F. Schumm (2025):

Images of Lichens Vol. 28
Vezda Lichenes Rariores Exsiccati part 3

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A. Vezda published two important exsiccati works: "Lichenes Rariores Exsiccati" and "Lichenes Selecti Exsiccati".
In this book, I continue the illustrations of lichen species from Vezda's Lichenes Rariores. The images are arranged alphabetically, using the names assigned by Vezda. However, the most recent names according to the Index Fungorum are also given, and I have added descriptions from the literature.
In this book I try to depict with macro photos what was distributed in my copy of "Lichenes Rariores". The pages start with the synonyms, than the copy of the labels with collector and determinator. Than I append descriptions of the species . The numbers in [..] are the numbers of the bags in my private lichen herbarium F. Schumm in Wangen out of which the images are taken.

For the descriptions I consulted
Awasthi, DD. (1991): A key to the Microlichens of India, Nepal and Sri Lanka. - Bibliotheca Lichenologica Band 40.
Lücking, R. (2008): Fl. Neotrop. Monogr. 103.

For the descriptions I consulted and used mainly the excellent descriptions that are provided in Prof. Nimis ITALIC 8 under the URL:
https://italic.units.it/

and the Australian Lichenslist under the Url:
https://www.anbg.gov.au/abrs/lichenlist/lichenchecklist_e_o.html

F. Schumm, 08.2025

Dimerella minima (Müll. Arg.) R. Sant., Symb. bot. upsal. 12(no. 1): 393 (1952)

= *Coenogonium minimum* (Müll. Arg.) Lücking, Fl. Neotrop., Monogr. 103: 572 (2008)

= *Biatorinopsis minima* Müll. Arg., Bull. Soc. R. Bot. Belg. 30(no. 1): 74 (1891)

= *Microphiale minima* (Müll. Arg.) Zahlbr., Cat. Lich. Univers. 2: 700 (1924)

[VZR237}, Dominica (Antilles Minores): Northern Forest Reserve, ad latera occid. montis "Marne Diablatins", 600 m. In pluviisilva, foliicola. Leg. A. Vězda. 21.7.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 237.

Thallus continuous, thin, smooth, green. Photobiont cells angular-rounded, in irregular plates or short threads. Apothecia sessile, rounded, 0.1–0.15 mm diam. and 60–80 µm high; disc strongly concave, yellowish brown and usually slightly translucent; margin distinct, strongly prominent, smooth, of same color as disc. Excipulum 15-20 µm broad, colorless to pale yellowish brown. Hypothecium 5-10 µm high, colorless. Hymenium 40-55 µm high, colorless. Asci 40-50 x 5-7 µm. Ascospores irregularly biseriate, ellipsoid-fusiform, 1-septate, 10-14 x 3-4 µm , 3-4 times as long as broad. Pycnidia not observed. Chemistry: not tested. Distribution and Ecology. Neotropics, apparently restricted to Central America and the Caribbean (reported in Vezda, Lich. Rar. Exs. 237). - This species is characterized by its rather small, strongly urceolate, brown and usually slightly translucent apothecia, in combination with rather large ascospores. Other species of the genus with similar, small apothecia, such as *Coenogonium lisowskii*, have wax-colored, opaque apothecia and distinctly smaller ascospores.

Dimerella minima

Dimerella minima

Dimerella pineti (Ach.) Vězda, Lichenes Selecti Exsiccati, Fasc. (Průhonice) 52: 5 (no. 1279) (1975)
= *Coenogonium pineti* (Ach.) Lücking & Lumbsch, in Lücking, Stuart & Lumbsch, Mycologia 96(2): 290 (2004)=
= *Belonidium piceae* (Henn.) Boud., Hist. Class. Discom. Eur. (Paris): 117 (1907)
= Belonium piceae Henn., Hedwigia 43(2): 71 (1904)
= *Biatora pineti* (Ach.) Fr., K. svenska Vetensk-Akad. Handl., ser. 3: 271 (1822)
= *Biatora vernalis* f. *pineti* (Ach.) Fr., Lich. eur. reform. (Lund): 261 (1831)
= *Biatora vernalis* var. *pineti* (Ach.) Tuck., Enum. N. America Lich.: 53 (1845)
= *Biatorina diluta* (Pers.) Th. Fr., Lich. arct. (Uppsala): 185 (1860)
= *Biatorina pineti* (Ach.) A. Massal., Ric. auton. lich. crost. (Verona): 135 (1852)
= *Biatorinopsis diluta* (Pers.) Müll. Arg., Flora, Regensburg 64(7): 102 (1881)
= *Bilimbia pineti* (Ach.) Branth & Rostr., Bot. Tidsskr. 3: 225 (1869)
= *Cistella piceae* (Henn.) Dennis, British Ascomycetes: 157 (1968)
= *Dimerella diluta* (Pers.) Trevis., Rc. Ist. Lomb., Milano, ser. 2 13: 66 (1880)
= *Gyalecta diluta* (Pers.) Blomb. & Forssell, Enum. Pl. Scand.: 101 (1880)
= *Gyalecta pineti* (Ach.) Tuck., Gen. lich. (Amherst): 131 (1872)
= *Lecidea diluta* (Pers.) Leight., Lich.-Fl. Great Brit., Edn 3: 343 (1879)
= *Lecidea pineti* Ach., Lich. Univ.: 195 (1810)
= *Lecidea vernalis* var. *pineti* (Ach.) Link, Grundr. Krauterk. 3: 201 (1833)
= *Lichen peltatus* * *pineti* (Ach.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 389 (1813)
= *Lichen pineti* Schrad. ex Ach., Lich. Univ.: 195 (1810)
= *Microphiale diluta* (Pers.) Zahlbr., Annln K. K. naturh. Hofmus. Wien 19: 413 (1904)
= *Niptera taxi* Rea, Trans. Br. mycol. Soc. 7(1-2): 60 (1921)
= *Patellaria pineti* (Ach.) Spreng., Syst. veg., Edn 16 4(1): 267 (1827)
= *Peziza diluta* Pers., Syn. meth. fung. (Göttingen) 2: 668 (1801)
= *Secoliga diluta* (Pers.) Arnold, Flora, Regensburg 67(22): 414 (1884)
= *Sporoblastia diluta* (Pers.) Trevis., Linnaea 28: 291 (1857) [1856]

[VZR198], Polonia. Pomerania, reservatum naturae "Stowonski National Park", ad corticem *Vaccinii myrtilli*. Leg. J. Miadlikowska. Ex A. Vězda; Lichenes Rariores Exsiccati Nr.198.

Thallus crustose, thinly episubstratic, continuous, smooth to finely granulose, dark green or grey-green, sometimes evanescent. Apothecia biatorine, 0.1-0.4(-0.5) mm across, sessile, round, slightly constricted at base, with a concave to flat, whitish to cream-coloured disc (turning yellowish or pinkish in the herbarium) and a thin, smooth, persistent proper margin. Proper exciple well-developed, paraplectenchymatous, composed of globose to angular cells with an outer layer of weakly vertically oriented hyphae; hymenium colourless, 70-90 µm high, I+ blue, then rapidly dirty green and finally red-brown, K/I+ blue; paraphyses simple or sparingly branched in upper part, 1-2 µm thick at mid-level, the apical cells c. 4 µm wide; hypothecium colourless. Asci 8-spored, subcylindrical-clavate, the wall thin, K/I+ blue, the apex slightly thickened to give an amyloid ring around the pore, approaching the Catillaria-type. Ascospores 1-septate, hyaline, fusiform to ellipsoid, 9-13(-15) x 2-3.5(-4.5) µm. Pycnidia more or less immersed, hemispherical, 0.1-0.2 mm across, the wall colourless. Conidia oblong, 6-7(-8) x 1.8-2.8 µm, often constricted in the middle. Photobiont trentepohlioid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a probably holarctic lichen, most common on acid bark, both of conifers and of broad-leaved trees, below the subalpine belt; certainly widespread.

Dimerella pineti

Dimerella pineti

Dimerella queenslandica Kalb & Vězda, in Vězda & Kalb, Nova Hedwigia 53(1-2): 218 (1991)

= *Coenogonium queenslandicum* (Kalb & Vězda) Lücking, Lichenologist 33(3): 201 (2001)

[VZR104], Nova Zelandia. South Island, Nelson, York Valley, Matai track, 200 m, ad folia arborum (*Alectryon excelsus*, Leg. W. Malcolm , 9.10.1993. Det. A. Vězda: EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR.104.

Thallus epiphyllous, thin yellow-grey, continuous opaque, prothallus indistinct but thalli well delimited, to 1 cm diam.. 0.1-0.15 mm tall, -± perstistently plane, yellow brown (yellowish orange, margins indistincrt Exciple moderately thick. hymenium hyaline to 45 µm tall. Paraphses 1-1.5 µm diam. apices capitate swollen to 3-4 µm. diam. Ascospores biseridiate, 6.5-7.5 x 1.8-3 µm. Pycnidia immersed in thallus, 0.2-0.3 mm diam., verrusiform, ostiole punctiform. Conidia cylindrical, 2-2.2 x 0.5-0.7 µm.

Dimerella queenslandica

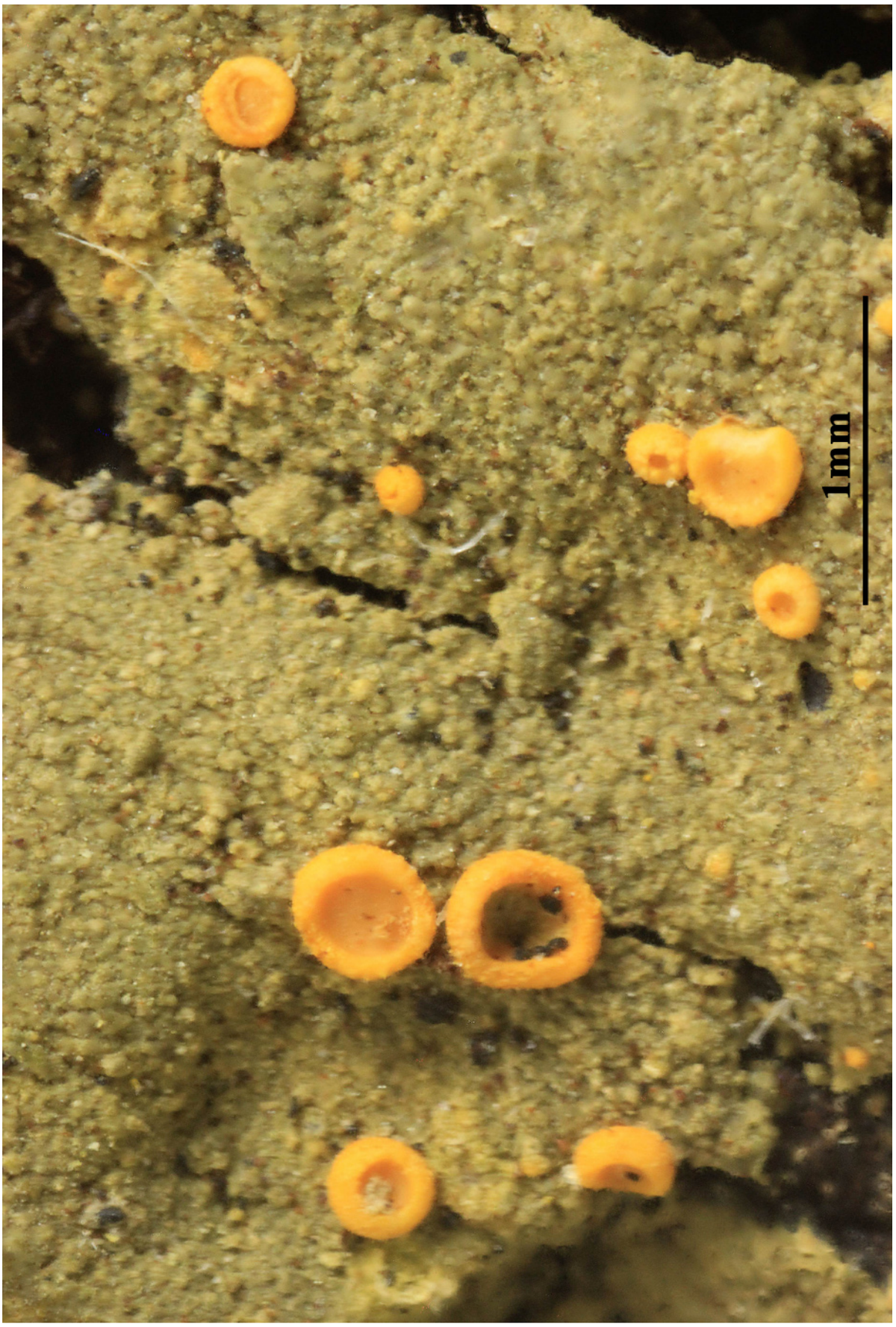
Dimerella subdentata Vězda & G. Thor, in Vězda, Lichenes Selecti Exsiccati, Fascicle 94 (nos 2326-2350) (Průhonice): 3 (no. 2333) (1989)

= *Coenogonium subdentatum* (Vězda & G. Thor) Rivas Plata, Lücking, L. Umaña & Chaves, in Rivas Plata, Lücking, Aptroot, Sipman, Chaves, Umaña & Lizano, Fungal Diversity 23: 298 (2006)

[VZR263], Australia. Queenslandia. Cape Tribulation, 20 km ad septentriones a Mossman, 16°05' orient., 145°33' occid., 5-20 m. In pluviisilva cum *Rhizophora stylosa*, ad sporocarpia vetusta *Polyspori* sp. Leg. K.& A. Kalb, 5.9.1992. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 263.

Disc pale yellow-brown; margin denticulate; ascospores uniseriate, 6-9 µm long. Neotropics, eastern Palaeotropics, Australia.

Dimerella subdentata



Dimerella subdentata

Diploschistes cinereocaesius (Sw.) Vain., Ann. Acad. Sci. fenn., Ser. A 15(no. 6): 172 (1921)
= *Diploschistes scruposus var. cinereocaesius* (Sw.) Müll. Arg., Bull. Soc. R. Bot. Belg. 32(no. 1): 136 (1893)
= *Lagerheimina cinereocaesia* (Sw.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lichen cinereocaesius* Sw., in Acharius, Lich. suec. prodr. (Linköping): 34 (1799) [1798]
= *Urceolaria cinereocaesia* (Sw.) Ach. [as 'cinereo-caesia'], Methodus, Sectio prior (Stockholmiæ): 148 (1803)
= *Urceolaria scruposa var. cinereocaesia* (Sw.) Müll. Arg., Revue mycol., Toulouse 10(no. 37): 3 (1888)

[VZR153], Venezuela. Mérida: Mucubají, prope lacum dictum Mucobají, inter Apartodero et Santo Domingo, in vegentatione montana "paramo" dicta, 3230 m. Ad terram. Leg. W. L. Culberson (no. 21048)) & C. F. Culberson, 19.08.1989. - Lecanoric acid by TLC, anal. A. Johnson and C. F. Culberson. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 153.

Thallus crustose, uniform, adnate, continuose to rimose areolate or verrucose, opaque, yellowish grey to whitish, epruinose. Areoles 0.3 - 1 mm in diam., verrucose. Algae belonging to the genus Trebouxia. Apothecia sessile, apothecioid, disc blackish, epruinose or bluish pruinose, up to 3.6 mm in diam., often composed. Excipulum proprium blackish, up to 140 µm thick, pseudoparenchymatous. Hymenium 90 - 120 µm high. Hypothecium 14 - 18 µm high, hyalinc. Paraphyses 1 - 1.5 µm thick, simple and lax. Asci cylindrical, 80 - 100 x 15 - 40 µm, 4 - 8 spored. Ascospores hyaline to brown, muriform, ellipsoid, 3 - 5 transverse septa, | - 2 longitudinal septa, 18 - 31 x 9 - 15 µm, I-. Chemuistry: major substance: lecanoric acid; minor substances: diploschistesic and orsellinic acids. - *D. cinereocaesius* is easily recognized by its yellowish to yellowish brown thallus and the relatively large, often composite apothecia. In South Africa all saxicolous specimens could be identified as *D. cinereocaesius*.

Diploschistes cinereocaesius

Diploschistes cinereocaesius

Diploschistes cinereocaesius (Sw.) Vain., Ann. Acad. Sci. fenn., Ser. A 15(no. 6): 172 (1921)
= *Diploschistes scruposus var. cinereocaesius* (Sw.) Müll. Arg., Bull. Soc. R. Bot. Belg. 32(no. 1): 136 (1893)
= *Lagerheimina cinereocaesia* (Sw.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lichen cinereocaesius* Sw., in Acharius, Lich. suec. prodr. (Linköping): 34 (1799) [1798]
= *Urceolaria cinereocaesia* (Sw.) Ach. [as 'cinereo-caesia'], Methodus, Sectio prior (Stockholmiæ): 148 (1803)
= *Urceolaria scruposa var. cinereocaesia* (Sw.) Müll. Arg., Revue mycol., Toulouse 10(no. 37): 3 (1888)

[VZR27], Aequatoria. Pichincha, reservatum "Parque National de Cotopaxi", in latere septentrionali montis ignivomi Cotopaxi, 4100 m. Ad terram apricam. Leg. W. L. Culberson & C. F. Culberson (no. 0255), 22.08.1987. Ex A. VěZDA: Lichenes Rariores Exsiccati Nr. 27.

Thallus crustose, uniform, adnate, continuose to rimose areolate or verrucose, opaque, yellowish grey to whitish, epruinose. Areoles 0.3 - 1 mm in diam., verrucose. Algae belonging to the genus Trebouxia. Apothecia sessile, apothecioid, disc blackish, epruinose or bluish pruinose, up to 3.6 mm in diam., often composed. Excipulum proprium blackish, up to 140 µm thick, pseudoparenchymatous. Hymenium 90 - 120 µm high. Hypothecium 14 - 18 µm high, hyalinc. Paraphyses 1 - 1.5 µm thick, simple and lax. Asci cylindrical, 80 - 100 x 15 - 40 µm, 4 - 8 spored. Ascospores hyaline to brown, muriform, ellipsoid, 3 - 5 transverse septa, | - 2 longitudinal septa, 18 - 31 x 9 - 15 µm, I-. Chemuistry: major substance: lecanoric acid; minor substances: diploschistesic and orsellinic acids. - *D. cinereocaesius* is casily recognized by its yellowish to yellowish brown thallus and the relatively large, often composite apothecia. In South Africa all saxicolous specimens could be identified as *D. cinereocaesius.*

Diploschistes cinereocaesius

Diploschistes cinereocaesius

Diploschistes diacapsis (Ach.) Lumbsch, Lichenologist 20(1): 20 (1988)
= *Diploschistes diacapsis* subsp. *interpediens* (Nyl.) Clauzade & Cl. Roux, Bull. Soc. linn. Provence 40: 86 (1989)
= *Diploschistes diacapsis* subsp. *interpediens* (Nyl.) Cl. Roux, in Roux, Coste, Masson & Bauvet, Bull. Soc. linn. Provence 57: 83 (2006)
= *Diploschistes gypsaceus* subsp. *interpediens* (Nyl.) Clauzade & Cl. Roux, Bull. Soc. bot. Centre-Ouest, Nouv. sér., num. spec. 7: 355 (1985)
= *Lecanora diacapsis* (Ach.) Lumbsch, Lichenologist 20(1): 20 (1988)
= *Lecanora scruposa* var. *diacapsis* (Ach.) Nyl., Mém. Soc. Sci. nat. Cherbourg 2: 313 (1854)
= *Parmelia scruposa* var. *diacapsis* (Ach.) Fr., Lich. eur. reform. (Lund): 192 (1831)
= *Urceolaria diacapsis* Ach., Lich. Univ.: 339 (1810)
= *Urceolaria scruposa* var. *diacapsis* (Ach.) Nyl., Enum. critic. lich. europ. (Bern): 90 (1850)
= *Urceolaria scruposa* var. *interpediens* (Nyl.) Boistel, Nouv. Fl. Lich. (Paris) 2: 165 (1903)

[VZR376], Italia. Calabria. Montalto Uffogo, loco "Mavigliano dicto", 210 m. Ad terram siliceam. Leg. D. Puntillo, 28.01.1998, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 376.

Thallus crustose, episubstratic, rimose- to verrucose-areolate, whitish to grey, consisting of irregularly angular, 0.5-2.5 mm wide and 1-3 mm thick, flat to convex, dull, usually pruinose areoles. Epinecral layer to c. 50 µm thick; algal layer continuous, well developed; medulla white, with scattered, small calcium oxalate crystals, I- or rarely I+ blue. Apothecia lecanorine, urceolate, semi-immersed to sessile, up to 2.5 mm across, with a black, but often slightly grey-pruinose, concave disc, and a thick thalline margin. Proper exciple blackish brown, 60-80 µm wide laterally, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 110-180 µm high, non amyloid; paraphyses simple, flexuose, 1-2 µm thick, the apical cells not swollen; hypothecium brown, c. 15 m high. Asci (4-)8-spored, narrowly clavate to subcylindrical, the wall evenly thickened when mature, the somewhat abrupt apical thickening with a thin, internal apical beak, lacking any apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 3-6 transverse and 1-2 longitudinal septa, at first hyaline then turning brown, broadly ellipsoid, 20-38(-40) x 9-17 µm; Pycnidia black, immersed in thallus, hyaline to brownish, cerebriform. Conidia bacilliform, 4-6 x 1-1.5 µm.

