

Lichenotheca Graecensis, Fasc. 23 (Nos 441–480)

Walter OBERMAYER*

OBERMAYER Walter 2017: Lichenotheca Graecensis, Fasc. 23 (Nos 441–480). - Fritschiana (Graz) 87: 1–13. - ISSN 1024-0306.

Abstract: Fascicle 23 of 'Lichenotheca Graecensis' comprises 40 collections of lichens from the following countries (and administrative subdivisions): Albania, Australia (New South Wales; Norfolk Island; Queensland; Western Australia), Austria (Carinthia; Salzburg; Styria; Upper Austria), Germany (Baden-Württemberg), Greece (Corfu Island), Spain (Mallorca), Switzerland (Canton of Jura), and U.S.A. (Alaska). Isotypes of *Caloplaca dahlii*, *C. norfolkensis*, and *Trapeliopsis granulosa* var. *australis* are distributed. TLC-analyses were carried out for *Chrysothrix candelaris*, *Cladonia rei*, *Hypogymnia physodes* (growing on ground), *Hypotrachyna revoluta* aggregate, *Lepra albescens*, *Lepraria caesioalba*, *L. crassissima* aggregate, *Melanohalea exasperata*, *Parmotrema arnoldii*, *Parmotrema reticulatum* aggregate, *Pycnora sorophora*, *Ramalina capitata*, *R. fraxinea*, and *Trapeliopsis pseudogranulosa*.

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Introduction

The exsiccata series 'Lichenotheca Graecensis' is distributed on exchange basis to the following 19 public herbaria and to one private collection (herbarium abbreviations follow <http://sweetgum.nybg.org/science/ih/>): ASU, B, C, CANB, CANL, E, G, GZU, H, HAL, HMAS, LE, M, MAF, MIN, O, PRA, TNS, UPS, Klaus KALB. A pdf-file of the exsiccata is stored under <https://static.uni-graz.at/fileadmin/nawi-institute/Botanik/Fritschiana/fritschiana-87/lichenotheca-graecensis-23.pdf>. A text version can be found under <https://homepage.uni-graz.at/de/walter.obermayer/publications/lichenotheca-graecensis-textfile-of-all-issues/>. Label texts originally drafted in a local language have been translated into English by the author. The geographical classification system of the European Alps (using the terms 'Western Alps' and 'Eastern Alps') follows a classification used by MARAZZI S. 2005: Atlante orografico delle Alpi. SOIUSA. Suddivisione orografica internazionale unificata del Sistema Alpino. - Priuli & Verluccha (Scarmagno).

I wish to thank the following lichenologists who have made their lichen material available: Franz BERGER (Kopfung; 2 collections), Jack ELIX (Canberra; 6 collections), Josef HAFELLNER (Graz; 8 collections), Helmut MAYRHOFER (Graz; 2 collections), and Roman TÜRK (Salzburg; 12 collections). Philipp RESL and Helmut MAYRHOFER have kindly determined two specimens.

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

GERMANY, Baden-Württemberg, 32 km southwest of the centre of Würzburg, Main-Tauber district, 8.7 km south of the centre of Tauberbischofsheim, 1.4 km northwest of the centre of Königshofen, east facing slope of 'Scheinberg', 49°33'03"N, 009°42'47"E, 285 m above sea level, grid number 6424, on bark of old *Pyrus communis*, 7 February 2017, collected and determined by Roman Türk (57611).

Note: The specimens are partly 'infected' with a *Taeniolella*-like fungus, which is obviously responsible for the disappearance of the greenish pruina of *Alyxoria varia*.

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442. **Asahinea chrysantha** (Tuckerman) 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, 1120 m above sea level, east exposed slopes (with dwarf shrub tundra and low outcrops of siliceous schist), on boulders, 19 August 2010, collected and determined by Josef Hafellner (79890) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

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443. **Baeomyces placophyllus** Acharius

AUSTRIA, Kärnten (=Carinthia), Eastern Alps, High Tauern, Glockner Group, 3.6 km north-northwest of the centre of Heiligenblut, path from the scenic route "Großglockner Hochalpenstraße" to Guttalalm, 47°04'08"N, 012°49'11"E, 1925 m above sea level, grid number 8942/2, subalpine vegetation, on earth (above mica schist), 26 August 2014, collected and determined by Roman Türk (54461).

