notation 2073), 47°05'45"N, 014°32'50"E, (grid number 8953/1), elevation 2100 m, small marble outcrops in alpine gap vegetation (with dominant *Saxifraga oppositifolia*), on soil and plant debris. – 1 August 2010, collected and determined by Josef Hafellner (75974).

Note: Specimens partly associated with: *Physconia muscigena, Phaeorrhiza nimbosa, Pertusaria glomerata, Megaspora verrucosa, Blastenia ammiospila (=Caloplaca ammiospila), Caloplaca stillicidiorum*.

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979. **Lecanora mughicola** Nylander

ALBANIA, Central Albania, Dibër district, Kurorë e Lurës mountains, west above the village Fushë-Lurë, just north of Liqueni i Madh (Big Lake), 41°47'30"N, 020°11'40"E, elevation 1730 m, severely exploited beech-pine forest, on snags of *Pinus* spec. – 18 August 2007, collected and determined by Josef Hafellner (80386) [excursion together with Mauro Tretiach, Lucia Muggia, Massimiliano Piccotto, and Jani Marka].

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980. **Lecanora subaurea** Zahlbruckner

AUSTRIA, Steiermark (=Styria), Eastern Alps, Schladming Tauern, Kleinsölk-Obertal, beside the trail from Schwarzensee to Rettingscharte, Großer Gnasen, 47°17'50"N, 013° 50'50"E, (grid number 8749/1), elevation 1940 m, at the base of a rock wall (exposed to the south), on inclined rock faces of boulders of iron-rich gneiss. – 8 September 1993, collected by Josef Hafellner (41879), determined by Josef Hafellner & Walter Obermayer (2014).

Note: TLC: Rhizocarpic acid (major), pannarin (major), zeorin (minor), unknowns: The specimens are partly infected by the lichenicolous fungus *Carbonea aggregantula*, material of which is separately issued in the series Lichenicolous Biota (no 202) by Josef Hafellner (2015, Fritschiana 80: 23).

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OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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981. '**Lecidea' berengeriana** (Abramo Massalongo) Nylander

[other used name: *Mycobilimbia berengeriana*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, ridge area between Wenzelalpe and Kreiskogel, just south above the saddle (height notation 2073 m), 47°05'45"N, 14°32'50"E, (grid number 8953/1), elevation 2100 m, small marble outcrops in alpine gap vegetation (with dominant *Saxifraga oppositifolia*), on soil and plant debris. – 1 August 2010, collected and determined by Josef Hafellner (75982).

distributed to: **CANB, E, GZU, M, MIN, NY, UPS, hb. Kalb**

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982. **Lepraria finckii agg.**

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Östliches Grazer Bergland, Schöckl, 1.8 km northwest of Sankt Radegund, Römerweg, 47°11'31"N, 15°28' 22"E, (grid number 8758/4), elevation 1080 m, slopes of a forestry road, on bare soil and bryophytes (vertical surface). – 8 February 2015, collected and determined by Walter Obermayer (13326).

Note: TLC (all issued specimens tested): Atranorin, zeorin, constictic acid (major), stictic acid (minor). The typical white and fluffy medulla is well developed beneath the soredia.

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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983. **Leproplaca chrysodeta** (Vainio ex Räsänen) Jack Rodney Laundon

[other used name: *Caloplaca chrysodeta*]

AUSTRIA, Kärnten (=Carinthia), Southern Alps, Carnic Alps, Gailtal, 1.6 km southwest of Mauthen, Mauthner Klamm, orographically right side of the brook, between the first and the second bridge, 46°39'15"N, 012°59'00"E, (grid number 9343/2), elevation 800 m, west-exposed steep rock faces of a calcium rich schist (Carboniferous period), on rocks. – 18 July 2007, collected and determined by Josef Hafellner (76788).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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984. **Leproplaca xantholyta** (Nylander) Hue
[other used name: *Caloplaca xantholyta*]

AUSTRIA, Kärnten (=Carinthia), Southern Alps, Carnic Alps, Gailtal, 1.6 km southwest of Mauthen, Mauthner Klamm, orographically right side of the brook, between the first and the second bridge, 46°39'15''N, 012°59'00''E, (grid number 9343/2), elevation 800 m, west-exposed steep rock faces of a calcium-rich schist (Carboniferous period), on rocks. – 18 July 2007, collected and determined by Josef Hafellner (76789).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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985. **Loxospora elatina** (Acharius) Abramo Massalongo

GERMANY, Bayern (=Bavaria), Eastern Alps, Chiemgau Alps, along the road from Reit im Winkl to Ruhpolding, at the lake Weitsee, northern shore where the brook Wappbach flows into the lake, 47°21'10''N, 012°33'20''E, elevation 760 m, mixed forest and *Salix* stands along the shore, on bark of *Picea abies*. – 29 August 2009, collected and deter-mined by Josef Hafellner (79602).

Note: TLC: Thamnolic acid, elatinic acid.

distributed to: **CANB, GZU, M, NY, UPS, hb. Kalb**

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986. **Megalospora pachycarpa** (Delise ex Duby) Henri Olivier

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Grazer Bergland, 4 km west of the centre of Weiz, gorge of the river Raab ('Raabklamm'), 650 m northeast of the village Gutenberg, 150 m north-northwest of the castle 'Schloss Gutenberg', 47° 12'45-50''N, 015°34'00''E, (grid number 8759/3), elevation 500-505 m, gorge area along the river (mixed forest), on stem bark of *Fraxinus excelsior*. – 5 November 2014, collected and determined by Walter Obermayer (13258) [excursion together with Josef Hafellner and André Aptroot].

Note: TLC (specimen in GZU tested): Usnic acid, zeorin, traces of unknown terpenoids (probably from the bark). *Lepraria leuckertiana*, with the same chemistry, differs in having a cottony medulla.

distributed to: **CANB, GZU, M, NY, UPS**

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987. **Melanelia stygia** (Linnaeus) Esslinger

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, Fuchskogel 9 km west of Obdach, near the southeastern shore of the lake Wildsee, 47°02'30''N, 014°35'15''E, (grid number 8953/4), elevation 1980 m, siliceous boulders (amidst a morain rubble), on inclined faces of a big pegmatoid gneissic boulder. – 21 July 2007, collected and determined by Josef Hafellner (82134) & Lucia Muggia.

distributed to: **CANB, E, GZU, M, MIN, NY, UPS, hb. Kalb**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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988. **Miriquidica invadens** Hafellner, Obermayer & Tretiach

- isotype -

[parasitic on *Sporastatia polyspora*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Stubalpe, Ameringkogel Massif E of Obdach, slopes to the northeast-exposed corrie between Ameringkogel and Größenberg, 47°04'30''N, 014°48'15''E, (grid number 8954/2), elevation 2050-2100 m, gneissic outcrops in alpine grassland, on inclined faces of rocks. – 28 July 1990, collected and determined by Josef Hafellner (23960, isotype) & Walter Obermayer.

Note: TLC (holotype specimen in GZU examined): Miriquidic acid (major), stictic acid (major), constictic acid (major); TLC of the host thallus (*Sporastatia testudinea*): 5-0-methylhiascic acid (major), gyrophoric acid (traces), lecanoric acid (traces).

distributed to: **CANB, E, G, GZU, M, NY, UPS**

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989. **Myriolecis crenulata** (Hooker) Śliwa, Xin Zhao & Lumbsch

[Synonym: *Lecanora crenulata*]

AUSTRIA, Kärnten (=Carinthia), Eastern Alps, Saualpe, 15.6 km west-northwest of the centre of Wolfsberg, Gertrusk, in a cirque east below the summit, 46°51'45''N, 014°38' 50''E, (grid number 9153/2), elevation 1900 m, low marble outcrops (rich in mica), surrounded by dwarf shrub heathland, on dry, inclined faces of marble. – 9 October 2010, collected by Josef Hafellner (76290) & Lucia Muggia, determined by Josef Hafellner.

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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990. **Neofuscelia pulla agg.** (Acharius) Esslinger
[other used name: *Xanthoparmelia pulla* agg.]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Grazer Bergland, 4 km west of the centre of Weiz, close to the gorge of the river Raab ('Raabklamm'), 400 m northeast of the village Gutenberg, immediate surroundings of the castle Gutenberg, 47°12'41''N, 015°34'03''E, (grid number 8759/3), elevation 565 m, orchard and adjacent farm buildings, on clay roof tiles. – 5 November 2014, collected and determined by Walter Obermayer (13259) [excursion together with Josef Hafellner and André Aptroot].

Note: TLC: Glomelliferic acid (major), glomellic acid (minor), perlatolic acid (traces).

distributed to: **CANB, GZU, M, NY, UPS**

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991. **Parmelia ernstiae** Feuerer & Arne Thell

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northernmost part of Kemetgebirge, 6 km south-southeast of the centre of Bad Aussee, area of the northeastern and southeastern lakeshore of Ödensee, 47°33'45''N, 013°49'20''E, (grid number 8448/2), elevation 780 m, mixed forest (mainly with conifers) along the lakeshore, on bark of *Acer pseudoplatanus*. – 18 June 2015, collected and determined by Walter Obermayer (13425) [excursion together with Josef Hafellner, Florian Mühlbacher, and Paul Leonhardt].

Note: All issued specimens with well developed fruiting bodies. TLC: Atranorin (traces), chloroatranorin (traces), salazinic acid (major), consalazinic acid (minor), lobaric acid (minor), lichesterinic acid (traces), protolichesterinic acid (traces). The occurence of (at least traces of) fatty acids and the (at least partly) pruinose lobe tips speak in favour of *P. ernstiae* but the isidia (which are comparatively thin and strongly coralloid-branched) are not pruinose at all, which should be typical for the species.

distributed to: **CANB, GZU, M, NY, UPS**

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992. **Parmelia serrana** Ana Crespo, Maria Carmen Molina & David Hawksworth

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Östliches Grazer Bergland, Schöckl, 2.6 km north-northwest of the centre of St.Radegund, Schöcklkopf, 47°12'10''N, 015°28'41''E, (grid number 8758/4), elevation 1420 m, subalpine pasture with calcareous outcrops and some clumps of trees, on stem bark of *Picea abies* (basal area). – 15 November 2015, collected and determined by Walter Obermayer (13612).

Note: TLC: Atranorin (traces), chloroatranorin (traces), salazinic acid (major), consalazinic acid (submaj.), protolichesterinic acid (major), lichesterinic acid (submaj.).

distributed to: **CANB, GZU, M, NY, UPS**

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993. **Parmelia submontana** Nádvorník ex Hale

ALBANIA, Central Albania, Mat district, 22 km north-northeast of the centre of Tirana, Mali i Skënderbeut, Qafa e Shtamës (Shtamës pass), southwest above the town Burrel, just west of the pass, 41°31'20"N, 019°53'55"E, elevation 1230 m, remnants of a deciduous forest, on bark of *Acer pseudoplatanus*. – 19 August 2007, collected and determined by Josef Hafellner (80527) [excursion together with Mauro Tretiach, Lucia Muggia, Massimilliano Piccotto, and Jani Marka].

distributed to: **CANB, GZU, M, NY, UPS**

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994. **Parmelina pastillifera** (Harmand) Hale

AUSTRIA, Niederösterreich (=Lower Austria), Eastern Alps, Göstling Alps, 5.6 km southeast of the centre of Göstling, path from Mardersattel to 'Steinbacher Schattseite', 1 km north-northeast of the summit of Hocheck, 47°46'21"N, 014°58'57"E, (grid number 8255/2), elevation 1000 m, on bark of *Acer pseudoplatanus*. – 21 August 2013, collected and determined by Roman Türk (52174).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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995. **Parmeliopsis ambigua** (Wulfen) Nylander

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northwestern part of Kemetgebirge, 10 km northwest of the centre of Gröbming, 2.5 km southwest of the summit of Hierzberg, path from Schildenwangalm to Plankenalm, southwest facing slopes of Mooseck, 47°28'35–59"N, 013°46'15–30"E, (grid number 8548/2), elevation 1650–1730 m, scattered coniferous forest (with dominant *Pinus cembra*, subdominant *Larix decidua* and intermixed *Picea abies*), on lying deadwood (vertical faces). – 2 October 2015, collected and determined by Walter Obermayer (13602).

Note: All issued specimens show apothecia and are intermixed with *Parmeliopsis hyperopta*.

distributed to: **CANB, GZU, M, NY, UPS**

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996. **Peltigera leucophlebia** (Nylander) Gyelnik

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northwestern part of Kemetgebirge, 10 km northwest of the centre of Gröbming, 2.5 km southwest of the summit of Hierzberg, path from Schildenwangalm to Plankenalm, southwest facing slopes of Mooseck, 47°28'35-59''N, 013°46'15-30''E, (grid number 8548/2), elevation 1650–1730 m, scattered coniferous forest (with dominant *Pinus cembra*, subdominant *Larix decidua* and intermixed *Picea abies*), on soil. – 2 October 2015, collected by Walter Obermayer (13600) & Florian Mühlbacher, determined by Walter Obermayer.

Note: All issued specimens with apothecia.

distributed to: **CANB, GZU, M, NY, UPS**

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997. **Peltigera rufescens** (Weiss) Humboldt

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, Kemetgebirge, 6.3 km southwest of the centre of Bad Mitterndorf, near Goseritzalm (along the path to Hochmühleck), 47°31'20''N, 013°51'45''E, (grid number 8449/3), elevation 1420-1470 m, pasture with scattered limestone rocks, on bryophytes (above rocks). – 15 July 2015, collected and determined by Walter Obermayer (13423) [excursion together with Josef Hafellner and Florian Mühlbacher].

Note: All specimens with well developed apothecia.

distributed to: **CANB, GZU, M, NY, UPS**

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998. **Pertusaria amara** (Acharius) Nylander

GREECE, Kérkyra Island (=Corfu Island), 15 km (as the crow flies) south of the centre of Kérkyra City, Moraitika, 39°29'15''N, 019°55'38''E, elevation 5 m, unutilized old olive grove (70 m away from the beach), on *Olea europaea*. – 17 August 2015, collected and determined by Walter Obermayer (13456).

Note: The specimen in UPS is associated with a sorediate thallus of *Ochrolechia* including its parasite *Dactylospora parasitica* (determined by Josef Hafellner). A separate sample of the lichenicolous fungus is stored in GZU.

distributed to: **CANB, GZU, M, NY, UPS**

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999. **Phaeorrhiza nimbosa** (Fries) Helmut Mayrhofer & Poelt

ITALY, Lombardia, province Brescia, Eastern Alps, Ortler Range, Cima di Cadi, north above Passo del Tonale, just northwest below the summit on the ridge to Monte Tonale Occidentale, 46°16'35''N, 010°34'05''E, elevation 2570 m, outcrops of calcareous schist (on the crest in alpine vegetation), on soil. – 28 July 2006, collected by Josef Hafellner (77173) & Lucia Muggia, determined by Josef Hafellner.

distributed to: **CANB, E, GZU, M, MIN, NY, UPS, hb. Kalb**

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1000. **Physcia adscendens** Henri Olivier

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, 4.8 km north-northwest of the centre of Schladming, 700 m north of the centre of Ramsau, 120 m north of the farmstead Feldlhof, 47°25'41''N, 013°39'09''E, (grid number 8547/4), elevation 1200 m, alley with *Acer pseudoplatanus* and *Sorbus aucuparia*, on bark of *Acer pseudoplatanus*. – 19 February 2015, collected and determined by Walter Obermayer (13327).

Note: Partly intermixed with *Melanohalea exasperatula, Parmelia sulcata, Phaeophyscia orbicularis, Physconia distorta, Physconia perisidiosa,* and *Polycauliona candelaria*.

distributed to: **CANB, GZU, M, NY, UPS**

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1001. **Physcia dubia** (Hoffmann) Lettau

FRANCE, Rhône-Alpes, Haute-Savoie, Western Alps, Bornes Alps, mountains west of Sallanches, bottom of 'Vallon de Doran', southwest of 'Refuge de Doran', 45°58'00''N, 006°34'54''E, elevation 1550 m, scattered boulders and low outcrops of a slightly calcareous schist in alpine pasture, on schist. – 17 August 2011, collected by Helmut Mayrhofer (20238), determined by Josef Hafellner (2015).

distributed to: **CANB, GZU, M, NY, UPS**

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1002. **Physconia perisidiosa** (Erichsen) Moberg

AUSTRIA, Oberösterreich (=Upper Austria), Northern Alpine Foreland, urban area of Steyr, Tabor (weir system), 48°02'45''N, 014°25'21''E, (grid number 7952/4), elevation 338 m, on bark of *Acer pseudoplatanus*. – 25 May 2006, collected and determined by Roman Türk (39585).

Note: Specimens partly intermixed with *Physconia enteroxantha*.

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1003. **Platismatia glauca** (Linnaeus) William Culberson & Chicita Culberson

AUSTRIA, Salzburg, Eastern Alps, Salzburg Slate Alps, 7.5 km east-southeast of the centre of Maria Alm, pass area between 'Dientener Berge' and Hochkönig, Filzensattel (between Hinterthal and Dienten), along the path from Filzensattel to Gabühel, 47° 23'47''N, 013°00'05''E, (grid number 8644/1), elevation 1300-1330 m, montane forest, on twigs of *Picea abies*. – 10 August 2014, collected and determined by Walter Obermayer (13203).

Note: All issued specimes include thalli with apothecia. Some specimens (e.g. in GZU) with the lichenicolous fungus *Abrothallus cetrariae* (present in its anamorphic state: *Vouauxiomyces santessonii*; determined by Josef Hafellner, 2014).

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1004. **Protopannaria pezizoides** (Weber ex Fridrich Wiggers) Per Magnus Jørgensen & Stefan Ekman, sensu latissimo

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, Kemetgebirge, 4 km south of Bad Mitterndorf, near the western shore of Salzastausee, Bartleck, Klausgraben, 47°31'05''N, 013°55'55''E, (grid number 8449/4), elevation 900 m, mixed forest with *Picea abies, Abies alba,* and *Fagus sylvatica* with single calcareous outcrops, on rotten wood. – 28 August 2015, collected by Florian Mühlbacher (138), determined by Walter Obermayer & Florian Mühlbacher.

Note: Due to the very small spores (16-20 µm in length), which are comparably weakly warted, the issued specimens are regarded as *Protopannaria pezizoides* in a very broad sense. Molecular studies are necessary to solve the taxonomic status of the present material (Per Magnus Jørgensen, personal communication).

distributed to: **GZU** (by an error, only one specimen is available)

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
Distributed by the *Institut für Pflanzenwissenschaften, Karl-Franzens-Universität,* Graz [GZU]

1005. **Protopannaria pezizoides** (Weber ex Fridrich Wiggers) Per Magnus Jørgensen & Stefan Ekman, sensu stricto

AUSTRIA, Vorarlberg, Eastern Alps, Verwall Group, Hochjoch Massif, 4.8 km east of the centre of Schruns, near the southern lakeshore of Schwarzsee, 47°04'02''N, 009°58'55''E, (grid number 8925/2), elevation 2100 m, north-exposed amphibolitic ouctrops, on earth (in the pit-moist state) in crevices. – 6 August 2008, collected and determined by Josef Hafellner (78972).

Note: Due to the comparably large spores (24-30 µm in length) which are also strongly warted, the issued specimens represent *Protopannaria pezizoides* in the narrow sense.

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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1006. **Pseudoschismatomma rufescens** (Persoon) Ertz & Tehler

[Synonym: *Opegrapha rufescens*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, Kemetgebirge, 6.2 km northeast of the centre of Gröbming, east-facing slopes of Bergereck (Prentner Berg), along the road from Prenten to the large water dam of the river Salza, 47°29'33"N, 013°57'05"E, (grid number 8549/1), elevation 800 m, mixed forest, on bark of *Acer pseudoplatanus*. – 16 April 2015, collected and determined by Walter Obermayer (13407).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1007. **Punctelia jeckeri** (Roumeguère) Kalb

AUSTRIA, Steiermark (=Styria), Southeastern Alpine Foreland, Oststeirisches Riedelland, 4.3 km east-northeast of the centre of Graz, Innere Ragnitz, along the road ('Hochfeldweg') from the church (395 m alt.) to 'Fuchsriegel', 47°04'43"N, 15°29'40"E, (grid number 8958/2), elevation 400 m, along a brook, on big branches of *Quercus* (fallen down from the tree-top). – 30 March 2014, collected and determined by Walter Obermayer (13133).

Note: TLC (specimen in GZU tested): Atranorin (traces), lecanoric acid (major).

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1008. **Pyrenula nitidella** (Flörke ex Schaerer) Müller-Argoviensis

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Grazer Bergland, 4 km west of the centre of Weiz, gorge of the river Raab ('Raabklamm'), 650 m northeast of the village Gutenberg, 150 m north-northwest of the castle 'Schloss Gutenberg', 47°12'45-50"N, 015°34'00"E, (grid number 8759/3), elevation 500-505 m, gorge area along the river (mixed forest), on stem bark of *Fraxinus excelsior*. – 5 November 2014, collected and determined by Walter Obermayer (13260) [excursion together with Josef Hafellner and André Aptroot].

distributed to: **CANB, GZU, M, NY, UPS**

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1009. **Ramalina canariensis** Julius Steiner

GREECE, Kérkyra Island (=Corfu Island), 15 km (as the crow flies) south of the centre of Kérkyra City, Moraitika, 39°29'15"N, 019°55'38"E, elevation 5 m, unutilized old olive grove (70 m away from the beach), on twigs of *Olea europaea*. – 17 August 2015, collected and determined by Walter Obermayer (13458).

Note: TLC: Divaricatic acid. A 'tail' of fatty acid-like substances occured in B' (between 2 and 5).

distributed to: **CANB, GZU, M, NY, UPS**

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1010. **Ramalina farinacea** (Linnaeus) Acharius

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dead Mountains (=Totes Gebirge), 8.3 km ENE of the centre of Bad Aussee, path from Gößl (eastern shore of the lake Grundlsee) along the brook Toplitzbach to the lake Toplitzsee, 47°38'27"N, 013°54'38"E, (grid number 8349/3), elevation 720 m, forest area (with *Acer pseudoplatanus, Abies alba, Picea abies*, and *Fraxinus excelsior*) along the brook, on bark of *Acer pseudoplatanus*. – 22 September 2013, collected and determined by Walter Obermayer (13045).

Note: TLC (all specimens tested): Chemotype with usnic (sometimes in traces only) and protocetraric acids. One specimen (in UPS) additionally contains thalli with usnic, salazinic, and norstictic acids, a chemotype which could also be intermixed in all other issued specimens).

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1011. **Ramalina fastigiata** (Persoon) Acharius

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Östliches Grazer Bergland, Schöckl, 2.6 km north-northwest of the centre of St.Radegund, 70 m east of Schöcklkopf, 47°12'03"N, 015°28'37"E, (grid number 8758/4), elevation 1340-1370 m, edge of a forest (southeast-exposed), on bark of the stem and of main branches of *Acer pseudoplatanus*. – 15 November 2015, collected and determined by Walter Obermayer (13608).

Note: TLC: Evernic acid (major), usnic acid (traces).

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1012. **Ramalina fraxinea** (Linnaeus) Acharius

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, 9.1 km northwest of the centre of Schladming, west of Hierzegg, southwest-facing slopes of Durchat, agricultural road from the farmstead Mühlebner to the farmstead Grundlehner, 100 m east of Mühlebner, 47°26'22"N, 013°34'45"E, (grid number 8547/3), elevation 1110 m, heap of twigs and branches (stored for decaying) in open meadow, on twigs of cut down *Acer pseudoplatanus*. – 18 February 2014, collected and determined by Walter Obermayer (13156).

Note: TLC (all specimens tested): Usnic acid only.

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1013. **Ramboldia elabens** (Theodor Fries) Kantvilas & Elix

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, 11.4 km southwest of the centre of Judenburg, 3 km north of the summit of Zirbitzkogel, east facing slopes of Kreiskogel (250 m west of the lake Großer Winterleitensee), 47°05'24''N, 014°33'40''E, (grid number 8953/1), elevation 1870 m, open stand with *Alnus alnobetula, Sorbus aucuparia* and *Pinus cembra*, on wood of *Pinus cembra* (exposed to the southeast). – 24 September 2014, collected and determined by Walter Obermayer (13211) [excursion together with Josef Hafellner, Jana Kocourková, Kerry Knudsen, and Silke Werth].

distributed to: **CANB, GZU, M, NY, UPS**

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1014. **Rinodina confragosa** (Acharius) Körber

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Grazer Bergland, 10 km west of Birkfeld, Steinkogel south of Gasen (height notation 1356 m), 47°21'05''N, 015°34'15''E, (grid number 8659/1), elevation 1350 m, slightly inclined slopes of the ridge, subalpine meadows, on boulders (green schist). – 20 November 2011, collected by Josef Hafellner (79028), determined by Walter Obermayer & Helmut Mayrhofer (2015).

Note: TLC (specimen in GZU tested): Atranorin, zeorin.

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1015. **Rinodina milvina** (Wahlenberg) Theodor Fries

FRANCE, Western Alps, Rhône-Alpes, Haute-Savoie, Western Alps, Bornes Alps, mountains west of Sallanches, bottom of Vallon de Doran, southwest of Refuge de Doran, 45°58'00''N, 006°34'54''E, elevation 1550 m, scattered boulders and low outcrops of slightly calcareous schist in alpine pasture, on schist. – 17 August 2011, collected and determined by Helmut Mayrhofer (20233).

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1016. **Romjularia lurida** (Acharius) Timdal

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif, northwestern part of Kemetgebirge, 11 km northwest of the centre of Gröbming, 1.2 km southwest of the summit of Hierzberg, 700 m north-northeast of Plankenalm, 47°29'45''N, 013°46'25-30''E, (grid number 8548/2), elevation 1810-1850 m, steep, south-exposed slope with limestone outcrops (and - adjacent to the north - a terrain edge), on sandy substrate and bryophytes (earthy crevices). – 2 October 2015, collected and determined by Walter Obermayer (13603).