Photobiont chlorococcoid. Spot tests: K- or K+ yellow to red, C+ red, KC- or KC+ red, P-, UV-. Chemistry: diploschistesic and lecanoric acids (both major) and orsellinic acid (minor). - Note: a widespread species of arid grasslands, found on calciferous or base-rich soil, especially on gypsum, in open, dry situations.

Diploschistes diacapsis

Diploschistes diacapsis

Diplotomma alboatrum (Hoffm.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 130 (1850) [1849]
= *Abacina alboatra* (Hoffm.) Norman, Conat. Praem. Gen. Lich.: 24 (1852)
= *Buellia alboatra* (Hoffm.) Th. Fr., Gen. Heterolich. Eur.: 91 (1861)
= *Buellia alboatra* f. *corticola* Th. Fr., Lich. Scand. (Upsaliae)(2): 609 (1874)
= *Buellia alboatra* var. *corticola* H. Olivier, Expos. Lich. Ouest France, Suppl. 2: 157 (1901)
= *Diplotomma alboatrum* var. *corticola* Flot. [as 'corticolum'], Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 130 (1850) [1849]
= *Lecanora alboatra* (Hoffm.) Nyl., Bull. Soc. linn. Normandie, sér. 2 6(2): 280 (1873) [1872]
= *Lecidea alboatra* (Hoffm.) Chevall., Fl. gén. env. Paris (Paris) 1: 572 (1826)
= *Lecidea alboatra* f. *corticola* Bosch, Prodr. fl. Batav., Fungi: 153 (1853)
= *Lecidea alboatra* var. *corticola* Schaer., Lich. helv. spicil. 3: 140 (1828)
= *Lecidea corticola* (Ach.) Ach., Methodus, Sectio prior (Stockholmiæ): 53 (1803)
= *Lecidea soreumidia* Stirt., Scott. Natural. 4: 28 (1878) [1877-78]
= *Lichen alboater* Hoffm., Enum. Lich. Icon. Descirpt. Illustr.: 30 (1784)
= *Lichen corticola* Ach., K. Vetensk-Acad. Nya Handl. 16(3): 137 (1795)
= *Patellaria corticola* DC., in Lamarck & de Candolle, Fl. franç., Edn 3 (Paris) 2: 353 (1805)
= *Patellaria epipolia* var. *corticola* Wallr., Fl. crypt. Germ. (Norimbergae) 1: 363 (1831)
= *Rhizocarpon alboatrum* (Hoffm.) Anzi, Cat. Lich. Sondr.: 92 (1860)
= *Rhizocarpon alboatrum* var. *corticola* Anzi [as 'corticolum'], Cat. Lich. Sondr.: 92 (1860)
= *Rhizocarpon soreumidium* (Stirt.) A.L. Sm., Monogr. Brit. Lich. 2: 190 (1911)
= *Verrucaria alboatra* (Hoffm.) Hoffm. [as 'albo-atra'], Descr. Adumb. Plant. Lich. 1(3): 76 (1790)

[VZR213], Turcia. Distr. Antalya, Kasa transitus Sinekcibeli Geçidi in montibus Akdaglari, 1500 m. Ad lignum trunci (*Juniperus* sp.). Leg. A. Vězda, 11.4.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 213.

Thallus crustose, episubstratic, pale grey, epruinose, forming up to 2 cm wide patches, smooth or rimose, without a distinct prothallus. Cortex colourless, indistinctly paraplectenchymatous; medulla white, I-. Apothecia lecideine, black, 0.2-1.3(-1.5) mm across, immersed to subsessile, with a flat to convex, often pruinose disc, a thin sometimes

excluded proper margin, and sometimes a pseudothalline margin in young apothecia. Proper exciple thin, brown in outer part, colourless to pale brown in inner part, of radiating hyphae; epithecium brown; hymenium colourless, 45-75 µm high, K/I+ blue; paraphyses simple, c. 2 µm thick at mid-level, the apical cells slightly capitate, up to 3 µm wide; hypothecium brown. Asci 8-spored, clavate to cylindrical-clavate, the apical dome K/I+ dark blue with a pale, conical-pointed apical cushion (axial mass), the wall I-, but the thin outer gel I+ blue, approaching the Bacidia-type. Ascospores at first 3-septate, then most often submuriform, brown, ellipsoid, sometimes slightly curved, thick-walled, (11-)13-20(-25) x (6-)8-10(-15) µm. Pycnidia rare, immersed, the wall brown in upper part, colourless in lower part. Conidia ellipsoid. Photobiont chlorococcoid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mild-temperate to southern boreal-montane lichen found on bark and on base-rich or slightly calciferous rocks, brick, roofing tiles etc., below the subalpine belt.

Diplotomma alboatrum

Diplotomma alboatrum

Diplotomma alboatrum

Dirina ceratoniae (Ach.) Fr., Lich. eur. reform. (Lund): 194 (1831)
= *Dirina repanda* Fr., Syst. orb. veg. (Lundae): 244 (1825)
= *Dirina repanda* var. *ceratoniae* (Ach.) Stizenb., Ber. Tät. St Gall. naturw. Ges.: 240 (1890) [1888-89]
= *Lecania ceratoniae* (Ach.) Stizenb.=
= *Lecanora ceratoniae* Ach., Lich. Univ.: 361 (1810)
= *Lichen peltatus* * *ceratoniae* (Ach.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 393 (1813)
= *Parmelia ceratoniae* (Ach.) Spreng., Syst. veg., Edn 16 4(1): 299 (1827)
= *Patellaria repanda* (Fr.) Hepp, Flecht. Europ.: no. 408 (1857)
= *Patellaria repanda* var. *ceratoniae* (Ach.) Hepp, Flecht. Europ.: no. 408 (1857)
= *Secoliga repanda* (Fr.) Norman, Conat. Praem. Gen. Lich.: 19 (1852)
= *Urceolaria repanda* (Fr.) Schaer., Enum. critic. lich. europ. (Bern): 92 (1850)

[VZR85], Maroccanum Regnum. Haut-Atlas: 25 km ad septentriones versus ab Agadir, secus viam ad Imouzzer-Ida-Outanane. In ramulis ramisque emortuis arboris vetustae (*Argania sideroxylon*). Leg. W. L. Culberson (no. 22253) and C. F. Culberson, 3.5.1993.- Acetylportentol, erxthrin and trace of lecanoric acid by TLC, anal. from J. Johnson & C. F. Culberson. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 85.

Thallus crustose, episubstratic, continuous to rimose-areolate, smooth to verruculose, creamy white, greenish white or pale pinkish brown, sometimes slightly pruinose, 0.1-1.5 mm thick, often delimited by a whitish prothallus. Cortex 40-60 µm thick, with anticlinally arranged, colourless hyphae immersed in a pale yellow-brown gelatinous matrix, without crystals; medulla chalk-white, with loose, sometimes almost byssoid hyphae near the substratum. Apothecia lecanorine, sessile, constricted at base, round to angular in outline, 0.5-4 mm across, with a dark-grey to grey-black, but usually densely white-pruinose disc, and a thick, often wavy proper margin. Proper exciple inconspicuous; epithecium brownish, with crystals visible under polarized light; hymenium colourless, often interrupted by thin, vertical, dark hyphal strands; paraphysoids unbranched or sparsely branched, 1-2 µm thick, the apical cells 2-3 µm wide; hypothecium thick, black. Asci 8-spored, clavate, bitunicate, the apex thickened with a small internal K/I+ blue ring. Ascospores 3-septate, hyaline, fusiform, straight or slightly curved, 21-26 x 4-5 µm. Pycnidia black, immersed or slightly protruding.

Conidia thread-like, sickle-shaped. Photobiont trentepohlioid. Spot tests: thallus K- C+ red, KC+ red, P-, UV-; medulla C-; apothecial disc C+ faintly red or C-. Chemistry: erythrin, lecanoric acid, plus an unidentified substance. - Note: *D. ceratoniae* and *D. massiliensis* have been extensively studied from the molecular point of view, with numerous samples taken all over their respective distribution areas (Tehler & al. 2013). This showed that *D. ceratoniae* is not only corticolous, but quite frequently saxicolous as well. Mostly, the saxicolous specimens can be morphologically distinguished from the strictly saxicolous *D. massiliensis*. However, there are cases where saxicolous specimens of the two species are virtually indistinguishable without DNA data (Tehler in litt.).

Dirina ceratoniae

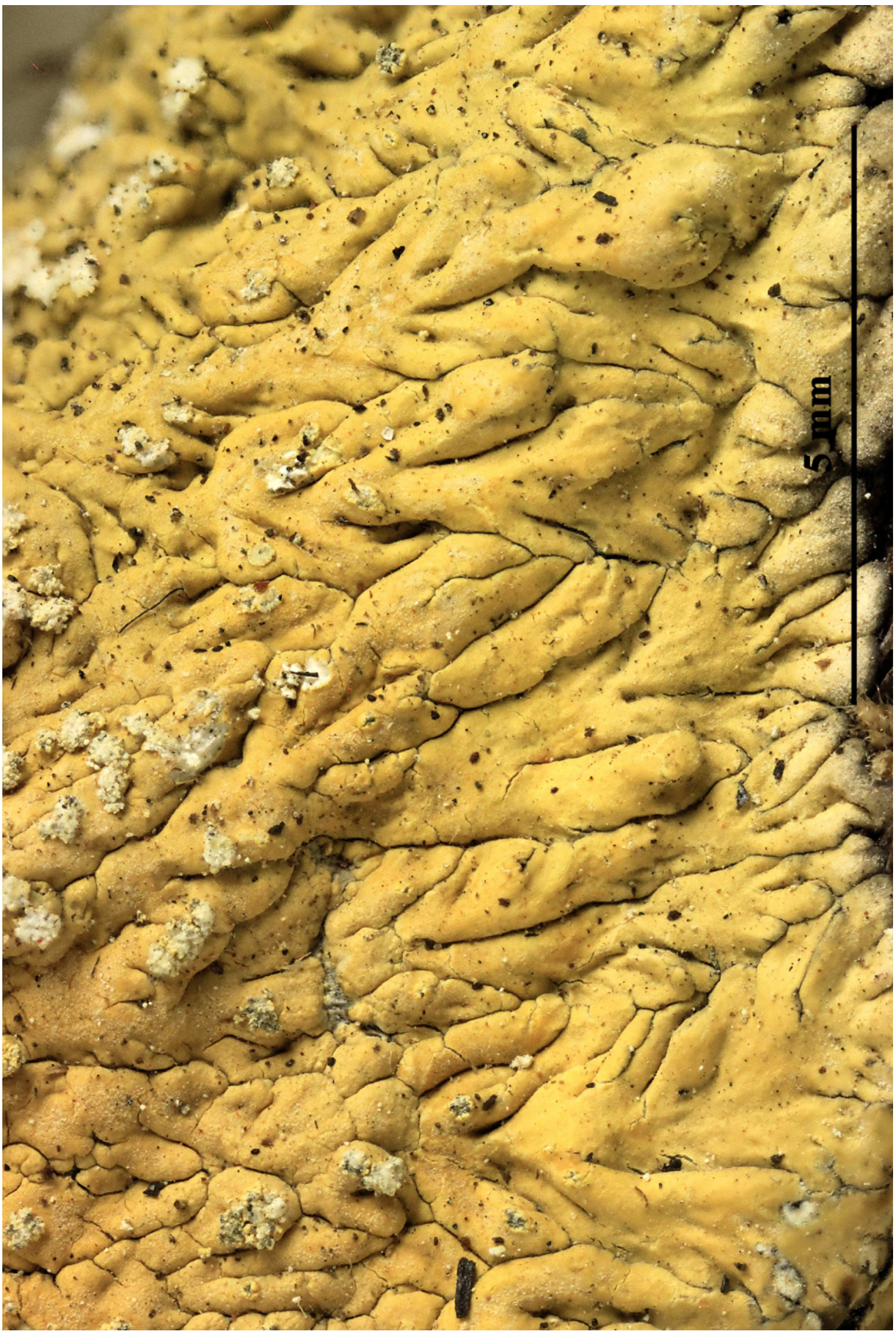
Dirina ceratoniae

Dirina ceratoniae

Dirinaria flava (Müll. Arg.) C.W. Dodge, Beih. Nova Hedwigia 38: 181 (1971)
= *Physcia flava* Müll. Arg., Hedwigia 31: 277 (1892)

[VZR13,19026], Tanzania. Morogoro regio, distr. Kilosa, prope locum Magubike, dictum, ad viam Morogoro . Dodoma in montibus Mamboya, 880 m, In ramulis arborum, ad corticem. Leg. T. Pócs (89217) & H. Krog, det. A. Vězda, conf. K. Kalb. - Divaricatic acid, 2 Xanthone and som Terpene anal. by K. Kalb. Ex A, Vězda: Lichenes Rariores Exsiccati Nr. 13.

Thallus 2–6 cm wide, adnate to tightly adnate, pinnately to subdichotomously lobate. Lobes radiating, contiguous, becoming verrucose to subcrustose in the centre, plane to convex, 0.5–1.5 mm wide; apices discrete. Upper surface yellow to pale yellow-brown, tinged grey or blue-grey at the apices, delicately pruinose, sorediate; dactyls absent. Soralia laminal, globose to capitate, 0.2–0.3 mm wide, rarely erose and crateriform; soredia granular to, rarely, farinose. Medulla pale yellow to yellow. Lower surface brown-black. Apothecia very rare, sessile, 0.4–0.7 mm wide; disc dark brown to brown-black, epruinose. Epihymenium pale brown, c. 8 μm thick. Hymenium colourless, 65–75 μm thick. Hypothecium dark brown, 90–125 μm thick, lentiform. Ascospores 10–15 × 4–7 μm. Pycnidia not seen. CHEMISTRY: Cortex K+ yellow, C+ orange-red, KC+ red, P–; medulla K–, C–, KC–, P–; containing atranorin (minor), chloroatranorin (minor), divaricatic acid (major), arthothelin (major), 4,5-dichloronorlichexanthone (minor), 3β-acetoxyhopane-1β,22-diol (minor),±unknown terpenes (minor). - ccurs on bark and rocks in coastal and montane forests in Qld and eastern Australia, also in Africa and on Ascension Island (South Atlantic Ocean).



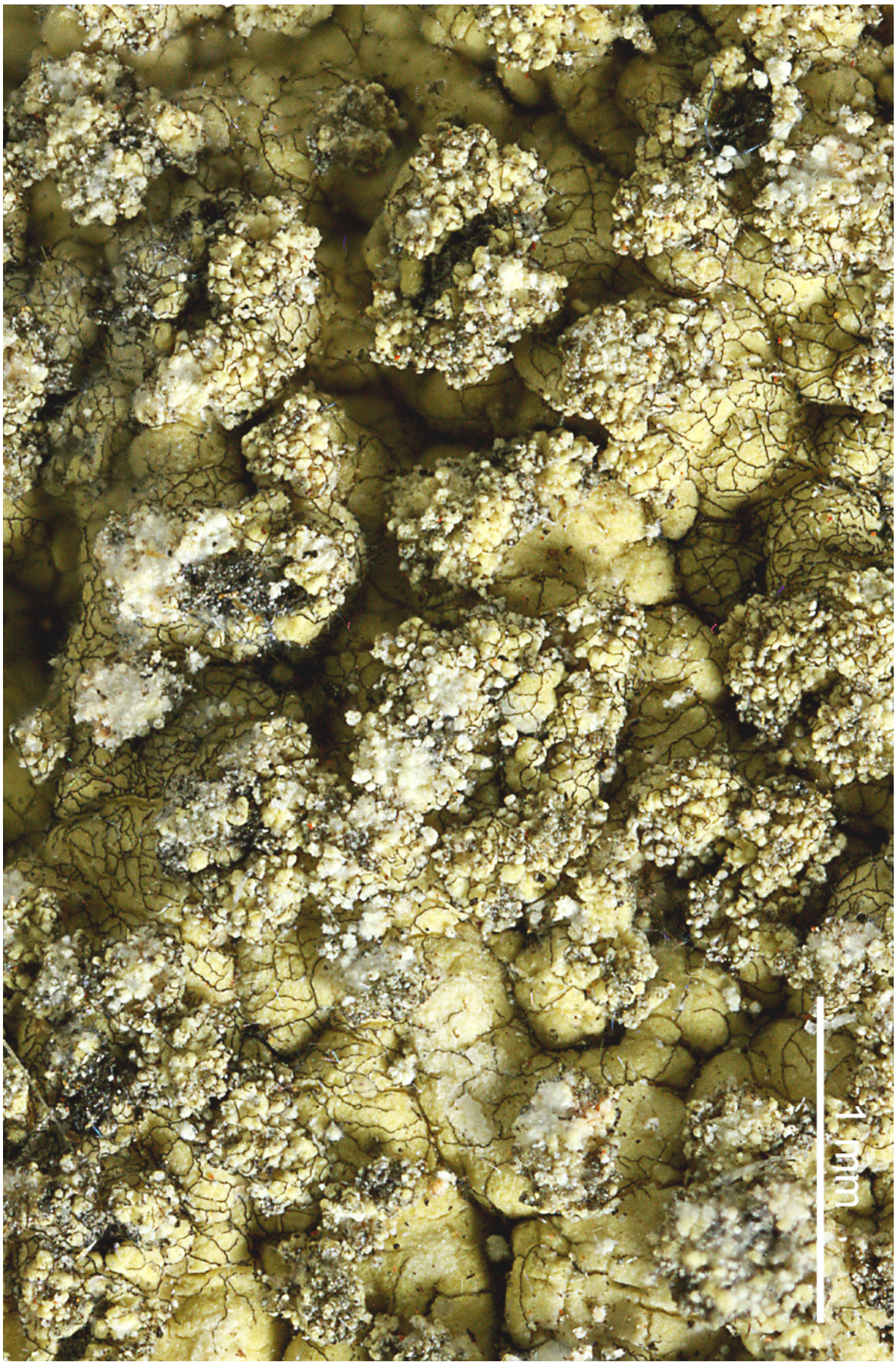
Dirinaria flava

Dirinaria flava

Dirinaria flava

Dirinaria flava

Dirinaria flava



Dirinaria flava

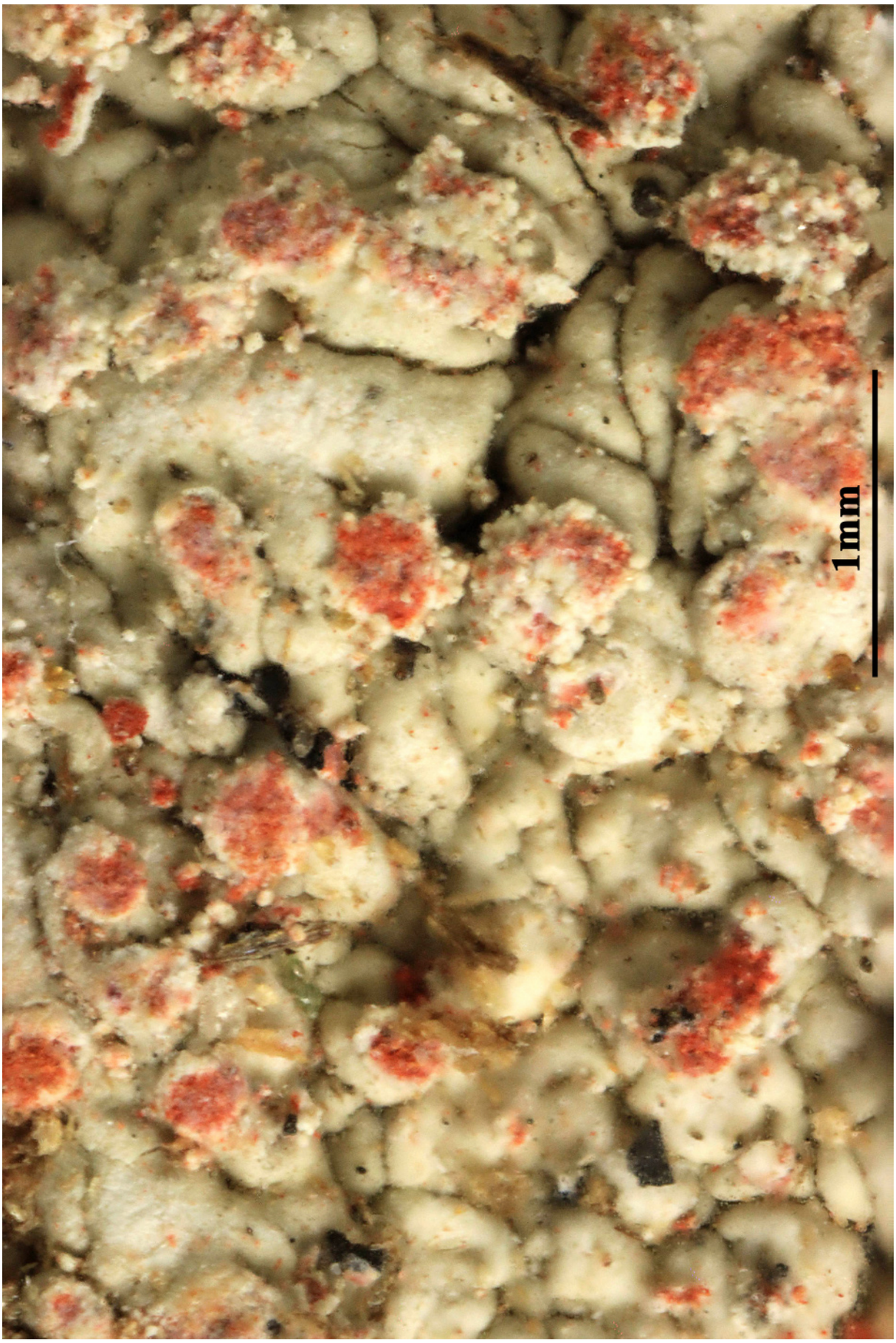
Dirinaria flava

Dirinaria leopoldii (Stein) D.D. Awasthi, Bull. Soc. bot. Fr., Let. bot. 121(7-8): 89 (1975)
= *Crocynia leopoldii* Stein [as 'leopoldi'] 1888

[VZR14], Tanzania. Morogoro regio, distr. Kilosa, prope locum Magubike dictum, ad viam Morogora - Dodoma in montibus Matamboya, 880 m. In ramulis arborum, ad corticem. Leg. T. Pócs (89217) & H. Krog, 25.08.1989, det. Vezda , conf. K. Kalb. - Annot Kalb: atranorin (submajor), sekikaic acid (major), 4'-O-demethylsekikaik acid (minor), canarione (submajor), anal. K. Kalb by TLC. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 14.