Note: The specimen in GZU is infected by the lichenicolous lichen *Epilichen scabrosus* (determined by Walter Obermayer).

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444. Caloplaca dahlia Elix, Sergei Kondratyuk & Kärnefelt
[ISOTYPE]

AUSTRALIA, New South Wales, Jimberoo State Forest, Mountain Creek, 11 km north-northeast of Rankins Springs, 33°45'S, 146°19'E, 340 m above sea level, *Callitris* dominated rocky ridge, on dead *Callitris*, 13 June 1990, collected and determined by Jack Elix (25276).

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445. Caloplaca norfolkensis Elix, Sergey Kondratyuk & Kärnefelt - [ISOTYPE]

AUSTRALIA, Norfolk Island, Point Blackbourne Reserve, end of Two Chimneys Road, 29°03'S, 167°55'E, 40 m above sea level, open *Araucaria heterophylla* woodland, on base of *Araucaria*, 4 December 1984, collected and determined by John Elix (16509) & Heinar Streimann.

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446. Chrysothrix candelaris (Linnaeus) Jack Rodney
Laundon

AUSTRIA, Steiermark (=Styria), Eastern Alps, Dachstein Massif (south-facing slopes), 4.4 km northeast of the centre of Schladming, 5 km east of the centre of Ramsau, east-facing slopes of Sattelberg, 640 m south of Lodenwalker, 240 m east of Strimitzen, 47°25'04"N, 013°43'04"E, 1020 m above sea level, grid number 8548/3, forest area with *Abies alba*, *Picea abies*, *Larix decidua*, *Pinus sylvestris*, and *Acer pseudoplatanus*, on bark of *Picea abies* (basal area), 23 February 2013, collected and determined by Walter Obermayer (13008).

Note: TLC (Obermayer551/11, 551/12; specimens in GZU and UPS tested): Pinastric acid, yellow pigment (min., 4-5/4-5/5-6). Specimen in GZU intermixed with *Chaenotheca trichialis*.

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447. Cladonia macroceras (Delise) Ahti

AUSTRIA, Steiermark (=Styria), Eastern Alps, Noric Alps, Seetal Alps, 10 km west-northwest of Obdach, road from Schmelz to Winterleitenhütte, 47°05'45"N, 014°34'40"E, 1650 m above sea level, grid number 8953/1, close to a forestry road in a high montane forest with *Picea abies*, *Larix decidua*, and *Pinus cembra*, on ground (in dense stands), 2 November 2017, collected and determined by Walter Obermayer (13918).

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448. **Cladonia rangiferina** (Linnaeus) Weber ex Friedrich Heinrich Wiggers

AUSTRIA, Steiermark (=Styria), Eastern Alps, Noric Alps, 4.4 km southwest of Neumarkt, Grebenzen, 0.9 km north-northwest of Pöllau, near the road from Pöllau to Zeutschach, 200 m west-northwest of 'Im Toscha', base area of Feichterkogel, 47°02'52"N, 014°22'46"E, 1195 m above sea level, grid number 8952/3, mixed forest (with *Picea abies* and *Larix decidua*) with phyllitic outcrops, on ground, 17 September 2016, collected and determined by Walter Obermayer (13735).

Note: At and below the basal parts of the thalli, a striking (white and slightly yellowish) tomentum of mycorrhizal fungi was developed (separated and preserved in GZU specimen). A potential interaction of ground-inhabiting lichens and mycorrhizal fungi should be investigated.

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449. **Cladonia rei** Schaerer

AUSTRIA, Salzburg, Eastern Alps, Lower Tauern, Pongau region (=St.Johann im Pongau District), 2.3 km north of the centre of Bischofshofen, 2 km south-southeast of Pfarrwerfen, Sinnhub, 47°26'25"N, 013°12'48"E, 540 m above sea level, grid number 8545/3, on rotten wood and debris (on roofing shingles of *Larix decidua*), 16 July 2017, collected by Roman Türk (58198), determined by Helmut Mayrhofer.

Note: TLC (Obermayer551/04; specimen in GZU tested): Homosekikaic acid (maj.), sekikaic acid (tr.), fumarprotocetraric acid (tr.).