Note: All issued specimens with apothecia.

distributed to: **CANB, GZU, M, NY, UPS**

OBERMAYER W. 2015: **Dupla Graecensia Lichenum** (2015, numbers 961–1020). - Fritschiana 80: 1–20.
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1017. **Stereocaulon symphycheilum** Ivan Lamb

AUSTRIA, Steiermark (=Styria), Eastern Alps, Seetal Alps, 12 km southwest of the centre of Judenburg, 2.4 km north of the summit of Zirbitzkogel, northwest facing slopes of Schlosserkogel (south of the lake Großer Winterleitensee), 47°05'15''N, 014°33'45''E, (grid number 8953/1), elevation 1930-1950 m, boulders and low outcrops of pegmatized garnet mica schist in dwarf-shrub communities near the tree line, on and amongst bryophytes (covering the rocks). – 30 November 2014, collected and determined by Walter Obermayer (13359).

Note: Tips of capitate soredia and medulla UV+ white (due to divaricatic acid). TLC (specimen in GZU tested): Atranorin, lobaric acid.

distributed to: **CANB, GZU, M, NY, UPS**

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1018. **Trapelia obtegens** (Theodor Fries) Hertel

AUSTRIA, Kärnten (=Carinthia), Eastern Alps, Saualpe, 10.7 km west of the centre of Wolfsberg, Beilstein, 1.5 km northwest of Gießlhütte, short and flat ridge north of the summit, 46°50'55''N, 014°42'15''E, (grid number 9154/3), elevation 1400 m, eklogit outcrops with single *Larix decidua*, on 'young' fieldstones. – 16 October 2010, collected and determined by Josef Hafellner (76351), determination confirmed by Philipp Resl (2015).

Note: Partly with apothecia.

distributed to: **CANB, E, GZU, M, NY, UPS, hb. Kalb**

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1019. **Trapelia placodioides** Coppins & Peter James

ALBANIA, Central Albania, Dibër district, Kurorë e Lurës mountains, west above the village Fushë-Lurë, just north of Liqueni i Madh (Big Lake), 41°47'30''N, 020°11'40''E, elevation 1730 m, severely exploited beech-pine forest, on boulders of ophiolitic rocks. – 18 August 2007, collected and determined by Josef Hafellner (80399) [excursion together with Mauro Tretiach, Lucia Muggia, Massimiliano Piccotto, and Jani Marka], determination confirmed by Philipp Resl (2015).

distributed to: **CANB, GZU, M, NY, UPS**

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1020. **Zwackhia viridis** (Acharius) Poetsch & Schiedermayr

AUSTRIA, Steiermark (=Styria), Eastern Alps, Ennstal Alps, 4.8 km northwest of Hieflau, 3 km southwest of Großreifling, Tamischbachgraben, 47°38'13"N, 014°41'46"E, (grid number 8354/3), elevation 700 m, mixed forest (with *Picea abies, Abies alba, Acer pseudoplatanus*, and *Betula pendula*), on bark of *Acer pseudoplatanus*. – 30 September 2015, collected and determined by Silke Werth (A12-10b1).

Note: Partly intermixed with *Alyxoria varia*.

distributed to: **CANB, GZU, M, NY, UPS**

Lichenicolous Biota (Nos 201–230)

Josef HAFELLNER*

HAFELLNER Josef 2015: Lichenicolous Biota (Nos 201–230). – Fritschiana (Graz) 80: 21–41. - ISSN 1024-0306.

Abstract: The 9th fascicle (30 numbers) of the exsiccata 'Lichenicolous Biota' is published. The issue contains material of 20 non-lichenized fungal taxa (14 teleomorphs of ascomycetes, 4 anamorphic states of ascomycetes, 2 anamorphic states of basidiomycetes) and 9 lichenized ascomycetes, including paratype material of *Dimelaena lichenicola* K.Knudsen et al. (no 223), *Miriquidica invadens* Hafellner et al. (no 226, 227), and *Stigmidium xanthoparmeliarum* Hafellner (no 210). Furthermore, collections of the type species of the following genera are distributed: *Illosporiopsis* (*I*. *christiansenii*), *Illosporium* (*I*. *carneum*), *Marchandiomyces* (*M*. *corallinus*), *Marchandiobasidium* (*M*. *aurantiacum*, sub *Erythricium aurantiacum*), *Microcalicium* (*M*. *disseminatum*), *Nigropuncta* (*N*. *rugulosa*), *Paralecanographa* (*P*. *grumulosa*), *Phaeopyxis* (*P*. *punctum*), *Placocarpus* (*P*. *schaereri*), *Rhagadostoma* (*R*. *lichenicola*), and *Stigmidium* (*S*. *schaereri*).

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Introduction

The exsiccata 'Lichenicolous Biota' is continued with fascicle 9, containing 30 numbers.

The exsiccata covers all lichenicolous biota, i.e., it is open not only to non-lichenized and lichenized fungi, but also to myxomycetes, bacteria, and even animals, whenever they cause a characteristic symptom on their host (e.g. discoloration or galls). Consequently, the exsiccata contains 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.

The five complete sets are sent 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 Barcelona [BCN], Edinburgh [E], Saint Petersburg [LE], Munich [M], and Prague [PRM] (her-

barium acronyms sec. Holmgren et al. (1990), continued and updated as electronic database by Thiers (2015 onwards) and hosted at New York Botanical Garden http://sweetgum.nybg.org/science/ih/). Also in the future, it is planned to publish at least one fascicle per year, consisting of a variable number of decades.

The grid reference preceded by the abbreviation 'GF' often used in the label text of Central European localities refers to the grid used by the project 'Floristische Kartierung Mitteleuropas' (floristic mapping of Middle Europe, e.g. Ehrendorfer & Hamann 1965).

For the 9th issue, I gratefully acknowledge the contribution of 2 collections by Jana KOCOURKOVÁ and Kerry KNUDSEN, and 1 collection by Walter OBERMAYER. In fieldwork I received support by Angela HAFELLNER, Jana KOCOURKOVÁ, Markus MÖSLINGER, and Lucia MUGGIA. Kerry KNUDSEN and Walter OBERMAYER contributed to the scientific content of the fascicle by the identification of either lichenicolous fungi or hosts or by providing data on the secondary chemistry. Walter OBERMAYER and Christian SCHEUER are thanked for critically reading the manuscript.

I would be much obliged to colleagues who send material of lichenicolous biota for distribution in future fascicles. 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.

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201. ***Arthonia varians*** (Davies) Nyl.

in Lichenes Scandinaviae: 260 (1861). – Bas.: *Lichen varians* Davies in Transact. Linn. Soc., Bot., 2: 284 (1794). – Syn.: *Celidium varians* (Davies) Arnold in Flora (Regensburg) 45: 313 (1862). – *Arthonia glaucomaria* Nyl. in Mem. Soc. Imp. Sci. Nat. Cherbourg 4: 98 (1856), non *Lecidea glaucomaria* Nyl. (1852) quid est *Phacographa glaucomaria* (Nyl.) Hafellner.

Host: *Lecanora rupicola* (apothecia)

Europe, **Albania:** Northern Albania, Malësi e Madhe distr., Bjeshkët e Nemuna (Prokletije) mountains, saddle N above the village Theth, somewhat E above the saddle, 42°26’40’’N / 19°46’20’’E, *c*. 1750 m alt., low outcrops on slopes exposed to the W, pastures somewhat above the tree line, on layers of a siliceous limestone (''Kieselkalk'').

Note 1: *Lecanora rupicola* is the type host of *Arthonia varians* (Hafellner, Fritschiana 76: 49, 2013).

15. VIII. 2007 leg. J. Hafellner (80361), det. J. Hafellner
(field trip together with M. Tretiach, L. Muggia, M. Piccotto & J. Marka)

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

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202. ***Carbonea aggregantula*** (Müll.Arg.) Diederich & Triebel

in Diederich, Herzogia 16: 51 (2003). – Bas.: *Lecidea aggregantula* Müll.Arg. in Flora (Regensburg) 57: 533 (1874). – Syn.: *Nesolechia aggregantula* (Müll.Arg.) Rehm in Rabenh. Krypt.-Fl., 2. ed., 1(3): 318 (1889).

Host: *Lecanora subaurea* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Schladminger Tauern, Kleinsölk-Obertal, by the trail from Schwarzensee to Rettingscharte, Großer Gnasen, at the base of a rock wall exposed to the S, 47°17’50’’N / 13°50’50’’E, *c*. 1940 m alt., GF 8749/1; scree on a steep slope, on inclined rock faces of boulders of iron-rich gneiss.

Note 1: The type host of *Carbonea aggregantula* is *Lecanora polytropa*.

Note 2: Lichen substances in host thallus: rhizocarpic acid, pannarin, zeorin (W. Obermayer, by T.L.C.).

8. IX. 1993 leg. J. Hafellner (41812) & M. Möslinger, det. J. Hafellner

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

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203. ***Illosporiopsis 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 aipolia* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Steirisches Randgebirge, Grazer Bergland, Sattelberg NW of the town Weiz, Wachthaussattel, somewhat E of a wayside shrine, 47°15’35’’N / 15°33’30’’E, *c*. 950 m alt., GF 8759/1, row of trees along secondary dirt road at the edge of a pasture, on bark of young *Fraxinus excelsior*.

Note 1: The type host of *Illosporiopsis christiansenii* is *Candelaria concolor*.

12. X. 2013 leg. J. Hafellner (82426) & A. Hafellner, det. J. Hafellner

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

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204. ***Lichenochora aipoliae*** Etayo, Nav.-Ros. & Coppins

in Etayo & Navarro-Rosinés, Rev. Catalana Micol. 30: 31 (2008).

Host: *Physcia aipolia* (thallus)

Europe, **Austria**: Steiermark (= Styria), Oststeirisches Riedelland, 6.7 km NE of the centre of Graz, along the road from the village Stifting via Rohrbach to Schillingsdorf, 47°06’07’’N / 15°30’55’’E, *c*. 445 m alt., GF8859/3; row of trees along a brook, on twigs of *Salix fragilis* recently fallen to the ground.

Note 1: *Physcia aipolia* is the type host of *Lichenochora aipoliae*.

10. V. 2014 leg. W. Obermayer (13167), det. J. Hafellner

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

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205. ***Marchandiomyces corallinus*** (Roberge) Diederich & D.Hawksw.

in Diederich, Mycotaxon 37: 312 (1990). – Bas.: *Illosporium corallinum* Roberge in Desmazières, Pl. crypt. Fr., ed. 1, fasc. 32, no. 1551 (1847) resp. Desmazières, Ann. Sci. Nat. Bot. sér. 3, 10: 342 (1848).

Hosts: *Xanthoparmelia stenophylla* (thallus) and *X*. *tinctina* (thallus)

Europe, **France**: Corsica, Dept. Haute-Corse, by the road from Corte to Ajaccio, *c*. 1.5 km S of the village Venaco, 42°12’55’’N / 09°10’40’’E, *c*. 460 m alt.; garrigue with granite boulders on slope exposed to the SE, on inclined rock faces.

Note 1: The type host as seen on the type specimen is *Physcia tenella* (fide Hawksworth, Bull. Brit. Mus. (Nat. Hist.), Bot. ser. 6(3): 236, 1979).

Note 2: The material distributed here is mainly in the sclerotial state.

6. XI. 1993 leg. J. Hafellner (41814), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

206. ***Microcalicium disseminatum*** (Ach.) Vain.

in Acta Soc. Fauna Flora Fennica 57(1): 77 (1927). – Bas.: *Cyphelium disseminatum* Fr. ex Ach. in Kongl. Vetensk. Akad. Handl. 1817: 227 (1817). – Syn.: *Calicium disseminatum* (Ach.) Fr. in Sched. Critic.: 7 (1824).

Hosts: *Chaenotheca trichialis* (thallus) and *Ch*. *chrysocephala* (thallus)

Europe, **Germany**: Bayern (= Bavaria): Eastern Alps, Ammergauer Alpen (Ammergebirge), *c*. 14.5 km SW of the village Oberammergau, NW foot of Kreuzspitze, „Bei den sieben Quellen“, 47°32’20’’N / 10°54’00’’E, *c*. 1080 m alt., mixed forest dominated by conifers, on bark of *Picea abies*.

Note 1: Lichenicolous behaviour is not mentioned in the protologue.

Note 2: The distributed material contains both conidiomata and ascomata.

5. IX. 2004 leg. J. Hafellner (79703), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

207. ***Plectocarpon lichenum*** (Sommerf.) D.Hawksw.

in Hawksworth & Galloway, Lichenologist 16: 86 (1984). – Bas.: *Dothidea lichenum* Sommerf. in Supplementum Florae Lapponicae: 224 (1826); Fries, Elenchus Fungorum 2: 123 (1828). – Syn.: *Lichenomyces lichenum* (Sommerf.) R.Sant. in Svensk Bot. Tidskr. 54(4): 501 (1960). – *Celidium lichenum* (Sommerf.) J.Schröt. in Cohn, Kryptogamenflora Schlesien 3(2): 135 (1893).

Host: *Lobaria pulmonaria* (thallus)

Europe, **Albania**: Southern Albania, Vlorë distr., Qafa e Llogorasë (Llogora pass) S of the town Vlorë, mountain ridge W above the pass, 40°12’00’’N / 19°34’40’’E, *c*. 1240 m alt., upper edge of a pine-fir forest with evergreen understorey on a slope exposed to the NE, on bark of *Abies borisii-regis*.

Note 1: *Lobaria pulmonaria* is the type host of *Plectocarpon lichenum*.

22. VIII. 2007 leg. J. Hafellner (83621), det. J. Hafellner
(field trip together with M. Tretiach, L. Muggia, M. Piccotto & J. Marka)

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

208. ***Rhagadostoma lichenicola*** (De Not.) Keissl.

in Rabenh. Krypt.-Fl., 2. ed., Pilze 8, Flechtenparasiten: 320 (1930). – Bas.: *Bertia lichenicola* De Not. in Erbario Crittogamico Italiano no. 1190 (1864).

Host: *Solorina crocea* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Wölzer Tauern, mountains SE above the village Donnersbach, mountain ridge between Plannerknot and Hochrettelstein, E above the trail, 47°24’53’’N / 14°13’20’’E, *c*. 2030 m alt., GF 8551/3, open stands of dwarf shrub communities (Loiseleurietum procumbentis) over garnet mica schist bedrock on a slope exposed to the NW.

Note 1: *Solorina crocea* is the type host of *Rhagadostoma lichenicola*.

Note 2: The genus *Rhagadostoma* is based on *R. corrugatum* Körb., a later heterotypic synonym of *Bertia lichenicola* De Not.

29. VII. 2010 leg. J. Hafellner (76006), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

209. ***Sphaerellothecium minutum*** Hafellner

in Herzogia 9: 760 (1993).

Host: *Sphaerophorus fragilis* (thallus)

Europe, **Austria**: Kärnten (= Carinthia), Eastern Alps, Saualpe W of the town Wolfsberg, Geierkogel S of the pass Klippitztörl, on the ridge running to the N somewhat NE below the summit cross, 46°55’25’’N / 14°40’40’’E, *c*. 1800 m alt., GF 9054/3, boulders of mica schist surrounded by dwarf shrub communities in the tree line ecotone, in fissures filled with soil.

Note 1: *Sphaerophorus fragilis* is the type host of the species.

8. VI. 2013 leg. J. Hafellner (81917), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

210. ***Stigmidium xanthoparmeliarum*** Hafellner

Paratype

in Bull. Soc. Linn. Provence 45: 231 (1994).

Host: *Xanthoparmelia stenophylla* (thallus)

Europe, **France**: Corsica, Dept. Haute-Corse, by the road from Corte to Ajaccio, *c*. 1.5 km S of the village Venaco, 42°12’55’’N / 09°10’40’’E, *c*. 460 m alt., garrigue with granite boulders on a slope exposed to the SE, on inclined rock faces.

Note 1: *Xanthoparmelia stenophylla* (sub *X*. *somloensis*) is the type host of *Stigmidium xanthoparmeliarum*.

Note 2: *Lichenostigma cosmopolites* Hafellner & Calatayud is also present in all duplicates.

6. XI. 1993 leg. J. Hafellner (31841), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

211. ***Carbonea vitellinaria*** (Nyl.) Hertel

in Mitt. Bot. Staatssamml. München 19: 442 (1983). – Bas.: *Lecidea vitellinaria* Nyl. in Bot. Notiser 1852: 177 (1852). – Syn.: *Nesolechia vitellinaria* (Nyl.) Rehm in Rabenh. Krypt.-Fl., 2. ed. 1(3): 319 (1890). – *Lecidella vitellinaria* (Nyl.) Kremp. in Denkschr. Bayer. Bot. Ges. 4(2): 287 (1861).

Host: *Candelariella vitellina* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Steirisches Randgebirge, Grazer Bergland, Berge NW of the village Passail, Bründlkogel S of the Sommeralm, E side of the summit area, 47°20’00’’N / 15°33’15’’E, *c*. 1430 m alt., GF 8659/3, low outcrops of palaeozoic rocks in a pasture, on inclined rock faces of a lens of a siliceous schist.

Note 1: *Candelariella vitellina* is the type host of the species.

6. XI. 2010 leg. J. Hafellner (76624) & L. Muggia, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

212. ***Erythricium aurantiacum*** (Lasch) D.Hawksw. & A.Henrici

in Field Mycology 16(1): 16 (2015). – Bas.: *Illosporium aurantiacum* Lasch in Schlechtendal, Bot. Zeitung 17: 304 (1859). – Syn.: *Marchandiobasidium aurantiacum* Diederich & Schultheis in Diederich et al., Mycol. Res. 107: 524 (2003).

Host: *Xanthoria parietina* (thallus, apothecia)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Steirisches Randgebirge, Grazer Bergland, Hauenstein N von Graz-Mariatrost, slopes exposed to the SW, N of the village Wenisbuch, 47°07’20’’N / 15°28’45’’E, *c*. 550 m alt., GF 8858/4, row of old fruit trees along a secondary paved road, on branches in the lower canopy of *Pyrus communis*.

Note 1: In the distributed material the lichenicolous fungus is present with its sclerotial morph for which in more recent years the name *Marchandiomyces aurantiacus* (Lasch) Diederich & Etayo had been used.

Note 2: According to a phylogenetic analysis of molecular data (Diederich et al., Mycologia 103: 528, 2011), the type species of *Marchandiomyces*, *M*. *corallinus*, and *Marchandiobasidium aurantiacum* do not form a monophyletic clade.

Note 3: According to a phylogenetic analysis of molecular data (Ghobad-Nejhad et al., Taxon 50: 1519–1534, 2010), *Marchandiobasidium aurantiacum* forms a clade with *Erythricium laetum* (P.Karst.) J.Erikss. & Hjortstam.

24. XII. 2014 leg. J. Hafellner (83547), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

213. ***Illosporium carneum*** Fr.

in Systema Mycologicum 3(1): 259 (1829).

Host: *Peltigera elisabethae* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Wölzer Tauern, Schreinl E above the village Donnersbachwald, summit area, 47°22’50’’N / 14°10’05’’E, *c*. 2150 m alt., GF 8651/1, uppermost slope exposed to the N with scattered low cliffs of schist containing some calcium, in fissures filled with soil.

Note 1: The type host as seen on the lectotype specimen is *Peltigera rufescens* (fide Hawksworth, Bull. Brit. Mus. (Nat. Hist.), Bot. ser. 6(3): 232, 1979).

Note 2: The genus *Illosporium* is based on *I. roseum* Mart., a heterotypic synonym of *I. carneum* Fr.

Note 3: In the duplicate kept in GZU, the teleomorphic state *Pronectria robergei* (Mont. & Desm.) Weese is also present.

30. VII. 2010 leg. J. Hafellner (75985), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

214. ***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 mughicola* (apothecia)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Triebener Tauern, by the trail from Beisteiner Alm ('Peilsteiner Alm') to the Griesmoar Kogel, somewhat N below the ridge, 47°25’10’’N / 14°36’50’’E, *c*. 1750 m alt., GF 8553/4, open *Picea abies-Larix decidua* forest in the tree line ecotone, on wood of dead branches in the lower canopy of *Larix decidua*.

Note 1: The type host of *Lichenoconium lecanorae* is *Lecanora chlarotera*.

4. III. 2000 leg. J. Hafellner (51794), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

215. ***Nigropuncta rugulosa*** D.Hawksw.

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

Host: *Bellemerea cinereorufescens* c. ap. (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Steirisches Randgebirge, Koralpe, Bärentalalm *c*. 16.6 km W of the town Deutschlandsberg, *c*. 1 km W of Grünangerhütte, moraine of a Pleistocene local glacier at the bottom of the cirque, 46°48’45’’N / 14°59’45’’E, *c*. 1700 m alt., GF 9155/4, scattered boulders of schistose gneiss ('Plattengneis') in subalpine pasture, on subvertical rock faces.

Note 1: *Bellemerea 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.

Note 2: A strain of *Muellerella pygmaea* (Körb.) D.Hawksw., also on *Bellemerea cinereorufescens*, is present as admixture on all duplicates.

21. IX. 2013 leg. J. Hafellner (82496) & J. Kocourková, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

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

in Rambold & Triebel, Notes Roy. Bot. Garden Edinburgh 46: 384 (1990). – Bas.: *Nesolechia punctum* A.Massal. in Schedulae Criticae Lichenes Exsiccatos Italiae 5: 96 (1856). – Syn.: *Lecidea punctum* (A.Massal.) Jatta in Sylloge Lichenum Italicorum: 353 (1900).

Host: *Cladonia digitata* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Murberge, Gstoder *c*. 12.5 km WNW of the town Murau, slopes exposed to the E, Asterriegel N above of the Michlbauerhütte, 47°08’35’’N / 14°01’05’’E, *c*. 1500 m alt., GF 8850/3, *Picea abies-Larix decidua* forest, on decaying stumps.

Note 1: In the protologue the host is only given to genus level (*Cladonia*).

Note 2: An isotype has been restudied by Rambold & Triebel (l.c.), but the host species is not indicated either.

26. VIII. 2000 leg. J. Hafellner (52419), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

217. ***Stigmidium cerinae*** Cl.Roux & Triebel

in Bull. Soc. Linn. Provence 45: 480 (1994).

Host: *Caloplaca stillicidiorum* (apothecia)

Europe, **Slovenia**: Southern Alps, Julian Alps, massif of Mangart NE of Bovec, slopes of large doline S of Mangartska koča (Mangart refuge), below Rdeča skala, 46°26’10’’N / 13°38’45’’E, *c*. 1880 m alt., alpine vegetation and rocks of bright (triassic) limestone, partly slightly siliciferous, on saxicolous bryophytes.

Note 1: *Caloplaca stillicidiorum* is the type host of *Stigmidium cerinae*.

2. VIII. 2003 leg. J. Hafellner (75311), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

218. ***Stigmidium schaereri*** (A.Massal.) Trevis.

in Conspectus Verrucarinarum: 17 (1860). – Bas.: *Sphaeria schaereri* A.Massal. in Sulla Lecidea hookeri nota: 8 (1853) [as *'schaererii'*]. – Syn.: *Pharcidia schaereri* (A.Massal.) Arnold in Verh. Zool.-Bot. Ges. Wien 19: 638 (1896). – *Verrucaria schaereri* (A. Massal.) Nyl. in Flora (Regensburg) 53: 358 (1865). – *Sphaerella schaereri* (A. Massal.) Anzi in Atti Soc Ital. Sci. Nat. 11: 180 (1868). – *Epicymatia schaereri* (A.Massal.) Sacc. in Sylloge Fungorum 1: 571 (1882). – *Sphaerulina schaereri* (A.Massal.) Sacc. & D.Sacc. in Sylloge Fungorum 17: 695 (1905).

Host: *Dacampia hookeri* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Wölzer Tauern, mountains ca. 4 km W of the village Pusterwald, northern slopes of the ridge connecting Steineck and Stubenberg, 47°17’45’’N / 14°17’55’’E, *c*. 2040 m alt., low outcrops of marble in alpine vegetation, in fissures filled with soil.

Note 1: *Dacampia hookeri* is the type host of *Stigmidium schaereri*.

Note 2: *Dacampia hookeri* is lichenicolous itself, usually upon species of the *Solorina bispora* group (see Henssen, Crypt. Bot. 5: 149–158, 1995), but often, as is the case in the material distributed here, the primary host is not recognizable anymore.

29. VII. 2012 leg. J. Hafellner (80932), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

219. ***Xenonectriella leptaleae*** (J.Steiner) Rossman & Lowen

in Rossman et al., Stud. Mycol. 42: 169 (1999). – Bas.: *Pharcidia leptaleae* J.Steiner in Fritsch, Denkschr. Akad. Wiss., Math.-nat. Kl.: 238 (1900). – Syn.: *Nectriella leptaleae* (J.Steiner) R.Sant. in Publ. Herbarium University Uppsala 13: 11 (1984). – *Pronectria leptaleae* (J.Steiner) Lowen in Mycotaxon 39: 462 (1990).

Host: *Physcia stellaris* (apothecia)

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

Note 1: The type host of *Xenonectriella leptaleae* is *Physcia leptalea*.

18. XI. 2007 leg. J. Hafellner (69399), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

220. ***Zwackhiomyces sphinctrinaeformis*** Grube & Hafellner

in Nova Hedwigia 51(3–4): 325 (1990).

Host: *Romjularia lurida* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Ennstaler Alpen, Haller Mauern N of the town Admont, Grabnerstein N above of the Buchauer Sattel, NE above of the Grabneralmhaus, 47°37’45’’N / 14°30’20’’E, *c*. 1500 m alt., GF 8353/3, stands of knee pine (*Pinus mugo*) on slopes exposed to the S with solitary boulders on clearings, on boulders of limestone.

Note 1: *Romjularia lurida* is the type host of the species.