Thallus closely appressed to the substratum, grey, finely pruinose, lobes 1-1.3 mm wide. Soralia capitate, globose, 0.5-0.7 mm diam., soredia farinose, ± reddish-purple tinged. Medulla colourless or coccineous in part. Hypothecium dark brown. Spores 8/ascus, brown, 14-18 x 6-8 µm. Chemistry: cortex K+ yellow, C-, P-; medulla K- or pigmented regions K+ purple; atranorin. sekikaic acid, several triterpenes.

Dirinaria leopoldii



Dirinaria leopoldii

Dyplolabia afzelii (Ach.) A. Massal., Neagenea Lich.: 6 (1854)
= *Graphis afzelii* Ach., Syn. meth. lich. (Lund): 85 (1814)
= *Opegrapha afzelii* (Ach.) Fée, Bull. Soc. bot. Fr. 21(1): 24 (1874)

[VZR324], USA. Florida. Lafayette County. 5 km ad meridiem versus Mayo, secus viam dictam Route 51. Ad corticem *Myricae* sp.. Leg. W. L. Culberson (22420). - Lecanoric acid by TLC anal. A. Johnson & F. C. Culberson., det. K. Kalb. EX A. VěZDA: LICHENES RARIORES EXSICCATI NR. 324. - Distributed as Graphis afzelii.

Lirellae white pulveraceous, not or rarely branched, 1-10 x 0.5-1 mm. Hymenium 100 µm, not inspersed. Excipulum laterally carbonaceous. Hypothecium yellowish. Spores 8/ascus, hyaline, transversely 3(-4)-septate, lumina rounded, 16-22 x 7-10 µm, I-. Lirellae C+ red. Lecanoric acid. Pantropical.

Dyplolabia afzelii

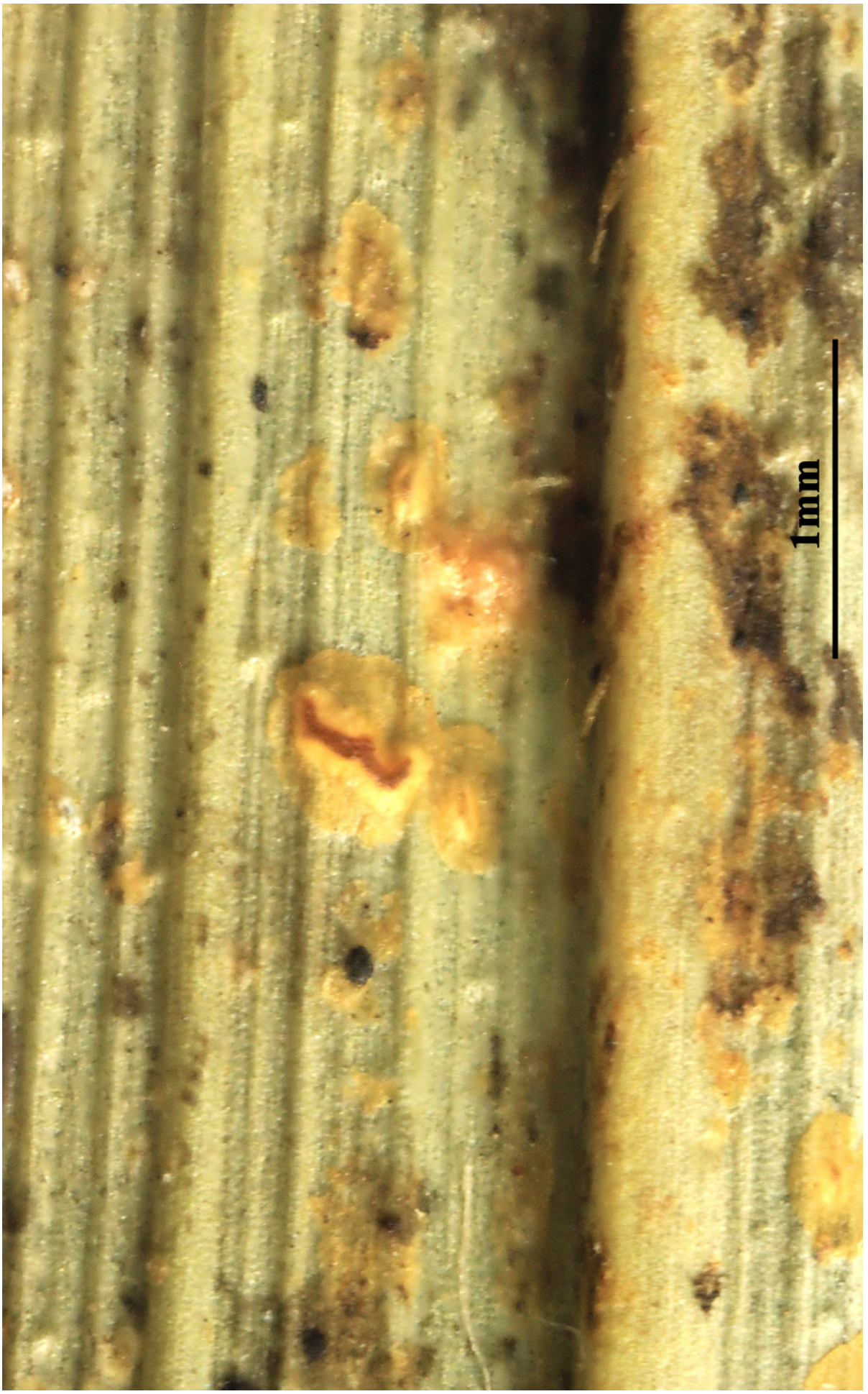
Dyplolabia afzelii

Enterographa bella R. Sant., Symb. bot. upsal. 13(no. 1): 106 (1952)

[VZR282], Nova Zelandia. South Island, distr. Nelson, Golden Bay, Kaihoka Lakes, 10 km ad septentr. a Callingwood, 50 m. Ad folia Palmae. Leg. W. Malcolm & A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 282.

Ex Sparrius, L. (2004):A monograph of Enterographa and Sclerophyton. - Bibl. Lichenol. Bd. 89:

Thallus 1–2 cm in diam., composed of dispersed thallus patches, yellowish-green, c. 20 µm thick. Photobiont Phycopeltis in cells in radiating plates. Prothallus absent. Cortex absent. Medulla with scattered oxalate crystals. Ascomata open, long-lirelliform, few branched, 0·10–0·20 × 0·3–1·3 mm, not in a stroma, disc deep orange-brown, not pruinose. Thalline margin c. 70 µm wide, pale orangebrown. Excipulum very thin, c. 10 µm wide, orange-brown in section. Hypothecium hyaline, 10–15 µm tall, K–. Hymenium hyaline, 60–90 µm tall. Paraphysoids c. 1 µm wide, apices c. 1 µm wide, branched and anastomosed. Epithecium orange, K–. Asci 45–60 × 17–20 µm, ellipsoid, 8-spored. Ascospores fusiform, 22–[25]–29 × 3·0–4·0 µm, 7-septate, perispore < 3·5 µm wide. Conidiomata very inconspicuous, immersed in the thallus, hyaline, 35–50 µm in diam., conidia bacilliform, 4–6 × 1·5–2·0 µm. Chemistry. Thallus C–, K–, PD+ yellow; thallus sections K+ diffusing yellow, UV+ cream-coloured; TLC: psoromic acid (fide Aptroot et al. 2003); amyloidy: excipulum, epithecium, hypothecium and hymenium I+ red, KI+ blue. Distribution. Australia and New Zealand. Foliicolous.



Enterographa bella

Enterographa bella

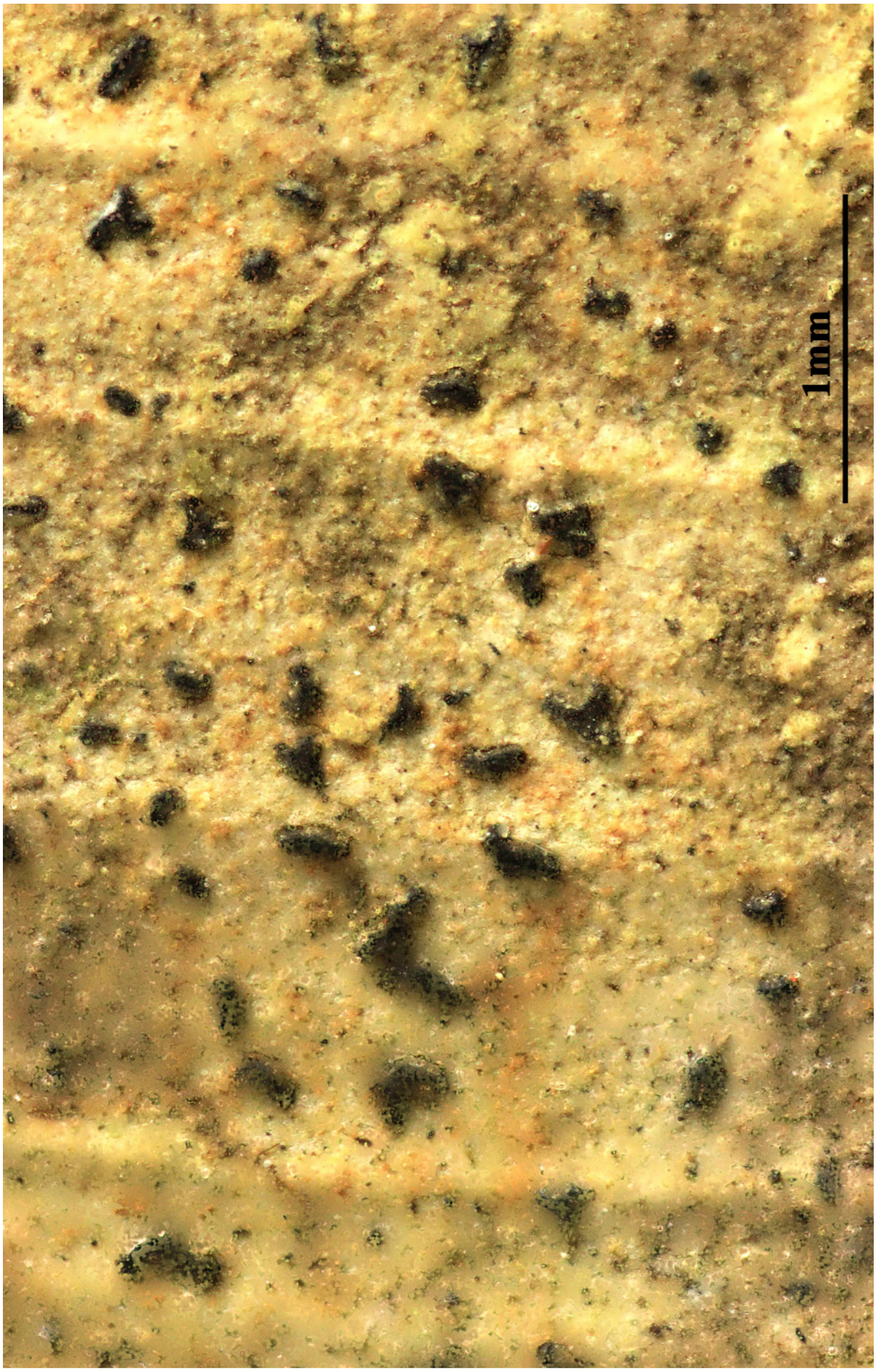
Enterographa seychellensis Vězda & Ceni, in Vězda, Lichenes Rariores Exsiccati 44(nos 431-440): 1, no. 432 (2000)

[VZR432], Insulae Seychellenses. Insula Prasli, Grand Anse, in kitire maris prope rivulum Novelle Découverte. Foliicola. Leg- F. Cenis & A. Vězda. -ISOTYPUS.- EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 432.

Species affinis *Enterographae multiseptatae* Santesson (Symb. Bot. upsal. 12(1): 108, 1952), a qua differt ascocarpiis fusco-nigris, ascosporis fusiformibus tantum 7-septatis et substrato alieno,

Ex Sparrius, L. B. (2004): A monograph of Enterographa and Sclerophyton.- Bibl. Lichenolog. and 89:
Thallus 0·5–2 cm in diam., continuous to dispersed, greyish green to vivid apple green, *c.* 20 µm thick, becoming gradually thicker near the ascomata. Photobiont Phycopeltis without radiating plates. Prothallus absent. Cortex absent. Medulla with scattered oxalate crystals of 12–17 µm diam. Ascomata closed, long lirelliform, stellately branched, 0·05–0·10 × 0·2–0·8(–1·3) mm, not in a stroma, disc black, not pruinose. Thalline margin *c.* 50 µm wide, white. Excipulum very thin, 10–15 µm wide, orange-brown to dark red-brown in section. Hypothecium pale straw to brown, 5–10 µm tall, K–. Hymenium hyaline, 50–60 µm tall. Paraphysoids 0·8–1 µm wide, apices *c.* 1 µm wide, branched and anastomosed. Epithecium orange, K–. Asci 35–50(–60) × 10–15 µm, ellipsoid, 8-spored.Ascospores fusiform, (18–)22–[25]–36 × 2·5–[3·2]–3·5 µm, 7–10(–14)-septate, perispore < 2·0 µm wide. Conidiomata found in one specimen, very inconspicuous, entirely immersed, 30–50 µm diam., wall orange-brown in section, conidia filiform and curved, 15–25 × 0·7 µm. Chemistry. Thallus C–, K–, PD+ yellow, UV–; TLC: psoromic acid (fide Aptroot *et al.* 2003); amyloidy: excipulum, epithecium, hypothecium and hymenium I+ red, KI+ blue. *Distribution and ecology.* Tropical Asia and East Africa. Foliicolous and bambusicolous. *Remarks*. *Enterographa seychellensis* and *E. tanzanica* proved to be identical with *E. multiseptata*; all three taxa have 7-septate ascospores (sometimes becoming 8–14-septate), cylindrical-clavate asci, a pale brown hypothecium and thin, dark brown to black, stellately branched ascomata. *E. foliicola* has smaller ascospores and strongly prominent ascomata with open discs that are constricted below.

Enterographa seychellensis



Enterographa seychellensis

Enterographa zaborskiana (M. Choisy & Werner) Egea & Torrente, in Torrente & Egea, Biblthca Lichenol. 32: 195 (1989)

= *Schismatomma zaborskianum* M. Choisy & Werner [as 'zaborskiana'] 1931

= *Enterographa pitardii* (B. de Lesd.) Redinger, Feddes Rep., 43: 68, 1938. Basionym: Stigmatidium pitardii B. de Lesd. in Pitard & Harmand - Bull. Soc. Bot. France, Mém. 22: 66, 1911.

[VZR54], Italia. Calabria: Catanzaro, in ripa fluminis Pesipe loco dicto "Cortale", 340 m, Ad lapidem schistosum. Leg. et det. C. Puntillo, 23.2.1992. EX A. VĚZDA: LICHENES RARIORES NR. 54.

Thallus crustose, episubstratic, rather thick, rimose-areolate, granulose, grey-brown to brown, usually delimited by a black prothalline line and often forming extended mosaics. Apothecia lirelliform, sometimes punctiform or ellipsoid, 0.1-0.2 x 0.07-0.1 mm, brown to black, immersed in the thallus, with a flat to slightly convex disc, and a usually indistinct proper margin. Proper exciple much reduced, brown, often poorly evident; epithecium orange-brown, scarcely delimited from hymenium; hymenium colourless, 100-125 µm high, I+ reddish; paraphysoids branched and anastomosing, especially in upper part, 1-1.5(-2) µm thick, the apical cells only slightly larger. Asci 8-spored, cylindrical or cylindrical-clavate, fissitunicate, the apical dome with a short ocular chamber surrounded by a minute, K/I+ dark blue ring, the inner wall often K/I+ pale blue. Ascospores (4-)5-6-septate, hyaline, spindle-shaped, straight o slightly curved, (22-)25-30(-35) x 3-5 µm. Pycnidia black, immersed. Conidia bacilliform, straight, 5-8 x c. 1 µm. Photobiont trentepohlioid. Spot tests: thallus K-, C-, KC-, P-, UV-, K/UV+ mauve. Chemistry: thallus with confluentic acid. - Note: a mild-temperate, mainly western lichen known from the Azores, Italy and Greece, found on siliceous rocks in humid-shaded situations at low elevations.

Enterographa zaborskiana

Enterographa zaborskiana

Ephebe lanata (L.) Vain., Meddn Soc. Fauna Flora fenn. 14: 20 (1888)
= *Alectoria lanata* (Neck.) Nyl., in Norrlin, Not. Sällsk. Fauna et Fl. Fenn. Förh., Ny Ser. 13: 322 (1873) [1871-1874]
= *Alectoria lanata* (L.) Cromb., J. Bot., Lond. 10: 233 (1872)
= *Bangia atrovirens* (Dillwyn) Lyngb., Quad. Bot. ambient. appl.: 85 (1819)
= *Bryopogon lanatus* (L.) M. Satô, Miscell. bryol. lichenol., Nichinan 1(no. 20): 12 (1959)
= *Cetraria lanata* (Neck.) Schaer., Lich. helv. spicil. 4-5: 259 (1833)
= *Cetraria tristis* var. *lanata* (L.) Garov., Cat. crittog. Como 3: 25 (1843)
= *Conferva atrovirens* Dillwyn, Brit. Conferv.: 60 (1809)
= *Cornicularia lanata* (Neck.) Ach., Methodus, Sectio post. (Stockholmiæ): 304 (1803)
= *Cornicularia lanata* a *lanatus* (Neck.) Mérat, Nouv. Fl. Environs Paris, Edn 2 1: 206 (1821)
= *Ephebe lanata* f. *complicata* (Vain.) Zahlbr., Cat. Lich. Univers. 2: 753 (1924)
= *Ephebe pubescens* f. *complicata* Vain., Meddn Soc. Fauna Flora fenn. 6: 83 (1881)
= *Ephebeia hispidula [*unranked*] martindalei* (Cromb. ex Nyl.) Cromb., Grevillea 15(no. 73): 10 (1886)
= *Ephebeia hispidula* subsp. *martindalei* (Cromb. ex Nyl.) A.L. Sm., Monogr. Brit. Lich., Edn 2 1: 36 (1918)
= *Ephebeia martindalei* Cromb. ex Nyl., Flora, Regensburg 66(7): 104 (1883)
= *Ephebomyces lanatae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(1): 76 (1953)
= *Girardia atrovirens* (Dillwyn) Gray, Nat. Arr. Brit. Pl. (London) 1: 287 (1821)
= *Imbricaria lanata* (Neck.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 37: 110 (1887)
= *Imbricaria lanata* (L.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 28: 293 (1878)
= *Imbricaria stygia* var. *lanata* (Neck.) Körb., Lichenogr. germ. (Breslau): 14 (1846)
= *Lichen exilis* Lightf., Flora Scotica (London) 2: 894 (1777)
= *Lichen jubatus* var. *lanatus* Neck., Method. Muscor. Illustr. (Upsaliae): 73 (1771)
= *Lichen lanatus* L., Sp. pl. 2: 1155 (1753)
= *Lichen pubescens var. maior* Weber, Spicil. fl. goetting.: 231 (1778)
= *Parmelia alpicola * lanata* (L.) Th. Fr., Lich. arct. (Uppsala): 58 (1860)
= *Parmelia fahlunensis* var. *lanata* (Neck.) Schaer., Lich. helv. spicil. 10: 467 (1840)