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450. **Dirina ceratoniae** (Acharius) Fries

SPAIN, Balearic Islands, Mallorca, Peninsula Formentor, Mirador de la Creueta, 3.4 km northeast of the harbour of Las Palmeras, 39°55'43.8"N, 003°06'37.3"E, 230 m above sea level, isolated *Ephedra* shrubs (along the panoramic path), on *Ephedra fragilis*, 24 July 2014, collected and determined by Helmut Mayrhofer (21623).

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451. **Dirinaria sekikaica** Elix

AUSTRALIA, Queensland, Razorback Range, 3 km northwest of Mount Morgan township, 23°36'40"S, 150°23'25"E, 280 m above sea level, dry sclerophyll forest on steep slope, with *Cycas* and *Macrozamia*, on dead tree, 26 August 1993, collected and determined by John Elix (34647).

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452. **Flavoparmelia kantvilasii** Elix

AUSTRALIA, New South Wales, 72 km east of Armidale, New England National Park, [11 km south-southeast of Ebor], Weeping Rock Track, 30°29'[30]"S, 152°24'[25]"E, 1400 m above sea level, *Nothofagus-Elaeocarpus* dominated forest, at the base of an escarpment, on canopy twigs of *Nothofagus*, 17 August 1993, collected and determined by John Elix (33894).

Note: TLC (Elix): Usnic acid [major], protocetraric acid [major], subvirensic acid [trace].

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453. **Frutidella caesioatra** (Schaerer) Kalb

U.S.A., Alaska, Kenai Peninsula Borough, west of Seward Highway (Alaska Highway 1), 11.8 km north of Quartz Creek Airport, along Devil's Creek Trail, lowermost, south-exposed slopes of Gilpatrick Mountain, 60°35'20"N, 149°42'10"W, 620 m above sea level, boulder scree of siliceous schist (flysch), on saxicolous bryophytes, 29 August 2010, collected by Josef Hafellner (80820) & Lucia Muggia, determined by Josef Hafellner.

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454. **Hypogymnia physodes** (Linnaeus) Nylander

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Stubalpe, 18.2 km west of the centre of Köflach, 2.4 km southwest of Hirscheeggssattel (Salzstiegelhaus), ridge area just west of the summit Speikkogel (1993 m), 47°03'26.5"N, 014°50'29.8"E, 1980 m above sea level, grid number 8955/1, windblown ridge, on ground (amongst remnants [and living individuals] of vascular plants and bryophytes), 21 Oktober 2017, collected and determined by Walter Obermayer (13929).

Note: TLC (Obermayer557/11; specimen in GZU tested): Atranorin, chloroatranorin, physodic acid, oxyphysodic acid, physodalic acid, protocetraric acid. - Windblown ridges above the timberline are often those ecological niches where (normally) tree inhabiting lichens like *Hypogymnia physodes*, *Pseudevernia furfuracea* (both chemotypes), and *Platismatia glauca* occur on the ground. Beside these taxa, the following (partly intermixed) lichens were closely associated: *Alectoria ochroleuca*, *Cetraria islandica* var. *crispiformis*, *Cladonia macroceras*, *Flavocetraria nivalis*, *Thamnolia vermicularis* s.str.

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455. **Hypotrachyna revoluta** [aggregate]

AUSTRIA, Salzburg, Northern Alpine Foreland, Flachgau region (=Salzburg-Umgebung District), 16.4 km northwest of the centre of Salzburg, Köstendorf, 650 m southeast of Weng, western bank of the brook Wallerbach, 47°55'50"N, 013°10'55"E, 510 m above sea level, grid number 8045/3, on small branches and twigs of *Quercus robur* (upper tree top area of a fallen tree), 26 October 2017, collected and determined by Roman Türk (58503).