26. X. 2006 leg. J. Hafellner (67102) & L. Muggia, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

221. ***Caloplaca epithallina*** Lynge

in Skrifter Svalbard Ishavet 81: 113 (1940).

Hosts: thalli of various silicicolous lichens (see below)

Northern America, **U.S.A.**: California, San Bernardino County, Transverse Range, San Bernardino Mountains, near Highway 38 and Rainbow Lane, 34° 10’23’’N / 116°43’05’’W, *c*. 2440 m alt., conifer and oak woodland, on a large granite outcrop.

Note 1: In the protologue, synonyms of *Montanelia disjuncta*, *Dimelaena oreina* and *Rhizoplaca melanophthalma* are listed as hosts of *C*. *epithallina*, but with an “etc.” Lynge indicated that he had observed the parasitic *Caloplaca* also on other lichen species.

Note 2: In the entire collection, the following lichens have been recognized as hosts: *Rhizoplaca melanophthalma*, *Dimelaena oreina*, *Acarospora* spec., *Lecidea atrobrunnea* agg. In the individual duplicates, these hosts may be present alone or in various combinations.

1. XI. 2013 leg. K. Knudsen (16264) & J. Kocourková, det. K. Knudsen

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

222. ***Carbonea distans*** (Kremp.) Hafellner & Obermayer

in Obermayer, Mitt. Naturwiss. Ver. Steiermark 123: 116 (1993). – Bas.: *Lecidea distans* Kremp. in Flora (Regensburg) 38: 71 (1855). – Syn.: *Lecidella distans* (Kremp.) Körb. in Parerga Lichenologica: 205 (1861).

Host: *Orphniospora mosigii* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Seetaler Alpen, Zirbitzkogel *c.* 9.5 km W of the village Obdach, surroundings of Lavantsee in the cirque S below the summit, small ridge next to SE shore of the lake, 47°03’ 35’’N / 14°34’40’’E, *c*. 2060 m alt., GF 8953/1, outcrops of mica schist polished by a Pleistocene local glacier, on inclined rock faces.

Note 1: Krempelhuber (l.c.) did not recognize that *C*. *distans* starts its life cycle as a lichenicolous lichen.

Note 2: Hertel (Herzogia 1: 417, 1970) restudied the holotype and an isotype preserved in M, and confirmed the lichenicolous growth on *Orphniospora mosigii* (sub *Lecidea obscurissima*) for this authentic material.

26. VII. 2007 leg. J. Hafellner (82628) & A. Hafellner, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

223. ***Dimelaena lichenicola*** K.Knudsen, Sheard, Kocourk. & H.Mayrhofer

Paratype

in Bryologist 116(3): 259 (2013).

Host: *Dimelaena oreina* (thallus)

Northern America, **U.S.A.**: California, San Benito County, Mojave Desert, Joshua Tree National Park, Upper Covington Flats, small unnamed canyon, near the trail, 34°00’46’’N / 116°18’10’’W, 1431 m alt., pinyon pine and juniper woodland, on gneiss.

Note 1: *Dimelaena oreina* and *D*. *thysanota* are the type hosts of the species.

Note 2: *Endococcus oreinae* Hafellner is also present on the duplicates in GZU, NY, PRM, and UPS.

25. XI. 2012 leg. J. Kocourková (8180) & K. Knudsen, det. K. Knudsen

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

224. ***Diploschistes muscorum*** (Scop.) R.Sant.

in Hawksworth et al., Lichenologist 12(1): 106 (1980). – Bas.: *Lichen muscorum* Scop. in Flora Carniolica 2: 365 (1772). – Syn.: *Diploschistes scruposus* subsp. *muscorum* (Scop.) Clauzade & Cl.Roux in Bull. Soc. Bot. Centre-Ouest 7: 825 (1985).

Host: *Cladonia pyxidata* agg. (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Steirisches Randgebirge, Grazer Bergland, Streberkogel S above the village Gasen, *c*. 10 km W of the town Birkfeld, at SE end of summit ridge, 47°21’30’’N / 15°34’40’’E, *c*. 1440 m alt., GF 8659/1, low outcrops of calcareous schist in a subalpine pasture on the uppermost part of the slope exposed to the N, on soil and plant remnants.

Note 1: Lichenicolous growth is not mentioned in the protologue.

Note 2: Early stages of thallus development including a photobiont switch were investigated by Friedl (Lichenologist 19: 183–191, 1987).

13. XI. 2011 leg. J. Hafellner (79077), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

225. ***Miriquidica instrata*** (Nyl.) Hertel & Rambold

in Mitt. Bot. Staatssammlung München 23: 385 (1987). – Bas.: *Lecidea instrata* Nyl. in Flora (Regensburg) 60: 224 (1877). – Syn.: *Biatora instrata* (Nyl.) Arnold in Verh. Zool.-Bot. Ges. Wien 29: 372 (1879). – *Lecidella instrata* (Nyl.) M.Choisy in Bull. Mens. Soc. Linn. Lyon 19: 18 (1950).

Host: *Aspicila* spec. (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Schladminger Tauern, Kleinsölk-Obertal, by the trail from Schwarzensee to Rettingscharte, Großer Gnasen, at the base of a rock wall exposed to the S, 47°17’50’’N / 13°50’50’’E, *c*. 1940 m alt., GF 8749/1; scree on a steep slope, on inclined rock faces of gneiss boulders.

Note 1: Lichenicolous growth is not mentioned in the protologue.

Note 2: Congruence in morpho-anatomical characters makes it likely that *Miriquidica instrata* and the sorediate *M*. *intrudens* (H.Magn.) Hertel & Rambold constitute a species pair in the sense of Poelt (Vorträge Gesamtgebiet Botanik, N. F. [Deutsch. Bot. Ges.] 4: 187–198, 1970).

8. IX. 1993 leg. J. Hafellner (41808) & M. Möslinger, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

226. ***Miriquidica invadens*** Hafellner, Obermayer & Tretiach

Paratype

in Lichenologist 46(3): 309 (2014).

Host: *Sporastatia polyspora* (thallus)

Europe, **Austria**: Kärnten (= Carinthia), Eastern Alps, Saualpe W of the town Wolfsberg, Forstalpe, on the ridge facing N, 46°54’10’’N / 14°39’55’’E, *c*. 1950 m alt., GF 9053/4; cliffs of gneissic schist rich in disthen surrounded by dwarf shrub communities, on vertical rock faces exposed to the E.

Note 1: *Sporastatia polyspora* is the type host of *Miriquidica invadens*.

Note 2: Lichen substances in *Miriquidica invadens*: miriquidic acid, stictic acid, constictic acid (W. Obermayer, by T.L.C.)

18. X. 2011 leg. J. Hafellner (79177) & A. Hafellner, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

227. ***Miriquidica invadens*** Hafellner, Obermayer & Tretiach

Paratype

in Lichenologist 46(3): 309 (2014).

Host: *Sporastatia polyspora* (thallus)

Europe, **Austria**: Steiermark (= Styria), Eastern Alps, Niedere Tauern, Wölzer Tauern, Greim *c*. 11 km NW of the town Oberwölz, summit area, 47°14’50’’N / 14°09’05’’E, *c*. 2470 m alt., GF 8750/4; boulder field and low outcrops of mica schist surrounded by alpine meadows and patches of dwarf shrub stands, on steep rock faces exposed to the E.

Note 1: *Sporastatia polyspora* is the type host of *Miriquidica invadens*.

Note 2: Lichen substances in *Miriquidica invadens*: miriquidic acid, stictic acid, constictic acid (W. Obermayer, by T.L.C.).

Note 3: On the duplicates distributed to the herbaria GZU and UPS, *Sporastatia polyspora* is also infested by *Polycoccum sporastatiae* (Anzi) Arnold, on that in NY by *Rhizocarpon pusillum* Runemark.

30. VII. 2006 leg. J. Hafellner (67975) & L. Muggia, det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

228. ***Paralecanographa grumulosa*** (Dufour) Ertz & Tehler

in Fungal Diversity 49(1): 57 (2011). – Bas.: *Opegrapha grumulosa* Dufour in J. Physiol. Chim. Hist. Nat. Arts 87: 214 (1818). – Syn.: *Lecanactis grumulosa* (Dufour) Fr. in Lichenographia Europaea Reformata: 375 (1831). – *Lecanactis monstrosa* var. *grumulosa* (Dufour) Lettau in Feddes Rep., Beih. 69(1): 47 (1932). – *Lecanographa grumulosa* (Dufour) Egea & Torrente in Biblioth. Lichenol. 54: 134 (1994).

Host: *Roccella phycopsis* (thallus)

Europe, **France**: Corsica, Dept. Corse du Sud, Punta de la Parata WSW of Ajaccio, on the NE side of the hill somewhat below of the Tour de la Parata, 41°53’44’’N / 08°36’30’’E, *c*. 50 m alt; cliffs of volcanic rock exposed to the NE, on shaded vertical rock faces.

Note 1: Lichenicolous growth is not mentioned in the protologue.

5. XI. 1993 leg. J. Hafellner (41809), det. J. Hafellner

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

229. ***Placocarpus schaereri*** (Fr.) Breuss

in Pl. Syst. Evol. 148 (3–4): 314 (1985). – Bas.: *Parmelia schaereri* Fr. in Lichenographia Europaea Reformata: 106 (1831). – Syn.: *Endocarpon schaereri* (Fr.) Nyl. in Bot. Notiser 1853: 156 (1853). – *Catapyrenium schaereri* (Fr.) R.Sant. in The Lichens of Sweden and Norway: 83 (1984).

Host: *Protoparmeliopsis muralis* auct. (thallus)

Europe, **Albania**: Northern Albania, Shkodër distr., Shkodër, Rozafa (castle hill) on the southern edge of the town, 42°02’55’’N / 19°29’40’’E, *c*. 50 m alt., rocky slope exposed to the N, on low outcrops of limestone.

Note 1: Lichenicolous growth is not mentioned in the protologue.

23. VIII. 2007 leg. J. Hafellner (80800), det. J. Hafellner
(field trip together with M. Tretiach, L. Muggia, M. Piccotto & J. Marka)

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

Hafellner J. 2015: Lichenicolous Biota (Nos 201–230). - Fritschiana 80: 21–41.

230. ***Ramboldia insidiosa*** (Th.Fr.) Hafellner

in Hafellner & Türk, Carinthia II 185/105: 624 (1995). – Bas.: *Lecidea insidiosa* Th.Fr. in Bot. Notiser 1867: 153 (1867).

Host: *Lecanora varia* (thallus, apothecia)

Europe, **Austria**: Kärnten (= Carinthia), Eastern Alps, Steirisches Randgebirge, Stubalpe E of the town St. Leonhard, NE above of Görlitzer Alm, Kollmannsöfen, at Schieflinger Kreuz, 47°00’25’’N / 14°52’55’’E, *c*. 1745 m alt., GF 8955/3, cliffs and large boulders on a slope exposed to the W in the tree line ecotone, on a somewhat rotten wooden fence.

Note 1: *Lecanora varia* is the type host of *Ramboldia insidiosa*. *Lecanora* '*subfusca*' is mentioned as a further host in the protologue, but this needs confirmation.

12. VI. 2005 leg. J. Hafellner (65091), det. J. Hafellner

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

Taxon Synopsis:

Host Index:

Geographic Index:

BIOGEOGRAPHIC UNITS (see Brummitt 2001)

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Distributional and other data for some species of *Didymocyrtis* (Dothideomycetes, Pleosporales, Phaeosphaeriaceae), including their *Phoma*-type anamorphs

Josef HAFELLNER*

HAFELLNER Josef 2015: Distributional and other data for some species of *Didymocyrtis* (Dothideomycetes, Pleosporales, Phaeosphaeriaceae), including their *Phoma*-type anamorphs. – Fritschiana (Graz) 80: 43–88. – ISSN 1024-0306.

Abstract: Treatments of ten species of *Didymocyrtis* and one of *Polycoccum* are presented. The new combinations *Didymocyrtis physciae* (Brackel) Hafellner and *Polycoccum stellulatae* (Vouaux) Hafellner are proposed. *Didymocyrtis cladoniicola* is newly recorded for Albania, Austria, Romania, Sweden, and Armenia, as is *D. foliaceiphila* for the Kosovo, *D. melanelixiae* for Austria, *D. pseudeverniae* for Austria and France, as well as *Polycoccum stellulatae* for Uruguay and the Juan Fernandez Islands (to Chile).

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Introduction

Körber (1865) described the genus *Polycoccum* Körb. (type *Polycoccum sauteri* Körb., a heterotypic synonym of *P. trypethelioides*), where most of the lichenicolous paraphysate fissitunicate phaeodidymosporous pyrenomycetes are currently classified. Whereas *Polycoccum* was little used for lichenicolous ascomycetes until its re-installation by Santesson (1960), *Polycoccum* has become one of the species-rich genera in the last two decades, with further species described almost every year. In the meantime, Mycobank (http://www.mycobank.org) lists more than 70 taxa names on species level and below which have to be considered and in the synopsis of lichenicolous fungi by Lawrey & Diederich (2015) after the seggregation of *Didymocyrtis* Vain. still 53 species are accepted in *Polycoccum*.

A first key to species of *Polycoccum* was designed by Vězda (1969). The most comprehensive key so far available is the one compiled by Hawksworth & Diederich (1988, 23 species worldwide), whereas regional keys (e.g. Atienza et al. 2003, 13 species from Spain; Calatayud 2004, 5 species from

Sonoran desert region; Ihlen & Wedin 2008, 14 species from Sweden) depict the diversity in smaller areas.

In historic catalogues of lichenicolous fungi from the 19th century, if any, only a few species are treated in *Polycoccum* (e.g. by Arnold 1874a, 1877, 1881, 1895). Other species now included in *Polycoccum* were previously classified in different genera, namely in *Microthelia* Körb. (type *Microthelia micula* Körb.) and *Endococcus* Nyl. (type *Endococcus rugulosus* (Borrer ex Leight.) Nyl.) (compare e.g. Arnold l.c., Lindsay 1869). Vouaux (1913) treated most *Polycoccum* species in *Didymosphaeria* Fuckel nom. cons. (type: *Didymosphaeria epidermidis* "(Fr.) Fuckel" with conserved type, heterotypic synonym of *Didymosphaeria futilis* (Berk. & Broome) Rehm, see also Holm 1957, Scheinpflug 1958), whereas Keissler (1930) included *Polycoccum* species partly in *Didymosphaeria*, partly in *Discothecium* Zopf (type *Discothecium stigma* (Körb.) Zopf, hence a heterotypic synonym of *Endococcus* Nyl.).

Higher level classification of all these genera remained rather formalistic until the mid 20th century. With the discovery of the ascohymenial and ascolocular ascoma development types and the ascus wall types (including the fissituincate = "bitunicate" one), additional phenotypic characters became available for ascomycete systematics. The inclusion of these new characters had a high impact on the taxonomy of ascomycetes on family and order level. The "classical" taxonomic treatments by Luttrell (1973), Arx & Müller (1975), Barr (1979) and Eriksson (1981) were firmly based on these additional character complexes, providing a kind of baseline for the taxonomy of loculoascomycetes. One of the generally accepted higher level taxa is the clade Pleosporales/Pleosporaceae. However, genera introduced for lichenicolous fungi were considered only occasionally. For the lichenicolous genera, the comprehensive listing in the "Outline of the Ascomycetes" initiative (Eriksson & Hawksworth 1986, etc.) was an important step forward and also brought up a forum of discussion for proposed placements.

Whereas Eriksson & Hawksworth (1986) had classified *Polycoccum* in the Pleosporaceae Nitschke, Crivelli (1983: 193) supposed a closer relationship between *Dacampia* A.Massal. (type *Dacampia hookeri* (Borrer) A.Massal.), *Polycoccum* and *Pyrenidium* Nyl. (sub *Dacampiosphaeria* D.Hawksw.) (type: *Pyrenidium actinellum* Nyl. / *Dacampiosphaeria rivana* (De Not.) D.Hawksw., a heterotypic synonym of *P. actinellum*). This view was further elaborated by Hawksworth & Diederich (1988), when they proposed to treat these three genera together with *Byssothecium* Fuckel (type: *Byssothecium circinans* Fuckel), *Clypeococcum* D.Hawksw. (type: *Clypeococcum cladonema* (Wedd.) D.Hawksw.) and *Weddellomyces* D.Hawksw. (type: *Weddellomyces epicallopisma* (Wedd.) D.Hawksw.) in the family Dacampiacae Körb. (syn. Pyrenidiacae Zahlbr., for a phenotypic circumscription of the taxon compare Cannon & Kirk 2007). Of these, *Clypeococcum* is also didymosporous, but the ascomata are clypeate.

As long as sequence data of lichenicolous fungi were still scarce, fungi of this ecological niche were not representatively included in cladograms based on molecular data sets (see e.g. Lutzoni et al. 2004, Schoch et al. 2006,

2009, Zhang et al 2009, Hyde et al. 2013). Therefore the placement of *Polycoccum* in the Dacampiaceae remained uncertain until recently, as well as the placement and circumscription of this family.

On the other hand, the question whether *Polycoccum* is homogenous or does contain non-congeneric elements, never got serious attention. The only generic name listed as a synonym of *Polycoccum* is *Lophothelium* Stirt., Scottish Naturalist 9: 37, 1887). The type is *Lophothelium acervatum* Stirt., sec. descr. a heterotypic synonym of *Polycoccum trypethelioides*, and the generic name *Lophothelium* is therefore not available for any divergent elements.

Recently, however, it was shown by morphological and molecular studies (Ertz et al. 2015) that at least one species group, the *Polycoccum bryonthae* group, is only distantly related to the core group of *Polycoccum*. For this segregate of *Polycoccum*, the generic name *Didymocyrtis* Vain. (Phaeosphaeriaceae) was re-installed, a genus practically neglected since its introduction (Vainio 1921). Furthermore it was demonstrated that *Polycoccum* s.str. does not belong to the Dacampiacae, where it was traditionally classified, but has to be placed in a family of its own, the Polycoccaceae, and outside the Pleosporales.

Several *Didymocyrtis* species proved to develop *Phoma* anamorphs during their life cycle. *Phoma caloplacae* represents a coelomycetous anamorph of *Didymocyrtis consimilis*, *Phoma ficuzzae* that of *D*. *ramalinae*, *Phoma denigricans* most likely that of *D*. *bryonthae*, and a *Phoma* with narrowly ellipsoid conidia that of *Didymocyrtis slaptoniensis*. Some *Didymocyrtis* species are so far only known by their *Phoma*-like anamorphs.

The presently available specimen data of both the teleomorphs and the proven or supposed anamorphs of *Didymocyrtis* species suggest a bipolar extratropical distribution pattern with a centre of diversity in the Holarctic.

As space for specimen data was limited in our taxonomic treatment (Ertz et al. 2015), detailed distribution data and additional observations on the autecology of the currently recognized *Didymocyrtis* species are published here, in order to give a more complete picture of these lichenicolous fungi.

Material and methods

Dried herbarium specimens cited together with the treatments of the species have been examined. External morphology was studied with a dissecting microscope (WILD M3, 6.4–40×). Anatomical studies of the thallus and the ascomata were carried out under the light microscope (Leica DMRE, partly Leitz Biomed, 100–1000×). Sectioning was performed with a freezing microtome (LEITZ, sections of 12–15 mm) but squash preparations were also used, especially for ascus analysis. Preparations were mounted in water. When necessary, contrasting was performed by a pretreatment with lactic acid-cotton blue (MERCK 13741). Measurements refer to dimensions in tap water.

Abbreviations for institutional herbaria follow Holmgren et al. (1990). Abbreviations of nomenclatural authorities are those proposed by Brummitt & Powell (1992). Geographic units are defined and named according to Hollis & Brummitt (1992) or Brummitt (2001), resp. The nomenclature of lichenised taxa follows Hafellner & Türk (2001).

Abbreviations: ap. – apothecia, th. – thallus, T – host of the type specimen

In addition to the specimens cited together with the treatments of the species, the following material was also examined for comparison:

Briancoppinsia cytospora (Vouaux) Diederich, Ertz, Lawrey & P.Boom

Austria: Steiermark (Styria), Nordalpen, Dachstein-Gruppe, Ramsau 4.6 km NNW of Schladming, 1 km N of the church of the village Ramsau am Dachstein, N of the farm Feldlhof, 47°25’39’’N / 13°39’09’’E, c. 1190 m alt., GF 8547/4, solitary trees in a meadow along a gravel road, on bark of *Acer pseudoplatanus*, on *Parmelia sulcata* (th.), II. 2007, leg. W. Obermayer 12631 (GZU). – Steiermark (Styria), Nördliche Kalkalpen, Ennstaler Alpen, Gesäuseberge S von Admont, Umgebung der Sieglalm ca. 1 km N vom Schloß Kaiserau, 47°32’20’’N / 14°29’00’’E, ca. 1120 m, GF 8452/4, montaner Forst mit dominanter Picea abies, auf Borke von Abies alba, auf *Hypogymnia physodes* (th.), 13. IX. 2006, leg. J. Hafellner, bzw. 29. VII. 2007, leg. J. Hafellner no. 69998 & L. Muggia (GZU). – **Sweden**: Uppland, Österlövsta par., Lövstabruk ca. 5 km SE of Österlövsta, just E of the castle, 60°24’30”N/17°58’30”E, alt. ca. 20 m; open mixed forest; on bark of Ulmus, on *Parmelia sulcata* (th.), 10. V. 1996; leg. J. H. no. 37371 (Hafellner).

Dacampia engeliana (Saut.) A.Massal.

Hosts: *Solorina saccata* (th.) (1), *Solorina octospora* (th.) (2), *Solorina* spec. (th.) (3)

Austria: Kärnten (Carinthia), Hohe Tauern, Goldberggruppe, Umgebung der Sadnig-Hütte, 1930–2000 m, GF 9043, auf Rohhumus/Moosen über Schiefer, (3), 2. VII. 1989, leg. R. Türk no. 13128, 13156 (GZU). – Kärnten (Carinthia), Gailtaler Alpen, N-seitige Abbrüche der Jaukenhöhe [am W-Rücken unter dem Jaukenstöckl, 46°42’05’’N / 13°03’00’’E], ca. 2000 m, GF 9244/3, 16. VII. 1978, leg. J. Hafellner no. 3869 (GZU). – Kärnten (Carinthia), Gailtaler Alpen, Reißkofel ca. 11 km E von Kötschach-Mauthen, am Steig von der Reißkofel-Biwakschachtel entlang des W-Grates zum Gipfel, 46°41’10’’N / 13°08’10’’E, ca. 2060 m, GF 9344/2, Felsschrofen (Triaskalk) und Caricetum firmae-Fragmente, in Gratnähe auf Erde in Felsspalten, (3), 21. VII. 2009, leg. J. Hafellner no. 76081 (GZU). – Kärnten (Carinthia), Zentralalpen, Saualpe W von Wolfsberg, Gertrusk, im Kar E unter dem Gipfel, 46°51’45’’N / 14°38’50’’E, ca. 1900 m, GF 9153/2, niedere Felsausbisse aus glimmerreichem Marmor umgeben von Zwergstrauchheiden, in grusgefüllten Felsfugen, (3), 9. X. 2010, leg. J. Hafellner no. 76303 & L. Muggia (GZU). – Kärnten (Carinthia), Zentralalpen, Saualpe W von Wolfsberg, Gertrusk, im Kar E unter dem Gipfel, N unterhalb der Meeraugen, 46°51’40’’N / 14°39’00’’E, ca. 1860 m, GF 9153/2, Klippe aus Kalkschiefer mit NW-exponierten Abbrüchen am Rand eines Grünerlenbestandes, auf Erde in Felsspalten, (3), 9. X. 2010, leg. J. Hafellner no. 76274 & L. Muggia (GZU). – Kärnten (Carinthia), [Südalpen], Karnische Alpen, Bergmassive SW von Kötschach-Mauthen, kurz N unter dem Giramondopaß am Abstieg zur Oberen Wolayer Alm, 46°37’45’’N / 12°50’05’’E, ca. 1900 m, GF 9343/3, alpine Matten mit zerstreuten Schieferblöcken / Kalkblöcken, auf Moosen und Pflanzenresten über Kalkblöcken, (3), 15. VII. 1998, leg. J. Hafellner no. 45804 (GZU). – Kärnten (Carinthia), Karawanken, Koschuta, Umgebung des Koschutahauses S von Zell-Pfarre, [46°27’10’’N / 14°23’20’’E], 1250–1300 m, GF 9552/1, Tannen-Fichtenwald an Dolomitblöcken, (1), 19. X. 1984, leg. J. Hafellner no. 11741 (GZU). – Kärnten (Carinthia), Karawanken, Hochobir-Massiv NE von Eisenkappel, am Südgrat knapp unter dem Gipfel, ca. 2100 m, 46°30’15’’N / 14°29’15’’E, GF 9452/4, niedere Kalkschrofen am Rand der westseitigen Abbrüche, in Erdfugen, (3), 16. VII. 1998, leg. J. Hafellner no. 45673 (GZU). – Niederösterreich (Lower Austria), Nördliche Kalkalpen, Schneeberg NW von Neunkirchen, Kaiserstein, knapp E unter dem Gipfel am Südrand der Abbrüche in die