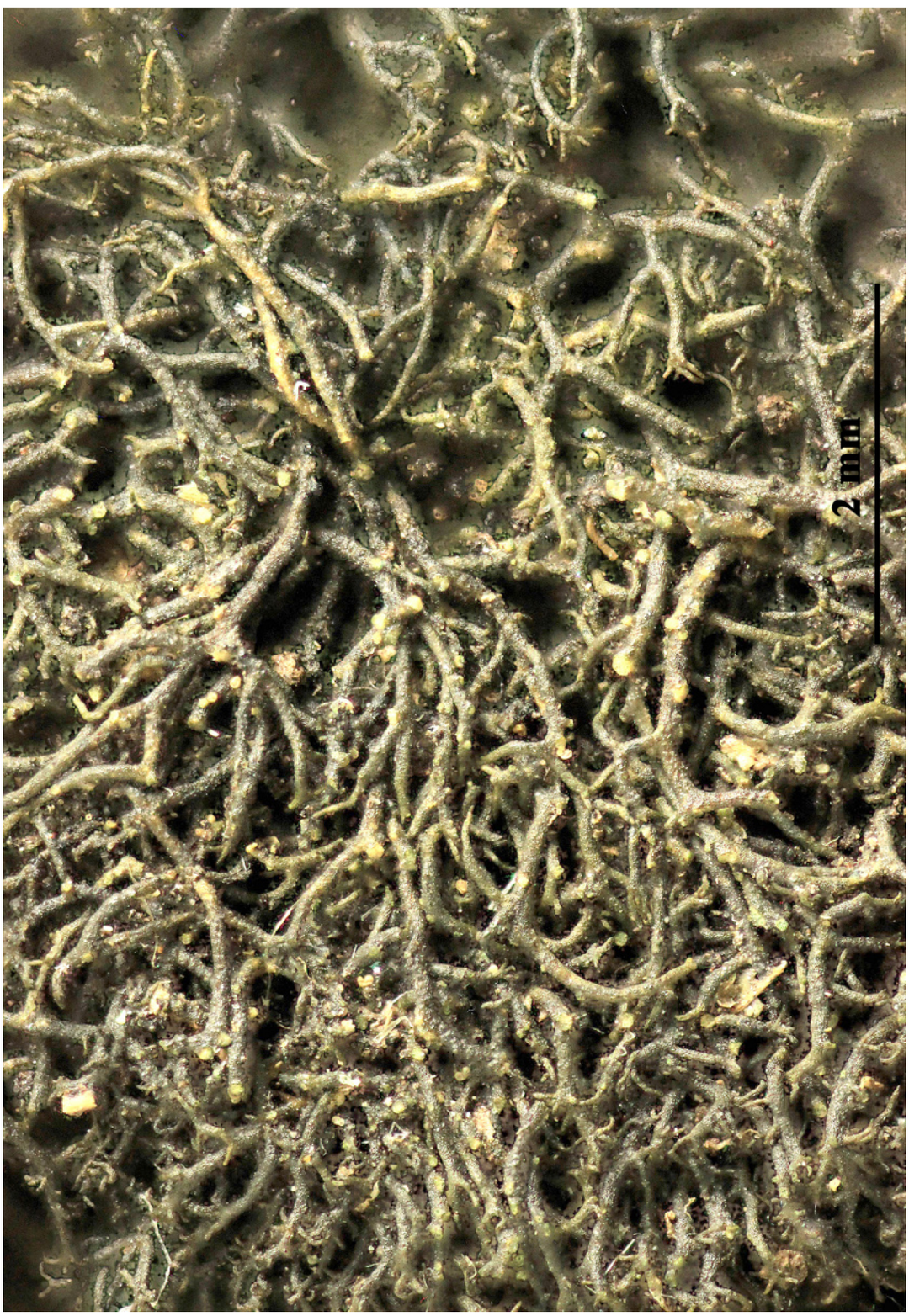
= *Parmelia lanata* (Neck.) Wallr., Fl. crypt. Germ. (Norimbergae) 1: 529 (1831)
= *Parmelia stygia* subsp. *lanata* (L.) Tuck., Syn. N. Amer. Lich. (Boston) 1: 63 (1882)
= *Parmelia stygia* var. *lanata* (Neck.) Fr., Lich. eur. reform. (Lund): 68 (1831)
= *Scytonema atrovirens* (Dillwyn) C. Agardh, Dispos. Alg. (Berling): 39 (1812) [1810-12]
= *Stigonema atrovirens* (Dillwyn) C. Agardh, Syst. alg.: 42 (1824)
= *Stigonema atrovirens* (Dillwyn) C. Agardh ex Bornet & Flahault, Annls Sci. Nat., Bot., sér. 7 5: 195 (1887)
= *Usnea lanata* (Neck.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 135 (1796) [1795]

[VZR257], Italia. Brescia, montes Alpi Brescani, Adamello Saviore, secus viam inter refugia "Stella alpina", 1600 m. Ad saxa silicea aprica aqua interdum irrorata. Leg. F. Ceni & A. Vězda, 31.7.1995, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 357.

Thallus minutely filamentous, dark-green to brown when wet, black and somewhat shiny when dry, forming 2-3(-5) cm wide, irregular carpets, consisting of soft, coarse, cylindrical, irregularly branched, smooth, decumbent filaments. Filaments 70-40 µm thick, to 200 µm thick at base, usually without spine-like branches, attached by a basal disc. Thallus (in section) ecorticate, the mycobiont cells loosely paraplectenchymatous, short-celled, forming a central strand at the base of the filaments. Apothecia rare, inconspicuous, to 0.25 mm across, developing from pycnidia on swellings on the branches, with a punctiform to slightly expanded, dark brown disc and an up to 40 µm wide thalline margin. Proper exciple well-developed, mostly colourless in lower part, brownish in upper part; epithecium brownish; hymenium colourless, gelatinous, I+ blue-green, K/I+ blue; paraphyses sparingly branched, the apices thickened; hypothecium colourless, dense. Asci 8-spored, cylindrical-obclavate, with a very thin wall disintegrating or opening by apical ruptures, Lichina-type. Ascospores 1-celled (sometimes with 1-2 plasma bridges) hyaline, ellipsoid, 10-18(-20) x 3.5-6(-7) µm. Pycnidia rare, developing laterally from the filaments. Conidia hyaline, ellipsoid to bacilliform, 3-5 x 1-2 µm. Photobiont cyanobacterial (Stigonema), the photobiont trichomes with true branching, i.e. side branchlets formed by periclinal cell divisions in the trichome, reacting I-. Spot tests:

Ephebe lanata

all negative. Chemistry: without lichen substances. - Note: an arctic-alpine to boreal-montane, circumpolar lichen with outliers in the cool-temperate zone, found on steeply inclined, periodically wetted or inundated siliceous rocks, on seepage tracks etc., with optimum above treeline.



Ephebe lanata

Ephebe lanata

Ephebe lanata (L.) Vain., Meddn Soc. Fauna Flora fenn. 14: 20 (1888)
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= *Ephebe lanata* f. *complicata* (Vain.) Zahlbr., Cat. Lich. Univers. 2: 753 (1924)
= *Ephebe pubescens* f. *complicata* Vain., Meddn Soc. Fauna Flora fenn. 6: 83 (1881)
= *Ephebeia hispidula [*unranked*] martindalei* (Cromb. ex Nyl.) Cromb., Grevillea 15(no. 73): 10 (1886)
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= *Ephebeia martindalei* Cromb. ex Nyl., Flora, Regensburg 66(7): 104 (1883)
= *Ephebomyces lanatae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(1): 76 (1953)
= *Girardia atrovirens* (Dillwyn) Gray, Nat. Arr. Brit. Pl. (London) 1: 287 (1821)
= *Imbricaria lanata* (Neck.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 37: 110 (1887)
= *Imbricaria lanata* (L.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 28: 293 (1878)
= *Imbricaria stygia* var. *lanata* (Neck.) Körb., Lichenogr. germ. (Breslau): 14 (1846)
= *Lichen exilis* Lightf., Flora Scotica (London) 2: 894 (1777)
= *Lichen jubatus* var. *lanatus* Neck., Method. Muscor. Illustr. (Upsaliae): 73 (1771)
= *Lichen lanatus* L., Sp. pl. 2: 1155 (1753)
= *Lichen pubescens var. maior* Weber, Spicil. fl. goetting.: 231 (1778)
= *Parmelia alpicola * lanata* (L.) Th. Fr., Lich. arct. (Uppsala): 58 (1860)
= *Parmelia fahlunensis* var. *lanata* (Neck.) Schaer., Lich. helv. spicil. 10: 467 (1840)

= *Parmelia lanata* (Neck.) Wallr., Fl. crypt. Germ. (Norimbergae) 1: 529 (1831)
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= *Stigonema atrovirens* (Dillwyn) C. Agardh ex Bornet & Flahault, Annls Sci. Nat., Bot., sér. 7 5: 195 (1887)
= *Usnea lanata* (Neck.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 135 (1796) [1795]

[VZR223], Finlandia. Lapponia eontekiensis: Eontekiö, Kilpisjärvi, Saana, 800 m. Ad rupem subcalcaream. Leg. A. J. Huuskonen, 22.07.1945. Ex A. Vězda: Lichens Rariores Exsiccati Nr. 223..

Thallus minutely filamentous, dark-green to brown when wet, black and somewhat shiny when dry, forming 2-3(-5) cm wide, irregular carpets, consisting of soft, coarse, cylindrical, irregularly branched, smooth, decumbent filaments. Filaments 70-40 µm thick, to 200 µm thick at base, usually without spine-like branches, attached by a basal disc. Thallus (in section) ecorticate, the mycobiont cells loosely parap-lectenchymatous, short-celled, forming a central strand at the base of the filaments. Apothecia rare, inconspicuous, to 0.25 mm across, deve-loping from pycnidia on swellings on the branches, with a punctiform to slightly expanded, dark brown disc and an up to 40 µm wide thalline margin. Proper exciple well-developed, mostly colourless in lower part, brownish in upper part; epithecium brownish; hymenium colourless, gelatinous, I+ blue-green, K/I+ blue; paraphyses sparingly branched, the apices thickened; hypothecium colourless, dense. Asci 8-spored, cylindrical-obclavate, with a very thin wall disintegrating or opening by apical ruptures, Lichina-type. Ascospores 1-celled (sometimes with 1-2 plasma bridges) hyaline, ellipsoid, 10-18(-20) x 3.5-6(-7) µm. Pycnidia rare, developing laterally from the filaments. Conidia hyaline, ellipsoid to bacilliform, 3-5 x 1-2 µm. Photobiont cyanobacterial (Stigonema), the photobiont trichomes with true branching, i.e. side branchlets for-med by periclinal cell divisions in the trichome, reacting I-. Spot tests: all negative. Chemistry: without lichen substances. - Note: an arctic-

alpine to boreal-montane, circumpolar lichen with outliers in the cool-temperate zone, found on steeply inclined, periodically wetted or inundated siliceous rocks, on seepage tracks etc., with optimum above treeline.

Ephebe lanata

Ephebe lanata

Everniastrum cirrhatum (Fr.) Hale, Mycotaxon 3(3): 347 (1976)
= *Hypotrachyna cirrhata* (Fr.) Divakar, A. Crespo, Sipman, Elix & Lumbsch, in Divakar, Crespo, Núñez-Zapata, Flakus, Sipman, Elix & Lumbsch, Phytotaxa 132(1): 31 (2013)
= *Cetrariastrum cirrhatum* (Fr.) W.L. Culb. & C.F. Culb., Bryologist 84(3): 283 (1981)
= *Evernia cirrhata* (Fr.) M. Choisy, Bull. Soc. bot. Fr. 104: 334 (1957)
= *Parmelia camtschadalis var. cirrhata* (Fr.) Zahlbr. [as 'kamtschadalis'], Annln K. K. naturh. Hofmus. Wien 19: 43 (1904)
= *Parmelia cirrhata* Fr., Syst. orb. veg. (Lundae): 283 (1825)
= *Parmelia cirrhata f. gracilis* Zahlbr., Cat. Lich. Univers. 6: 60 (1929)
= *Pseudevernia cirrhata* (Fr.) R. Schub. & Klem., Nova Hedwigia 11: 59 (1966)

[VZR438], Aequatoria. Prov Chimborazo, Moronasantiago, Sangay: Timaran Pungu (inter Loma Plazapamba et Pampa Culebrillas), 3750 m, 01°59' merid., 78°25' occid.. In ramulis fruticum. Leg. Z. Palice, 21.7.1999, det. A. Vězda. Ex A. Vězda: Licxhenes Rariores Exsiccati Nr. 438.

foliose to subcaespitose, very loosely adnate, up to 15 (-25) cm across, richly dichotomously or subdichotomously lobate lobes: 0.5-2 (-4) mm broad, strongly to moderately involute or flat or nearly so; apices abundantly ciliate; cilia up to 4 mm long, simple or more commonly branched upper surface: pale gray to gray; not sorediate or isidiate; lower surface black or brown or pale brown at the tips of the lobes, mostly erhizinate but some specimens with a few short, usually simple, black rhizines; Apothecia relatively infrequent, 4-6 mm diam. asci: clavate, 8-spored ascospores: ellipsoid or slightly reniform, 16-21 x 8-10 µm; Pycnidia common, 0.1-0.2 mm diam: conidia bacilliform, straight, 5-7 (-8) x <1 µm; Spot tests upper cortex K+ yellow, C-, KC-, P+ yellow; medulla K+ yellow then turning deep red, C-, KC-, P+ yellow then orange; Secondary metabolites cortex with atranorin and chloroatranorin; medulla with salazinic acid (major), consalazinic acid (minor), galbinic and protocetraric acids (accessory) and a fatty acid. Substrate and ecology: on trees and shrubs, rarely on rock or soil World distribution: Mexico, Central and South America.

Everniastrum cirrhatum

Everniastrum cirrhatum

Everniastrum moreliense (B. de Lesd.) Hale, Mycotaxon 3(3): 348 (1976)
= *Parmelia moreliensis* B. de Lesd. 1914

[VZR415], Mexico. Regio Durango, 4 km ad orientem ab urbe El Salto, 1900 m. Ad corticem arborum (*Quercus* sp.) secus viam. Leg. J. Halda, 20.11.1996, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 415.

Thallus foliose, loosely adnate, 4-15 cm in diam., lobate lobes: linear, elongate, loosely imbricate, convex, separate, 2-5 mm wide; apices subtruncate, ciliate; cilia common, to 10 mm long, simple, upper surface gray with some blackened areas, smooth, shiny, sometimes white pruinose, conspicuously white maculate; isidia, soredia and pustulae: absent; medulla white with continuous algal layer; lower surface black to brown at the tips, rhizinate (except tips); rhizines scattered, simple to rarely branched; Apothecia common, laminal on thallus, 2-10 mm wide, stipitate; margin smooth; disc red brown to dark brown, becoming perforate with age; ascospores ellipsoid, 16-20 x 8-10 µm; Pycnidia punctiform; conidia 16-21 x 1 µm; Spot tests upper cortex K+ yellow, C-, KC-, P-; medulla K+ yellow turning deep red, C- or C+ pink, KC- or KC+ pink, P+ orange; Secondary metabolites upper cortex with atranorin and chloroatranorin; medulla with salazinic acid (major); consalazinic acids (minor), gyrophoric, protocetraric, norstictic and protolichesterinic acids (accessory). Substrate and ecology: usually on trees in open habitats, rarely on rocks World distribution: central to southern Mexico.

Everniastrum moreliense

Everniastrum moreliense

Fellhanera bouteillei (Desm.) Vězda, Folia geobot. phytotax. 21(2): 214 (1986)
= *Biatora bouteillei* (Desm.) A. Massal., Geneac. lich. (Verona): 20 (1854)
= *Biatorina bouteillei* (Desm.) Bausch, Verh. naturw. Verein. Karlsruhe 4: 111 (1869)
= *Biatorina littorella* (Nyl.) A.L. Sm., Monogr. Brit. Lich. 2: 116 (1911)
= *Bilimbia bouteillei* (Desm.) Hulting, Bot. Notiser: 216 (1897)
= *Catillaria bouteillei* (Desm.) Zahlbr., Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 52: 262 (1902)
= *Catillaria littorella* (Nyl.) Zahlbr., Cat. Lich. Univers. 4: 56 (1926) [1927]
= *Lecanora bouteillei* (Desm.) Harm., Lich. Fr. 5: 1083 (1913)
= *Lecanora conizaea* f. bouteillei (Desm.) H. Olivier, Expos. Lich. Ouest France 1: 296 (1897)
= *Lecanora symmicta f. bouteillei* (Desm.) Boistel, Nouv. Fl. Lich. (Paris) 2: 130 (1903)
= *Lecanora symmicta var. bouteillei* (Desm.) H. Olivier, Fl. Lich. Orne 2: 159 (1884)
= *Lecanora varia var. bouteillei* (Desm.) Schaer., Enum. critic. lich. europ. (Bern): 83 (1850)
= *Lecidea bouteillei* (Desm.) Nyl., Not. Sällsk. Fauna et Fl. Fenn. Förh., Ny Ser. 8: 152 (1866)
= *Lecidea littorella* Nyl., Flora, Regensburg 60: 229 (1877)
= *Lecidea luteola var. bouteillei* (Desm.) Malbr., Bull. Soc. Amis Sci. Nat. Rouen 4: 304 (1868)
= *Parmelia bouteillei* Desm., Annls Sci. Nat., Bot., sér. 3 8: 191 (1847)

[VZR3], Georgia. Borzomi distr., Caucasus, in monte Tvrz Tamary prope vicum Mzetamze haud procul ab urbe Cagveri, 1200 m. Ad folia *Abietis* sp. Leg. J. Čuba, 26.7.1991, det A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 3.

Thallus crustose, episubstratic, very thin to up to 0.3 mm thick, continuous to verruculose-rimose, greenish white, grey-green or bluish grey, minutely granular being completely covered in farinose soredia. Apothecia sessile, biatorine, 0.1-0.3(-0.4) mm across, with a white-pinkish (turning pale yellowish-brown in the herbarium), concave to finally convex disc, and a white, more or less regular, wavy, finally excluded proper margin. Proper exciple colourless, of ellipsoid to globose cells; epithecium colourless; hymenium colourless, 30-50 µm high, I+ blue; paraphyses simple or branched and anastomosing in upper part, 0.5-1 µm thick at mid-level, the apical cells up to 2 µm wide; hypothecium

colourless. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Bysso-loma-type. Ascospores 1-septate, hyaline, ellipsoid to sole-shaped, sometimes slightly constricted at septum and with unequal cells, 9-15(-16) x 3-6(-7) µm. Pycnidia prominent, whitish, bottle-shaped, with a short neck and a gaping ostiole. Conidia pyriform, 3-4 x 1.3-1.7 µm. Photobiont: chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: usnic and isousnic acids, zeorine, variable amounts of asemone. - Note: a temperate to southern boreal-montane species found on leaves and twigs of conifers (especially *Abies* in the Alps), but also on evergreen Mediterranean trees and shrubs (e.g. *Buxus*, *Ilex*) in very humid situations.

Fellhanera bouteillei

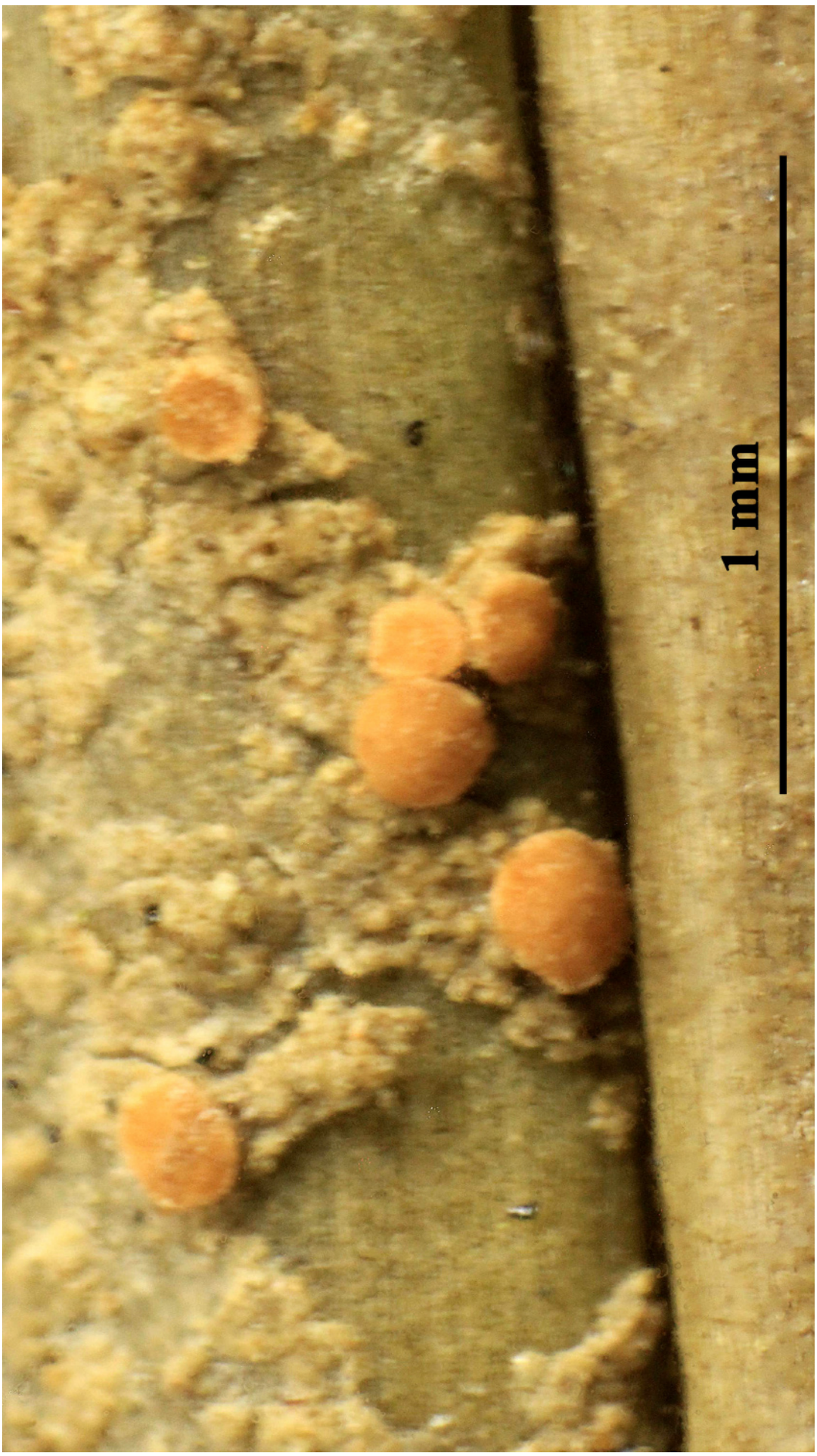
Fellhanera bouteillei

Fellhanera buxi (Vězda & Vivant) Vězda, Folia geobot. phytotax. 21(2): 214 (1986)
= *Bacidia buxi* Vězda & Vivant 1973
= *Fellhaneropsis myrtillicola* (Erichsen) Sérus. & Coppins in Sérusiaux, Lichenologist, 28: 199, 1996.