Note: TLC (Obermayer557/10; specimen in GZU tested): Atranorin (maj.), chloroatranorin (submaj.), gyrophoric acid, two acids of the hiascic acid complex (submaj.). - The following 36 associated species were found (all from the tree top area of the same fallen *Quercus* tree; determined by Roman Türk): *Amandinea punctata*, *Caloplaca obscurella*, *Candelaria concolor*, *Candelariella reflexa*, *C. xanthostigma*, *Catillaria nigroclavata*, *Evernia prunastri*, *Flavoparmelia caperata*, *Hypogymnia physodes*, *H. tubulosa*, *Lecania koerberiana*, *L. naegelii*, *Lecanora chlarotera*, *L. subrugosa*, *Lepra* [*Pertusaria*] *albescens* var. *a.*, *Melanelixia glabrata*, *M. subaurifera*, *Melanohalea exasperatula*, *Normandina pulchella*, *Ochrolechia arborea*, *Phlyctis argena*, *Parmelia saxatilis* agg., *P. sulcata*, *Parmelina pastillifera*, *P. tiliacea*, *Phyeophyscia orbicularis*, *Phlyctis argena*, *Physcia adscendens*, *Ph. dubia*, *Ph. stellaris*, *Ph. tenella*, *Polycauliona polycarpa*, *Pseudevernia furfuracea* var. *f.*, *Punctelia jeckeri*, *P. subrudecta*, *Xanthoria parietina*.

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456. **Lecanora epibryon** (Acharius) Acharius

AUSTRIA, Steiermark (=Styria), Eastern Alps, Noric 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, 2100 m above sea level, grid number 8953/1, small marble outcrops in alpine gap vegetation (with dominant *Saxifraga oppositifolia*), on bryophytes and plant debris, 1 August 2010, collected and determined by Josef Hafellner (75975).

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457. **Lecanora mughicola** Nylander

ALBANIA, Northern Albania, Malësi e Madhe district, Bjeshkët e Nemuna (Prokletije) mountains, between the villages Boga and Theth, slopes just east below the Qafa e Tërthores (Tërthores pass), near the road to Theth, 42°23'10"N, 019°45'00"E, 1600 m above sea level, primary pine-beech forest, on wood of stumps (*Pinus heldreichii*), 14 August 2007, collected and determined by Josef Hafellner (80551) [excursion together with Mauro Tretiach, Lucia Muggia, Massimiliano Piccotto, and Jani Marka].

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458. **Lecidella elaeochroma** [sensu latissimo]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, 'Östliches Grazer Bergland', 5.5 km east-northeast of the centre of Friesach, northeast facing slopes of 'Hohe Rannach', Rannachgraben (ravine-like valley), 880 m northwest of Buchhofer, 47°10'51"N, 015°24'24"E, 590 m above sea level, grid number 8858/1, forest with *Acer pseudoplatanus* and *Fagus sylvatica*, on bark of *Fraxinus excelsior*, 28 December 2016, collected and determined by Walter Obermayer (13748).

Note: All apothecia show strongly inspersed hymenia (thus, formerly named as *L. achristotera*, probably a good taxon) and are partly covered with a bluish-grey pruina (thus, formerly named as *L. laureri*).

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459. **Lepra albescens** (Hudson) Hafellner

[Synonym: *Pertusaria albescens*]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, 'Östliches Grazer Bergland', 1.6 km west-southwest of the centre of Kumberg, valley of the brook 'Kalkbach', 47°09'26"N, 015°30'49"E, 485 m above sea level, grid number 8859/1, edge of a forest, on stem bark of *Alnus glutinosa*, 6 January 2013, collected and determined by Walter Obermayer (12643).

Note: TLC (Obermayer514/10; specimen in GZU tested): Allo-pertusaric acid syndrome (traces of norstictic acid might be caused by contamination). Contrary to the typical soralia in *Lepra albescens* (concave and marginate), part of the present specimens show strongly convex (almost capitate) soralia.

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460. **Lepraria caesioalba** (Bouly de Lesdain) Jack Rodney Laundon

AUSTRIA, Salzburg, Eastern Alps, High Tauern, Pinzgau Region (=Zell am See District), Venediger Group, 15.2 km south-southeast of Oberkrimml, 1.9 km south-east of Innerkeesalm, just below the alpine cabin 'Warnsdorfer Hütte', 47°05'39"N, 012°15'03"E, 2275 m above sea level, grid number 8939/2, alpine vegetation, on bryophytes (above gneissic rocks), 18 July 2015, collected by Roman Türk (55254), determined by Walter Obermayer (2017).

Note: TLC (Obermayer554/08, 555/19, 555/20; specimens in GZU and CANB tested): Atranorin (maj.), [no chloroatranorin], stictic acid complex (incl. menegazziaic acid), fatty acid (maj., most probably angardianic acid).