Breite Ries, 47°46’25’’N / 15°48’45’’E, ca. 2000 m, GF 8260/2, Rasentreppen mit kleinen Kalkschrofen, auf kleinen Erdanrissen, 29. VI. 1997, leg. J. Hafellner no. 42108 (herb. Hafellner). – Steiermark (Styria), Eisenerzer Alpen, Eisenerzer Reichenstein, Weg durch das Grübl, N-Fuß der Abbrüche des Reichensteins, 1700–1800 m, GF 8455/4, (3), 12. X. 1988, leg. J. Poelt (GZU). – Steiermark (Styria), Hochschwab-Gruppe, am Plateau des Pfaffenstein NE über Eisenerz, etwas E des Gipfelkreuzes, ca. 1860 m, GF 8455/1, Kalkfelsspalten, (3), 5. VIII. 1989, leg. M. Matzer no. 50 & B. Pelzmann (GZU). – Steiermark (Styria), Nördliche Kalkalpen, Hochschwab-Gruppe, Klamm NE von Oberort-Tragöß, [47°33’50’’N / 15°04’00’’E], ca. 840 m, GF 8456/1, (1), 15. VIII. 1976, leg. J. Hafellner no. 1823 (GZU). – Steiermark (Styria), Hochschwab-Gruppe, Endriegelgraben NE vom Wirtshaus Schwabenbartl, N von Aflenz, 820–950 m, GF 8457, Abbrüche aus Hauptdolomit, (1), 6. VI. 1993, leg. J. Poelt no. 93/76 (GZU). – Steiermark (Styria), Nördliche Kalkalpen, Mürzsteger Alpen, Veitsch Alpe, Großer Wildkamm, am SE-Grat ober der Gingatzwiese, ca. 1850 m, 47°39’40’’N / 15°24’30’’E, GF 8358/1, Kalkschrofen mit Caricetum firmae-Fragmenten, auf Moosen und Pflanzenresten, (3), 17. V. 1997, leg. J. Miadlikowska & J. Hafellner no. 42630 (GZU). – Steiermark (Styria), Niedere Tauern, Wölzer Tauern, Gipfel des Schreinl [E über Donnersbachwald, 47°22’50’’N / 14°10’05’’E], ca. 2150 m, GF 8651/1, N-seitig über niederen Schrofen aus Ca-hältigem Schiefer, in erdgefüllten Felsspalten, (3), 21. VII. 1989, leg. J. Hafellner no. 29974 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, NW-Grat der Schoberspitze, [47°24’17’’N / 14°09’58’’E], ca. 2050 m, GF 8550, Schrofen und Blöcke aus Glimmerschiefer, N-exponierte, Ca-haltige Schieferschrofen, in Felsspalten, (3), 26. VII. 1985, leg. J. Hafellner no. 14090 (GZU). – Steiermark (Styria), Niedere Tauern, Wölzer Tauern, Gastrumerofen NW von Oberwölz, 47°12’30’’N / 14°16’25’’E, ca. 1020 m, GF 8751/4, S-exponierte Hänge mit von Dolomitschrofen durchsetztem, lichtem Föhrenwald, auf Erdblößen, (1), 12. XI. 2000, leg. J. Hafellner no. 53329 (GZU). – Steiermark, Steirisches Randgebirge, Grazer Bergland, Plankogel S über Gasen, ca. 10 km W von Birkfeld, kurz N unterhalb vom Gipfel, 47°21’20’’N / 15°33’30’’E, ca. 1500 m, GF 8659/1, kleine Felsen aus paläozoischem Kalkschiefer an der Waldgrenze, in erdgefüllten Felsspalten, (1), 11. XII. 2004, leg. J. Hafellner no. 63921 (GZU). – Tirol, Stubaier Alpen, Serles-Gruppe W ober Matrei am Brenner, Matreier Grube S ober Maria Waldrast, am Steig zum Kalbenjoch, 47°06’25’’N / 11°23’05’’E, ca. 2100 m, GF 8834/3, alpine Matten über Kalk, auf Erdblößen, (3), 1. VIII. 1996, leg. J. Hafellner no. 75521 (GZU). – Tirol (Tyrol), Osttirol, Virgental, Weg von der Sajat-Hütte zur Heinrich-Hütte, 2300 m, (3), 22. VII. 1982, leg. R. Türk (GZU). – Tirol (Tyrol), Osttirol, Nationalpark Hohe Tauern, Glockner-Gruppe, Teischnitztal N von Kals, untere NW-Hänge des Fiegerhorns, SW ober der Teischnitzeben, 47°02’N / 12°39’40’’E, ca. 2200 m, GF 8941/4, alpine Matten, auf Erdblößen über Kalkschiefer, (3), 16. VII. 1997, leg. J. Hafellner no. 46909 (GZU). – Tirol (Tyrol), Osttirol, Nationalpark Hohe Tauern, Glockner-Gruppe, Teischnitztal N von Kals, untere NW-Hänge des Fiegerhorns, S ober der Teischnitzeben, 47°02’N / 12°40’15’’E, ca. 2300 m, GF 8942/3, alpine Matten, auf Erdblößen über Kalkschiefer, (3), 16. VII. 1997, leg. J. Hafellner no. 46748 (GZU). – Tirol (Tyrol), Osttirol, Nationalpark Hohe Tauern, Glockner-Gruppe, Ködnitztal NE ober Kals, kurz N ober der Lucknerhütte, 47°02’35’’N / 12°41’30’’E, ca. 2300 m, GF 8942/3, niedere Kalkschieferschrofen und Rasen am Westhang, auf Moosen und Pflanzenresten, (3), 4. IX. 1998, leg. J. Hafellner no. 46748 (GZU). – Tirol (Tyrol), Osttirol, Nationalpark Hohe Tauern, Glockner-Gruppe, Ködnitztal NE ober Kals, kurz S ober der Pfortschscharte hoch E ober der Lucknerhütte, 47°02’35’’N / 12°42’20’’E, ca. 2840 m, GF 8942/3, niedere, E-exponierte Kalkschieferschrofen, auf kleinen Erdblößen, (3), 4. IX. 1998, leg. J. Hafellner no. 46662 (GZU). – Vorarlberg, Rätikon, Hänge zwischen Lünersee und Gafalljoch, ca. 14 km SSW von Bludenz, Geländerippe an den E-Abhängen der Kanzelköpfe, W gegenüber der Zollhütte, 47°02’35’’N / 09°45’10’’E, ca. 2150 m, GF 8924/4, kleine Kalkausbisse in zwergstrauchreichen Weiderasen, auf Erde in N-exponierten Felsspalten, (1), 29. VIII. 2008, leg. J. Hafellner no. 73124 (GZU).

Dacampia hookeri (Borrer) A.Massal.

Hosts: *Solorina saccata* (th.) (1), *Solorina bispora* (th.) (2), a whitish, crustose, slightly effigurate thallus representing a modified thallus of *Solorina* spec. (3)

Austria: Kärnten (Carinthia), Gailtaler Alpen, Reißkofel ca. 11 km E von Kötschach-Mauthen, am Steig von der Reißkofel-Biwakschachtel entlang des W-Grates zum Gipfel, in den Nordhängen am Fuß des Gipfelaufbaus des W Vorgipfels, 46°41’15’’N / 13°08’33’’E, ca. 2190 m, GF 9344/2, N-exponierte Abbrüche (Triaskalk) und Caricetum firmae-Fragmente, auf Erdblößen auf einer Geländerippe, (3), 21. VII. 2009, leg. J. Hafellner no. 76063 & A. Hafellner (GZU). – Kärnten (Carinthia), [Südalpen], Karnische Alpen, Obere Valentinalm ca. 9 km SW von Mauthen, kurz W oberhalb der Almhütten, 46°37’20’’N / 12°54’05’’E, ca. 1620 m, GF 9343/3, zerstreute, paläozoische Kalkblöcke im als Weide genutzten Karboden, in erdgefüllten Felsspalten, (3), 18. VII. 2007, leg. J. Hafellner no. 76139 (GZU). – Kärnten (Carinthia), Karnische Alpen, Gartnerkofel ca. 8 km SW von Hermagor, auf dem westlichen Seitengipfel, 46°34’20’’N / 13°18’15’’E, ca. 2180 m, GF 9445/2, Ausbisse aus Triaskalk in alpinen Rasen, auf Erdblößen, (1), 1. IX. 2007, leg. J. Hafellner no. 75838 (GZU). – Kärnten (Carinthia), Karawanken, Rücken der Petzen, S über Bleiburg, W des Kniepssattels („Knirpssattel“), [46°30’15’’N / 14°46’05’’E], ca. 2100 m, GF 9454/4, Kalk, (3), 11. VIII. 1991, leg. J. Poelt (GZU). – Oberösterreich (Upper Austria), Nördliche Kalkalpen, Totes Gebirge, Warscheneck Massiv, Kuppe (Kote 2137) SW über der Speikwiese, etwas NW unterhalb des Gipfels, 47°39’25’’N / 14°15’25’’E, ca. 2130 m, GF 8351/2, niedere Triaskalkausbisse im Caricetum firmae, auf Erde in Felsspalten, (3), 5. VI. 2010, leg. J. Hafellner no. 75706 (GZU). – Salzburg (Salisbury), Brennkogel S vom Fuschertörl an der Großglocknerstraße, Gipfelbereich, 3018 m, GF 8942, (3), 12. VII. 1987, leg. C. D. Meurk (GZU). – Salzburg (Salisbury), Nationalpark Hohe Tauern, Goldberggruppe, Vorderer Gesselkopf (Geißlkopf), am Westgrat knapp unter dem Gipfel, [47°00’50’’N / 13°04’20’’E], ca. 2950 m, GF 8944/3, kalkhältige Glimmerschieferblöcke auf einem steilen Westhang, auf Erdblößen, (3), 10. VIII. 1994, leg. J. Hafellner no. 33243 (GZU). – Salzburg (Salisbury), Nationalpark Hohe Tauern, Ankogel Gruppe, knapp N unter dem Westgrat des Greilkopf E ober der Hagener Hütte, [47°01’40’’N / 13°05’40’’E], ca. 2440 m, GF 8944/4, alpine Matten über Kalkschiefer, über Erdblößen, (3), 27. VIII. 1994, leg. J. Hafellner no. 33046 (GZU). – Steiermark (Styria), [Nördliche Kalkalpen], Dachstein-Gruppe, Ramsau, Weg von der Dachsteinsüdwandhütte in Richtung Hunerscharte, unterhalb des Scheiblingsteins, ca. 1900–2000 m, GF 8547/2, (3), 7. VIII. 1993, leg. J. Poelt no. 93-415 & M. Grube (GZU). – Steiermark (Styria), Nördliche Kalkalpen, Totes Gebirge, zwischen Vorderem und Hinterem Lahngangsee NE ober Gößl, 47°40’25’’N / 13°56’05’’E, ca. 1500 m, GF 8349/2, sehr lockerer Lärchenwald über Kalk, auf Erdblößen, (3), 20. VIII. 1988, leg. J. Hafellner no. 50430 , M. Matzer & A. Hafellner (GZU). – Steiermark (Styria), Nordalpen, Nördliche Kalkalpen, Totes Gebirge, Hochtausing N über Wörschach, im obersten Teil des W-Grates kurz unterhalb des Gipfels, 47°35’05’’N / 14°09’20’’E, ca. 1810 m, GF 8450/2, S-exp. Schrofen aus Triaskalk zwischen Rasenfragmenten und *Pinus mugo*-Flecken, in ergefüllten Felsspalten, (3), 3. X. 2010, leg. J. Hafellner no. 76208 (GZU). – Steiermark (Styria), Nordalpen (Nördliche Kalkalpen), Mürzsteger Alpen, Veitsch Alpe N von Kindberg, am oberen Rand der S-seitigen Abbrüche, kurz SE vom Graf-Meran-Haus, markante Felsrippe etwas NE unter der Stütze der Materialseilbahn, 47°38’40’’N / 15°24’40’’E, ca. 1790 m, GF 8358/3, N-exponierte schrofige Steilhänge, Wettersteinkalk (Trias), in erdgefüllten Felsspalten, (3), 5. VI. 2005, leg. J. Hafellner no. 71285 (GZU). – Tirol (Tyrol), Lechtaler Alpen, NW Landeck, Schrofenhange N und W der Augsburger Hütte über Grins, 2200, GF 8828, (3), 9. VII. 1982, leg J. Poelt (GZU). – Tirol (Tyrol), Karwendel-Gebirge, Hänge am Weg von der Lamsenjochhütte („Lamsenhütte“) zum Westl. Lamsenjoch („Lamsjoch“), 2000–2200 m, GF 8635, (3), 15. VIII. 1981, leg. J. Poelt (GZU). – Tirol (Tyrol), Stubaier Alpen, Serles-Gruppe W ober Matrei am Brenner, Matreier Grube S ober Maria Waldrast, am Steig zum Kalbenjoch, 47°06’25’’N / 11°23’05’’E, ca. 2100 m, GF 8834/3, alpine Matten über Kalk, auf Erdblößen, (3), 1. VIII. 1996, leg. J. Hafellner no. 75522 (GZU).

Didymosphaeria futilis (Berk. & Broome) Rehm

Austria: Steiermark, [Steirisches Randgebirge], Grazer Bergland, NW von Gratwein, bei Stift Rein, Mühlbachgraben, 400–600 m, auf Calamagrostis varia, 11. VI. 1983, leg. D. Kores, confirm. A. Aptroot (GZU). – Steiermark, [Steirisches Randgebirge], Grazer Bergland, Umgebung von Kreuzberg N von Graz, Mischwald, auf Rugus dumetorum coll., 14. XI. 1982, leg. W. Maurer & J. Poelt, det. J. Poelt, confirm. A. Aptroot (GZU).

Didymosphaeria conoidea Niessl

Austria: Salzburg, Hohe Tauern, Lungau, Rotgüldensee, auf *Laserpitium latifolium* in alten Fruchtkörpern von *Leptosphaeria doliolum*, VII. 1981, leg. J. Poelt, det. H. Hager, confirm. A. Aptroot (GZU). – Salzburg, Lungau, Radstädter Tauern, Riedingschafte W vom Weißeck, oberhalb der Stickler Alm, 2275 m, Caricetum curvulae, auf *Carex atrata* Blättern in alter *Pleospora graminarearum*, 23. VII. 1982, leg. C. Scheuer (GZU).

Polycoccum thrypethelioides (Th.Fr.) R.Sant.

Austria: Kärnten (Carinthia), Nationalpark Hohe Tauern, Glocknergruppe, Pasterzenvorfeld, ca. 2300 m, GF 8942, auf Sand, auf *Stereocaulon* spec. (th.), 16. VII. 1980, leg. R. Türk 7332 (GZU). – Tirol, Samnaun-Gruppe, Furgler W ober Serfaus, am Grat zwischen dem Furgler Joch und dem Gipfel, 2800–2900 m, GF 8929, Gneisfelsen und alpine Matten und Windheiden in Windheiden im unteren Teil des Grates, auf Rohboden, auf *Stereocaulon* spec. (th.), 2. IX. 1991, leg. J. Hafellner 30184 (herb. Hafellner). – **Sweden**: Torne Lappmark, Westufer des Rensjö bei Station Rensjön, ca. 480 m, auf *Sterecaulon* spec. (th.), 2. VIII. 1972, leg. J. Poelt 11947 (GZU). – Torne Lapmark, Torneträsk area, Vassitjåkko, the NE slope, ca. 1000 m, on a wind-swept heath on calcareous ground, on *Stereocaulon alpinum* (th.), 16. VIII. 1948, leg. R. Santesson = Santesson, Fungi Lichenicoli exs. 34 (GZU). – Torne Lapmark, Jukkasjärvi sn, Umgebung von Abisko, Birkenwälder um die Naturvetensk. Station, 68°21'N / 18°49'E, ca. 380 m, auf *Stereocaulon incrustatum* (th.), 4. VIII. 1980, leg. J. Poelt (GZU). – **Greenland**: W-Grönland, Disko, Lyngmark, untere Hänge des Lyngmarkfjeld N Godhavn, Basalt, 50–320 m, auf *Stereocaulon* spec. (th.), VII. 1983, leg. J. Poelt & H. Ullrich (GZU). – W-Grönland, Disko, auf Basalt kurz N der Arktischen Station Godhavn, , 20–50 m, auf *Stereocaulon* spec. (th.), 30. VII. 1983, leg. J. Poelt & H. Ullrich (GZU).

Polycoccum rubellianae Calat. & V.Atienza

Italy: Südtirol, Porphyr ober Gries bei Bozen, auf *Caloplaca rubelliana* (th.), IX. 1870, leg. F. Arnold (M).

Results

Didymocyrtis Vain., Acta Soc. Fauna Flora Fenn. 49(2): 221, 263 (1921).

Type: *Didymocyrtis consimilis* Vain. (lectotype, selected by Ertz et al. 2015).

= *Diederichia* D.Hawksw., Lichenologist 35: 206 (2013).

Type: *Diederichia pseudeverniae* (Etayo & Diederich) D.Hawksw. (*Macrophomina pseudeverniae* Etayo & Diederich) (holotype)

= *Diederichomyces* Crous & Trakunyingcharoen in Trakunyingcharoen et al., IMA Fungus 5(2): 393 (2014).

Type: *Diederichomyces xanthomendozae* (Diederich & Freebury) Crous & Trakunyingcharoen (*Phoma xanthomendozae* Diederich & Freebury) (holotype)

Full descriptions: teleomorph: Ertz et al. 2015: 65; Vainio 1921: 221; anamorph: Trakunyingcharoen et al., IMA Fungus 5(2): 393, 400 (2014); Ertz et al. 2015: 65.

Key to species: Ertz et al. 2015: 65–66.

Notes: 1. Until recently *Didymocyrtis* Vain. was a widely neglected genus. The genus was reinstalled for some polycoccoid lichenicolous fungi, all with +/- slender, +/- narrowly cylindrical, fissitunicate asci with relatively thin lateral ascus walls and (compared to true *Polycoccum* species) thin-walled, middle-brown ascospores in an +/- uniserial arrangement inside the asci. In a phylogenetic reconstruction based on sequence data, these species formed a clade in Pleosporales-Phaeosphaeriaceae (Ertz et al. 2015).

2. On the other hand, the core group of *Polycoccum* (generic type: *P. trypethelioides*) can be easily distinguished by broadly cylindrical asci and by the thick-walled, often distinctly ornamented ascospores in a +/– biserial arrangement inside the asci. Further characters of *Polycoccum* s.str. are the formation of ascomata on vegetative host tissue with a tendency to induce the formation of galls, as well as certain features of the ascomatal wall (cells +/– isodiametric in longitudinal section), hamathecium (consisting of relatively thick paraphysoids) and ascus wall (thick both laterally and apically) In a phylogenetic reconstruction based on sequence data, *Polycoccum* species formed a clade outside Pleosporales (Ertz et al. 2015).

3. Based on the phenotypic characters, *Didymocyrtis* keys out in Pleosporaceae (Arx & Müller 1975) or, in a more sophisticated system based on additional morphoanatomic characters (Barr 1979), in Phaeosphaeriaceae. Asci of *Didymocyrtis* species with their narrowly cylindrical shape and the +/– monostichously arranged ascospores recall those of *Didymosphaeria* species (compare Scheinpflug 1958, Aptroot 1995a), but the peridial wall of *Didymosphaeria* is two-layered, composed of strongly interwoven hyphae, seen as textura intricata in longitudinal section, interascal filaments are trabeculate pseudoparaphyses and ascospores are thinly distoseptate resulting in rounded ascospore cell lumina (Aptroot 1995a). Using the key for *Didymosphaeria* and similar ascomycete genera, provided by Aptroot (1995b), *Didymocyrtis* species would key under *Aaosphaeria* (generic type: *A. arxii* (Aa) Aptroot), but the characterizing features for this so far monotypic genus include not-anastomosing interascal filaments and the formation of a *Microsphaeropsis* anamorph (Aptroot 1995b, Aa 1989). Generic synonyms of *Didymosphaeria* are all based on heterotypic synonyms of *Didymosphaeria futilis* (*Didymosphaerella* Cooke, *Didymascina* Höhn., *Massariellops* Curzi) or other species (*Cryptodidymosphaeria* (Rehm) Höhn., *Haplovalsaria* Höhn.) recognized as belonging to *Didymosphaeria* by Aptroot (1995a). Of the accepted species only one, *D. conoidea* Niessl, the type species of *Cryptodidymosphaeria*, is fungicolous. According to our comparative studies, *Didymosphaeria conoidea* does not belong to *Didymocyrtis*.

4. Frequently *Phoma* anamorphs are found on the same host as the ascomata of *Didymocyrtis* species. Several lichenicolous species previously classified in *Phoma* have meanwhile been transferred to other

genera, due to peculiar phenotypic characters, e.g. *Vouauxiomyces*, *Pseudoseptoria*, and *Bachmanniomyces*. However, among the lichenicolous fungi there are also *Phoma*-like coelomycetes exhibiting the *Phoma* character set (e.g. Hawksworth 1981, Diederich et al. 2007). We could demonstrate (Ertz et al. 2015) that several lichenicolous *Phoma*-like fungi belong to the *Didymocyrtis*-clade and evidently constitute anamorphic states of this genus.

5. *Phoma* anamorphs are known for several pleosporalean teleomorphs (Sivanesan 1984). The genus *Phoma* is subdivided into nine sections with teleomorphs in the genera *Didymella*, *Leptosphaeria*, *Mycosphaerella* and *Pleospora* (Boerema 1997). By molecular methods Gruyter et al. (2009) could confirm the polyphyletic character of *Phoma* in the Pleosporineae (see also Zhang et al. 2009). The generic type, *Phoma herbarum*, grouped in the Didymellaceae, and therefore, *Phoma* species in the Didymellaceae are considered as *Phoma* s.str. (see also Hyde et al. 2013). Further molecular data provided by Aveskamp et al. (2010) have confirmed that *Phoma* species turn up not only in the Didymellaceae, but also in the related clades Leptosphaeriaceae, Phaeosphaeriaceae and Pleosporaceae. A *Phoma*-like anamorph is also reported for *Didymosphaeria* (e.g. Aptroot 1995a). For some lichenicolous *Phoma*-like fungi Lawrey et al. (2012) have shown that they form a clade in Phaeosphaeriaceae. For the more or less identical group of species Trakunyingcharoen et al. (2014) described the new genus *Diederichomyces* in the or close to the Phaeosphaeriaceae-clade. One of the species treated here, *Phoma caloplacae*, the anamorph of *Didymocyrtis consimilis*, has been transferred to that genus too. Therefore it was not surprising that *Diederichomyces* turned out to constitute a younger synonym of *Didymocyrtis* (Ertz et al. 2015).

6. *Phoma*-like anamorphs with divergent characters were also reported for some *Polycoccum* species, e.g. *Polycoccum rubellianae* (Atienza et al. 2003), a species which according to the published characters and figures as well as own observations does not belong to *Didymocyrtis*. But in this case, according to the given size of the conidia (3–4.5 × 1–1.5 µm), they most likely represent microconidia (spermatia).

7. All known species of *Didymocyrtis* are lichenicolous.

The species

Didymocyrtis bryonthae (Arnold) Hafellner in Ertz et al., Fungal Diversity 74: 66 (2015).

≡ *Endococcus bryonthae* Arnold, Flora (Regensburg) 57: 141 ([21. März] 1874). – *Didymosphaeria bryonthae* (Arnold) G.Winter, Rabenh. Krypt.-Fl., 2. Aufl., 1(2): 430 (1885). – *Microthelia bryonthae* (Arnold) Kuntze, Revisio generum plantarum 3: 498 (1898). – *Mycoporum bryonthae* (Arnold) Jatta, Syll. Lich.: 494 (1900). – *Tichothecium bryonthae* (Arnold) Jatta, Fl. Ital. Crypt. Lich.: 841 (1911). – *Sphaeria bryonthae* (Arnold) H.Olivier, Bull. Int. Acad. Géogr. Bot. 17: 170 (1907). – *Polycoccum bryonthae* (Arnold) Vězda, Ceská Mycol. 23: 109 (1969).

Typus: [Austria, Nordtirol, Serlos-Gruppe], Kalkboden links ober der Ochsenalm, Matreier Grube, Waldrast in Tirol, 6000´ [6000 Wiener Fuß = ca. 1900 m], VIII. 1873, leg. F. Arnold (M, holotype)!

Host of type: *Lecanora epibryon* (ap.) (as *Lecanora subfusca* var. *bryontha*)

= *Phoma denigricans* Hafellner, Herzogia 10: 18 (1994).

Typus: Italy: Trentino, Dolomiten, Pordoi-Joch, N-Fuß des Sass Beccle, [46° 29'05''N / 11°48'40''E], ca. 2300 m; Hänge mit niedrigen Dolomitschrofen, 25. X. 1984, leg. J. Hafellner 11989 (GZU – holotype)!

Host of type: *Lecanora epibryon* (ap.)

Full descriptions: teleomorph: Ertz et al. 2015: 66–67, Hawksworth & Diederich 1988: 297, Arnold 1874a: 141; anamorph: Ertz et al. 2015: 67, Hafellner 1994: 18.

Icon.: Arnold 1874a: Tab. II fig. 15 (drawings of ascus, ascospores); Hawksworth & Diederich 1988: 296, fig. 1B (drawing of ascospores); Hafellner 1994: 20, Fig. 8 (drawings of conidioma in longitudinal section, conidiomatal wall, conidiogenous cells, conidia).

Key characters for identification: Ascospores ± uniseriate, pale brown, 1-septate, some (less than 5 %) with an additional septum in the upper cell, (10–)11.5–14(–16)×4–5 µm, often slightly constricted at the septum; septum with externally protruding torus; spore wall with distinct verruculose sculpture. Conidia ellipsoid to somewhat tapering towards the lower end to oblong, many biguttulate, (6–)7–8×3–4 µm, length-width ratio 2–2.3 (Ertz et al. 2015).

Notes: 1. Arnold, Lich. exs. 615 (sub *Endococcus bryonthae*), given as type collection by various authors (e.g. Aptroot 1995a), is in fact a "topotype", collected on 4. IX. 1874, therefore after the appearance of the protologue (21 March 1874).

2. The teleomorph of *Didymocyrtis bryonthae* can be separated from the phenotypically similar teleomorph of *Didymocyrtis consimilis* by its distinctly verruculose ascospores measuring 11.5–14×4–5 µm.

3. The anamorph of *Didymocyrtis bryonthae* (*Phoma denigricans*) can be separated from the phenotypically similar anamorph of *Didymocyrtis consimilis* (*Phoma caloplacae*) by its conidia of ellipsoid to oblong shape measuring (6–)7–8×3–4 µm, length/width ratio 2–2.3.