[VZR4], Austria. Styria, Windisch Bühel, S. Kranach prope Gamlitz, in fauce occidentali vallis rivi Gamlitzbach dicti, 230 m. Ad folia *Abietis albae*. Leg. H. Pittoni, J. Poelt et N. Scutari, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 4.

Thallus crustose, thin and smooth to rarely granulose or slightly verrucose, greenish grey to bluish grey, somehow glossy, forming small, suborbicular patches which eventually merge to cover larger areas, usually delimited by a bluish prothallus. Apothecia biatorine, constricted at base, 0.1-0.2(-0.3) mm across, with a flat to convex, pale brown to bluish grey or bluish black disc and a thin, whitish, soon excluded proper margin. Proper exciple of vertically arranged hyphae with elliptical to polyhedral cells, up to 15 µm wide laterally, colourless throughout or very pale brown in innermost part; epithecium scarcely differentiated from the hymenium; hymenium colourless, I+ blue; paraphyses branched and anastomosing, 1-1.5 µm thick, forming a densely interwoven network around the ascus tips; hypothecium very thin, dark brown, K+ greenish brown to green in central parts. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Byssoloma-type. Ascospores 3(-5)-septate, hyaline, oblong-fusiform, straight or slightly curved, 16-28(-34) x 3-4 µm. Pycnidia dark grey to blue-black, immersed in the apothecia or sessile on the thallus, with palisadic hyphae on rim of ostiole (enclosing the conidial mass at least when young), producing (12-)20-45 µm long, thread-like macroconidia, or 4-8 µm long, bacilliform microconidia, respectively. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mild-temperate to southern boreal-montane lichen found on needles of *Abies* in very humid montane forests, but also on leaves of *Buxus* and *Laurus* in warm-humid gorges near the coast, to be looked for further in the most humid parts of the Alps.

Fellhanera buxi



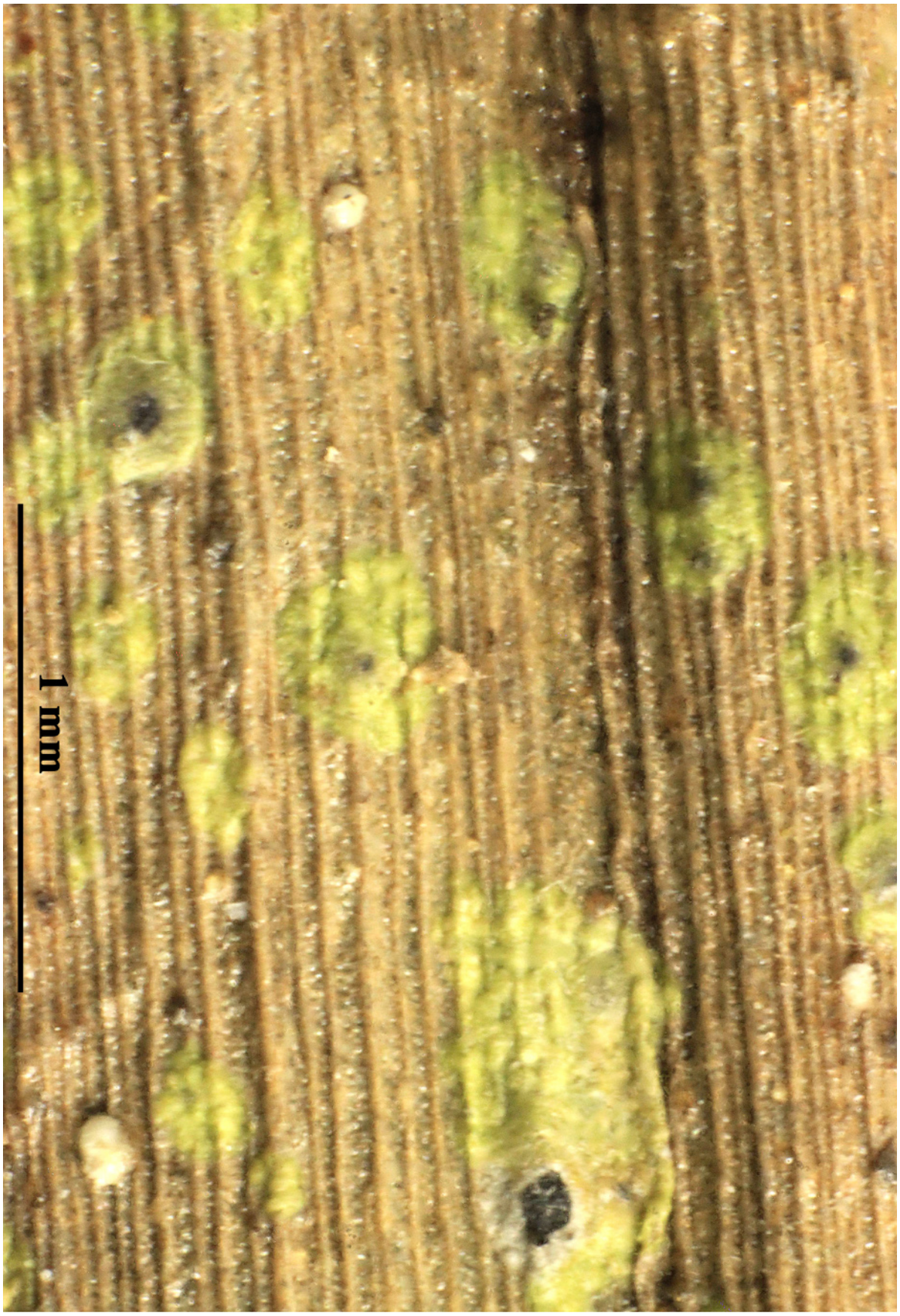
Fellhanera buxi

Fellhanera cenii Vězda, Lichenes Rariores Exsiccati 37(nos 361-370): 2, no. 364 (1998)

[VZR364], Dominica (Insulae Antillarum), ad cataracta "Emerald Pool", 300-400 m. Foliicola. - Isptypus-.Leg. A. Vězda, 18.7.1996. EX A. VEZDA: LICHENES RARIORES EXSICCATI NR. 364.

Original description:
Thallus epiphyllus, crustaceus, tenuis, dilute granulosus, cinereo-viridis, prothallo nullo. Apothecia orbicularia, 0.4-0.6 mm lata. 0.2-0.3 mm alta. basi constricta; marginibus modice crassis, ochraceis, dilute pubescentibus, a discis aequalibus lineis flexuosis limitatis, discis planis, castaneis glabris. Excipulum pseudoparenchymaticum, cellulis 4-5 µm crassis, hyalinum. Hypothecium rubrofuscum, K immutatum, in parte centrali ad substratum penetrans. Hymenium 55-60 µm altum. hyalinum. praeter zona epihymeniali infuscata. Paraphyses sparsae. flexuosae, pro parte ramosae anastomosantesque. Asci copiosi, cylindico-clavati, tholo instructi, octospori. Ascosporae cylindicae vel subaciciulares, (5-)7-sptatae. ad septa paulum constrictae, 20-22 x 3 µm. Pycnidia haud inventa. - Species honorem Fausto Ceni lichenologici italici dedicata.

Description ex Lücking, R (2008): Flora neotropica Monograph 103:
Thallus continuous, 10-25 mm across and 10-15 µm thick, farinose, greenish grey. Apothecia rounded, 0.4-0.6 mm diam. and 180-250 µm high; disc plane, brown; margin distinct, persistent, very thinly pilose, chamois-colored to pale yellowish brown. Excipulum paraplectenchymatous, but in outermost parts composed of short, free hyphae, 30-50 µm broad. Hypothecium 20-30 µm high, reddish brown, K-. Apothecial base reddish brown, K- . Epithecium 3-5 µm high, brown. Hymenium 50-0 µm high, colorless. Asci 45-55 x 12-15 µm. Ascospores 8 per ascus, oblong-bacillar, (5-)7-septate, with slight constrictions at septa, 20-25 x 3-4 µm, 6-7 times as long as broad. Pycnidia not observed. Chemistry: not tested. **Distribution and Ecology.** Neotropics (Dominica). Known only from the type locality.



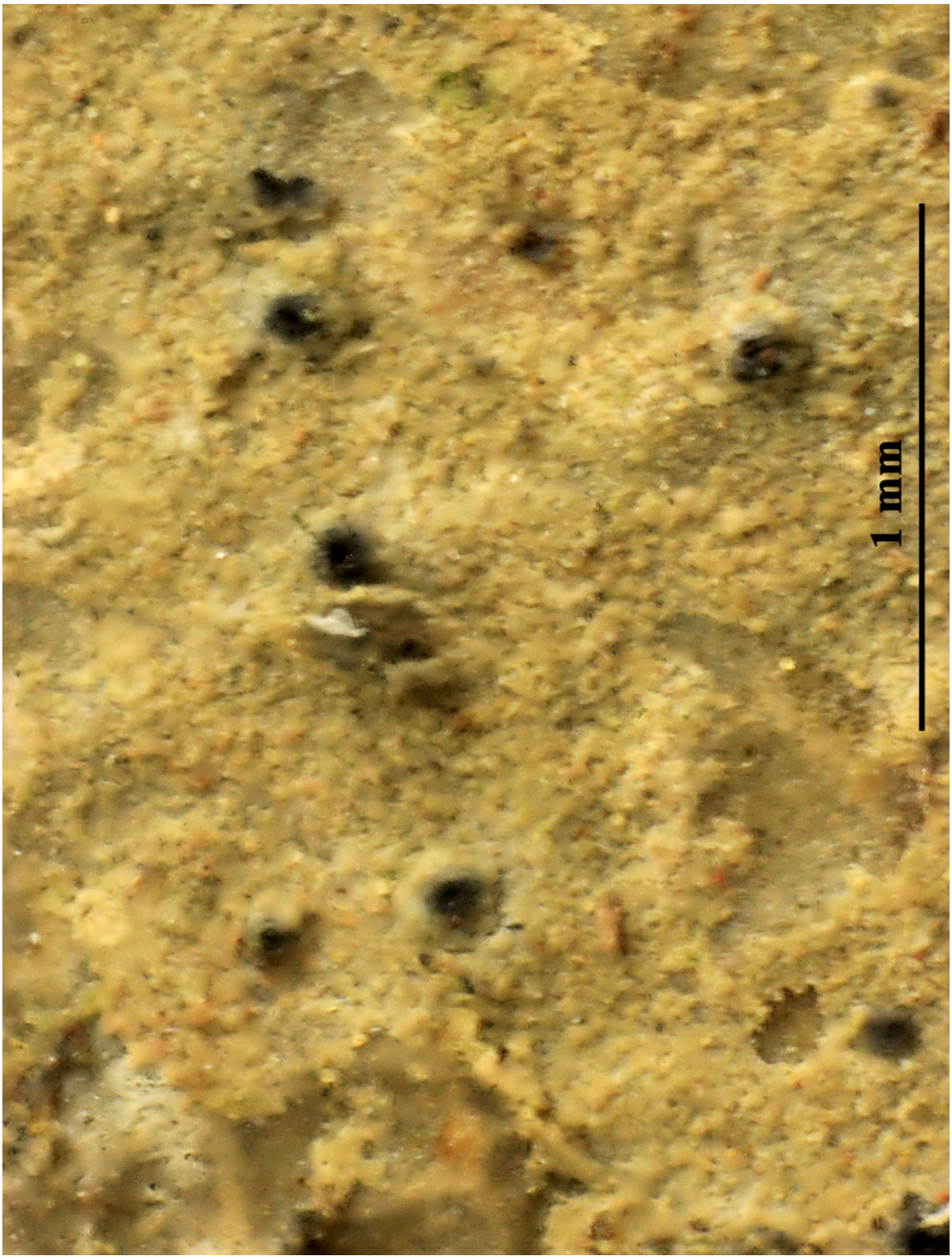
Fellhanera cenii

Fellhanera cenii

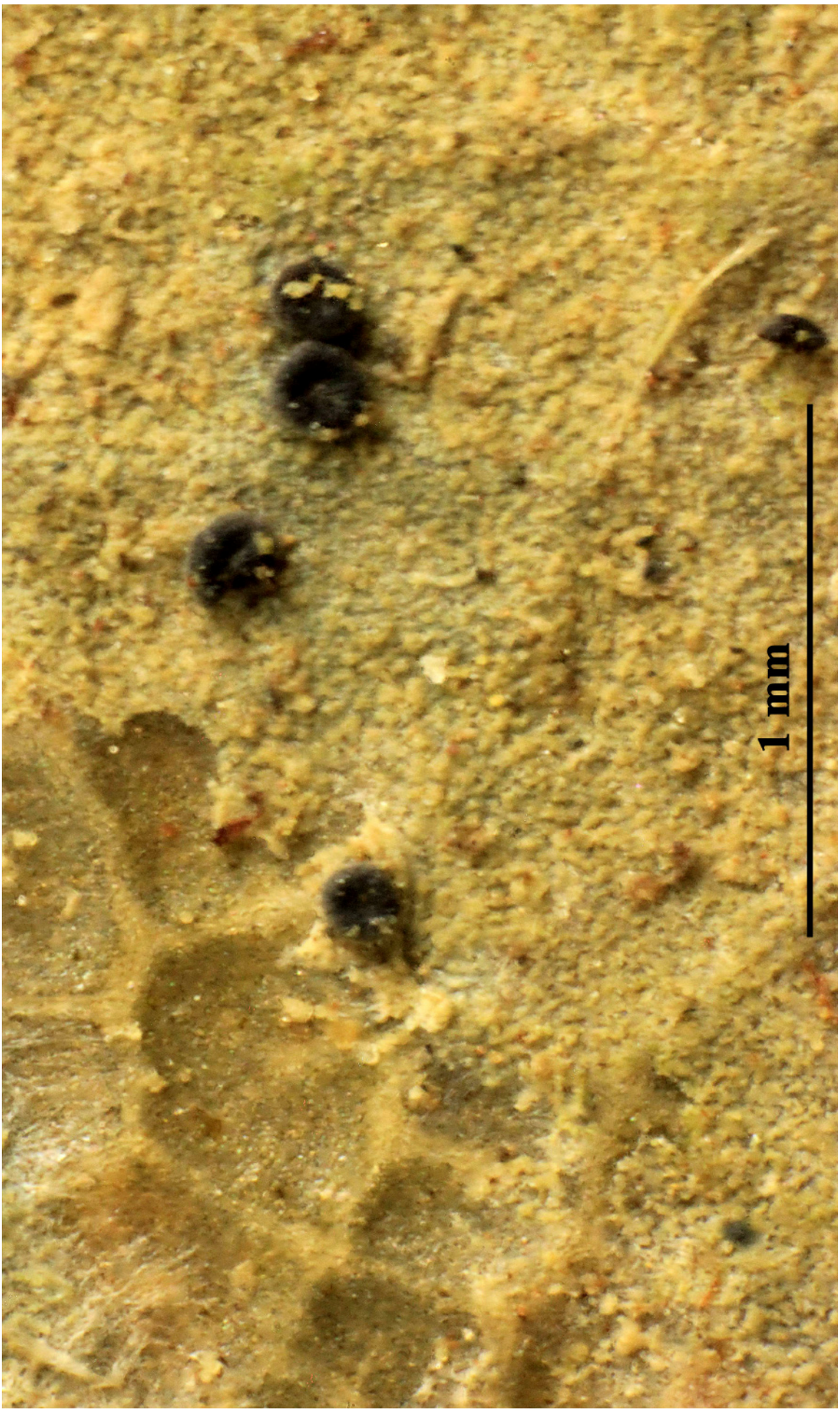
Fellhanera christiansenii Sérus. & Vězda, in Vězda, Nova Hedwigia 58(1-2): 130 (1994)

[VZR106], Insulae Canarienses, Tenerife. Las Montañas de Anaga, Las Mercedes, loco Cruz del Carmen dicto, 700 m. Ad folia arborum (*Laurus azorica*). Leg. A. Vězda & F. Ceni, 14.3.1994. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 106.

Thallus crustose, thinly episubstratic, greenish to yellowish brown, farinose. Apothecia biatorine, sessile, rounded, bluish black, 0.3-0.5 mm across, with a flat to slightly convex disc and a usually paler, finally often excluded proper margin. Proper exciple paraplectenchymatous, dark brown, K+ purple; without crystals; epithecium not well differentiated from the hymenium; hymenium colourless, I+ blue; paraphyses simple or sparingly branched, the apical cells slightly swollen; hypothecium dark reddish brown, K+ purple. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Byssoloma-type. Ascospores 3-7-septate, hyaline, ellipsoid-fusiform, 14-17 x 2.5-4 μm. Pycnidia frequent, conical, black, slightly immersed. Conidia colourless, pyriform 3-4 x 1.5 μm. Photobiont chlorococcoid. Spot tests: thallus and apothecia K-, C-, KC-, P-, UV-. Chemistry: thallus without lichen substances. - Note: a rare species, found on needles of *Abies* and cladodes of *Ruscus* in humid woodlands.



Fellhanera christiansenii



Fellhanera christiansenii

Fellhanera fuscatula (Müll. Arg.) Vězda, Folia geobot. phytotax. 21(2): 214 (1986)
= *Bacidia fuscatula* (Müll. Arg.) Zahlbr., Cat. Lich. Univers. 4: 112 (1926) [1927]
= *Bilimbia fuscatula* (Müll. Arg.) Szatala, Annls Mus. natn. Hung., n.s. 7: 43 (1956)
= *Patellaria fuscatula* Müll. Arg., Flora, Regensburg 64(15): 231 (1881)

[VZR171], Brasilia. Parana, Serra de Taquara, prope urbem Tibagi, ad occidentem et septentriones a Castro, 900 m. Foliicola. Leg. J. Poelt, 22.7.1979. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 171.

Thallus usually foliicolous, epiphyllous, crustose, continuous, 5–20 mm across and 10–15 µm thick, smooth to farinose or granulose, greenish to brownish grey. Photobiont cells 4–8 µm diam. Apothecia sessile, rounded, 0.2–0.5 mm diam. and 150–200 µm high; disc plane to slightly convex, ochraceous yellow to (reddish) brown; margin thin but usually persistent, chamois-colored. Excipulum paraplectenchymatous, 30–50 µm broad. Hypothecium 15–35 µm high, orange to reddish brown, K+ orange. Apothecial base aeruginous, K–. Epithecium indistinct. Hymenium 70–80 µm high, colorless. Asci clavate, 60–70 x 12–16 µmm. Ascospores 8 per ascus, oblong, 7-septate, with constrictions at septa, 18–24 x 3–4.5 µm, 5–6 times as long as broad. Pycnidia very rare, sessile, cupuliform to subglobose, 0.07–0.15 mm diam. and 50–100 µm high, dark grey; wall paraplectenchymatous. Conidia bacillar, non-septate, 3–5 x 0.7–1 µm. Chemistry: no substances detected by TLC and HPLC. Distribution and Ecology: Pantropical. One of the most common members of the genus. In contrast to the cosmopolitan *F. bouteillei*, which often grows on the same leaves, a typically foliicolous, tropical species restricted to the forest understory but with a rather extensive, altitudinal range from lowland to upper montane zones.