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461. **Lepraria crassissima** [aggregate]

AUSTRIA, Salzburg, Eastern Alps, High Tauern, Pinzgau Region (=Zell am See District), High Tauern National Park, Glockner Group, valley of the creek Seidl-winklache, 5 km southwest of Wörth, Seidlau-area, 47°10'20"N, 012°55'12"E, 1100 m above sea level, grid number 8843/2, on bryophytes (above siliceous limestone), 25 May 2005, collected by Roman Türk (37551), determined by Walter Obermayer (2017).

Note: TLC (Obermayer554/01, 555/15, 555/16; specimens in GZU, CANB, and UPS tested): Atranorin (min. or traces), zeorin (min.), divaricatic acid (maj.), nordivaricatic acid (min.), unknown UV-orange spot (7/[6-]7/7[-8]). The white, cotton wool like substrate hyphae (below the white medulla) reach deep (up to 1 cm) into the bryophyte cushion and (even there) react C+ red. The occurrence of atranorin in (mostly) notable amounts and the unusual substrate (exclusively on bryophyte cushions) is noteworthy.

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462. **Lichenomphalia hudsoniana** (Jennings) Redhead, Lutzoni, Moncalvo & Vilgalys

AUSTRIA, Steiermark (=Styria), Eastern Alps, Noric Alps, Seetal Alps, 10.8 km southwest of the centre of Judenburg, 350 m southeast of Winterleitenhütte, path to Sabathyhütte, 47°05'31"N, 014°34'25"E, 1770 m above sea level, grid number 8953/1, mixed forest with *Picea abies*, *Pinus cembra* and *Larix decidua*, on bryophytes covering vertical faces of a siliceous rock outcrop (shady conditions), 2 November 2017, collected and determined by Walter Obermayer (13915).

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463. **Masonhalea richardsonii** (Hooker) Kärnefelt

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, 1120 m above sea level, east exposed slopes (with dwarf shrub tundra and low outcrops of siliceous schist), on soil, 19 August 2010, collected and determined by Josef Hafellner (79896) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

Note: All specimens with intermixed fragments of *Alectoria ochroleuca*. Specimen in GZU additionally with thalli of *Thamnolia vermicularis* (UV-) and *Th. subuliformis* (UV-yellow).

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464. Melanohalea exasperata (De Notaris) Oscar Blanco
[and five coauthors]

AUSTRIA, Steiermark (=Styria), Eastern Alps, Lower Tauern, Seckauer Tauern, (Triebener Tauern), 5.5 km southwest of 'Wald am Schoberpass', footpath from Beisteineralm ("Peilsteiner Alm") to Griesmoar Kogel, 47°25'10"N, 014°37'00"E, 1700 m above sea level, grid number 8553/4, loose forest with *Picea abies* and *Larix decidua*, on lower canopy twigs of *Sorbus aucuparia*, 19 February 2012, collected and determined by Josef Hafellner (80815).

Note: TLC (Obermayer551/16; specimen in GZU tested): No lichen substances found.

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465. Menegazzia conica Peter James

AUSTRALIA, New South Wales, 72 km east of Armidale, New England National Park, [11 km south-southeast of Ebor], Weeping Rock Track, 30°29'[30]"S, 152°24'[25]"E, 1400 m above sea level, *Nothofagus-Elaeocarpus* dominated forest, at the base of an escarpment, on canopy twigs of *Nothofagus*, 17 August 1993, collected and determined by Jack Elix (33887).

Note: TLC (Elix): Atranorin [minor], fumarprotocetraric acid [major], quaeisitic acid [minor].

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466. Parmeliella triptophylla (Acharius) Müller-Argoviensis

AUSTRIA, Salzburg, Eastern Alps, Berchtesgaden Alps, Pongau Region (=St. Johann im Pongau District), Hagengebirge, 10.5 km northwest of the centre of Bischofshofen, valley-area of the brook Blühnbach, between Maxlehen and "Schloss Blühnbach", 47°28'38"N, 013°06'46"E, 765 m above sea level, grid number 8544/2, on bark of *Acer pseudoplatanus*, 17 June 2017, collected and determined by Roman Türk (58088).

Note: Partly covered with green sorediate spots of a *Bacidia*-like lichen.