4. The genetic identity of the teleomorph and the anamorph still needs confirmation by sequence data.

Hosts: Teleomorph and anamorph in the hymenia of *Lecanora epibryon* (1, T). – *Didymocyrtis bryonthae* is a specific invader of species belonging to the *Lecanora subfusca* group. Different from *Didymocyrtis consimilis*, it is so far unknown from bark inhabiting *Lecanora* species common in lowlands. *Lecanora epibryon*, however, is occasionally also found on bark of dwarf shrubs where its apothecia are sometimes infested with *Didymocyrtis bryonthae* (e.g. Arnold, Lich. exs. 615). Records of *Polycoccum bryonthae* on *Caloplaca* species of the *C*. *cerina*-group refer to *Didymocyrtis consimilis* (see above). Those on other hosts are doubtful and may belong to undescribed species. For the species reported several times

on *Pertusaria bryontha* see below! Further host lichens mentioned include *Rhizocarpon umbilicatum* (sub *R. calcarium*) (Lettau 1958) and *Bacidia carneoglauca* (Priemetzhofer 2005), and *Pertusaria lactea* (Roux et al. 2006).

Known distribution and previous records of the teleomorph: As *D. bryonthae* is understood here in a narrow sense, only records on *Lecanora epibryon* can be regarded as certain and the outlined distribution is based solely on such reliable records. So far *Didymocyrthis bryonthae* has been recorded only in the Holarctic region. Most data are from Europe where the species has been recorded from Austria (e.g. Arnold 1874a, 1875: 482, Ertz et al. 2015: 67, Hafellner 1996a: 78, Hafellner & Obermayer 2007: 46, Hafellner & Wittmann 1996: 19), Italy (Ertz et al. 2015: 67), Svalbard (Zhurbenko 2009b: 148, Zhurbenko & Brackel 2013: 344), Sweden (Santesson 1993) and Switzerland (Keissler 1930: 477, note on an admixture on Schleicher, Plantae Crypt. Helvet. 62). In Asia it has been collected several times in Russia [Siberia] (Ertz et al. 2015: 67, Zhurbenko 1996: 226, 2008: 18, 2009b: 148, Zhurbenko & Hafellner 1999: 76) and Mongolia (Ertz et al. 2015: 67). In North America there are records from the U.S.A. [Alaska] (Zhurbenko 2009b: 148) and Greenland (Ertz et al. 2015: 67).

Known distribution and previous records of the anamorph: Again, the anamorph has been recorded so far only in the Holarctic region. Most records are from Europe where the species has been published for the fungus flora of Austria (Ertz et al. 2015: 67, Hafellner 1994: 18, 2008: 96, Hafellner & Obermayer 2007: 46, Hafellner & Türk 1995: 621, Hafellner & Wittmann 1996: 10, 19, Hafellner et al. 2004: 64, 2005b: 129), Germany (Ertz et al. 2015: 67, Triebel & Scholz 2001: 223), Italy (Hafellner 1994: 18), Poland (Kukwa & Flakus 2009: 204), Svalbard (Zhurbenko 2009b: 147, Zhurbenko & Brackel 2013: 344), and Ukraine (Kondratyuk et al. 1998: 120, host not mentioned, in need of confirmation). Zhurbenko (2009b: 147) published specimens originating from Russia [Siberia] and from Canada, so far the only records for Asia and North America. For Greenland we confirmed the presence of the species with a further collection of the anamorph (Ertz et al. 2015: 67).

Exsiccata examined: Teleomorph: Arnold, Lich. exs. 615 sub *Endococcus bryonthae* (M, 2 specimens), sec. Aptroot (1995a: 59) further duplicates in H, W, Z and sec. Hawksworth & Diederich (1988) also in K. Material originating from the type locality. – Hafellner, Lichenicolous Biota no. adhuc ined. (BR, CANB, GZU, NY, UPS). – Anamorph: Santesson, Fungi Lichenicoli exs. 363 (GZU, M).

Further specimens seen:

Teleomorph: **Europe**: **Austria**: Niederösterreich, Rax Alpe, (1), VIII. 1870, leg. Glowacki (M). – Salzburg, Nationalpark Hohe Tauern, Glockner Gruppe, NW-Grat des Großen Margrötzen Kopfs W ober dem Hochtor, knapp NE unter dem Grat, [47°05’10’’N / 12°50’10’’E], ca. 2620 m, GF 8943/1, Kalkschiefer, über Moosen und Pflanzenresten, (1), 5. VIII. 1996, leg. J. Hafellner 38118 & H. Wittmann (GZU). – Steiermark: Nordalpen (Nördliche Kalkalpen), Mürzsteger Alpen, Veitsch Alpe N von Kindberg, am S-Rand des Plateaus N über dem Breitriegel, 47°38’50’’N / 15°25’20’’E, ca. 1840 m, GF 8358/4, kleine Ausbisse aus Triaskalk in Caricetum firmae, auf Pflanzenresten, (1), 30. IX. 2006, leg. J. Hafellner no. 76494 & L. Muggia (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge ca. 8 km WNW von Pusterwald, Kleinhansl, E-Rücken WSW über der

Wildalmhütte, 47°19’25’’N / 14°16’30’’E, ca. 2100 m, GF 8651/4, niedere Kalkschieferausbisse am Grat, auf Moosen und Pflanzenresten, (1), 25. VIII. 2005, leg. J. Hafellner 76495 (GZU) = Hafellner, Lichenicolous Biota no. adhuc ined. – Steiermark, Niedere Tauern, Wölzer Tauern, Hohenwart W von Pusterwald, knapp unter dem Gipfel am Steig hinunter zum Pölseckjoch, [47°19’45’’N / 14°14’30’’E], ca. 2200 m, GF 8651/3, N-exponierte Marmorschrofen mit *Dryas*-Spalieren, auf Moosen und Pflanzenresten, (1), 19. VIII. 1993, leg. J. Hafellner 31030 & A. Wilfling (GZU). – Steiermark, Steirisches Randgebirge, Stubalpe W von Köflach, Brandkogel ca. 3 km S vom Pass Gaberl, am waldfreien Rücken zwischen dem Alten Almhaus und dem Gipfel, 47°05’N / 14°56’E, ca. 1620 m, GF 8955/2, subalpine Weide über Gneis und Marmorbändern, auf Moosen und Pflanzenresten, (1), 19. V. 1997, leg. J. Miadlikowska & J. Hafellner 42271 (GZU). – Steiermark, Steirisches Randgebirge, Grazer Bergland, Plankogel S über Gasen, ca. 10 km W von Birkfeld, kurz N unterhalb vom Gipfel, 47°21’20’’N / 15°33’30’’E, ca. 1500 m, GF 8659/1, kleine Felsen aus paläozoischem Kalkschiefer an der Waldgrenze, auf Moosen an Felsabsätzen, (1), 11. XII. 2004, leg. J. Hafellner 63924 (GZU). – Tirol: auf Kalkboden ober der Matreier Grube, Waldrast in Tirol, 6000´ [6000 Wiener Fuß = ca. 1900 m], (1), 4. IX. 1874, leg. F. Arnold = Arnold, Lich. exs. 615 (M, 2 specimens).

Anamorph: **Europe**: **Austria**: Kärnten: Nationalpark Hohe Tauern, Glockner-Gruppe, NW-Grat des Großen Margrötzen Kopfs W ober dem Hochtor, knapp SW unter dem Grat, [47°05’10’’N / 12°50’05’’E], ca. 2620 m, GF 8943/1, Granatglimmerschiefer / alpine Matten, über Moosen und Pflanzenresten, (1), 30. VIII. 1996, leg. J. Hafellner 39855 (GZU). – Kärnten: Nationalpark Hohe Tauern, Ankogel-Gruppe, NW von Mallnitz, Hänge E der Hagener Hütte gegen den Greilkopf, [47°01’30’’N / 13°05’45’’E], 2350–2450 m, GF 8944/4, auf Pflanzenresten, (1), 28. VII. 1989, leg. R. Türk & J. Hafellner 32031 (herb. Hafellner). – Kärnten: Gailtaler Alpen, N-seitige Abbrüche der Jaukenhöhe [am W-Rücken unter dem Jaukenstöckl], [46°42’05’’N / 13°03’00’’E], ca. 2000 m, GF 9244/3, (1), 16. VII. 1978, leg. J. Hafellner 3885 (herb. Hafellner). – Salzburg, Pinzgau, Hohe Tauern, Glockner-Gruppe, N-Hänge des Kitzsteinhorns, ca. 0,5 km W vom Bundessportheim, 47°12’35’’N / 12°41’10’’E, ca. 2450 m, GF 8742/3, alpine Matten auf Kalkschiefer, auf Moosen und Pflanzenresten, (1), 20. VII. 1996, leg. J. Hafellner 38273 & H. Wittmann (GZU). – Ibid., (1), 27. VIII. 1996, leg. J. Hafellner 53924 (GZU). – Salzburg, Nationalpark Hohe Tauern, Glockner Gruppe, NW-Grat des Großen Magrötzen Kopfs W ober dem Hochtor, knapp NE unter dem Grat, [47°05’10’’N / 12°50’10’’E], ca. 2620 m, GF 8943/1, Granatglimmerschiefer / alpine Matten, über Moosen und Pflanzenresten, (1), 30. VIII. 1996, leg. J. Hafellner 40106 = Santesson, Fungi Lichenicola exs. 363 (GZU). –Steiermark: Niedere Tauern, Schladminger Tauern, Znachsattel S ober der Giglachseehütte S von Schladming, NE-Hänge unmittelbar W ober dem Sattel, 47°16’30’’N / 13°38’20’’E, ca. 2060 m, GF 8747/2, Dryas-reiche Rasen über Kalk, auf Moosen und Pflanzenresten, (1), 27. VIII. 2001, leg. J. Hafellner no. 76506 (GZU). –Steiermark, Niedere Tauern, Schladminger Tauern, Sölktal, W ober St. Nikolai im Sölktal, am Grat SSE der Seekarlspitze, S vom Großen Knallstein, [47°18’15’’N / 13°58’35’’E], ca. 2430 m, GF 8649/4, Marmorband, E-exponiert, auf Moosen und Pflanzenresten, (1), 8. IX. 1993, leg. J. Hafellner 31230 & A. Wilfling (herb. Hafellner). – Steiermark, Niedere Tauern, Wölzer Tauern, NW-Grat der Schoberspitze, [47°24’17’’N / 14°09’58’’E], ca. 2050 m, GF 8550, Schrofen und Blöcke aus Glimmerschiefer, N-exponierte, Ca-haltige Schieferschrofen, auf Moosen und Pflanzenresten, (1), 26. VII. 1985, leg. J. Hafellner 14077 (herb. Hafellner). – Steiermark: Niedere Tauern, Wölzer Tauern, Berge NW von Oberwölz, Rettlkirchspitze SW über der Neunkirchner Hütte, im Bereich der kleinen Einsattelung zwischen Gipfel und E Vorgipfel, 47°15’40’’N / 14°07’50’’E, ca. 2430 m, GF 8750/2, niedere Marmorausbisse in alpiner Vegetation, auf Moosen und Pflanzenresten, (1), 27. IX. 2009, leg. J. Hafellner no. 76501 & A. Hafellner (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Hohenwart-Massiv W von Pusterwald, am Steig zum Pölseckjoch, E unter dem Gipfel, [47°19’45’’N / 14°14’30’’E], ca. 2200 m, GF 8651/3, NE-exponierte intermediäre Marmorschrofen, auf Erde und Pflanzenresten, (1), 18. VIII. 1993, leg. A. Wilfling 1631, J. Hafellner & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge ca. 6 km NW von Pusterwald, Bergrücken zwischen Gruber-Hirnkogel und Jauriskampel, NE ober der

Wildalmhütte, 47°20’00’’N / 14°18’10’’E, ca. 2020 m, GF 8651/4, niedere Marmorschrofen knapp unter dem Grat, auf Moosen und Pflanzenresten, (1), 26. VII. 2003, leg. J. Hafellner no. 75193 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Bergkette N von Lachtal ca. 9,5 km NE von Oberwölz, Kleiner Zinken, etwas SW unter dem Gipfel, 47°16’35’’N / 14°21’20’’E, ca. 2120 m, GF 8752/1, W-E streichende Marmorrippe, S-exp. auf Moosen und Pflanzenresten, (1), 1. IX. 2009, leg. J. Hafellner no. 76505 (GZU). – Steiermark, Gurktaler Alpen, N unter der Stang Scharte (zwischen Stang Nock und Gregerl Nock), 46°55’55’’N / 13°48’10’’E, ca. 2020 m, GF 9048/4, subalpine Zwergstrauchheiden mit einzelnen großen Felsblöcken auf Pflanzenresten, (1), 15. VIII. 1989, leg. J. Hafellner 64051 (herb. Hafellner). – Steiermark, Steirisches Randgebirge, Stubalpe, 12 km WNW of Köflach, 200 m S of Altes Almhaus, Wölkerkogel, 47°04’50’’N / 14°55’30’’E, 1650–1700 m, GF 8955/2, pasture ground with marble outcrops, on plant debris and soil, (1), 10. X. 1997, leg. W. Obermayer 6550 (GZU). – Steiermark, Steirisches Randgebirge, Koralpe, Großes Kar N vom Großen Speikkogel, ober dem markierten Weg zum Schäferkreuz, [46°47’40’’N / 14°58’40’’E], ca. 1950 m, GF 9255/2, W-exponierte Abbrüche von Marmorschrofen, auf Moosen und Pflanzenresten, (!), 19. IX. 1993, leg. A. Wilfling 1803 (GZU). – **Germany**: Bayern [Bavaria], Alpspitze, (1), 1846, leg. A. Krempelhuber (M). – Bayern, Watzmann, 5600´, (1), 1855, leg. A. Krempelhuber (M).

Didymocyrtis cladoniicola (Diederich, Kocourk. & Etayo) Ertz & Diederich in Ertz et al., Fungal Diversity 74: 67 (2015).

≡ *Phoma cladoniicola* Diederich, Kocourk. & Etayo, Lichenologist 39: 157 (2007). – *Diederichomyces cladoniicola* (Diederich, Kocourk. & Etayo) Crous & Trakunyingcharoen in Trakunyingcharoen et al., IMA Fungus 5: 401 (2014).

Typus: USA, Minnesota, Cottonwood County, 2 miles W of US 71, 14.5 miles N of Windom, 44°06’40’’N, 95°04’30’’W, 400 m, seasonally dry, flat, Sioux quartzite outcrop on N side of road, 28. IX. 1991, W. R. Buck 20859A (NY – holotypus!; hb. Diederich – isotypus!) fide Ertz et al. (2015) n.v.

Host of type: *Cladonia pyxidata* (th.)

Full descriptions: anamorph: Diederich et al. 2007: 157, Lawrey et al. 2012: 204–206, Ertz et al. 2015: 67–68.

Icon.: Diederich et al. 2007: 158, Fig. 3 (photographs of infested squamules of *Cladonia foliacea*, conidioma in longitudinal section, conidia); Lawrey et al. 2012: 205, Fig. 4i–k (photographs of culture, conidia); Trakunyingcharoen et al. 2014: 402, Fig. 6 (photographs of culture with conidiomata, conidioma in longitudinal section, conidiogenous cells, conidia).

Key characters for identification: Conidia ellipsoid, biguttulate, with a small guttule near each apex, (3.8–)4.7–5.9(–7.3)×(2.0–)2.4–3.0(–3.5) µm, length-width ratio (1.4–)1.7–2.2(–2.8) (Ertz et al. 2015).

Notes: 1. The species is so far known only by its anamorph.

2. The two *Didymocyrtis* species known to infest *Cladonia* species can be distinguished by the size and shape of the conidia. Those of D. *foliaceiphila* are longer than the conidia of *D*. *cladoniicola* and, as the width of both is very similar, they appear comparably slim.

3. *D*. *cladoniicola* is a rather aggressive lichenicolous fungus causing distinct necrotic areas on the host thalli and it may eventually kill them completely.

Hosts: *Cladonia foliacea* (th.) (1), *C*. *convoluta* (th.) (2), *C*. *uncialis* (th.) (3), *C*. *pocillum* (th.) (4); further reported hosts: *Cladonia cervicornis*, *C*. *fimbriata*, *C*. *furcata*, *C*. *phyllophora*, *C*. *pyxidata*, *C*. *ramulosa*, *C*. *rangiformis*, *C*. *symphycarpia*, *Flavoparmelia caperata*, *Parmelina tiliacea*, *Ramalina pollinaria*, *R*. *polymorpha*, and *Squamarina cartilaginea* (Ertz et al. 2015). *Cladonia uncialis* is an addition to the host spectrum.

Known distribution and previous records: The known distribution has been summarized by Ertz et al. (2015). The species was so far reported from Europe (Belgium, Czech Republic, France incl. Corsica, Germany, Spain, Ukraine), Africa (Canary Islands), and North America (USA: Minnesota; Greenland). A record for Russia has been published by Urbanavichus & Urbanavichene (2011: 122). It is herewith reported for the first time for the European countries Albania, Austria, Romania and Sweden, as well as for Asia (Armenia).

Exsiccata examined: -.

Further specimens seen:

EUROPE: **Albania:** Northern Albania, Shkodër [Malësi e Madhe] distr., near the village Lëpushë, 42°31’30’’N / 19°44’E, ca. 1000 m; outcrops in a pasture, over saxicolous bryophytes, (4), 23. VI. 2000, leg. L. Kashta, herb. Hafellner no. 57601 (GZU). – **Austria:** Burgenland, Südburgenland, Günser Gebirge, Galgenberg W von Rechnitz, sanfte S-exponierte Abhänge, 47°17’50’’N / 16°25’10’’E, ca. 440 m, GF 8764/2, Trockenrasen über Kalkphyllit, auf Erdblößen, (1), 26. IV. 1991, leg. J. Hafellner no. 41874 & W. Maurer (GZU). – **France:** Dept. Var, Massif des Maures, zwischen Hyères und Pierrefeu-du-Var, 2 km S von Pierrefeu-du-Var, c. 60 m alt., aufgelockertes Quercetum suberis, (2), 13. V. 1980, leg. J. Hafellner no. 8565 (herb. Hafellner). – **Italy**: Friuli-Venezia Giulia, Trieste prov., E of Trieste, 0,5 km NE of Basovizza, 45°38,81'N / 13°52,42'E, c. 380 m alt., dry meadow, on soil, (2), 17. III. 2001, leg. W. Starmühler (GZU). – **Romania**: Dobrogea Prov., Tulcea distr., Caraorman Island, outside Caraorman forest, 45°03'N / 29°24'E, c. 20 m alt., on old sand dunes, (1), 5. X. 1992, leg. R. Moberg no. 10136a bis (separated from Lich. Sel. Exs. Upsal. 119) (GZU). – **Sweden:** Bohuslän: Uddevalla commune, Skredsvik par., ca. 1 km NE of Cederslund along road Skredsvik--Munkedal, alt. ca. 80 m; open Pinus forest, on forest floor, (3), 27. VIII. 1992, leg. J. Hafellner no. 30412 (herb. Hafellner). – **ASIA: Armenia**: Lori prov., road from Akhtala to Georgia, NW of intersection of road to Noyemberyan, 41°12’58’’N / 44°53’47’’E, c. 500 m alt., dry slopes E of the road, on soil among bryophytes, (2), 25. VI. 2008, leg. K. Kugler & E. Vitek no. 08-L06-25a (GZU).

Didymocyrtis consimilis Vain., Acta Soc. Fauna Flora Fenn. 49(2): 221, 263 (1921).

Typus: [Finland], „in Selkäsaari in par. Simo in Ostrobotnia bor., on bark of *Sorbus*", leg. V. Räsänen (TUR-VAIN 32734), holotype!

Host of type: *Caloplaca cerina* (ap.) (as *Placodium gilvum* var. *cyanolepra*)

= *Phoma caloplacae* D.Hawksw., Bull. Brit. Mus. (Nat. Hist.), Bot. ser. 9(1): 50 (1981). – *Diederichomyces caloplacae* (D.Hawksw.) Crous & Trakunying-charoen in Trakunyingcharoen et al., IMA Fungus 5(2): 401 (2014).

Typus: [Russia], Guv. Jenisejsk, Stolba, 60°20'N, 1. VII. 1876, leg. M. Brenner 1027 p.p. (UPS – holotypus) n.v. Locality data from protologue.

Host of type: *Caloplaca cerina* (ap.)

Full descriptions: teleomorph: Vainio 1921: 221–222, Ertz et al. 2015: 68; anamorph: Hawksworth 1981: 50–51, Lawrey et al. 2012: 202–204, Ertz et al. 2015: 68.

Icon.: Hawksworth 1981: 50, Fig. 24 (drawings of conidioma, conidiomatal wall, conidiogenous cells, conidia); Ihlen & Wedin 2008: 237, Fig. 38 (photograph of infested *Caloplaca cerina* apothecium); Halıcı et al. 2014: 165, Fig. 2 (photographs of infested *Caloplaca stillicidiorum* apothecium, conidioma in longitudinal section); Lawrey et al. 2012: 205, Fig. 4a–h (photographs of habit, conidioma in longitudinal section, culture, conidia); Trakunyingcharoen et al. 2014: 402, Fig. 5 (photographs of culture with conidia, conidioma in longitudinal section, conidiogenous cells, conidia); Ertz et al. 2015: 69, Fig. 4 (photographs of habit, ascoma and conidioma in longitudinal section, ascoma, conidia), Fig. 9 a–b (photographs of culture, conidia).

Key characters for identification: Ascospores ± uniseriate or half-overlapping, pale brown, 1-septate, some (less than 5 %) with an additional septum in the upper half, 12–15×(4.5–)5–6(–6.5) µm, hardly constricted at the septum, externally protruding torus at the septum indistinct, verruculose sculpture hardly visible in light microscopy. Conidia 1–2-guttulate, rather variable in shape and size, broadly ellipsoid, 4.5–6.5×2.5–4.5 µm, to subglobose, (4–)5–6(–7) µm diam., length-width ratio <1.5 (Ertz et al. 2015).

Notes: 1. The conspecificity of the teleomorph *Didymocyrtis consimilis* and the anamorph *Phoma caloplacae* has been proven by DNA sequence data (Ertz et al. 2015).

2. The anamorph of *Didymocyrtis consimilis* (*Phoma caloplacae)* can be separated from the phenotypically similar supposed anamorph of *Didymocyrtis bryonthae* (*Phoma denigricans*) by its conidia of subglobose shape, measuring (4–)5–6(–7) µm in diam..

3. A dozen further phaeodidymosporous pyrenomycetes have been described with members of Teloschistaceae as hosts (Table 3), of which seven species are included in *Polycoccum*, two in *Sphaerellothecium*, and three have been recognized as heterotypic synonyms of other species. Of those included in *Polycoccum*, only P. *rugulosarium* would have priority over *Didymocyrtis consimilis*, in case that they would be recognized as being conspecific. However, we regard both as clearly different species belonging to different genera.

4. It is worth mentioning that a further endohymenial *Phoma* has been recently described on *Caloplaca*, ***Phoma recepii*** Halıcı & Candan (Halıcı et al., Mycotaxon 129: 164, 2014). Host of the type is *Caloplaca monacensis.* We have not seen that species, but judging from the illustrations presented with the protologue (Halıcı et al. 2014: 165 Fig. 1, photograph of infested *Caloplaca monacensis* apothecium) and conidial size (2.5−3−3.5×1 µm), it is obviously not an anamorph of a *Didymocyrtis*.

The possibility that *Phoma recepii* represents an anamorphic (micro-conidial) state of *Stigmidium cerinae* would be worth testing by molecular data.

Hosts: Ascomata in the hymenia of *Caloplaca cerina* (1, T), *Caloplaca cerina* var. *muscorum* (2), *Caloplaca stillicidiorum* (3), *Caloplaca tiroliensis* (4). – *Didymocyrtis consimilis* s.str. is a specific invader of species belonging to the *Caloplaca cerina* group or related tribes of *Caloplaca* (e.g. *C. tiroliensis*). In habitats colonized by several *Caloplaca* species, such as wind-swept meadows along ridges of limestone mountains, only those are occasionally infested. Species belonging to other *Caloplaca* sections (e. g. *Caloplaca ammiospila*, *C. saxifragarum*, *C. sinapisperma, C. tetraspora*) inhabiting the same niche are not known to have ever been parasitized by *Didymocyrtis consimilis*. This indicates a narrow host spectrum and is also a good reason to treat the species upon *Lecanora*, *Didymocyrtis bryonthae*, as being specifically distinct. Of *Caloplaca cerina* both varieties are occasionally infected, the bark-inhabiting strain (v. *cerina*) at lower altitudes and the debris-inhabiting strain (v. *muscorum*) commonly found in high altitudes or latitudes. The conidiomata also develop in the hymenia of *Caloplaca cerina* (1, T), *Caloplaca cerina* var. *muscorum* (2), *Caloplaca stillicidiorum* (3), and *Caloplaca tiroliensis* (4). Records on other hosts (*Bryonora castanea*, *Lecanora geophila*) are doubtful and may belong to undescribed species (Zhurbenko 2009a, b).

Known distribution and previous records of the teleomorph: So far, *D. consimilis* (mostly under the name *Polycoccum bryonthae*, on *Caloplaca* species) has been recorded only in the Holarctic region. Most records are from Europe. There, the species has been recorded from Austria (Hawksworth & Diederich 1988: 297, Komposch & Breuss 2013: 502, Ertz et al. 2015: 68 ff.), Finland (Vainio 1921: 221, Ertz et al. 2015: 68 ff.), France (Roux et al. 2014, Ertz et al. 2015: 68 ff.), Italy (Brackel 2015: 235, Ertz et al. 2015: 68 ff.), Poland (Kukwa & Flakus 2009: 204), and Slovakia (Hawksworth & Diederich 1988: 297). Outside Europe it has only been reported from Greenland (Alstrup & Hawksworth 1990: 54).