Fellhanera fuscatula

Fellhanera semecarpi (Vain.) Vězda, Folia geobot. phytotax. 21(2): 215 (1986)

= *Catillaria semecarpi* Vain., Ann. Acad. Sci. fenn., Ser. A 15(no. 6): 110 (1921)

[VZR132], Nova Zelandia. South Island, Canterbury Peel Forest. 43°53'35" austr., 141°14'07" orient. Foliicola. Leg. W. Malcolm, 28.12.1993, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 132.

Thallus dispersed into rounded patches, 3–15mm across and 10–15 µm thick, smooth, pale greenish grey. Apothecia rounded to slightly irregular in outline, 0.15–0.35 mm diam. and 60–120 µm high; disc plane, ochraceous yellow to reddish brown; margin thin, evanescent, pale grey. Excipulum paraplectenchymatous, 10–20 µm broad. Hypothecium 10–20 µm high, brown, K–. Apothecial base brown, K–. Epithecium indistinct. Hymenium 40–50 µm high, colorless. Asci 35–45 x 8–12 µm. Ascospores 8 per ascus, oblong-ovoid, 1-septate, with constriction at septum, 10–16 x 4–5 µm, 2.5–3.5 times as long as broad. Pycnidia not observed. Chemistry: Not tested. Distribution and Ecology: Pantropical. A widely distributed but uncommon species, found under a great variety of microclimatic conditions.

Fellhanera semecarpi

Fellhanera semecarpi

Fellhanera sublecanorina (Nyl.) Vězda, Lichenes Selecti Exsiccati, Fascicle 87 (nos 2151-2175) (Průhonice): 2 (no. 2156) (1987)
= *Bacidia sublecanorina* (Nyl.) Zahlbr., Cat. Lich. Univers. 4: 153 (1926) [1927]
= *Bilimbia sublecanorina* (Nyl.) Szatala, Annls Mus. natn. Hung., n.s. 7: 43 (1956)
= *Lecidea sublecanorina* (Nyl.) Vain., in Hiern, Cat. Afr. Pl. 2(2): 420 (1901)
= *Platygrapha sublecanorina* Nyl., Bull. Soc. linn. Normandie, sér. 2 2: 518 (1868)

[VZR92], Tanzania. Kanga F. R. ad latera austro- orientalia montis Kanga, 900 m. Foliicolia in pluviisilva submontana, Leg. E. Farkas (87227), 4.12.1985, det. A. Vězda. EX A, VĚZDA: LICHENES RARIORES EXSICCATI NR. 92.

Thallus continuous, 10–30 mm across and 10–20 µm thick, minutely farinose to almost granulose, pale bluish (to greenish) grey. Apothecia rounded, 0.2–0.4 mm diam. and 100–150 µm high; disc plane, dark brown to blackish brown; margin distinct, pale grey. Excipulum paraplectenchymatous, 15–30 µm broad. Hypothecium 10–30 µm high, brown, K–. Apothecial base brown, K–. Epithecium thin, 5–10 µm, light brown. Hymenium 45–50 µm high, colorless. Asci 40–45 x 10–14 µm. Ascospores 8 per ascus, oblong-ellipsoid, 3-septate, without or with slight constrictions at septa, 12–18 x 3–5 µm, 3.5–4.5 times as long as broad. Pycnidia sessile, cupuliform to subglobose, 0.07–0.15 mm diam. and 50–100 µm high, chamois-colored to grey; wall paraplectenchymatous. Conidia pyriform, non-septate, 3–4 x 1.5–2 µm. Chemistry: usnic acid, isousnic acid, zeorin. Distribution and Ecology. Pantropical. A rather common species, most typically found at midelevations in more open situations, but with a rather wide, ecological amplitude.

Fellhanera sublecanorina

Fellhanera sublecanorina

Fellhanera sublecanorina (Nyl.) Vězda, Lichenes Selecti Exsiccati, Fascicle 87 (nos 2151-2175) (Průhonice): 2 (no. 2156) (1987)
= *Bacidia sublecanorina* (Nyl.) Zahlbr., Cat. Lich. Univers. 4: 153 (1926) [1927]
= *Bilimbia sublecanorina* (Nyl.) Szatala, Annls Mus. natn. Hung., n.s. 7: 43 (1956)
= *Lecidea sublecanorina* (Nyl.) Vain., in Hiern, Cat. Afr. Pl. 2(2): 420 (1901)
= *Platygrapha sublecanorina* Nyl., Bull. Soc. linn. Normandie, sér. 2 2: 518 (1868)

[VZR5], Tanzania. Morogora regio, montes Nguru, in valle Dikurura, prope Mhonda Mission, 900 m. Foliicol in pluviisilva submontana. Leg. E. Farkas (89199), 22.3.1989, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 5.

Thallus continuous, 10–30 mm across and 10–20 µm thick, minutely farinose to almost granulose, pale bluish (to greenish) grey. Apothecia rounded, 0.2–0.4 mm diam. and 100–150 µm high; disc plane, dark brown to blackish brown; margin distinct, pale grey. Excipulum paraplectenchymatous, 15–30 µm broad. Hypothecium 10–30 µm high, brown, K–. Apothecial base brown, K–. Epithecium thin, 5–10 µm, light brown. Hymenium 45–50 µm high, colorless. Asci 40–45 x 10–14 µm. Ascospores 8 per ascus, oblong-ellipsoid, 3-septate, without or with slight constrictions at septa, 12–18 x 3–5 µm, 3.5–4.5 times as long as broad. Pycnidia sessile, cupuliform to subglobose, 0.07–0.15 mm diam. and 50–100 µm high, chamois-colored to grey; wall paraplectenchymatous. Conidia pyriform, non-septate, 3–4 x 1.5–2 µm. Chemistry: usnic acid, isousnic acid, zeorin. Distribution and Ecology. Pantropical. A rather common species, most typically found at midelevations in more open situations, but with a rather wide, ecological amplitude.

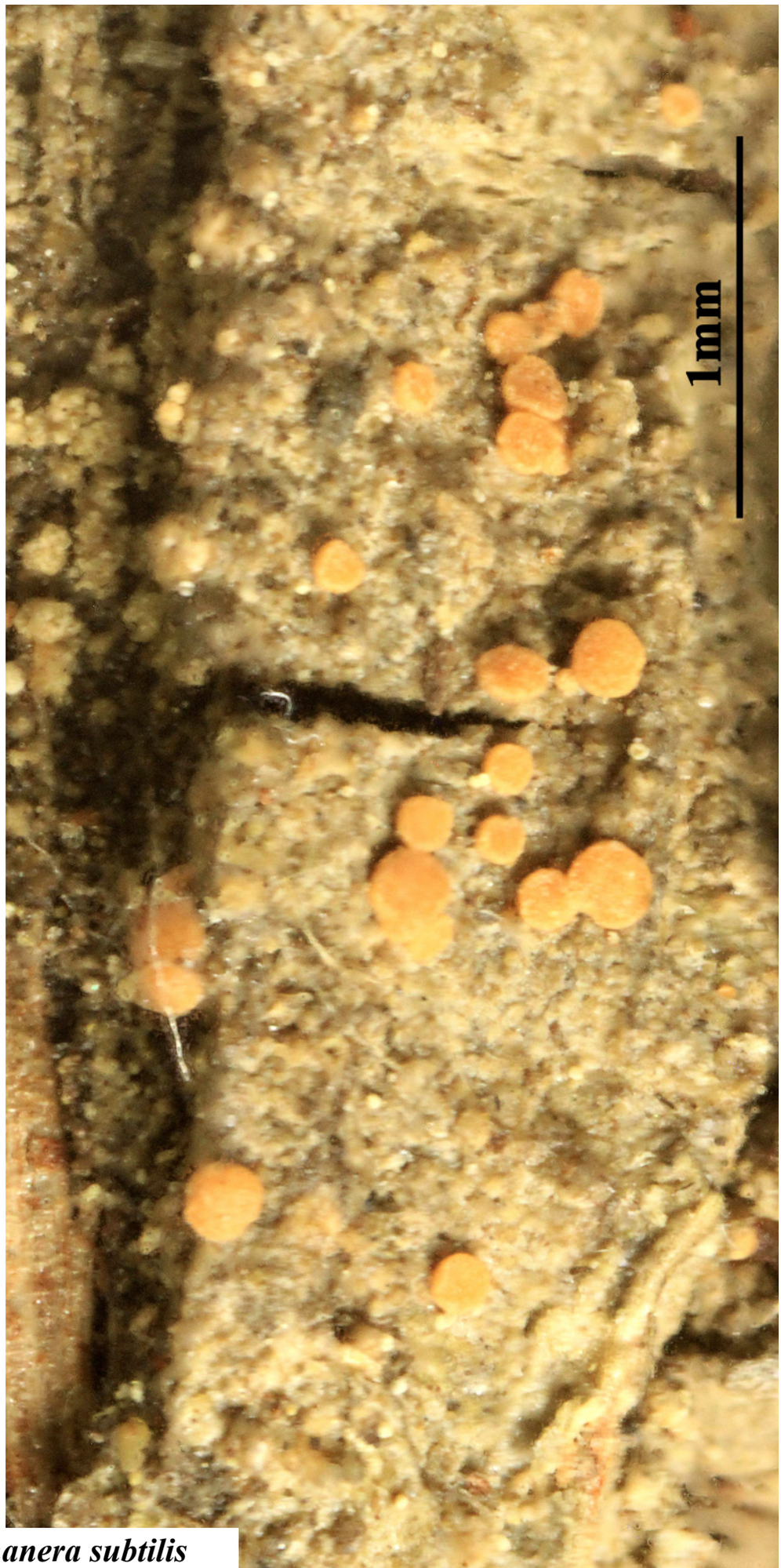
Fellhanera sublecanorina

Fellhanera subtilis (Vězda) Diederich & Sérus., in Sérusiaux, Mémoires de la Société Royale de Botanique de Belgique 12: 142 (1990) [1988]
= *Arthonia subtilis* (Vězda) Vězda, Lichenes Rariores Exsiccati, Fasc. 5 (nos 41-50) (Brno) 5: 3 (1961)
= *Bacidia subtilis* Vězda, Preslia 33: 367 (1961)

[VZR188], Polonia. Pomerania, reservatum naturae in silva "Kluki". Ad corticem *Vacinii myrtilli*. Leg. J. Miadlikowska, 18.5.1995. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 199.

Thallus crustose, episubstratic, 0.1-0.5 mm thick, grey-green, often shiny, smooth to granulose, esorediate. Apothecia biatorine, clustered towards thallus center, 0.1-0.5 mm across, with a flat to finally convex, whitish, pale grey-pink to pale brown disc, and a thin, paler, finally excluded proper margin. Proper exciple well-developed, thin, more or less colourless; epithecium, hymenium and hypothecium colourless; hymenium 40-60 µm high, I+ blue; paraphyses simple or sparingly branched, 0.5-1 µm thick at base, the apical cells to 2 µm wide. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Byssoloma-type. Ascospores (1-)3-septate, narrowly fusiform to clavate-fusiform, sometimes slightly curved, 10-16 x (2.5-)3.5-4.5(-5) µm. Pycnidia pinkish white, 0.1-0.3 mm across, immersed to emergent and thorn-like with a long neck. Conidia pear- or drop-shaped to almost ellipsoid, 3.5-4.6 x c. 1.5 µm. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: on twigs of small shrubs (e.g. *Vaccinium*, *Calluna*), more rarely on mosses (e.g. *Polytrichum*) and on twigs of *Picea* in cold sites, on north-facing slopes or in deep gorges, usually in upland areas; perhaps more widespread in the Alps.

Fellhanera subtilis



Fellhanera subtilis

Fellhaneropsis myrtillicola (Erichsen) Sérus. & Coppins, in Sérusiaux, Lichenologist 28(3): 199 (1996)
= *Bacidia myrtillicola* Erichsen, Mitt. Inst. Allg. Bot. Hamburg 10: 414 (1939)
= *Fellhanera myrtillicola* (Erichsen) Hafellner, in Vězda, Lichenes Selecti Exsiccati, Fascicle 95 (nos 2351-2375) (Průhonice): 3 (no. 2358) (1989)

[VZR343], Gallia. Montes Pyrenaei occid., Bayonne, in valle d´Esboue, prope locum "Cimeriére das Anglais". Foliicola (*Laurus nobilis*). Leg. J. Vivant, 10.4.1996, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 343.

Thallus crustose, thin and smooth to rarely granulose or slightly verrucose, greenish grey to bluish grey, somehow glossy, forming small, suborbicular patches which eventually merge to cover larger areas, usually delimited by a bluish prothallus. Apothecia biatorine, constricted at base, 0.1-0.2(-0.3) mm across, with a flat to convex, pale brown to bluish grey or bluish black disc and a thin, whitish, soon excluded proper margin. Proper exciple of vertically arranged hyphae with elliptical to polyhedral cells, up to 15 µm wide laterally, colourless throughout or very pale brown in innermost part; epithecium scarcely differentiated from the hymenium; hymenium colourless, I+ blue; paraphyses branched and anastomosing, 1-1.5 µm thick, forming a densely interwoven network around the ascus tips; hypothecium very thin, dark brown, K+ greenish brown to green in central parts. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Byssoloma-type. Ascospores 3(-5)-septate, hyaline, oblong-fusiform, straight or slightly curved, 16-28(-34) x 3-4 µm. Pycnidia dark grey to blue-black, immersed in the apothecia or sessile on the thallus, with palisadic hyphae on rim of ostiole (enclosing the conidial mass at least when young), producing (12-)20-45 µm long, thread-like macroconidia, or 4-8 µm long, bacilliform microconidia, respectively. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mild-temperate to southern boreal-montane lichen found on needles of *Abies* in very humid montane forests, but also on leaves of *Buxus* and *Laurus* in warm-humid gorges near the coast, to be looked for further in the most humid parts of the Alps.

Fellhaneropsis myrtillicola

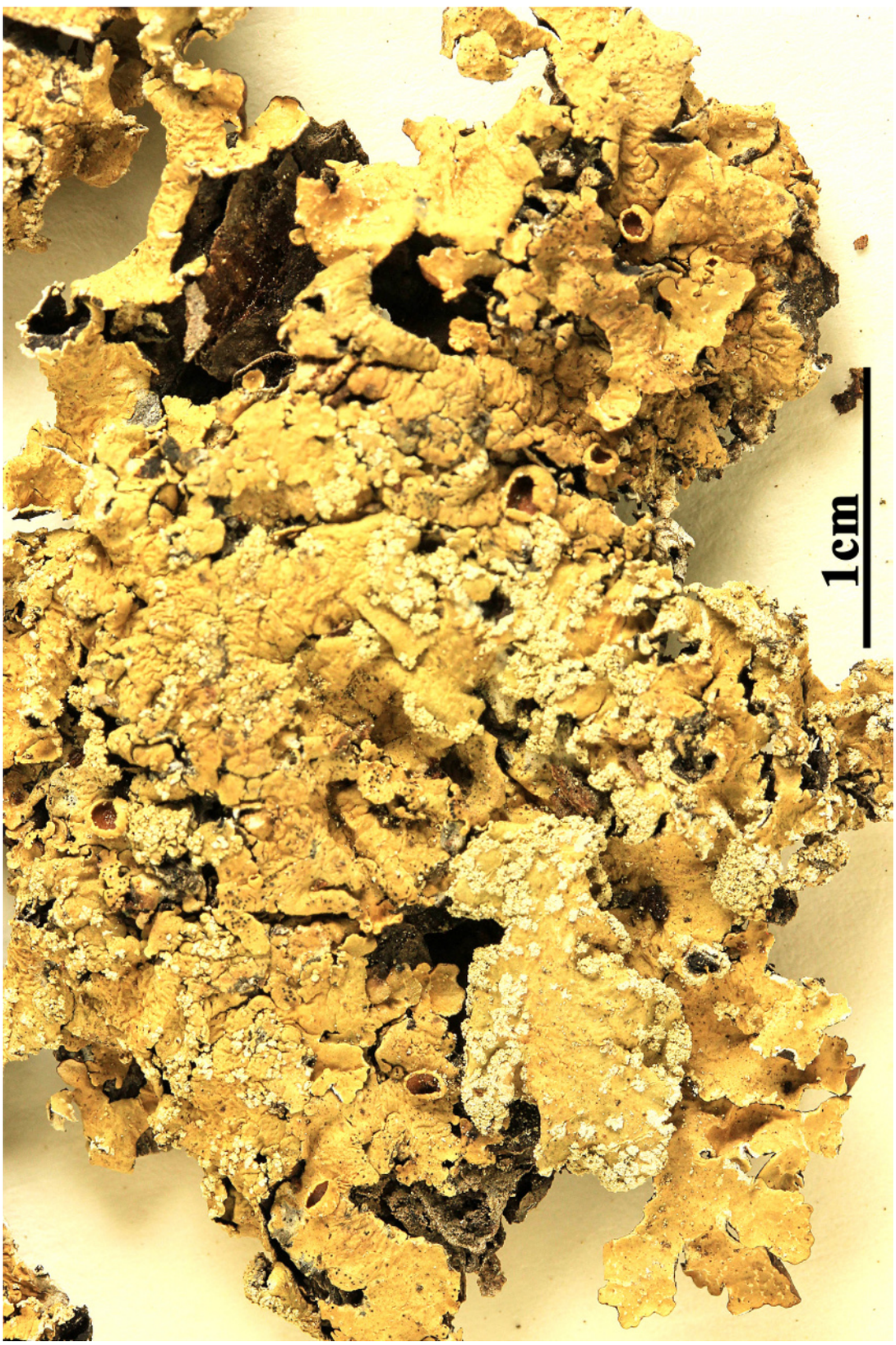
Fellhaneropsis myrtillicola

Flavopunctelia soredica (Nyl.) Hale, Mycotaxon 20(2): 682 (1984)
= *Parmelia soredica* Nyl. 1873

[VZR15], USA. Texas. Jeff Davis County: in montibus Davis Maoutains, ad septentriones et occidentem versus Fort Davis, loco "Lawrence E. Wood Picnic Area" secus viam dictam Route 118, 1525 m. Ad corticem truncorum *Pini* sp.. Leg. W. L. Culberson (no. 22145) et R. Ornduff, 11.8.1991 - Annot.: Usnic acid, lecanoric acid, and trace of unknown pigment by TLC, anal. A. Johnson & F. C. Culberson. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 15.

Thallus foliose, appressed to tightly adnate, to 12 cm wide, lobate; lobes linear, sublinear or subirregular, contiguous or very rarely separate, plane, 3-8 mm (-12 mm in specimens from California Channel Islands with apices rounded; upper surface pale green, yellowish green to greenish yellow, turning dull yellow to brownish with age in the herbarium, smooth to weakly wrinkled and rugose, rarely weakly ridged-reticulate, frequently with white maculae, rarely with a few marginal laciniae or pruina; pseudocyphellae absent or rare and very small, punctiform; soredia white, farinose to granular, covering reflexed, "crescent-shaped" lobe margins or irregularly along the lobe margins, infrequently with laminal soralia; medulla white with a continuous algal layer lower surface: smooth to finely wrinkled, dark chestnut brown to black, sometimes paler toward the margin; rhizines simple, rarely branching, short, concolorous with the lower surface, sometimes with white tips, usually absent in a zone along the margins; Apothecia rare (often immature); disc pale to dark rusty-brown; exciple: becoming sorediate: asci Lecanora-type, 8-spored; ascospores simple, hyaline, ellipsoid, 9-12 x 57 µm; Pycnidia black, rare or absent; conidia appearing straight filiform or bifusiform, 7-11 µm long; Spot tests: upper cortex K+ yellowish, KC-, C-, P-; medulla C+ red, KC+ red, K-, P-Secondary metabolites: upper cortex with usnic acid (minor); medulla with lecanoric acid (major), +5-chlorolecanoric acid (minor or trace). Substrate and ecology: on bark and wood of angiosperms (*Acacia, Acer, Canotia, Ceanothus, Cowania, Fraxinus, Fouquieria, Heteromeles, Juglans, Nolina, Prosopis, Prunus, Quercus, Rhus, Robinia, Salix, Yucca*), conifers (*Abies, Cupressus, Juniperus, Picea, Pinus, Pseudotsuga*) and very rarely on rock from 270-3200 m.World distribution: temperate and boreal areas of North America and southern South America, South Africa, India, Russia, Japan. - The lobes of *F. soredica* are

generally narrower than those of *F. flaventior*. Concentrations of 5-chlorolecanoric acid tend to be greater (scored as minor rather than trace amounts) in *F. soredica* (70%) when compared with its occurrence scored as minor in *F. flaventior* (22%).