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467. **Parmotrema arnoldii** (Du Rietz) Hale

AUSTRIA, Oberösterreich (=Upper Austria), Eastern Alps, Totes Gebirge, 23 km south-southeast of the centre of Gmunden, at the east shore of the lake Almsee, near Fischerhütte, 47°44'52"N, 013°57'35"E, 595 m above sea level, grid number 8249/4, on *Fraxinus excelsior* (branches of the tree top area), 1 November 2014, collected and determined by Roman Türk (54559).

Note: TLC (Obermayer551/13; specimen in GZU tested): Alecoronic acid, α -collatolic acid, related compound (UV-white, 6-7/5/6), fatty acid (?1/1/?1).

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468. **Parmotrema reticulatum** [aggregate]

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, 5 m above sea level, unutilized old olive grove (70 m away from the beach), on big branches of *Olea europaea* (2.5 m above ground), 17 August 2015, collected and determined by Walter Obermayer (13455).

Note: TLC (Obermayer; specimen in GZU, CANB, and UPS tested): Salazinic acid (maj.), consalazinic acid (maj.), atranorin (maj.), chloroatranorin (either submajor [thallus-parts with a yellowish tinge] or absent [thallus-parts grey]). The specimen in GZU shows some well developed apothecia with a strongly sorediate thallus margin. The whole collection consists of thalli of different morpho(geno-?)types: Some thalli show an upper surface with a relatively strongly developed net of white lines and a partly reticulately cracked cortex, some thalli are almost without these features. Marginal cilia are sometimes well developed, sometimes are almost missing. The lower side can show rhizines reaching the margin, but sometimes a broad marginal zone without rhizines is developed.

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469. **Peltigera didactyla** (Withering) Jack Rodney Laundon

AUSTRIA, Oberösterreich (=Upper Austria), Bohemian Massif, Gneiss and Granite Plateau, Mühlviertel, 2.9 km west of Königswiesen, 1.4 km northeast of Mötlas, Wackelstein, 48°24'37"N, 014°48'06"E, 780 m above sea level, grid number 7554/4, on earth (above granite), 5 June 2014, collected by Roman Türk (54463), Ulrike Ruprecht, and Veronika Pfefferkorn-Dellali, determined by Roman Türk.

Note: As the whole issued material is fertile, the soralia (which are typical for young stages) are sparsely developed or even missing.

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

AUSTRIA, Steiermark (=Styria), Eastern Alps, Noric Alps, Seetal Alps, 9.4 km east-northeast of the centre of Neumarkt, ridge between Wenzelalpe and Kreiskogel, just south of the height notation '2073', 47°05'45"N, 014°32'50"E, 2100 m above sea level, grid number 8953/1, loose vegetation with dominant *Saxifraga oppositifolia* (with low marble outcrops), on lime-rich soil, 1 August 2010, collected and determined by Josef Hafellner (75983).

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471. **Protomicarea limosa** (Acharius) Hafellner

AUSTRIA, Kärnten (=Carinthia), Eastern Alps, High Tauern, Goldberg Group, High Tauern National Park, 7 km northwest of the centre of Mallnitz, path from Tauernkreuz to 'Hagener Hütte', 47°01'22"N, 013°05'32"E, 2300 m above sea level, grid number 8944/4, alpine vegetation, on soil (above mica schist), 30 July 2016, collected and determined by Roman Türk (56664).

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472. **Protopannaria pezizoides** (Weber ex Wiggers) Per Magnus Jørgensen & Stefan Ekman

AUSTRIA, Salzburg, Eastern Alps, High Tauern, Pinzgau Region (=Zell am See District), High Tauern National Park, Venediger Group, valley of the brook Obersulzbach, path to Berndlalm, 47°11'44"N, 012°15'33"E, 1280 m above sea level, grid number 8839/2, on bryophytes (above gneissic rocks in shady and humid conditions), 26 June 2015, collected by Roman Türk (55424), Franz Berger & Erich Zimmermann, determined by Roman Türk.

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473. **Pycnora sorophora** (Vainio) Hafellner

AUSTRIA, Oberösterreich (=Upper Austria), Gneiss and Granite Plateau, Innviertel, Schärding district, St.Ägidi, Flenkental 6, farmstead "Stuhlberger", 48°30'01"N, 013°43'10"E, 560 m above sea level, grid number 7448/3, on spruce boards of an old barn, 4 June 2016, collected and determined by Franz Berger (30916).