Known distribution and previous records of the anamorph: Records of the anamorph of *Didymocyrtis consimilis* have previously been published under the name *Phoma caloplacae*. Like the teleomorph, it has been recorded only in the Holarctic region, too. Most records are from Europe. There, the species has been published for the fungus flora of Austria (Berger & Türk 1993: 187, Hafellner 1994: 19, 2000: 101, Hafellner & Obermayer 2007: 46, Hafellner & Türk 1995: 621, Hafellner & Wittmann 1996: 10, 12, 19, Hafellner et al. 2004: 64, 2005a: 93, 2008: 183, Wilfling & Komposch 2002: 255, Wittmann & Türk 1990: 96, Ertz et al. 2015: 68 ff.), Germany (Ertz et al. 2015: 68 ff.), Italy (Ertz et al. 2015: 68 ff.), Norway (Santesson et al. 2004: 246), Slovakia (Ertz et al. 2015: 68 ff.), Slovenia (Ertz et al. 2015: 68 ff.), Spain (Ertz et al. 2015: 68 ff.), and Sweden (Magnusson 1952: 247 sub *Phoma physciicola*, Ertz et al. 2015: 68 ff.). In Asia it has been reported from Russia [Siberia] (Hawksworth 1981: 50, Zhurbenko 2009a: 105), Iran (Seaward et al. 2008: 495) and Israel (Kondratyuk et al. 2005: 105). North American records we traced so far

only from Canada, published by Lawrey et al. (2012: 197) and Freebury (2014: 115).

Exsiccata examined: Hafellner, Lichenicolous Biota no. adhuc ined. (BR, CANB, GZU, NY, PRM, UPS).

Further specimens seen:

Teleomorph: **EUROPE**: **Austria**: Oberösterreich (Upper Austria), Nördliche Kalkalpen, Totes Gebirge, Warscheneck Massiv, Kuppe (Kote 2137) SW über der Speikwiese, etwas NW unterhalb des Gipfels, 47°39’25’’N / 14°15’25’’E, ca. 2130 m, GF 8351/2, niedere Triaskalkausbisse im Caricetum firmae, auf Moosen und Pflanzenresten, (3), 5. VI. 2010, leg. J. Hafellner 75686 (GZU). – Ibid., (4), leg. Hafellner 75687 (GZU). – Steiermark (Styria), Nordalpen (Nördliche Kalkalpen), Totes Gebirge, Hochangern-Massiv N von Liezen, Nazogl, knapp NE vom Gipfel auf dem Rücken gegen den Angerkogel, 47°36’45’’N / 14°13’50’’E, ca. 2050 m, GF 8351/3, alpine Rasen (Caricetum firmae) mit kleinen Felsausbissen und Blöcken (Triaskalk), auf Pflanzenresten, (4), 10. VIII. 2010, leg. J. Hafellner 76035 & L. Muggia (GZU). – Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Lugauer SW von Hieflau, W-Gipfel, in der Umgebung des Gipfelkreuzes, 47°33’12’’N / 14°43’20’’E, ca. 2210 m, GF 8454/1, Caricetum firmae-Fragmente und Kalkschrofen, NW-seitig auf Moosen und Pflanzenresten, (4), 3. VII. 2005, leg. J. Hafellner 69590 (GZU) = Hafellner, Lichenicolous Biota no. adhuc ined. – Steiermark, Nordalpen (Nördliche Kalkalpen), Mürzsteger Alpen, Rauschkogel NE von Turnau, am SW-Rücken knapp unter dem Gipfel, 47°36’40’’N / 15°22’15’’E, ca. 1660 m, GF 8358/3, niedere Kalkausbisse knapp über der Waldgrenze, auf Moosen und Pflanzenresten, (3), 19. VIII. 2005, leg. J. Hafellner 83638 (GZU). – Steiermark, Niedere Tauern, Schladminger Tauern, Kleinsölktal, NW vom Bauleiteck, E oberhalb der Striegleralm, W unter der Hasenohrenscharte, [47°16'25"N / 13°58'10"E], ca. 2250 m, schattig-feuchte, NNE-exponierte Marmorwand, auf Moosen, (3), 21. IX. 1993, leg. A. Wilfling 268 & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Hochstein, 5 km SE von Donnersbach, ca. 2 km NNW der Planneralm, Marmorband W unter dem Grat, [47°25'55"N / 14°11'15"E], 2100 m, GF 8551/3; NNW-exponierte Marmorabbrüche, auf Moosen und Pflanzenresten, (4), 13. IX. 1993, leg. A. Wilfling 409 & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Gumpeneck SE von Gröbming, Gipfelpyramide, NW-seitig, 47°23'50"N / 14°00'50"E, ca. 2180 m, GF 8650/1, niedere Schrofen aus Marmor, auf Moosen und Pflanzenresten, (3, 4), 10. VI. 1993, leg. J. Hafellner & A. Wilfling 1848 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge ca. 6 km NW von Pusterwald, Bergrücken zwischen Gruber-Hirnkogel und Jauriskampel, NE ober der Wildalmhütte, 47°20’00’’N / 14°18’10’’E, ca. 2020 m, GF 8651/4, niedere Marmorschrofen knapp unter dem Grat, auf Moosen und Pflanzenresten, (4), 26. VII. 2003, leg. J. Hafellner 75192 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge ca. 8 km WNW von Pusterwald, E-Hänge des Kleinhansl, am Steig vom der Wildalmhütte zum Kleinhansl, 47°19’40’’N / 14°16’40’’E, ca. 2000 m, GF 8651/4, niedere Ausbisse und kleine Schrofen aus Marmor, auf Moosen und Pflanzenresten, (3), 25. VIII. 2005, leg. J. Hafellner 75190 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Zinkenkogel N von Bretstein, W-Grat kurz unter dem W Seitengipfel direkt am markierten Weg, 47°25’05’’N / 14°21’45’’E, ca. 2000 m, GF 8552/3; Marmorband, das direkt über den Rücken läuft, auf Erde und Erdmoosen, (4), 19. VIII. 1993, leg. A. Wilfling 2041, J. Hafellner & M. Möslinger (GZU). – Steiermark, [Gurktaler Alpen], am Ufer des Laßnitzbaches an der Straße von Murau nach St. Lambrecht, kurz N der Einmündung des Auenbaches, [47°04’35’’N / 14°12’15’’E], ca. 920 m, GF 8951/1, Ufergehölzstreifen, an Alnus incana, (1), 24. X. 1989, leg. J. Hafellner 22550 & E. Schreiner (herb. Hafellner). – Steiermark, Steirisches Randgebirge, Fischbacher Alpen, im Feistritztal ca. 2,5 km S von Birkfeld, am orographisch rechten Ufer der Feistritz kurz ober der Einmündung des Gasenbaches, 47°19’55’’N / 15°41’45’’E, ca. 530 m, GF 8660/3, Ufergehölzstreifen, auf tiefhängenden Zweigen von *Fraxinus excelsior*, (1), 25. XII. 2000, leg. J. Hafellner 53800 (herb. Hafellner). – Steiermark, Steirisches Randgebirge, Grazer Bergland, Plankogel S über Gasen, ca. 10 km W von Birkfeld, kurz N unterhalb vom Gipfel, 47°21’20’’N / 15°33’30’’E, ca. 1500 m,

GF 8659/1, kleine Felsen aus paläozoischem Kalkschiefer an der Waldgrenze, auf Moosen und Pflanzenresten, (3), 11. XII. 2004, leg. J. Hafellner 63905 (herb. Hafellner).

Anamorph: **EUROPE**: **Austria**: Kärnten (Carinthia), Nationalpark Hohe Tauern, Glockner-Gruppe, NW-Grat des Großen Margrötzen Kopfs W ober dem Hochtor, knapp SW unter dem Grat, [47°05'10''N / 12°50'05''E], ca. 2620 m, GF 8943/1, Granatglimmerschiefer / alpine Matten, über Moosen und Pflanzenresten, (2), 30. VIII. 1996, leg. J. Hafellner 40076 (GZU). – Kärnten, Nationalpark Hohe Tauern, Glockner-Gruppe, Sattelalpe W von Heiligenblut, ca. 1 km SE der Bricciuskapelle, [47°03'01''N / 12°48'10''E], ca. 1600 m, GF 8942/2, Ca-haltige Blöcke, über Pflanzenresten, (2), 22. XI. 1987, leg. J. Hafellner 23706 & M. Walther (herb. Hafellner). – Kärnten, Nationalpark Hohe Tauern, Goldberg-Gruppe, Vorderer Gesselkopf, im untersten Teil des Nordgrates W von der Hagener Hütte, ca. 2500 m, GF 8944/3, Kalkschieferschrofen, E-exponiert auf Moosen und Pflanzenresten, (4), 10. VIII. 1994, leg. J. Hafellner 33101 (GZU). – Ibid., (3), leg. J. Hafellner 33099 (GZU). – Kärnten, Nockberge, Hochplateau oberhalb der Zunderwand, ca. 2100 m, GF 9148/1, mergeliger Dolomit, auf Pflanzenresten, (3), 5. VII. 1990, leg. W. Petutschnig (GZU). – Kärnten, Gailtaler Alpen, Villacher Alpe, Zwölfer Nock, 46°36'05''N / 13°41'20''E, 2049 m, GF 9348/3, Kalk, auf Pflanzenresten, (4), 19. VI. 1993, leg. E. B. Timpe & W. Wetschnig (GZU). – Kärnten, Südalpen, Karnische Alpen, Gartnerkofel ca. 8 km SW von Hermagor, auf dem westlichen Seitengipfel, 46°34'20''N / 13°18'15''E, ca. 2180 m, GF 9445/2, Ausbisse aus Triaskalk in alpinen Rasen, auf Moosen und Pflanzenresten, (2), 1. IX. 2007, leg. J. Hafellner 75808 (GZU). – Niederösterreich (Lower Austria), Nördliche Kalkalpen, Schneeberg NW von Neunkirchen, Kaiserstein, knapp E unter dem Gipfel am Südrand der Abbrüche in die Breite Ries, 47°46'25''N / 15°48'45''E, ca. 2000 m, GF 8260/2, Rasentreppen mit kleinen Kalkschrofen, auf toten Ästchen von *Salix retusa*, (4), 29. VI. 1997, leg. J. Hafellner 42216 (GZU). – Oberösterreich (Upper Austria), Nördliche Kalkalpen, Ennstaler Alpen, Haller Mauern, Großer Pyhrgas SE von Spital am Pyhrn, am Steig kurz SW unterhalb vom Gipfel, 47°39'10''N / 14°23'50''E, ca. 2160 m, GF 8352/1, niedere Kalkausbisse in alpinen Rasen, auf Moosen und Pflanzenresten, (3), 15. X. 2006, leg. J. Hafellner 70031 & L. Muggia (GZU). – Salzburg (Salisbury), Pinzgau, Hohe Tauern, Glockner-Gruppe, Bergkamm NW vom Kitzsteinhorn, ca. 2 km W ober der Krefelder Hütte, S-Grat der Hinteren Rettenwand, [47°12'40''N / 12°40'45''E], ca. 2680 m, GF 8742/3, Kalkschiefer, auf Moosen und Pflanzenresten, (4), 20. VII. 1996, leg. J. Hafellner 38208 & H. Wittmann (GZU). – Salzburg: Pinzgau, Hohe Tauern, Glockner-Gruppe, N-Hänge des Kitzsteinhorns, ca. 0,5 km W vom Bundessportheim, 47°12'35''N / 12°41'10''E, ca. 2450 m, GF 8742/3, alpine Matten auf Kalkschiefer, auf Moosen und Pflanzenresten, (2), 27. VIII. 1996, leg. J. Hafellner 53926 (GZU). – Ibid., (4), 20. VII. 1996, leg. J. Hafellner 38308 & H. Wittmann (GZU). – Salzburg, Nationalpark Hohe Tauern, Glockner Gruppe, NW-Grat des Großen Margrötzen Kopfs W ober dem Hochtor, knapp NE unter dem Grat, [47°05'10''N / 12°50'10''E], ca. 2620 m, GF 8943/1, Kalkschiefer, über Moosen und Pflanzenresten, (2), 5. VIII. 1996, leg. J. Hafellner 38159 & H. Wittmann (GZU). – Steiermark, Nördliche Kalkalpen, Dachstein-Gruppe, Grimming W von Stainach, im Gipfelbereich, 47°31'15''N / 14°01'00''E, ca. 2350 m, GF 8450/3, alpine Matten und Kalkfelsen, auf Pflanzenresten an Windkanten, (2), 10. VI. 2000, leg. J. Hafellner 76514 & A. Hafellner (GZU). – Steiermark, Nordalpen, Nördliche Kalkalpen, Totes Gebirge, Hochtausing N über Wörschach, im obersten Teil des W-Grates kurz unterhalb des Gipfels, 47°35'05''N / 14°09'20''E, ca. 1810 m, GF 8450/2, S-exp. Schrofen aus Triaskalk zwischen Rasenfragmenten und Pinus mugo-Flecken, auf felshaftenden Moosen, (3), 3. X. 2010, leg. J. Hafellner 76232, 76231 (GZU). – Steiermark, Nordalpen (Nördliche Kalkalpen), Ennstaler Alpen, Haller Mauern N von Admont, Hexenturm, im Gipfelbereich, 47°38'47''N / 14°28'55''E, ca. 2170 m, GF 8352/4, Kalkschrofen mit lückiger alpiner Vegetation, N-exponiert auf Moosen und Pflanzenresten, (4), 9. IX. 2006, leg. J. Hafellner 69488 (GZU). – Steiermark, Nordalpen (Nördliche Kalkalpen), Ennstaler Alpen, Gesäuseberge E von Admont, Gr. Buchstein, Nordsattel zwischen dem Gipfel und der Admonter Frauenmauer, 47°36'50''N / 14°35'55''E, ca. 2065 m, GF 8353/4, Polsterseggen-Silberwurzspaliere und niedere Kalkabbrüche, auf Moosen und Pflanzenresten an der Geländkante, (2), 19. VI. 2005, leg. J. Hafellner 69844 (GZU). –

Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Tamischbachturm NW von Hieflau, auf dem Gipfel, kurz NE unter dem Gipfelkreuz, 47°36'55''N / 14°42'00''E, ca. 2030 m, GF 8354/3, Kalkschrofen und Rasenfragmente, auf Moosen und Pflanzenresten in Carex firma-Rasen, (4), 23. VII. 2005, leg. J. Hafellner 69544 (GZU). – Ibid., (3), leg. J. Hafellner 69540 (GZU). – Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Tamischbachturm NW von Hieflau, auf dem Gipfel, kurz W vom Gipfelkreuz im Gratbereich, 47°36'55''N / 14°41'55''E, ca. 2030 m, GF 8354/3, niedere Kalkschrofen und lückige Carex firma-Rasen, auf Moosen und Pflanzenresten, (3), 23. VII. 2005, leg. J. Hafellner 69609 (GZU). – Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Gesäuseberge SE von Admont, niedere Kuppe zwischen Riffel und Kalbling, 47°33'05''N / 14°31'05''E, ca. 2000 m, GF 8453/1, kleine Ausbisse aus Triaskalk in alpinen Rasen, N-exponiert auf Moosen und Pflanzenresten, (3), 13. IX. 2006, leg. J. Hafellner 69968 (GZU). – Ibid., (4), leg. J. Hafellner 69969 (GZU). – Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Gesäuseberge, Gsuchmauer ca. 9 km SW von Hieflau, auf dem schmalen Rücken kurz W vom Gipfel, 47°32'55''N / 14°39'55''E, ca. 2100 m, GF 8453/4, kleine Ausbisse aus Triaskalk in alpinen Matten, auf Moosen und Detritus auf dem wenig geneigten Rücken, (4), 11. IX. 2006, leg. J. Hafellner 69740 (GZU). – Steiermark, Nördliche Kalkalpen, Ennstaler Alpen, Lugauer SW von Hieflau, W-Gipfel, in der Umgebung des Gipfelkreuzes, 47°33'12''N / 14°43'20''E, ca. 2210 m, GF 8454/1, Caricetum firmae-Fragmente und Kalkschrofen, NW-seitig auf Pflanzenresten, (3), 3. VII. 2005, leg. J. Hafellner 69579 (GZU). –Steiermark, Eisenerzer Alpen, Leobner N von Wald am Schoberpaß, im Gratbereich am W Ende der Leobner Mauer, 47°29'55''N / 14°39'00''E, ca. 2000 m, GF 8553/2, paläozoische Kalke, auf Moosen und Pflanzenresten, (3), 31. VII. 1997, leg. J. Hafellner 42434 (GZU). – Steiermark, Eisenerzer Alpen, Kaiserschild-Massiv W von Eisenerz, Hochkogel, im Gipfelbereich, 47°32'20''N / 14°49'00''E, ca. 2100 m, GF 8454/4, Kalkschrofen und alpine Matten, SW-seitig auf Pflanzenresten, (4), 11. IX. 1999, leg. J. Hafellner 76508 (GZU). – Steiermark, Eisenerzer Alpen, Stadelstein SW von Eisenerz, N unter dem Gipfel auf dem Sattel zwischen Stadelstein und Schwarzenstein, 47°29'35''N / 14°51'30''E, ca. 1880 m, GF 8555/1, alpine Matten über paläozoischem Kalkschiefer, NW-seitig auf Moosen und Pflanzenresten, (2), 5. IX. 1997, leg. J. Hafellner 76512 & A. Hafellner (GZU). – Steiermark, Eisenerzer Alpen, Wildfeld, auf dem Gipfel, 47°29'N / 14°51'E, ca. 2040 m, GF 8555/1, Schrofen aus paläozoischem Kalk, auf Pflanzenresten in Felsspalten, (2), 8. VI. 1997, leg. A. Hafellner & J. Hafellner 40844 (GZU). – Steiermark, Eisenerzer Alpen, Reiting-Massiv W von Trofaiach, Kahlwandspitze, auf dem Gipfel, 47°26'15''N / 14°53'40''E, ca. 2090 m, GF 8555/3, lückiges Caricetum firmae über paläozoischem Kalk, auf Moosen und Pflanzenresten, (2), 23. IX. 1997, leg. J. Hafellner 43965 & A. Hafellner (GZU). – Steiermark, Eisenerzer Alpen, Reiting W von Trofaiach, im Bechlgraben, S unter dem Gipfel des Gößecks, [47°26'40''N / 14°54'10''E], ca. 1900 m, GF 8555, alpine Matte über Kalk, (3), 22. III. 1981, leg. J. Hafellner 9032 (herb. Hafellner). – Steiermark, Nördliche Kalkalpen, Hochschwab-Gruppe, Gipfel des Karlhoch Kogels N von Innerzwain, ca. 25 km N von Kapfenberg, [47°36'25''N / 15°09'30''E], 2096 m, GF 8356/4, auf Pflanzenresten, (4), 21. III. 1981, leg. J. Hafellner 9031 (GZU). – Steiermark, Nördliche Kalkalpen, Hochschwab-Gruppe, Fölzstein ca. 7,5 km NW von Aflenz, kurz W vom Gipfel am oberen Rand der S-exponierten Abbrüche, 47°35'45''N / 15°10'30''E, ca. 1900 m, GF 8457/1, Kalkfelsen und Caricetum firmae, auf Pflanzenresten / Gesteinsmoosen, (3), 20. IX. 2003, leg. J. Hafellner 76509 (GZU). – Steiermark, Nordalpen, Mürzsteger Alpen, Tonion Massiv ca. 9 km SE von Mariazell, Hochschnäbeltörl, 47°42'45''N / 15°23'35''E, ca. 1580 m, GF 8258/3, nieder Kalkschrofen und Fragmente von Polsterseggenrasen am Grat, über Pflanzenresten, (3), 8. VII. 2007, leg. J. Hafellner 83419 & A. Hafellner (GZU). – Steiermark, Nordalpen (Nördliche Kalkalpen), Mürzsteger Alpen, Veitsch Alpe N von Kindberg, am S-Rand des Plateaus N über dem Breitriegel, 47°38'50''N / 15°25'20''E, ca. 1840 m, GF 8358/4, kleine Ausbisse aus Triaskalk in Caricetum firmae / lückige Bestände von Pinus mugo, auf Pflanzenresten, (4), 30. IX. 2006, leg. J. Hafellner 76493 & L. Muggia (GZU). – Steiermark, Nordalpen, Mürzsteger Alpen, Proles Massiv, Kleiner Proles ca. 6,3 km NW von Mürzsteg, Geländerippe kurz S unterhalb vom Gipfel, 47°43'25''N / 15°26'50''E, ca. 1570 m, GF 8258/4, niedere Schrofen aus Triaskalk und Rasenbänder, auf Moosen und Pflanzenresten, (2), 1. VIII. 2008, leg. J. Hafellner 77137,

L. Muggia & A. Hafellner (GZU). – Ibid., (3), leg. J. Hafellner 77136, L. Muggia & A. Hafellner (GZU). – Steiermark, Zentralalpen, Niedere Tauern, Schladminger Tauern, SE-Abhänge der Steirischen Kalkspitze, W der Giglachseehütte zwischen Preuneggsattel und Akarscharte, 47°16’50’’–17’00’’N / 13°37’50’’–38’10’’E; 1970–2080 m, GF 8747/2; alpine Pioniergesellschaft über Schieferkalk, auf Moosen, (2), 27. VIII. 2001, leg. W. Obermayer 9199 (GZU). – Steiermark, Niedere Tauern, Schladminger Tauern, Znachsattel S ober der Giglachseehütte S von Schladming, NE-Hänge unmittelbar W ober dem Sattel, 47°16’30’’N / 13°38’20’’E, ca. 2060 m, GF 8747/2, Dryas-reiche Rasen über Kalk, auf Moosen und Pflanzenresten, (4), 27. VIII. 2001, leg. J. Hafellner 76507 (GZU). – Steiermark, Niedere Tauern, Schladminger Tauern, Kleinsölktal, NW vom Bauleiteck, E oberhalb der Striegleralm, W unter der Hasenohrenscharte, [47°16'25"N / 13°58'10"E], ca. 2250 m, schattig-feuchte, NNE-exponierte Marmorwand, auf Moosen, (2, 3), 21. IX. 1993, leg. A. Wilfling 204 & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Hornfeldspitze E über dem Sölkpaß, steile NW-Hänge kurz unter dem Gipfel, 47°16’05’’N / 14°05’25’’E, ca. 2240 m, GF 8750/2, alpine Rasen über Silikatgestein mit Spuren von Kalk, auf Moosen und Pflanzenresten, (2), 22. IX. 2010, leg. J. Hafellner 41751 (herb. Hafellner). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge NW von Oberwölz, Rettlkirchspitze SW über der Neunkirchner Hütte, im Bereich der kleinen Einsattelung zwischen Gipfel und E Vorgipfel, 47°15’40’’N / 14°07’50’’E, ca. 2430 m, GF 8750/2, niedere Marmorausbisse in alpiner Vegetation, auf Moosen und Pflanzenresten, (2), 27. IX. 2009, leg. J. Hafellner 76500 & A. Hafellner (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Zinkenkogel N von Bretstein, am W-Grat kurz unter dem W Seitengipfel, 47°25’05’’N / 14°21’45’’E, ca. 1980 m, GF 8552/3, ruhendes Marmorblockfeld, auf Moosen und Pflanzenresten, (4), 20. VIII. 1993, leg. J. Hafellner 76503 & A. Wilfling (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Zinkenkogel N von Bretstein, E unterhalb des Sattels am Südgrat, 47°25’00’’N / 14°22’40’’E, ca. 1980 m, GF 8552/3, auf steilen SE-exponierten Marmorschrofen, auf Moosen, (3), 19. VIII. 1993, leg. A. Wilfling 2153, J. Hafellner & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Sandlerkogel N von Oberwölz, SW von Pusterwald, am NE-Abhang gegen das Plättental, ca. 2100 m, GF 8751/2; Marmorabbrüche, auf Moosen und Pflanzenresten, (3), 24. IX. 1993, leg. A. Wilfling 1315 & M. Möslinger (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Berge ca. 5 km SW von Pusterwald, Schießeck, NE-Rücken, markante helle Felspartie am steilen E-Hang W über der Grillerhütte, 47°16’48’’N / 14°19’55’’E, ca. 2000 m, GF 8751/2, mit Silikat überdeckte Marmorschrofen in alpiner Vegetation, auf Moosen und Pflanzenresten, (2), 11. VII. 2009, leg. J. Hafellner 75194, 75189 & A. Hafellner (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, Bergkette N von Lachtal ca. 9,5 km NE von Oberwölz, Kleiner Zinken, etwas SW unter dem Gipfel, 47°16’35’’N / 14°21’20’’E, ca. 2120 m, GF 8752/1, W-E streichende Marmorrippe, S-exp. auf Moosen und Pflanzenresten, (2), 1. IX. 2009, leg. J. Hafellner 76496 (GZU). – Steiermark, Niedere Tauern, Wölzer Tauern, 2,5 km N von Lachtal, 2 km NW der Kloserneuburger Hütte, Aufstieg vom Kleinen Zinken zum Hohen Zinken, [47°16'20"N / 14°21'00"E], ca. 2140 m, GF 8752/1; NW-exponierte Marmorschrofen, auf Erde, (3), 7. XI. 1994, leg. A. Wilfling 2741 & F. Wilfling (GZU). – Steiermark, Zentralalpen, Seetaler Alpen, Bergrücken zwischen Wenzelalpe und Kreiskogel, kurz S über dem Sattel (Kote 2073), 47°05’45’’N / 14°32’50’’E, ca. 2100 m, GF 8953/1, niedere Ausbisse aus Marmor in lückiger Vegetation mit dominanter *Saxifraga oppositifolia*, auf Moosen und Pflanzenresten, (2), 1. VIII. 2010, leg. J. Hafellner 75967 (GZU). – Ibid., (4), leg. J. Hafellner 75966 (GZU). – Steiermark, Steirisches Randgebirge, Stubalpe W von Köflach, Brandkogel ca. 3 km S vom Paß Gaberl, am waldfreien Rücken zwischen dem Alten Almhaus und dem Gipfel, 47°05’N / 14°56’E, ca. 1620 m, GF 8955/2, subalpine Weiden über Marmor, auf Moosen und Pflanzenresten, (3), 19. V. 1997, leg. J. Miadlikowska & J. Hafellner 42270 (GZU). – Ibid., (3), leg. J. Miadlikowska & J. Hafellner 42265 (herb. Hafellner). – Steiermark, Steirisches Randgebirge, Stubalpe, Wölkerkogel oberhalb vom Alten Almhaus, Gipfelbereich, [47°04'50"N / 14°55'30"E], 1670–1706 m, GF 8955/2; kleine Schrofen aus grobkristallinem Marmor, auf Felsmoosen, (3), 13. VIII. 1993, leg. A. Wilfling 2391 (GZU). – Steiermark, Steirisches Randgebirge, Koralpe, Sattel zwischen Moschkogel und Hühnerstütze, etwas S über dem Sattel ca. 0,5 km E der Grillitschhütte, 46°48’55’’N /