Flavopunctelia soredica

Flavopunctelia soredica

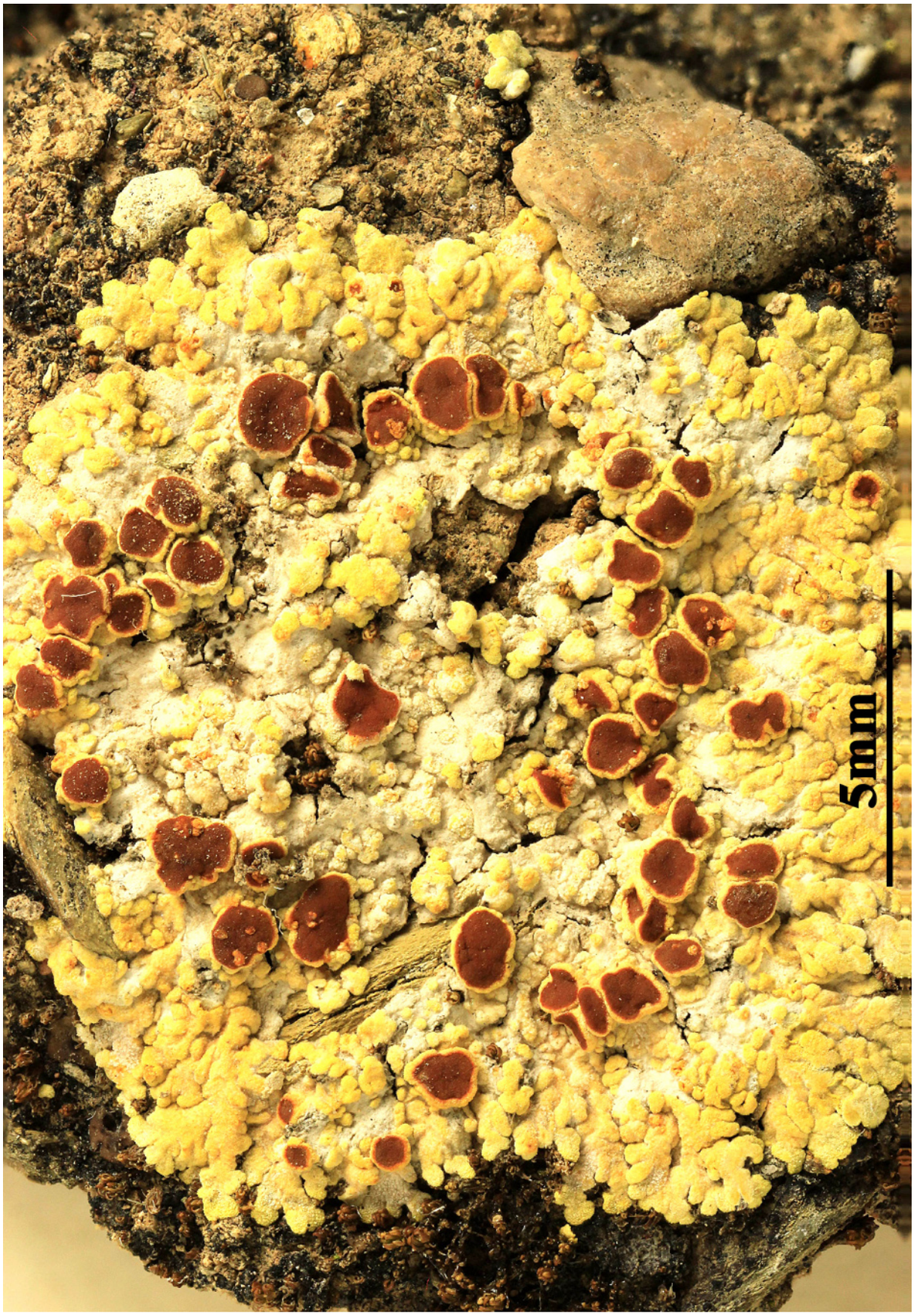
Fulgensia bracteata (Hoffm.) Räsänen, Acta Fauna Fl. Universali 1(5-6): 9 (1933)
= *Gyalolechia bracteata* (Hoffm.) A. Massal., Ric. auton. lich. crost. (Verona): 17 (1852)
= *Caloplaca bracteata* (Hoffm.) Jatta, Syll. Lich. Ital. (Trano): 236 (1900)
= *Placodium fulgens* var. *bracteatum* (Hoffm.) Müll. Arg., Hedwigia 31: 153 (1892)
= *Amphiloma bracteatum* (Hoffm.) Körb., Syst. lich. germ. (Breslau): 112 (1855)
= *Berengeria bracteata* (Hoffm.) Trevis., Spighe Paglie: 6 (1853)
= *Biatora fulgens* var. *bracteata* (Hoffm.) Fr., Summa veg. Scand., Sectio Prior (Stockholm): 112 (1845)
= *Caloplaca bracteata* var. *deformis* Erichsen, Mitt. Inst. Allg. Bot. Hamburg 10: 417 (1939)
= *Gyalolechia bracteata* subsp. *deformis* (Erichsen) Hafellner & Türk, Stapfia 104(1): 173 (2016)
= *Lecanora bracteata* (Hoffm.) Röhl., Deutschl. Fl. (Frankfurt) 3(2): 94 (1813)
= *Lecanora friabilis* var. *bracteata* (Hoffm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 40 (1845)
= *Lecanora fulgens* subsp. *bracteata* (Hoffm.) Th. Fr., Lich. Scand. (Upsaliae)(1): 223 (1871)
= *Lecanora fulgens var. bracteata* (Hoffm.) Ach., Lich. Univ.: 438 (1810)
= *Lichen bracteatus* (Hoffm.) Ach., Lich. suec. prodr. (Linköping): 102 (1799) [1798]
= *Lichen fulgens* * *bracteata* (Hoffm.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 384 (1813)
= *Lichen fulgens* var. *bracteatus* (Hoffm.) Wahlenb., Fl. Suec. 2: 811 (1826)
= *Parmelia friabilis* var. *bracteata* (Hoffm.) Schaer., Lich. helv. spicil. 9: 426 (1840)
= *Parmelia fulgens* f. *bracteata* (Hoffm.) Fr., Lich. eur. reform. (Lund): 119 (1831)
= *Parmelia fulgens* var. *bracteata* (Hoffm.) Ach., Methodus, Sectio post. (Stockholmiæ): 193 (1803)
= *Placodium bracteatum* (Hoffm.) Nyl., Lich. Scand. (Helsinki): 137 (1861)
= *Placodium fulgens* f. *bracteatum* (Hoffm.) Tuck., Syn. N. Amer. Lich. (Boston) 1: 171 (1882)
= *Placodium fulgens* subsp. *bracteatum* (Hoffm.) Nyl., Lich. Scand. (Helsinki): 137 (1861)
= *Psora bracteata* Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 169 (1796) [1795]

= *Psoroma fulgens* f. *bracteatum* (Hoffm.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 30: 124 (1881) [1880]
= *Sporoblastia bracteata* (Hoffm.) Trevis., Linnaea 28: 291 (1857) [1856]
= *Squamaria bracteata* (Hoffm.) H. Olivier, Mém. Soc. natn. Sci. nat. Cherbourg 37: 44 (1909)

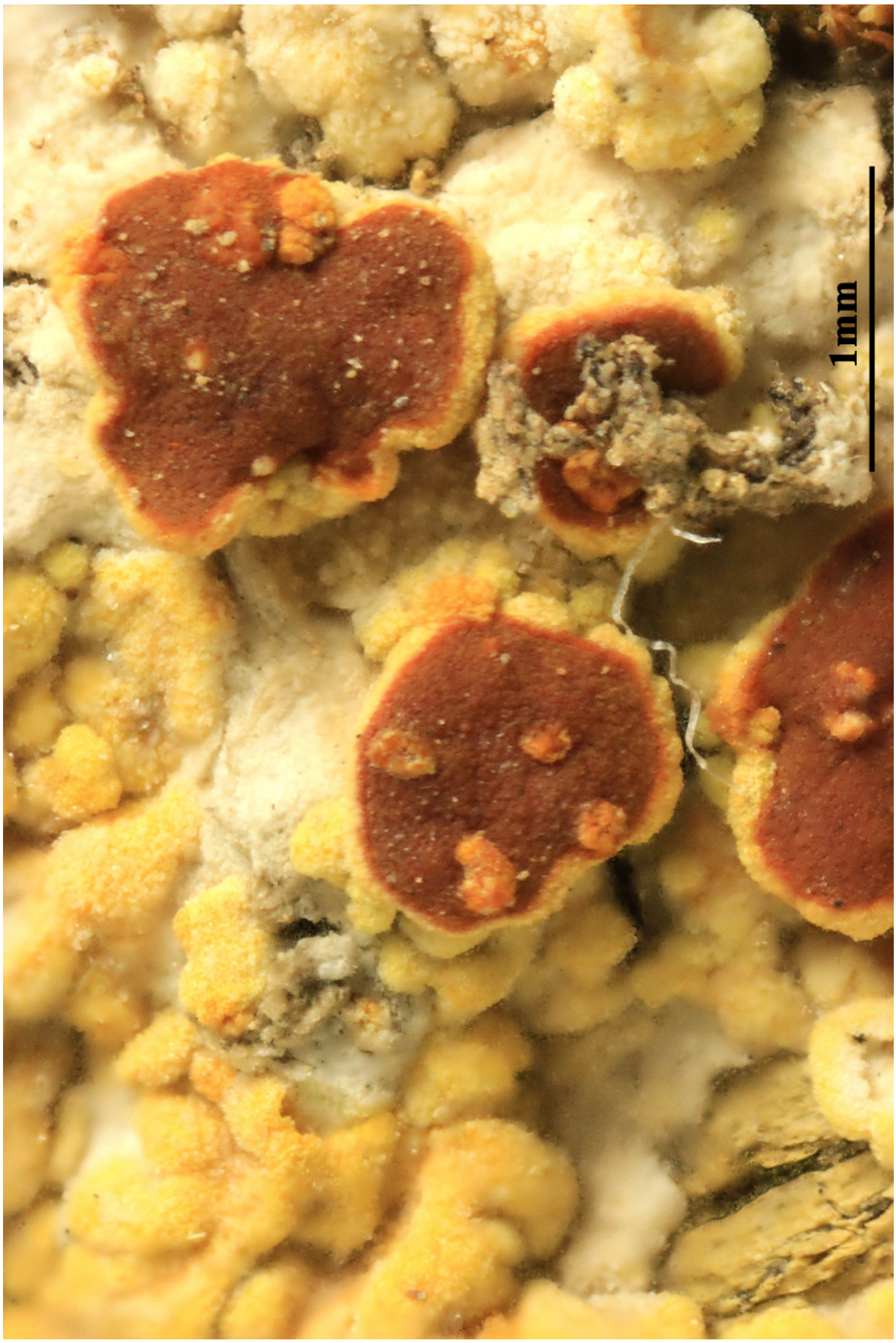
[VZR172], Italia, insula Elba: Agaciaccio di Fatavaia, 30 m. Ad terram in litore. Leg. F. Ceni & A. Vězda, 17.5.1995. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 172.

Thallus crustose, orange-yellow to golden yellow, consisting of more or less dispersed groups of areoles, sometimes with poorly developed marginal lobes, forming 1-2 cm wide patches. Areoles thick, rounded, flat to mostly convex, scattered to (mostly) contiguous on a rather thick whitish hypothallus, not or only slightly dissected at margin, more or less pruinose, the marginal ones sometimes slightly elongate, to 1-2 mm long. Apothecia frequent, zeorine, sessile, 1-2 mm across, with an orange-brown, weakly concave to flat, smooth to rugose disc, and a thick, orange-yellow margin, which at maturity separates into a darker and thinner proper margin and a paler thalline margin. Epithecium brownish orange, K+ purple-red; hymenium colourless, 60-70 µm high; hypothecium colourless. Asci 8-spored, clavate, functionally unitunicate, apically thickened with a broad internal beak, the inner part of apex and external cap I+ blue, Teloschistes-type. Ascospores 1-celled, hyaline, broadly ellipsoid, not restricted in the middle, thin-walled, 9-13(-15) x 4-7 µm. Pycnidia orange-yellow, immersed. Conidia narrowly ellipsoid. Photobiont chlorococcoid. Spot tests: thallus and apothecia K+ purple-red, C-, KC-, P-, UV+ pale orange. Chemistry: fragilin dominant, with smaller amounts of emodin and parietin; physcion present in the apothecia. - Note: on calciferous soil and terricolous mosses in open situations, sometimes in fissures of calcareous rocks, mostly near or above treeline.

Fulgensia bracteata



Fulgensia bracteata



Fulgensia bracteata

Fulgensia canariensis Follmann & Poelt, Philippia 4(5): 370 (1981)
= *Gyalolechia canariensis* (Follmann & Poelt) Søchting, Frödén & Arup, in Arup, Søchting & Frödén, Nordic J. Bot. 31(1): 70 (2013)
= *Caloplaca canariensis* (Follmann & Poelt) Breuss, Österr. Z. Pilzk. 10: 84 (2001)

[VZR74], Insulae Canarienses, Gran Canaria: distr. San Bartolome, in abruptis supra urbem Fataga, 800 m. Ad terram in fissuris rupium basalticarum. Leg. A, Vězda, 7.2.1993. EX A. VěZDA: LICHENES RARIORES EXSICCATI NR. 74.

Thallus crustose, episubstratic, orange-yellow, areolate, the areoles angular or sometimes sublobulate, convex, contiguous, the surface smooth, corticate; lower surface attached to the substrate by long hyphal strands. Cortical cells strongly gelatinized, irregularly arranged, with up to 2 µm wide and up to 15 µm long, tubular lumina, overlain by a colourless, 15-20 µm thick epinecral layer; algal layer continuous. Apothecia zeorine, sessile, up to 1.5 mm across, with a dark orange to orange-brown, flat, smooth, disc and a thin, orange-yellow margin. Thalline exciple finally limited to the basal part of apothecia; proper exciple of radiating hyphae with moderately thick walls and long and narrow lumina; epithecium orange-brown, K+ purple-red; hymenium colourless; paraphyses simple or sparingly branched, 1-2 µm thick at mid-level, the apical cells slightly wider. Asci 8-spored, clavate, functionally unitunicate, apically thickened with a broad internal beak, the inner part of apex and external cap I+ blue, Teloschistes-type. Ascospores 2-celled, not clearly polarilocular but the equatorial thickening ("septum") often incomplete, hyaline, pyriform, 12-17 x 5-7.5 µm. Pycnidia orange-yellow, immersed. Conidia bacilliform. Photobiont chlorococcoid. Spot tests: thallus and apothecia K+ purple-red, C-, KC-, P-. Chemistry: fragilin dominant, with smaller amounts of emodin and parietin, plus caloploicin, vicanicin and isofulgidin. - Note: a xeric subtropical lichen found on base-rich clay soil in clearings of grasslands and scrublands, common in Macaronesia and also known from North Africa; in Europe only known from a single station in central Sardinia (Gennargentu Massif near Desulo).

Fulgensia canariensis

Fulgensia canariensis

Fulgensia subbracteata (Nyl.) Poelt, Lich. Alp. 7: no. 137 (1961)
= *Gyalolechia subbracteata* (Nyl.) Søchting, Frödén & Arup, in Arup, Søchting & Frödén, Nordic J. Bot. 31(1): 72 (2013)
= *Caloplaca incrustans* var. *subbracteata* (Nyl.) Boistel, Nouv. Fl. Lich. (Paris) 2: 118 (1903)
= *Caloplaca subbracteata* (Nyl.) Lettau, Feddes Repert. Spec. Nov. Regni veg. 61: 28 (1958)
= *Lecanora incrustans* var. *subbracteata* (Nyl.) Harm., Lich. Fr. 5: 838 (1913)
= *Lecanora subbracteata* Nyl., Flora, Regensburg 66(34): 534 (1883)
= *Protoblastenia incrustans* var. *subbracteata* (Nyl.) Zahlbr., Cat. Lich. Univers. 7: 10 (1930) [1931]

[VZR481], Hispania. Prov. Zaragosa: El Ciervo, Retuerda de Pina, 200 m. Ad terram gypsaceam. Leg. et det. K. Kalb, 25.5.1983. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 481.

Thallus crustose-placodioid, episubstratic, yellow to orange-yellow, sometimes yellowish-white-pruinose, the central parts verrucose-areolate, forming orbicular to irregular, to 3-4 cm wide, often confluent rosettes. Lobes 0.5-1 mm broad and to 3 mm long, flattened, contiguous, radiating from the central part of thallus, which is densely covered in flattened, scale-like, often elongate schizidia. Cortex paraplectenchymatous, 20-50 µm thick, including an up to 40 µm thick epinecral layer; medulla white, 40-135 µm thick. Apothecia rare, lecanorine, sessile, 0.5-1.2 mm across, with an orange to brownish-orange, flat, smooth disc, and a thin, orange-yellow margin which at maturity separates into an internal, darker and thinner proper margin, and an external, paler thalline margin. Epithecium orange-brown, K+ purple-red; hymenium colourless, 60-70 µm thick; hypothecium colourless. Asci 8-spored, clavate, functionally unitunicate, apically thickened with a broad internal beak, the inner part of apex and external cap I+ blue, Teloschistes-type. Ascospores 1-celled, hyaline, ovoid to slightly pyriform, thin-walled, 9-12 x 3.5-5 µm. Pycnidia orange-yellow, immersed. Conidia narrowly ellipsoid. Photobiont chlorococcoid. Spot tests: thallus and apothecia K+ purple-red, C-, KC-, P-, UV+ pale orange. Chemistry: fragilin dominant, with smaller amounts of emodin and parietin and other anthraquinones (minor). - Note: on calciferous ground, in clearings of grasslands and scrublands, with optimum in the Mediterranean belt. A critical taxon, characterized by schizidia, which, however, also occur in other related species. According to Roux & coll. (2014), it

cannot be separated from G. fulgens, the schizidia being just a regeneration form from damages to the thallus, but according to Vondrák (in litt.), molecular data show that the two taxa are distinct.

Fulgensia subbracteata

Fulgensia subbracteata

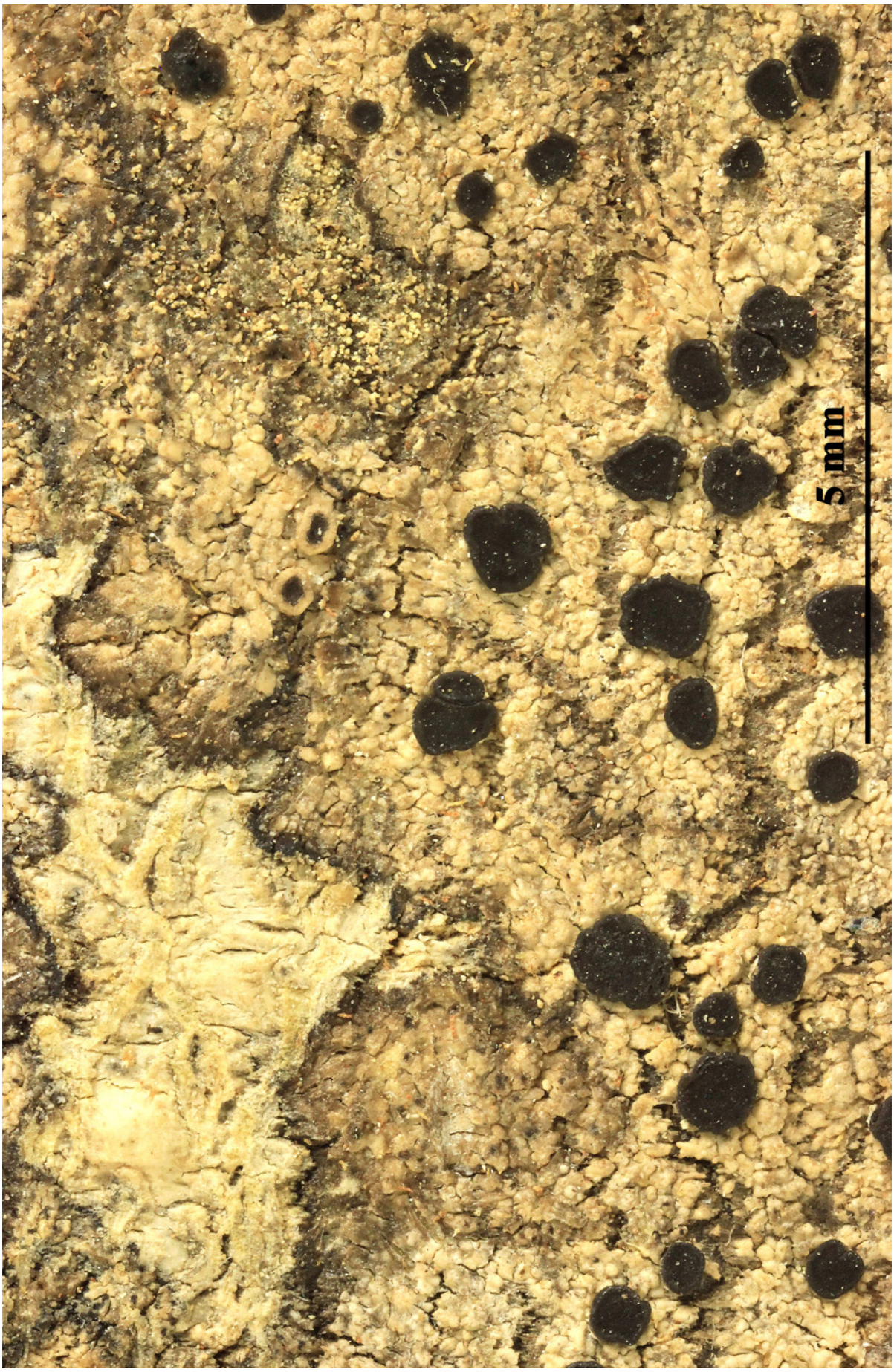
Fuscidea lightfootii (Sm.) Coppins & P. James, Lichenologist 10(2): 201 (1978)
= *Biatora lightfootii* (Sm.) Hepp, Flecht. Europ.: no. 503 (1860)
= *Biatora lightfootii f. commutata* (Ach.) Zopf, Justus Liebigs Annln Chem. 346: 87 (1906)
= *Biatorina lightfootii* (Sm.) Körb., Parerga lichenol. (Breslau) 2: 141 (1860) [1865]
= *Biatorina lightfootii* var. *commutata* (Ach.) Mudd, Man. Brit. Lich.: 179 (1861)
= *Catillaria lightfootii* (Sm.) H. Olivier, Fl. Lich. Orne 2: 217 (1884)
= *Catillaria lightfootii* var. *commutata* (Ach.) H. Olivier, Expos. Lich. Ouest France, Suppl. 2: 136 (1901)
= *Lecanora commutata* Ach., Lich. Univ.: 352 (1810)
= *Lecidea lightfootii* (Sm.) Ach., Lich. Univ.: 177 (1810)
= *Lecidea lightfootii* var. *commutata* (Ach.) Leight., Lich.-Fl. Great Brit.: 319 (1871)
= *Lichen lightfootii* Sm., in Smith & Sowerby, Engl. Bot. 21: tab. 1451 (1805)
= *Lichen peltatus* * *commutata* (Ach.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 393 (1813)
= *Lichen peltatus* * *lightfootii* (Sm.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 388 (1813)
= *Parmelia commutata* (Ach.) L. Colla, Mém. R. Accad. Sci. Torino, Ser. 2 12: 18 (1852)
= *Patellaria lightfootii* (Sm.) Duby, Bot. Gall., Edn 2 (Paris) 2: 653 (1830)
= *Zeora lightfootii* (Sm.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 124 (1850) [1849]
= *Zeora lightfootii* var. *commutata* (Ach.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 124 (1850) [1849]

[VZR469], Australia. Tasmania, Pruana Road, 3 km ad meridiem a Meunna. 41°07' merid., 145°28' orient., 340 m. Ad corticem fructu (*Athersperma moschatum*), in pluviisilva. Leg. G. Kantvilas (63/92), B. Fuhrer & J. Jarman, 29.1.1992. Ex A. Vězda: Lichzenes Rariores Exsiccati Nr. 469.