Note: TLC (Obermayer557/15; specimen in GZU tested): Alectorialic acid (maj.), barbatolic acid (?; in A just below stictic acid, in B at height of zeorin, in C at height of stictic acid), unknowns.

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474. **Ramalina capitata** (Acharius) Nylander

AUSTRIA, Steiermark (=Styria), Eastern Alps, Styrian Fringe Mountains, Stubalpe, 18.5 km west of the centre of Köflach, 2.6 km southwest of Hirscheeggarsattel (Salzstiegelhaus), south facing slopes of Speikkogel, 47°03'22"N, 014°50'30"E, 1950 m above sea level, grid number 8955/1, alpine vegetation with siliceous boulders, on top of a small boulder (manured by birds), 14 August 2016, collected and determined by Walter Obermayer (13724).

Note: TLC (Obermayer557/14; specimen in GZU tested): Usnic acid only.

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475. **Ramalina fraxinea** (Linnaeus) Acharius

SWITZERLAND, Canton of Jura, municipality Les Bois, 1.6 km west of the village Les Bois, Cerneux Godat, 47°10'48"N, 006°53'03"E, 930 m above sea level, solitary tree, on treetop twigs of a felled *Tilia cordata*, 8 April 2015, collected and determined by Franz Berger & Erich Zimmermann (without collector number).

Note: TLC (Obermayer554/03; specimen in GZU tested): Usnic acid (tr.). - Partly with very big apothecia (up to 1.6 cm in diameter).

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476. **Ramboldia elabens** (Fries) Kantvilas & Elix

AUSTRIA, Salzburg, Eastern Alps, Lower Tauern, Lungau Region (=Tamsweg District), 8.3 km northeast of Tamsweg, Überling-Sonnseite, Überlingmoos, 47°10'05"N, 013°54'15"E, 1725 m above sea level, grid number 8849/1, on wooden shingles (made of *Larix decidua*) of a hayrick, 3 July 2006, collected and determined by Roman Türk (39669).

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477. **Rinodina oleae** Baglietto

SPAIN, Balearic Islands, Mallorca, Cala Sa Nau northeast of Cala d'Or, 39°23'34.65"N, 003°14'50.9"E, 5 m above sea level, *Olea europaea* bush forest above rocky coast, on bark of *Olea europaea*, 21 July 2014, collected and determined by Helmut Mayrhofer (21624).

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478. *Trapeliopsis granulosa* (Hoffmann) Lumbsch
var. *australis* Elix
[ISOTYPE]

AUSTRALIA, Western Australia, Mount Chudalup, 17 km south-southeast of Northcliffe, 34°46'S, 116°05'E, 165 m above sea level, mixed *Eucalyptus* forest at base of large rocky outcrops, on base of *Eucalyptus*, 14 September 1994, collected and determined by Jack Elix (41223).

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479. *Trapeliopsis pseudogranulosa* Coppins & Peter James

AUSTRIA, Steiermark (=Styria), Southeastern Alpine Foreland, 'Oststeirisches Riedelland', 6.7 km northeast of the centre of Graz, along the road from Stifting via Rohrbach to Schillingsdorf, 47°06'07"N, 15°31'20"E, 455 m above sea level, grid number 8859/3, inside a mixed forest (rather shady conditions), on stem bark of a dead *Populus tremula* (from the base to about 1 m height), 29 March 2015, collected by Walter Obermayer (13351), determined by Philipp Resl.

Note: TLC (Obermayer513/05, 513/06; specimen in GZU tested): Gyrophoric acid (partly in very low concentration). The typical, in part patchily orange pigmented areas are developed on only a few thalli in a few specimens. Contrary to the information in 'The Lichens of Great Britain and Ireland' (2009: 910), the soralia are strongly light green under UV-light.

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480. *Vulpicida tilesii* (Acharius) Jan-Erik Mattsson & Ming-Jou Lai [in a strict sense]

U.S.A., Alaska, North Slope Borough, Brooks Range, Philip Smith Mountains, east of Galbraith Lake, west-facing slopes of a hill south of Atigun River 2, 68°26'50"N, 149°21'10"W, 900 m above sea level, inclined banks of siliceous rocks with variable content of calcium (in arctic tundra), on soil, 20 August 2010, collected and determined by Josef Hafellner (80031) [excursion together with Toby Spribille, Lucia Muggia, and Celia Hampton-Miller].

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