14°59’30’’E, ca. 1760 m, GF 9155/4, Marmorausbisse am sanft geneigten N-Hang im Bereich der Waldgrenze, auf Moosen und Pflanzenresten, (3), 17. VI. 2007, leg. J. Hafellner 76497 & L. Muggia (GZU). – Steiermark, Steirisches Randgebirge, Koralpe, im Seekar E unter dem Seespitz, ca. 17,5 km W ober Deutschlandsberg, 46°47’35’’N / 14°59’05’’E, ca. 1820 m, GF 9255/2, niedere Marmorausbisse umgeben von subalpinen Weiderasen und Zwergstrauchheiden, auf Moosen und Pflanzenresten, (3), 22. VIII. 2004, leg. J. Hafellner 76499 (GZU). – Steiermark, Steirisches Randgebirge, Grazer Bergland, Streberkogel S über Gasen, ca. 10 km W von Birkfeld, am SE-Ende des Gipfelrückens, 47°21’30’’N / 15°34’40’’E, ca. 1440 m, GF 8659/1, kleine Ausbisse aus Kalkschiefer in einer subalpine Weide, N-exponiert auf Moosen und Pflanzenresten, (3), 13. XI. 2011, leg. J. Hafellner 79081 (GZU). – Steiermark, Oststeirisches Hügelland, 2 km NW von Feldbach, Kornberger Teiche, c. 300 m, GF 9061/1, auf Zweigen von *Populus nigra*, (1), 24. VI. 1993, leg. B. Wieser 725 (GZU). – Tirol, Nordalpen, Karwendel, Hinterautal, Umgebung vom Kotwaldsee, 47°22’41’’N / 11°21’26’’E, ca. 1070 m, GF 8634/1, auf Borke von Salix spec., (1), 13. IX. 2008, leg. R. Türk 44065a-4 & H. S. Pfleger (GZU). – Tirol, Stubaier Alpen, Serles-Gruppe W ober Matrei am Brenner, Peilspitze S ober Maria Waldrast, am W-Grat E ober dem Kalbenjoch, 47°06’10’’N / 11°23’15’’E, ca. 2300 m, GF 8834/3, Dryas-Spaliere und niedere Kalkschrofen, auf Moosen und Pflanzenresten, (2), 1. VIII. 1996, leg. J. Hafellner 75535 (GZU). – Tirol, Osttirol, Nationalpark Hohe Tauern, Glockner-Gruppe, Ködnitztal NE ober Kals, kurz N ober der Lucknerhütte, 47°02’35’’N / 12°41’30’’E, ca. 2300 m, GF 8942/3, niedere Kalkschieferschrofen und Rasen am Westhang, auf Moosen und Pflanzenresten, (3), 4. IX. 1998, leg. J. Hafellner 46797 (GZU). – Vorarlberg, Rätikon, Lünerkrinne E über dem Lünersee, ca. 12 km SSW von Bludenz, Felsköpfe entlang des Grates kurz SE über dem Steig über den Sattel, 47°03’30’’N / 09°46’15’’E, ca. 2150 m, GF 8924/2, Felsschrofen aus mergeligen Triaskalken in alpiner Vegetation, auf Moosen und Pflanzenresten, (3), 5. VIII. 2008, leg. J. Hafellner 75188 (GZU). – Vorarlberg, Rätikon, Kreuzspitze WSW von Schruns, im Gipfelbereich, [47°02’35’’N / 09°48’45’’E], 2280–2353 m, auf Pflanzenresten, (4), GF 8925, Kieselkalk, 27. VII. 1986, leg. J. Poelt (GZU, under the name of the host). – **Italy**: Trentino-Alto Adige, prov. Bolzano (Südtirol), Southern Alps, Dolomiti, M. Seceda (Geisler Spitzen) NE of Ortisei (St. Ulrich), on the ridge just W above Forc Pana (Pana Scharte), 46°36’05’’N / 11°44’05’’E, ca. 2500 m; low outcrops of limestone in alpine vegetation, on bryophytes and plant debris, (2), 2. IX. 2002, leg. J. Hafellner 75195 (GZU). – Basilicata, Prov. Potenza, N-Abhänge des Monte Pollino, Piana dell Pollino NW Serra delle Ciavole, ca. 1900 m; Weiden und Felskuppen, dazwischen einzelne alte *Pinus leudodermis*, auf Holz von *Pinus leucodermis*, (1), 2. VI. 1979, leg. J. Hafellner 41733 (herb. Hafellner). – **Slovenia**: Southern Alps, Julian Alps, massif of Mangart NE of Bovec, beginning of the trail to the Planinski mejni prehod (Mangart saddle), 46°26’45’’N / 13°39’00’’E, c. 1980 m, alpine vegetation fragments and large boulders of limestone, on plant remnants, (2), 5. VII. 2003, leg. J. Hafellner 75268 (GZU). – Ibid., (4), leg. J. Hafellner 75269 (GZU). – Southern Alps, Julian Alps, massif of Mangart NE of Bovec, NE slopes of Mali vrh S opposite to Mangartska koča (Mangart refuge), 46°26’00’’N / 13°38’35’’E, c. 1960 m, alpine vegetation fragments and rocks of limestone, on plant remnants, (3), 5. VII. 2003, leg. J. Hafellner 75303 (GZU). – Southern Alps, Julian Alps, Koritnica valley NE of the village Log pod Mangartom, 46°24’50’’N / 13°38’00’’E, c. 700 m, mixed forest along the river bed, on dead branches of *Juglans regia* in the lower canopy, (1), 31. VII. 2003, leg. J. Hafellner 77576, 77577 (GZU). For additional specimens studied see Hafellner (1994).

Didymocyrtis epiphyscia Ertz & Diederich in Ertz et al., Fungal Diversity 74: 71 (2015).

≡ *Phoma physciicola* Keissl., Hedwigia 50: 294 (1911). – (non *Didymocyrtis physciicola* (Nyl.) Vain., Acta Soc. Fauna Flora Fennica 49 (2): 222, 1921).

Typus: Austria, Steiermark, near Gams bei Hieflau, c. 500 m alt., on branches of *Malus domestica* („Pyrus malus“), June 1910, K. von Keissler (W 1910/609 – holotype) n. v., fide Hawksworth (1981). Locality data from protologue.

Host of type: *Physcia aipolia* (th., ap.)

Full descriptions: anamorph: Keissler 1911: 294, Hawksworth 1981: 56, Ertz et al. 2015: 71.

Icon.: Keissler 1911: 295, Fig. 1 (drawings of habit, conidioma in longitudinal section, conidium); Ertz et al. 2015: 70, Fig. 5 a–f (photographs of habit, conidioma in longitudinal section, conidia).

Key characters for identification: Conidia ellipsoid, with one or two small guttules, (4.0–)4.6–6.1(–7.8)×(3.2–)3.5–4.2(–5.0) µm, length-width ratio (1.0–)1.2–1.6(–2.0). Conidia of strain on *Physcia adscendens* and *P. tenella* narrower, biguttulate or rarely multiguttulate, (3.7–)4.6–6.4(–8.0)×(2.0–)2.5–3.1(–3.5) µm, length-width ratio (1.2–)1.6–2.3(–3.5) (see Ertz et al. 2015: 72–73). The species concept applied here includes both strains (Ertz et al. 2015).

Notes: 1. The species is so far known only by its anamorph.

2. A new name was introduced because of the existence of the name *Didymocyrtis physciicola* (Nyl.) Vain., a heterotypic synonym of *Sphaerellothecium parietinarium* (Linds.) Hafellner & V.John, which made it impossible to combine *Phoma physciicola* Keissl. into *Didymocyrtis*.

3. For a possible teleomorph see also below under *Didymocyrtis physciae* (p. 67)!

Hosts: *Physcia aipolia* (th., apothecial margins) (1, T), *Physcia stellaris* (th., ap., apothecial margins) (2), *Physcia dubia* (th.) (3), *Physcia adscendens* (th.) (4), *Physconia distorta* (ap.) (5); *Physcia caesia*, *Anaptychia bryorum* (Zhurbenko 2009b, Urbanavichus & Urbanavichene 2014), *Physconia perisidiosa* (Puolasmaa et al. 2008), *Phaeophyscia orbicularis* (Brackel 2014). *Didymocyrtis epiphyscia* s.str. appears to be a specific invader of various species of foliose Physciaceae. For strains infesting species of the *Physcia adscendens* group, *Phaeophyscia* or *Physconia*, the specific identity is uncertain (Ertz et al. 2015). Morphoanatomically hardly distinguishable fungi have also been detected on other lichens, e.g. *Xanthoria parietina*, *Parmelia sulcata*, and *Parmelia squarrosa*.

Known distribution and previous records: The species in a narrow sense has so far been reported from the European countries Austria (Keissler 1911: 294, Hafellner 1994: 19, Hafellner et al. 2005a: 92, Hafellner & Zimmermann 2012: 49, Ertz et al. 2015: 71 f.), France (Diederich et al. 2014: 162, Roux et al. 2014: 851, Ertz et al. 2015: 71 f.), Great Britain (Hitch 1996: 62, Coppins et al. 2012: 102, Ertz et al. 2015: 71 f.), Luxemburg (Diederich et al. 2014: 162, Ertz et al. 2015: 71 f.). In North America it is known from Canada (Alstrup & Cole 1998: 226, Hafellner et al. 2002: 312, Ertz et al. 2015: 71 f.). By applying a broader species concept (including collections on Physciaceae other than *Physcia aipolia*), records for following additional countries have been traced: Albania (Hafellner & Kashta 2003), Belgium (Ertz et al. 2015), Finland (Puolasmaa

et al. 2008), Germany (Brackel 2007), Italy (Hafellner 1997), Portugal (Boom & Giralt 2012), European part of Russia (Urbanavichus & Urbanavichene 2014), Spain (Etayo 2010a), Sweden (Hawksworth 1981), Asian part of Russia (Zhurbenko 2009b), U.S.A. (Diederich 2003), and New Zealand (Hafellner & Mayrhofer 2007).

Exsiccata examined: Santesson, Fungi lichenicoli exs. 30 (GZU).

Further specimens seen:

EUROPE: **Austria:** Steiermark (=Styria), Nordalpen, Dachstein-Gruppe, Ramsau 4.4 km NNW of Schladming, 0.9 km NW of the church of the village Ramsau am Dachstein, NW of the farm Knoll, 47°25'39''N / 13°39'40''E, c. 1200 m alt., GF 8547/4, trees along meadows, on bark of *Acer pseudoplatanus*, (5), 16. II. 2010, leg. W. Obermayer no. 11896, det. J. Hafellner (GZU). – Steiermark, Gurktaler Alpen, Grebenzen, 4,6 km W of Neumarkt, Zeutschach, c. 0,5 km W of the church, 47°04'17''N / 14°21'37''E, GF 8952/1, c. 1060 m alt., solitary trees along meadow, on twigs of *Sorbus aucuparia*, (2), 29. XII. 2012, leg. W. Obermayer no. 12611, leg. J. Hafellner (GZU). – Steiermark, [Steirisches Randgebirge], Grazer Bergland, Hänge SW des Wirtshauses „Zum guten Hirten" oberhalb Mixnitz, auf *Fraxinus excelsior*, (1), 1. V. 1972, leg. J. Poelt no. 11147 (GZU). – Steiermark, Steirisches Randgebirge, Joglland, Miesenbach NE von Birkfeld, ca. 1 km S von Hafenscher, 47°22'10''N / 15°43'30''E, ca. 720 m, GF 8660/1, Kulturland, auf Zweigen von *Fraxinus excelsior*, (2), 18. IX. 1999, leg. J. Hafellner no. 62016 (GZU). For additional specimens studied see Hafellner (1997) and Hafellner & Zimmermann (2012).

Didymocyrtis foliaceiphila (Diederich, Kocourk. & Etayo) Ertz & Diederich in Ertz et al., Fungal Diversity 74: 73 (2015).

≡ *Phoma foliaceiphila* Diederich, Kocourk. & Etayo, Lichenologist 39: 159 (2007). – *Diederichomyces foliaceiphila* (Diederich, Kocourk. & Etayo) Crous & Trakunyingcharoen, in Trakunyingcharoen et al., IMA Fungus 5: 401 (2014).

Typus: Czech Republic, Central Bohemia, distr. Rakovník, Křivoklátsko protected landscape area, between Nezabudice and Roztoky villages, Nezabudické skály nature reserve, 50°01′ N, 13°51′ E, 255 m, in *Quercus petraea* forest below steep slope of rocky outcrops, 2002, J. Kocourková (PRM 896164 – holotype) n.v. Locality data from protologue.

Host of type: *Cladonia foliacea* (th.)

Full descriptions: anamorph: Diederich et al. 2007: 159–160, Lawrey et al. 2012: 206–207, Ertz et al. 2015: 73.

Icon.: Diederich et al. 2007: 160, Fig. 4 (photographs of infested squamules of *Cladonia foliacea*, conidia); Lawrey et al. 2012: 205, Fig. 4n–p (photographs of conidioma in longitudinal section, culture, conidia); Trakunyingcharoen et al. 2014: 403, Fig. 7 (photographs of culture with conidia, conidioma in longitudinal section, conidiogenous cells, conidia).

Key characters for identification: Conidia ellipsoid, biguttulate, with a small guttule near each apex, (5.0–)5.8–7.1(–7.5)×(2.0–)2.2–2.7(–3.0) µm, length-width ratio (2.0–)2.4–3.0(–3.5) (Ertz et al. 2015).

Notes: 1. The species is so far known only by its anamorph.

2. For distinguishing characters of the two *Didymocyrtis* species known on *Cladonia* hosts, *D*. *cladoniicola* and *D. foliaceiphila,* see above under D. *cladoniicola*.

Hosts: *Cladonia coniocraea* (th.) (1), *Cladonia macroceras* (th.) (2), *Pseudevernia furfuracea* (th.) (3); further reported hosts: *Cladonia convoluta*, *C*. *fimbriata*, *C*. *foliacea* (T), *C*. *furcata*, *C*. *pyxidata*, *C*. *rangiformis*, *C*. *squamosa*, *Parmelia sulcata*, *P*. *saxatilis* (Brackel 2015, Ertz et al. 2015, Roux et al. 2014). *Cladonia coniocraea*, *C*. *macroceras*, and *Pseudevernia furfuracea* are additions to the host spectrum. Records on Parmeliaceae are rare so far. Most material of a *Phoma*-like fungus on species of this family belongs to *Didymocyrtis melanelixiae*. The infection detected on *Pseudevernia furfuracea* has conidia fitting both in size and shape to *Didymocyrtis foliaceiphila*. A confirmed record of a genetically uniform population infesting both *Cladonia squamosa* and *Parmelia sulcata* (Ertz et al. 2015) indicates that the host spectrum is wider than originally assumed.

Known distribution and previous records: The species has so far been reported from Austria (Berger & Priemetzhofer 2010), Belgium (Van den Broeck et al. 2012: 12, Lawrey et al. 2012: 206 f.), Czech Republic (Diederich et al. 2007: 159 f.), France (Diederich et al. 2007: 159 f.), Germany (Brackel 2010: 22, 2014: 265), Italy (Brackel 2011: 80, 2015: 254), Lithuania (Motiejūnaitė et al. 2011: 42), Luxemburg (Diederich et al. 2007: 159 f.), Netherlands (Diederich et al. 2007: 159 f.), Spain (Etayo 2008, 2010b: 318). It is herewith reported as an addition to the mycoflora of Kosovo.

Exsiccata examined: -.

Further specimens seen:

EUROPE: **Austria:** Niederösterreich (=Lower Austria), Nördliche Kalkalpen, Göller-Gruppe, Südhänge der Weißmäuer E vom Lahnsattel, 47°46’30’’N / 15°31’30’’E, ca. 1000 m, GF 8259/1, Buchen-Tannen-Fichtenwald, auf Holz liegender, abgestorbener, morscher Baumstämme, (1), 23. IV. 1994, leg. J. Hafellner no. 32525 (herb. Hafellner). – Steiermark [Styria], [Steirisches Randgebirge], Gleinalpe S von St. Michael, SW-exponierter Rücken zwischen Kreuzsattel und Eiblkogel, 47°15’10’’N / 15°05’25’’E, ca. 1780 m, GF 8756/4, Blockschutthalde und umgebende Zwergstrauchheiden, in Zwergstrauchheiden auf Erdblößen, (2), 27. X. 2001, leg. J. Hafellner no. 57816 (herb. Hafellner). – **Kosovo**: Albanian Alps / Bjeshkët e Nemuna e Kosovës, Bogićevica, west of Deçan, summer mountain village Bjeshket e Belegut, northern slopes of Maja e Ropës (Maja e Rops), 42°34’42’’N / 20°05’50’’E, 2244 m, dwarf shrub heath with siliceous rock outcrops, on twigs of dwarf shrub, (3), 21. VIII. 2012, leg. H. Mayrhofer no. 19305a & H. Zekaj (GZU).

Didymocyrtis melanelixiae (Brackel) Diederich, R.C.Harris & Etayo in Ertz et al., Fungal Diversity 74: 74 (2015).

≡ *Phoma melanelixiae* Brackel, Herzogia 24: 81 (2011).

Typus: Italy, Basilicata, Prov. di Potenza, Monte Vulture, near “Femmina Morta”, 40°57’24’’N, 15°37’17’’E, 1145 m, in mixed forest of oaks, elders and maples, on the bark of *Acer pseudoplatanus*, 22 Aug. 2010, W. & G. v. Brackel 5658 (M – holotypus) n.v. Locality data from protologue.

Host of type: *Melanelixia glabra* (th.)

Full descriptions: teleomorph: Ertz et al. 2015: 74–75; anamorph: Ertz et al. 2015: 75, Brackel 2011: 81.

Icon.: Brackel 2011: 84, Fig. 10 (drawing of conidioma wall in longitudinal section, conidiogenous cells, conidia), Fig. 11 (photograph of habit); Ertz et al. 2015: 75, Fig. 7a–e (photographs of habit, asci with ascospores, conidia).

Key characters for identification: Ascospores ± uniseriate to half-overlapping, medium to dark brown, (1–)2(–3)-septate, 11.5–15×4–5.5 µm, the middle cell slightly wider than the end cells, slightly constricted at the septa, torus indistinct, with a distinct verruculose sculpture visible in light microscopy. Conidia broadly ellipsoid to subspherical, with one large guttule or rarely two smaller guttules, (3.5–)3.8–5.1(–6.2)×(2.8–)3.2–3.8(–4.3)µm, length-width ratio (1.0–)1.1–1.5(–1.8) (Ertz et al. 2015).

Notes: 1. The species was originally described on type material containing only the anamorph. The teleomorph has been detected in two specimens with *Punctelia* as host and originating from the U.S.A.

Hosts: *Melanelixia glabratula* (th.) (1), *Platismatia glauca* (th.) (2), *Parmelia saxatilis* (th.) (3), *Cetraria islandica* (th.) (4), *Evernia prunastri* (th.) (5); further reported hosts: on the thallus of various Parmeliaceae, including species of *Canoparmelia*, *Cetrelia*, *Hypotrachyna*, *Melanelixia* (e.g. *M. glabra* (T)), *Parmelia* s.str., *Parmotrema*, *Platismatia*, *Pseudevernia*, *Punctelia* and *Usnea* (Ertz et al. 2015). *Cetraria islandica* and *Evernia prunastri* are added to the host spectrum.

Known distribution and previous records: The species has so far been reported from Europe (Belgium, France, Italy, Spain, Switzerland, United Kingdom: Scotland), North America (Canada: British Columbia and New Brunswick, USA: Georgia, Maine and North Carolina), South America (Ecuador) and from an archipelago in the Indian Ocean (La Reunion) (Ertz et al. 2015). It is herewith reported as an addition to the mycoflora of Austria.

Exsiccata examined: -.

Further specimens seen:

Anamorph: **EUROPE**: **Austria:** Salzburg (Salisbury), Niedere Tauern, Schladminger Tauern, Lungau, Weißpriachtal N von Mauterndorf, unterste Hänge am Gurpitschbach 5 km NW von Weißpriach, Grauerlenbestände am Gurpitschbach, [47°12’30’’N / 13°39’40’’E], 1150 m, GF 8747/4, auf *Alnus incana*, (5), 8. IX. 1981, leg. J. Hafellner no. 10266 (GZU). – Steiermark (Styria), Nördliche Kalkalpen, Hochschwab-Gruppe, Fölz NW von Aflenz, im untersten Teil des Mitterbachgrabens W vom Ghf Schwabenbartl, [47°34’15’’N / 15°11’30’’E], ca. 860 m, GF 8457/1, Buchen-Tannen-Fichtenwald, auf Borke von *Salix* spec., (3), 27. X. 1993, leg. J. Hafellner no. 31133 (GZU). – Steiermark (Styria), Steirisches Randgebirge, Koralpe, Reinisch Kogel NW von Stainz, W ober dem Wirtshaus Klug [Klugbauer], [46°56’45’’N / 15°09’20’’E], ca. [1060–]1100 m, GF 9056/4, Tannen-Fichtenwald, auf Totholz, (2), 22. V. 1984, leg. J. Hafellner no. 11256 (herb. Hafellner). –Tirol (Tyrol), Tuxer Alpen, Wattener Lizum S von Wattens, am W-Fuß der Kalkwand SSE ober der Lizumer Hütte, [47°09’20’’N / 11°38’55’’E], ca. 2200 m, GF 8835/4, Kalkblockschutthalde, in erdigen Spalten großer Blöcke, (4), 7. VII. 1992, leg. J. Hafellner no. 23451 (herb. Hafellner). – **France:** Korsika, Dept. Haute-Corse, an der Straße von Vivario auf den Col de Vizzavona, ca. 1 km NE von Tattone, ca. 830 m alt., Kastanienhain in einer Weide, auf Stammborke von *Castanea sativa*, (1), 3. XI. 1993, leg. J. Hafellner no. 31611 (GZU).

Didymocyrtis physciae (Brackel) Hafellner comb. nov. MB 815444

≡ *Merismatium physciae* Brackel, Ber. Bayer. Bot. Ges. 80: 15 (2010). – *Pleospora physciae* (Brackel) Hafellner & E.Zimm., Herzogia 25(1): 50 (2012).

Typus: Germany: Bayern (Bavaria), Kreis Eichstätt, Parkplatz Gelbelsee (W) an der BAB 9, 48°57'0''N/11°25'49''E, 520 m, MTB 7034/2, an gepflanzter Esche in lockerer Baumgruppe, 12. III. 2010, W. v. Brackel (M – Holotypus) n.v. Locality data from protologue.

Host of type: *Physcia adscendens* and *P. tenella* (th.)

Full descriptions: teleomorph: Brackel 2010: 15–16, Hafellner & Zimmermann 2012: 50–52.

Icon.: Brackel 2010: 16, Fig. 5 (photograph of infested *Physcia thallus*), 17, Fig. 6 (drawing of asci, ascospores); Hafellner & Zimmermann 2012: 51, Fig. 1 (photographs of infested thallus, ascoma in longitudinal section, hymenium, submedian section of ostiolar region, ascomatal wall in surface view, paraphysoids, asci of various age, ascospores of various age).

Key characters for identification: Ascospores at first pale brown, later brown, upper half somewhat broader than the lower one, slightly constricted at the septa, with 3 – 4 transsepta and 0 –1 longisepta per level, 4 –7 cells visible in optical section, 14.5 –16.5 × 6 –7 µm, with a thin perispore that is not always clearly visible (Hafellner & Zimmermann 2012).

Notes: 1. Although not yet confirmed by molecular data, it appears very likely that the species belongs to *Didymocyrtis*. By introducing the combination, we want to draw attention to the possibility that *Didymocyrtis* may include species with muriform ascospores. The muriform ascospores could also be responsible for the ascus shape in the species, being not so narrowly cylindrical as in other *Didymocyrtis* species.

2. The species is so far only known by its teleomorph. It cannot be excluded that a *Phoma*-like fungus known from *Physcia* hosts is conspecific. The most likely options are *Phoma physciicola* Keissl. and the hitherto unnamed strain of *Didymocyrtis epiphyscia* s.ampl. (Ertz et al. 2015: 72). *Didymocyrtis physciae* would constitute the correct name for both holomorphs as a transfer of *Phoma physciicola* is not possible because of the existence of the name *Didymocyrtis physciicola* (Nyl.) Vain., and it has priority over the recently introduced replacement name *Didymocyrtis epiphyscia* Ertz & Diederich (see above). As long as the identity is not proven, we prefer to maintain both species names separate.

Hosts: *Physcia adscendens* (th.) (1, T), *Physcia tenella* (th.) (2); *Physcia stellaris* (th., apothecial margins) (3) (Brackel 2010). – So far *Didymocyrtis physciae* appears to be a specific invader of various *Physcia* species. The record on *Xanthoria parietina* (Otte & Wagner 2012) needs a critical re-evaluation.

Known distribution and previous records: The species has so far only been reported from Austria (Hafellner & Zimmermann 2012), Belgium (Diederich et al. 2012), Germany (Brackel 2010, 2014, Hafellner &

Zimmermann 2012), Slovenia (Hafellner & Zimmermann 2012), and Switzerland (Hafellner & Zimmermann 2012).

Exsiccata examined: -.

Further specimens seen:

EUROPE: **Austria:** Steiermark (= Styria), Steiermark, Oststeirisches Hügelland, Graz, Botanischer Garten NW der Schubertstraße, Postgrund, 47°04'58''N / 15°27'25''E, ca. 380 m, GF 8958/2, Streuobstwiese mit alten Obstbäumen im Umfeld des Bauerngartens, auf abgestorbenen Kronenzweigen von *Juglans regia*, (1), 19. VI. 2011, leg. J. Hafellner no. 77684 (GZU). – Steiermark, Oststeirisches Hügelland, Graz, 150 m SE of the pond Hilmteich, 47°05'00''N / 15°27'45''E, GF 8958/2, ca. 400 m alt., mixed forest, on bark of strongly decayed twigs fallen to the ground, (1), 20. III. 2013, leg. W. Obermayer no. 12737, det. J. Hafellner (GZU).

Didymocyrtis pseudeverniae (Etayo & Diederich) Ertz & Diederich in Ertz et al., Fungal Diversity 74: 77 (2015).

≡ *Macrophomina pseudeverniae* Etayo & Diederich, Mycotaxon 60: 419 (1996). – *Diederichia pseudeverniae* (Etayo & Diederich) D. Hawksw., Lichenologist 35: 206 (2003).

Typus: Spain, Huesca, road Sabiñánigo to Boltaña, Perto del Serrablo, Sierra del Gabardón, km 39 near Laguarta, 1200 m, 5 July 1993, J. Etayo 12597 (MA-Lich – holotype; hb. Etayo – isotype) n.v. Locality data from protologue.

Host of type: *Pseudevernia furfuracea* (th.)

Full descriptions: anamorph: Etayo & Diederich 1996: 419–420, Ertz et al. 2015: 77.

Icon.: Etayo & Diederich 1996: 420, Fig. 2 (drawings of conidioma, conidiogenous cells, conidia); Ertz et al. 2015: 75, Fig. 7 f–h (photographs of habit, conidioma in longitudinal section, conidia), 79, Fig. 9 e–f (culture, conidia).

Key characters for identification: Conidia subcylindrical, ellipsoid or irregular in form, with numerous small guttules, (14–)16–22(–26)×6–9 µm (Ertz et al. 2015).

Notes: 1. The species is so far known only by its anamorph.

2. Within *Didymocyrtis* the species is peculiar by its conidia dimensions.

Hosts: *Pseudevernia furfuracea* (th.) (1, T). The species appears to be a specific invader of *Pseudevernia* species.

Known distribution and previous records: The species has so far been reported from the European countries Czech Republic (Brackel 2009: 13), Great Britain (Hitch 1997: 52, 2011: 82, 2012a: 73, 1912b: 78), Germany (Brackel 2014: 110), Italy (Brackel 2013: 145, Motiejūnaitė & Grochowski 2014: 195), Latvia (Motiejūnaitė & Grochowski 2014: 195), Lithuania (Motiejūnaitė et al. 2011: 41), Spain (Etayo & Diederich 1996: 419 f., Ertz et al. 2015: 77), and Switzerland (Ertz et al. 2015: 77). It is herewith reported as an addition to the mycoflora of Austria and France.

Exsiccata examined: -.

Further specimens seen:

EUROPE: **Austria:** Steiermark (Styria), Steirisches Randgebirge, Joglland, Kulm-Massiv, Oberhänge der Feistritz Klamm W gegenüber von Schloß Herberstein, Geierwand, 47°12’55’’N / 15°47’50’’E, ca. 600 m alt., GF 8760/4, Silikatschrofen mit lückigem Eichen-Föhrenwald, auf Borke von *Quercus robur*, (1), 25. IX. 1999, leg. J. Hafellner no. 62020 (GZU). – **France**: Corsica, Dept. Haute-Corse, Asco Tal, Forêt de Carrozzica, SW ober dem Ort Asco, ca. 940 m; lockerer *Pinus nigra*-Wald mit Felsblöcken, auf Borke von *Pinus nigra* am Stammgrund, (1), 2. XI. 1993, leg. J. Hafellner no. 41838 (GZU).

Didymocyrtis ramalinae (Roberge ex Desm.) Ertz, Diederich & Hafellner in Ertz et al., Fungal Diversity 74: 77 (2015).

≡ *Sphaeria ramalinae* Roberge ex Desm., Ann. Sci. Nat., Bot., 3. sér., 11: 354 (1849). – *Leptosphaeria ramalinae* (Desm.) Sacc., Syll. Fung. 2: 84 (1883). – *Heptameria ramalinae* (Desm.) Cooke, Grevillea 18 (86): 33 (1889). – *Phaeospora ramalinae* (Desm.) Vouaux, Bull. Soc. Mycol. France 29: 74 (1913).

Typus: France, without locality and date, on *Ramalina fastigiata* (th.), leg. Roberge (?PC – holotypus) n.v. Locality data from protologue.

Host of type: *Ramalina fastigiata* (th.)

= *Phoma ficuzzae* Brackel, Sauteria 15: 109 (2008). – *Diederichomyces ficuzzae* (Brackel) Crous & Trakunyingcharoen in Trakunyingcharoen et al., IMA Fungus 5(2): 401 (2014).

Typus: Italy, Sicily, Prov. Palermo, Bosco della Ficuzza, road from Ficuzza to S, 37°52′00.6″ N, 13°23′17.3″ E, 910 m, in grazed coppice forest mainly of oaks and ashes, on the bark of *Pyrus amygdaliformis*, 9 Aug. 2006, Brackel (hb. IVL 3983 – holotype; M-0044890 – isotype) n.v. Locality data from protologue.

Host of type: *Ramalina fraxinea* (th., apothecial margin).

Full descriptions: teleomorph: Vouaux 1913: 74, Ertz et al. 2015: 77–78; anamorph: Brackel 2008a: 109, Lawrey et al. 2012: 206, Ertz et al. 2015: 78–79.

Icon.: Berlese 1892: 54, Tab. XL, Fig. 1 (drawings of ascoma in longitudinal section, ascus, ascospores); Lawrey et al. 2012: 205, Fig. 4l–m (photographs of culture, conidia); Ertz et al. 2015: 78, Fig. 8a–d (photographs of habit, asci with ascospores, conidia), 79, Fig. 9i (culture).

Key characters for identification: Ascospores ± uniseriate to half-overlapping, dark brown, 3-septate, some only with 1 or 2 septa (<1 %), (13–)14–20×5–6.5(–7) µm, the upper half spore (namely the second cell) slightly wider than the lower one, not or slightly constricted at the septum, torus indistinct, with distinct verruculose sculpture visible in light microscopy. Conidia ellipsoid, biguttulate, with a small guttule near each apex, 5–7×3–4 µm, length-width ratio 1.5–2 (Ertz et al. 2015).

Notes: 1. The conspecificity of the teleomorph *Didymocyrtis ramalinae* and its anamorph (*Phoma ficuzzae*) has been proven by DNA sequence data (Ertz et al. 2015).

Hosts of the teleomorph: *Ramalina fastigiata* (th., apothecial margins) (1, T), *Ramalina celastri* (th., ap.) (2), *Ramalina exiguella* (th., ap.) (3), *Ramalina* spec. (th.) (4); further reported hosts: *Ramalina calicaris*, *R*. *farinacea*, *R*. *lacera*, *R*. *pollinaria*, *R*. *subgeniculata* (Ertz et al. 2015). *Didymocyrtis ramalinae* appear to be a specific invader of various *Ramalina* species.

Hosts of the anamorph: *Ramalina* spec. (th.) (4); further reported hosts: *Ramalina fraxinea* (T), *R*. *fastigiata* (Ertz et al. 2015), *R*. *calicaris* (Khodosovtsev 2013), *R*. *farinacea* (Brackel 2008b).

Known distribution and previous records of the teleomorph: The species has so far been reported from the European countries Denmark (Alstrup et al. 2004: 46, Søchting et al. 2007: 43), France (Desmazières 1849: 354, Ertz et al. 2015: 77 ff.), Great Britain (Hitch 2011: 76, Ertz et al. 2015: 77 ff.), Italy (Brackel 2008a: 107, 2008b: 186, 2011: 72, 2015: 241, Ertz et al. 2015: 77 ff.), Lithuania (Motiejūnaitė et al. 2012: 93), Luxemburg (Diederich 1989: 155, 1990: 310 f., Ertz et al. 2015: 77 ff.), Poland (Kukwa et al. 2013: 162), Portugal (Boom & Giralt 2012: 183), Russia (Urbanavichus & Urbanavichene 2015: 188), Spain (Etayo 1996a: 101, 1996b: 116, 2010a: 30, 2011: 46, Santesson 2001: 7, Etayo & López de Silanes 2009: 19, Boom & Etayo 2014: 51, Burgaz 2014: 68, Ertz et al. 2015: 77 ff.), and Sweden (Ertz et al. 2015: 77 ff.). Furthermore it is known from the Canary Islands (Etayo 1996a: 101, Hafellner 1996b: 4, Ertz et al. 2015: 77 ff., Boom & Clerc 2015: 3), South Africa (Ertz et al. 2015: 77 ff.), and Australia (Ertz et al. 2015: 77 ff.).

Known distribution and previous records of the anamorph: So far *Phoma ficuzzae* has been recorded from the European countries France (Lawrey et al. 2012: 206, Ertz et al. 2015: 77 ff.), Germany (Brackel 2014: 264 f.), Great Britain (Ertz et al. 2015: 77 ff.), Italy (Brackel 2008a: 109 ff., 2008b: 188, 2008c: 65, 2011: 80), Lithuania (Motiejūnaitė et al. 2011: 42), Poland (Kukwa et al. 2013: 163), Portugal (Boom & Giralt 2012: 191), Sweden (Thell et al. 2014: 22), and Ukraine (Khodosovtsev 2013: 85).

Exsiccata examined: Hafellner, Lich. Biota no. adhuc ined. (BCN, BR, CANB, E, GZU, LE, M, NY, PRM, UPS).

Further specimens seen:

Teleomorph: **EUROPE**: **Africa: Canary Islands:** La Palma, E ober El Paso, bei der Abzweigung nach La Cumbrecita, 28°38’40’’N/17°51’30’’W, c. 850 m alt., altes Kulturland, auf Zweigen von *Amygdalus communis*, (4), 1. XII. 1991, leg. J. Hafellner 29536 (herb. Hafellner) – to be distributed in Hafellner, Lichenicolous Biota. – **South Africa:** Cape Province, south coast, about 21 km ENE of Pletttenberg Bay, Nature’s Valley, near the bridge over the Grootrivier (road between Bloukrans and the village Nature’s Valley, 34°58’S /23°34’E, coastal forest, (3), 27. XI. 1987, leg. W. Wetschnig & U. Wetschnig (GZU). – **Australasia: Australia:** Queensland, Bunya Mountains, about 56 km NE of Dalby, NE of the J. S. Fisher Lookout, 26°53’S/151°37’E; about 1050 m alt., edge of a subtropical rainforest, on branches of *Acacia* spec., (2), 3. IX.1986, leg. J. Hafellner 18942 & R. Rogers (herb. Hafellner). – Queensland, Bunya Mountains, on the road from the ridge to Maidenwell, 1,8 km NE of the intersection, 26°53’S/151°40’E, about 920 m alt., eucalypt forest, on branches of tall shrub, (2), 3. IX. 1986, leg. J. Hafellner 19718 & R. Rogers (GZU). – Queensland, Great Dividing Range, on the road to Bald Mountain about 7 km NE of Mt. Colliery, E of Warwick, 28°15’S / 152°23’E, c. 1000 m alt., small pocket of remaining rain forest on the ridge, on branches of unnamed

tree, (2), 7. IX. 1986, leg. J. Hafellner 16999 & N. Stevens (GZU). For further collections stored in GZU see Ertz et al. (2015).

Anamorph**: Europe: Italy:** Sardinia, Prov. Sàssari, Mte. Limbara SE von Témpio Pausania, c. 1250–1300 m alt., Granitfelsen, (4), 7. V. 1986, leg. J. Poelt (GZU).

Didymocyrtis slaptoniensis (D.Hawksw.) Hafellner & Ertz in Ertz et al., Fungal Diversity 74: 80 (2015).

≡ *Polycoccum slaptoniensis* D.Hawksw., Lichenologist 26(4): 342 (1994).

Typus: Great Britain, England, South Devon, Slapton, Slapton Ley National Nature Reserve, east end of Duck Marsh near The Causeway, on *Sambucus nigra,* 2. X. 1993, leg. D. L. Hawksworth (IMI 359711–holotype) n.v. Locality data from protologue.

Host of type: *Xanthoria parietina* (th.)

Full descriptions: teleomorph: Hawksworth 1994: 342, Ertz et al. 2015: 80; anamorph: Ertz et al. 2015: 80.

Icon.: Hawksworth 1994: 343, Fig. 3 (drawings of galls, ascoma wall in vertical section, ascus tip, ascospores), Ertz et al. 2008: 46, Fig. 7 (photograph of habit of ascomata), Ertz et al. 2015: 70, Fig. 5j–l (photograph of habit of conidiomata and ascomata, conidia), Hitch 2015: 68 (photograph of habit).

Key characters for identification: Ascospores ± uniseriate, pale brown, 1-septate, (11–)13–15×(5.5–)6–7 µm, with verruculose sculpture and with torus protruding on the outside in semimature spores (torus of mature spores not protruding any further). Conidia ellipsoid to oblong, many somewhat inequilateral, (5–)6–8(–9)×2.5–3.5 µm, with two small guttules near the ends, length-width ratio c. 2 (Ertz et al. 2015).

Notes: 1. The conspecificity of the teleomorph and the anamorph is not yet proven by sequence data, but both fructifications are extremely similar in their appearance (e.g., when developed on the thallus both with peculiar thalline collar). The fruiting bodies of the teleomorph can be distinguished from the *Phoma* anamorph in surface view under the hand lens or dissecting microscope by its size, being about twice as large as the conidiomata. The overall aspect is very similar. Both can occur together on a single thallus or on neighbouring thalli (e.g. Obermayer 13130) and, although not yet proven by molecular data, are likely to constitute teleomorph and anamorph of a pleomorphic ascomycete.

2. The anamorph of *Didymocyrtis slaptoniense* can be separated from the the other *Phoma* anamorphs occurring on *Xanthoria parietina* by its strongly protruding conidiomata obtected by a thalline layer of the host reaching almost up to the ostiole and by its conidia of rather narrow ellipsoidal shape measuring (5–)6–8(–9)×2.5–3.5 µm (sec. Vouaux 4–6×2–3 µm) in diam.

3. The swellings caused by the space-demanding process, when the ascomata develop on the thallus of the host, were called “tuberculiform galls” by Hawksworth (1994). However, these tiny thickenings are not galls in the narrow sense, which, according to the “Dictionary of the Fungi”,

should be a "…deformation that occurs in response to the stimulus of a foreign organism…" and therefore constitute an abnormal outgrowth of host tissues caused by a parasite. We think that in the specific case no growth processes are involved and therefore part of the definition for galls is not fulfilled, as the ascomata remain obtected only by a thin layer of host plectenchyma. This interpretation is also supported by the fact, that no galls are formed when ascomata develop in the hymenia.

4. The hamathecial elements were regarded to be pseudoparaphyses by Hawksworth (1994). However, as we could not prove the formation of filaments growing downwards in young pseudothecia, we prefer to call these elements paraphysoids.

Hosts of the teleomorph: *Xanthoria parietina* (1, T) (th., apothecial margins, more rarely in the hymenia). *Didymocyrtis slaptoniensis* appears to be a specific invader of species belonging to the *Xanthoria parietina* group.

Hosts of the anamorph: *Xanthoria parietina* (1) (th., apothecial margins, more rarely also in the hymenia). Records on other hosts (*Phaeophyscia orbicularis*) are doubtful and may belong to *Didymocyrtis epiphyscia* s.l. (Ertz et al. 2015).

Known distribution and previous records of the teleomorph: The species has so far been reported from the European countries Austria (Berger et al. 2015: 8, Ertz et al. 2015: 80 f.), Belgium (Ertz et al. 2008: 45 f., Ertz et al. 2015: 80 f.), France (Gardiennet 2012: 107, Roux et al. 2014: 911, Ertz et al. 2015: 80 f.), Germany (Brackel 2009: 31, 2014: 281 f., Cezanne & Eichler 2015: 181, Cezanne et al. 2013: 191, Kocourková & Brackel 2005: 6), Great Britain (Hawksworth 1994: 342, Hitch 2015: 68), Italy (Brackel 2008c: 65, 2015: 256), Liechtenstein (Ertz et al. 2015: 80 f.), Luxemburg (Diederich et al. 2014: 163, Ertz et al. 2015: 80 f.), Portugal (Boom & Giralt 2012: 192), and Switzerland (Ertz et al. 2015: 80 f.).

Known distribution and previous records of the anamorph: Under the assumption that records of "*Phoma epiphyscia*" on *Xanthoria parietina* constitute records of the anamorphic state of *Didymocyrtis slaptoniensis* (but see also the treatment of *Didymocyrtis epiphyscia* s.l. by Ertz et al. 2015: 72 f.), it is so far known from the following European countries: Austria (Etayo & Berger 2009: 113 f., Keissler 1930: 541 f. as *Phoma lichenis*; a record which probably refers to *Phoma epiphyscia*), Estonia (Aptroot et al. 2005: 20), France (Vouaux 1914: 197), Germany (Brackel 2007: 14, 2014: 263 f.), Italy (Brackel 2008b: 187 f., 2011: 79, 2015: 254), Spain (Etayo 2010a: 40, 2010b: 318), Sweden (Santesson 1993: 166) and Ukraine (Kondratyuk et al. 2010: 440). From Africa records of *Phoma epiphyscia* that might belong here have already been published from Morocco (Werner 1939: 51) and the Canary Islands (Boom & Clerc 2015: 4).

Exsiccata examined: Hafellner, Lichenicolous Biota no. adhuc ined. (BCN, BR, CANB, E, GZU, LE, M, NY, PRM, UPS).

Further specimens seen:

Teleomorph: **EUROPE**: **Austria**: Kärnten (Carinthia), Zentralalpen, Saualpe W von Wolfsberg, ca. 1 km W von St. Michael an der Straße nach Lading, 46°50'05''N / 14°47'10''E, ca. 550 m, GF 9154/4, Obstbäume in einer Standweide, auf nach einem

Sturm jüngst zu Boden gefallenen, morschen Zweigen von *Juglans regia*, (1), 25. XII. 2010, leg. J. Hafellner no. 76742 (herb. Hafellner). – Niederösterreich (Lower Austria), Wienerwald, am südwestlichen Stadtrand von Mödling, am NE-Fuß des Anninger-Massivs, 48°04'35''N / 16°16'50''E, ca. 275 m, GF 7963/2, einzelne Bäume am Rand eines Weingartens, auf abgestorbenen, jüngst zu Boden gefallenen Kronenästen von *Juglans regia*, (1), 26. X. 2011, leg. J. Hafellner no. 79014 (herb. Hafellner). – Oberösterreich (Upper Austria), Donautal, Engelhartszell, Weichholzau bei Oberranna, 290 m alt., GF 7548, (1), 5. III. 2011, leg. F. Berger no. 25262 (herb. Berger). – Steiermark (Styria), Sausal, Kitzeck ca. 9 km W von Leibnitz, am NW Ortsrand, 46°47'35''N / 15°26'00''E, ca. 480 m, GF 9258/2, alter Obstgarten, an Zweigen von *Juglans regia*, (1), 22. I. 2011, leg. J. Hafellner no. 77058 (herb. Hafellner). For additional specimens already studied and preserved in GZU see Ertz et al. (2015).

Anamorph: **EUROPE**: **France**: Rhône-Alpes, Haute-Savoie, Western Alps, Bornes Massif (Le Massif des Bornes), Burzier NW above Sallanches, SE below the parking area at Route de Doran, 45°57'22''N / 6°36'42''E, elevation c. 935 m, isolated groups of trees at the edge of meadows, on branches in lower canopy of *Fraxinus excelsior*, (1), 17. VIII. 2011, leg. J. Hafellner no. 82565 (GZU).

Taxa excluded from *Didymocyrtis* to be further studied

Polycoccum stellulatae (Vouaux) Hafellner comb. nov. MB 815445

≡ *Didymosphaeria bryonthae* var. *stellulatae* Vouaux, Bull. Soc. Mycol. France 29: 111 (1913).

Typus: [France], "Sur thalle de *Buellia stellulata* à Colombières dans l'Hérault (A. de Crozals)". Type not located. Locality data from protologue.

Host of type: *Buellia stellulata* (th.)

Key characters for identification: [extracted from protologue and own observations]: Ascomata scattered, [not gall inducing], many, usually 1–2 per areole, 100–150 µm in diam., almost completely immersed in the host thallus. Peridium brown, peridial cells 3–5 µm thick, laterally elongated, apically polyedric. Asci narrowly clavate, with 8 spores, apically arranged in 1–2 rows, 62–65 × 10.5–12 µm. Interascal filaments abundant, strongly ramified and with some anastomoses, c. 1 µm in diam. Ascospores ellipsoid to oblong, with rounded ends, lower cell somewhat narrower, olive-brown at first, later brown, 10–15×5–6 µm. No reaction with IKI (Lugol's solution).

Notes: 1. No authentic material is listed to be present in the remnants of the Vouaux herbarium (Rondon 1969), nor for the herbarium NSW where several further Vouaux collections have been detected (Hawksworth & James 1983). As it cannot be excluded that a duplicate was deposited in the Crozals herbarium (PC, TLON, NY), it would be premature to denominate a neotype.

2. Further specimens are mentioned together with the protologue, one on the thallus of *Diploschistes actinostomus* from Hawaii (leg. A. Faurie), another one on thallus of *Rinodina exigua* collected near Dunkerque (leg. B. de Lesdain). These paratypes are unlikely to be conspecific.

3. According to the characters mentioned in the protologue (shape of asci, arrangement of ascospores) and confirmed by own observations on the

specimens cited below, it is evident that the species does not belong to *Didymocyrtis* but to *Polycoccum* s.str.

4. Physciaceae are specially rich in *Polycoccum* species. So far 6 species are distinguished and more to be described. Among those growing on hosts with crustose thalli, beside *Polycoccum stellulatae*, further taxa have been recognized on *Buellia* coll. (*Didymosphaeria echinospora* Faurel & Schotter, *Polycoccum epizoharyi* Calat. & V.Atienza), on *Diplotomma* (*Didymosphaeria microstictica* var. *alboatrae* Vouaux), on *Rinodina* (so far unnamed taxon), and on *Dimelaena* (*Polycoccum evae* Calat. & V.J.Rico). From those known to occur also on *Buellia*, *Didymosphaeria echinospora* can be distinguished by its strongly verrucose ascospores and *Polycoccum epizoharyi* by its ability to induce the formation of galls and its 4-spored asci.

5. As *Buellia stellulata* is a very widely distributed species, also its lichenicolous fungus *Polycoccum stellulatae* can be expected to be present on all continents except Antarctica.

Known distribution and previous records: The species has so far only been recorded from France.

Exsiccata examined: -.

Specimens seen:

SOUTH AMERICA: **Uruguay**: Dpto. Florida, Ruta 41 y Arroyo Sauce de Mansavillagra sobre rocas graníticas en una pradera, on *Buellia stellulata* (th.), 25. II. 1974, leg. H. S. Osorio 7036c (GZU). – **Juan Fernandez Islands** [archipelago belonging to Chile]: Santa Clara, El Morro del Spartán (= Morro de los Alelíes), summit plateau, ca. 10 m, on *Buellia stellulata* (th.), 15. XII. 1965, leg. H. A. Imshaug 38232a (GZU).

Endococcus bryonthae var. … Arnold, Verh. K.-K. Zool.-Bot. Ges. Wien 24: 282 (1874).

Key characters for identification: “apoth. punctiformia, emersa apice non vel vix pertusa, atra; hym. jodo fulvesc., paraph. indistinctae, subnullae, sporae incolores, 1 septatae, hic inde cum 3—4 guttulis rotundis vel subquadratis, elongato oblongae, 0,022—24 Mm. lg., 0,005 Mm. lat., 8 in ascis elongatis” (Arnold 1874b: 282).

Notes: 1. Arnold regarded this fungus as similar to *Didymocyrtis bryonthae* but different on variety level, however he did not formally describe that taxon. He evidently collected it at two localities (both in Austria, one in Nordtirol, the other one in Osttirol) (Arnold 1874b: 282, 1878: 257), both different from the type locality of *Endococcus bryonthae.* The majority of consecutive records of *Polycoccum bryonthae* s.str. refer to these primary data based on a misunderstanding of Arnold’s original text.

2. From the characters given in the description by Arnold (see above) and seen in the revised material, namely colour and size of the ascospores, the fungus belongs to a different ascomycete species of so far unclear relationship.

3. *Pertusaria bryontha* is sometimes (e.g., Aptroot 1995a: 59) erroneously given as host in Arnold, Lich. exs. 615 distributed under the name *Endococcus bryonthae*. See above under *Didymocyrtis bryonthae*!

Exsiccata examined: -.

Further specimens seen:

EUROPE: **Austria**: [Tirol], Brenner in Tirol, Gneisboden ober dem Wilden See bei 7000' [Wiener Fuß], auf *Pertusaria bryontha* (ap.), VIII. 1872, leg. F. Arnold (M). – [Tirol], Osttirol, Windischmatrei in Tirol, am Aufstieg zum Rottenkogel, auf *Pertusaria bryontha* (ap.), VIII. 1876, leg. F. Arnold (M).

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