Thallus crustose, episubstratic, up to 0.9 mm thick, bright olive to dull grey-green, sometimes with a brownish tinge, finely to coarsely verrucose-areolate, sorediate, often delimited by a pale grey to dark brown prothalline line, the areoles often developing on a dark hypothallus, moderately to strongly convex, up to 0.3 mm wide, the apices often bursting into pale green or yellowish green, at first discrete and crateri-

form, finally often confluent soralia, the soredia farinose, 15-30(-40) µm wide, sometimes gathered into 43-55 µm wide consoredia. Medulla up to 0.25 mm, thick, I-, with crystals visible under polarized light. Apothecia frequent, lecideine, 0.5-1(-1.5) mm across, glossy, with a concave to slightly convex, dark grey-brown to black disc and a persistent, paler or concolorous, flexuose to sublobate proper margin. Proper exciple brown in outer part, paler within; epithecium brown; hymenium colourless to pale brown, 45-100 µm high, I-; paraphyses sparingly branched, 1.5-2.5 µm thick at mid-level, weakly coherent in water, more or less free in K, the apical cells clavate, to c. 5 µm wide, surrounded by a brown pigment; hypothecium colourless to straw-coloured. Asci 8-spored, clavate, developing at varying levels, with a thin external and internal K/I+ dark blue cap surrounded by a thick K/I+ pale blue apical cap, and with a K/I- apical tube in tholus, Fuscidea-type. Ascospores 1-celled or rarely 1-septate, hyaline, ellipsoid-cylindrical with obtuse ends, constricted in central part, (6-)8-10(-12) x (2.3-)3.5-4(-5) µm, quite thick-walled. Pycnidia inconspicuous, immersed. Conidia simple, broadly ellipsoid to broadly pyriform, hyaline, 1.5-2 x 1-1.5 µm. Photobiont chlorococcoid. Spot tests: medulla and soralia K-, C-, KC-, P-, UV+ bluish white. Chemistry: divaricatic acid. - Note: on the usually smooth bark of small twigs of various trees and shrubs in rather shaded and humid situations, often near bogs or streams; widespread in the Holarctic region, with a western tendency in Europe and a few scattered records from the Alps.

Fuscidea lightfootii



Fuscidea lightfootii

Fuscidea lightfootii

Glonium circumserpens (Nyl.) Kantvilas & Coppins, Lichenologist 29(6): 525 (1997)

= *Melaspilea circumserpens* Nyl., in Crombie, J. Linn. Soc., Bot. 17: 401 (1879)

[BZR342], Tasmania. Via "Grasstree Hill Road", 1.5 km ad occid. ab Grasstree Hill, 200 m. Ad terram nudam in silva sicca (Eucalyptus tenuiramis). Leg. & det. G. Kantvilas. EX A. VěZDA: LICHENES RARIORES EXSICCATI NR. 342.

Thallus ' over soil or rocks, often inapparent but when well-developed forming a more or less radiating, dark brown, mat-like subiculum of vegetative hyphae. Sometimes the ascomata occur amongst a thin, discontinuous greenish to blackish film associated with a unicellular green alga with cells (6.5-) 11-15 |µm diam., often aggregated in globular clusters 20-40 µm wide. Vegetative hyphae dark brown to blackish, sparsely branched, loosely intertwined in a subiculum on the surface of the substratum, or present as scattered ' threads ' ramifying through soil, 4.5-5 (-7) µm wide with elongate cells c. 10-30 |µm long; cell walls becoming minutely warted. Ascomata lirelliform, mostly 1-3(-4-5) mm long, 0.15-0.3 mm wide, 0.35- 0.5 mm tall, black, often glossy, very brittle, superficial over the substratum, simple or occasionally branched, straight or slightly curved, dispersed, crowded and sometimes overlapping or, most commonly, laterally contiguous in radiating, ± stellate clusters up to 10-20 mm wide; lips convergent to a very narrow slit or ± fused. Exciple in section black, completely carbonized and very brittle, 20-80 (µm thick at the sides, 50-100 µm thick at the base, ± unchanged or very weakly olive in K, unchanged or weakly reddish brown in HNO3, consisting of irregular, connate cells, 4.5-11.5 µm wide, becoming colourless or pale brown in the upper part and merging into a hypothecium up to c. 55 µmµmµm thick. Hymenium colourless, 95-150 µm thick, I- with or without pretreatment in K. Asci eight-spored, narrow cylindrical, 85-120 µm long, l.l - 1.5 |µm wide, non-amyloid (although contents sometimes 1+ yellow-brown), with a thickened tholus and small, cylindrical ocular chamber. ' Paraphyses ' (paraphysoids) separating easily, serpentine, sparsely branched and anastomosing, l-2(-2.5) µm thick; apices blunt, neither pigmented nor swollen. Ascospores hyaline, lacking a perispore, thinwalled, without discernible perispore (in LM at x 1000), 1-septate, noticeably constricted at the septum, sometimes with apices rather pointed, (15-) 16 -17

x 6-7 µm. - Glonium circumserpens could be mistaken for a member of the Opegraphaceae (now often subsumed within the Roccellaceae), but species of that family have a hymenium that contains a gel matrix, which is often amyloid, and asci that have amyloid endotunica (at least after pretreatment in K) and often a K/I+ blue apical ring. The unique habit of this species possibly accounts for its original, incorrect inclusion in Melaspilea, although this genus has become, over the years, a repository for a wide range of completely unrelated species with lirelliform apothecia.

Glonium circumserpens

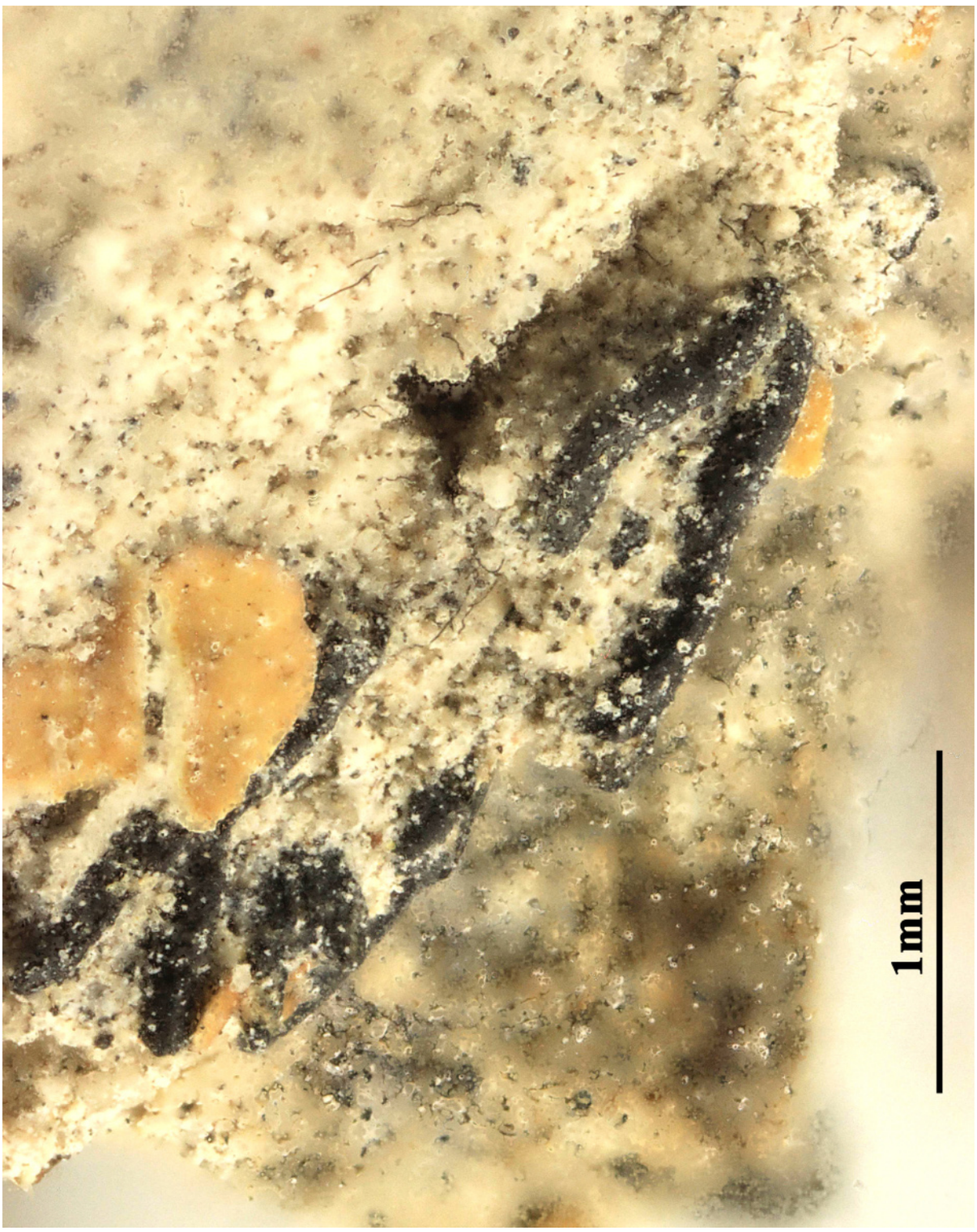
Glonium circumserpens

Glonium circumserpens

Glonium circumserpens

Glonium circumserpens

Glonium circumserpens



Glonium circumserpens

Gyalecta geoica (Wahlenb.) Ach., K. Vetensk-Acad. Nya Handl. 29: 229 (1808)
= *Lecidea geoica* (Wahlenb.) Nyl., Lich. Scand. (Helsinki): 190 (1861)
= *Lichen geoicus* (Wahlenb.) Wahlenb., K. Vetensk-Acad. Nya Handl. 27: 142 (1806)
= *Lichen opegraphus* * *geoica* (Wahlenb.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 409 (1813)
= *Secoliga geoica* (Wahlenb.) Körb., Parerga lichenol. (Breslau) 2: 111 (1860) [1865]
= *Urceolaria geoica* Wahlenb., in Acharius, Methodus, Sectio prior (Stockholmiæ): 149 (1803)

[VZR321], Moravia austro-occid, distr. Brno, in colle "Drásovský kopeček" prope opp. Tišnov, 350 m. Ad terram humosam in rupibus calcareis. Leg. B. Gruna & A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR.321.

Thallus crustose, episubstratic, whitish or yellowish white, very thin, more or less continuous, sometimes granulose-farinose, often inapparent. Apothecia without a thalline margin (but often covered at the base by a thin thalline layer when young), semi-immersed, not constricted at base, (0.2-)0.3-0.5(-0.6) mm across, with a yellowish to orange-brown, concave to flat disc and a thick, raised, more or less pink-coloured, paler proper margin. Proper exciple prosoplectenchymatous; epithecium colourless to pale yellowish brown; hymenium colourless, 80-110 µm high, the hymenial gel I+ blue; paraphyses simple to sparingly branched, c. 1.5 µm thick at mid-level, the apical cells to 3 µm wide; hypothecium colourless or pale yellowish brown. Asci 8-spored, cylindrical to elongate-subclavate, thin-walled, without tholus, the tip drawn out into a conical point, the wall K/I+ blue. Ascospores 3-septate, with at least one septum not parallel with the others, hyaline, narrowly ellipsoid, (9-)10-16(-18) x 4-7 µm. Photobiont trentepohlioid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a cool-temperate to arctic-alpine, circumpolar species found on soil, bryophytes and plant debris over calcareous or basic siliceous substrata, often in rock fissures in sheltered situations, mostly in upland areas.

Gyalecta geoica

Gyalecta geoica

Gyalecta schisticola Werner, Bull. Soc. Sci. Nat. phys. Maroc 14(4-6): 148 (1934)

[VZR86], Insulae Canarienses, Gran Canaria: distr. Arucas, Moya, in valle Los Propios, 500 m. Ad saxa eruptiva humida. Leg. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 86.

Thallus crustose, thinly episubstratic or poorly visible, formed by whitish granules dispersed among rock crystals. Apothecia sessile and constricted at base, 0.5-0.8(-1) mm across, with a concave, yellowish brown to brown disc, and a thick, prominent, smooth to crenulate proper margin. Proper exciple pale pink to brownish yellow in outer part, colourless within, the lower part 20-35(-50) µm thick, not paraplectenchymatous; epithecium colourless, barely distinguishable from the hymenium; hymenium colourless or yellowish in lower part, up to 165 µm high, inspersed with small yellow droplets; paraphyses coherent, clearly longer than the asci, c. 2 µm thick at mid-level, the apical cells hardly swollen; hypothecium colourless, 40-50 µm high. Asci 8-spored, thin-walled, lacking an apical apparatus or tholus, the wall K/I+ blue. with uniseriately or partly biseriately arranged spores. Ascospores muriform at maturity, with 3-6 transverse septa and 1-2 longitudinal septa, hyaline, ellipsoid, 18-25(-30) x (7-)9-12 µm. Photobiont trentepohlioid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a Macaronesian-Mediterranean species related to *G. jenensis*, but differing in some anatomical details, and growing on schists, mainly in more or less coastal situations; apparently with a Tyrrhenian distribution in Italy.

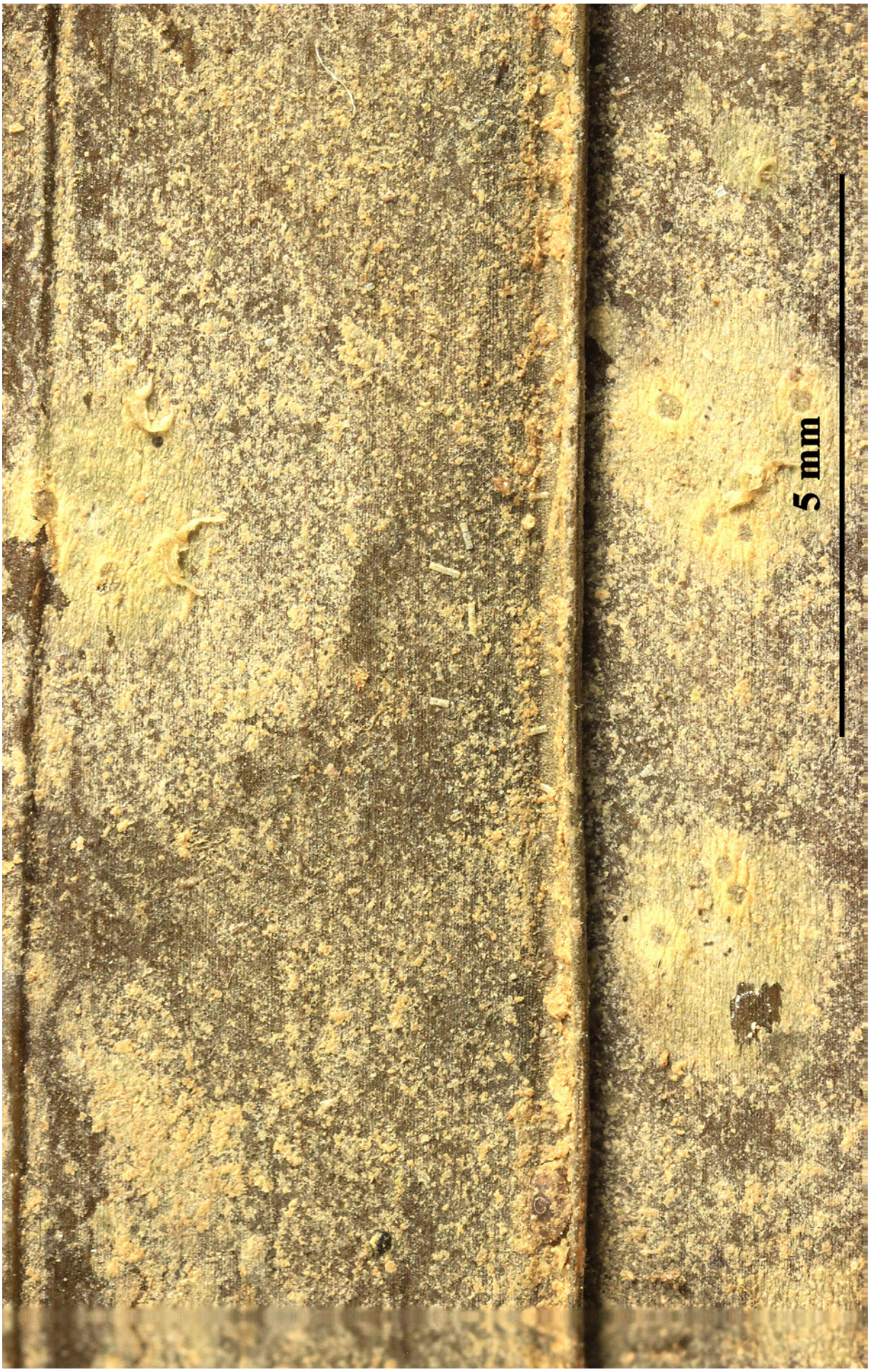
Gyalecta schisticola

Gyalecta schisticola

Gyalectidium catenulatum (Cavalc. & A.A. Silva) L.I. Ferraro, Lücking & Sérus., in Ferraro & Lücking, Trop. Bryol. 19: 64 (2000)
= *Tauromyces catenulatus* Cavalc. & A.A. Silva, in Cavalcante, Cavalcanti & Leal 1972

[VZR439], Aequatoria. Prov. Napo, reservatum naturae "Yasuni", 0°56' merid., 67°12' occid., 300 m. Ad folia arborum. Leg. M. Macia, Z. Palice & R. Valencia, 15-08.1999, det. R. Lücking. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 439.

Thallus in small, rounded patches 2–5 mm across and 10–15 µm thick, with cartilaginous, corticiform layer, smooth and lacking crystals, pale greenish to yellowish grey. Apothecia rounded, 0.2–0.5mm diam. and 60–90 µm high; disc plane, greenish grey; margin rather thin, slightly prominent, white to brownish grey. Excipulum 5–10 µm broad. Hypothecium 5–10 µm high. Epithecium 5–10 µm high, with numerous, epithecial algae, cells 3–5 µmm diam. Hymenium 50–60 µm high. Asci 40–50 x 18–28 µm. Ascospores 30–40 x 15–20 µm, 2 times as long as broad. Hyphophores frequent, formed on thallus surface, projecting obliquely, squamiform and usually with 2 acute, lateral projections, upper part sometimes bent inwards or cucullate, 0.3–0.7 mm wide and 0.3–0.5 mm long (high), white to pale yellow. Chemistry: no substances detected by TLC. Distribution and Ecology: Neotropics and eastern Paleotropics (Taiwan; Aptroot et al., 2003b). Apparently common, with populations sometimes covering whole leaf surfaces, but a typical canopy dweller and certainly overlooked.



Gyalectidium catenulatum

Gyalectidium catenulatum

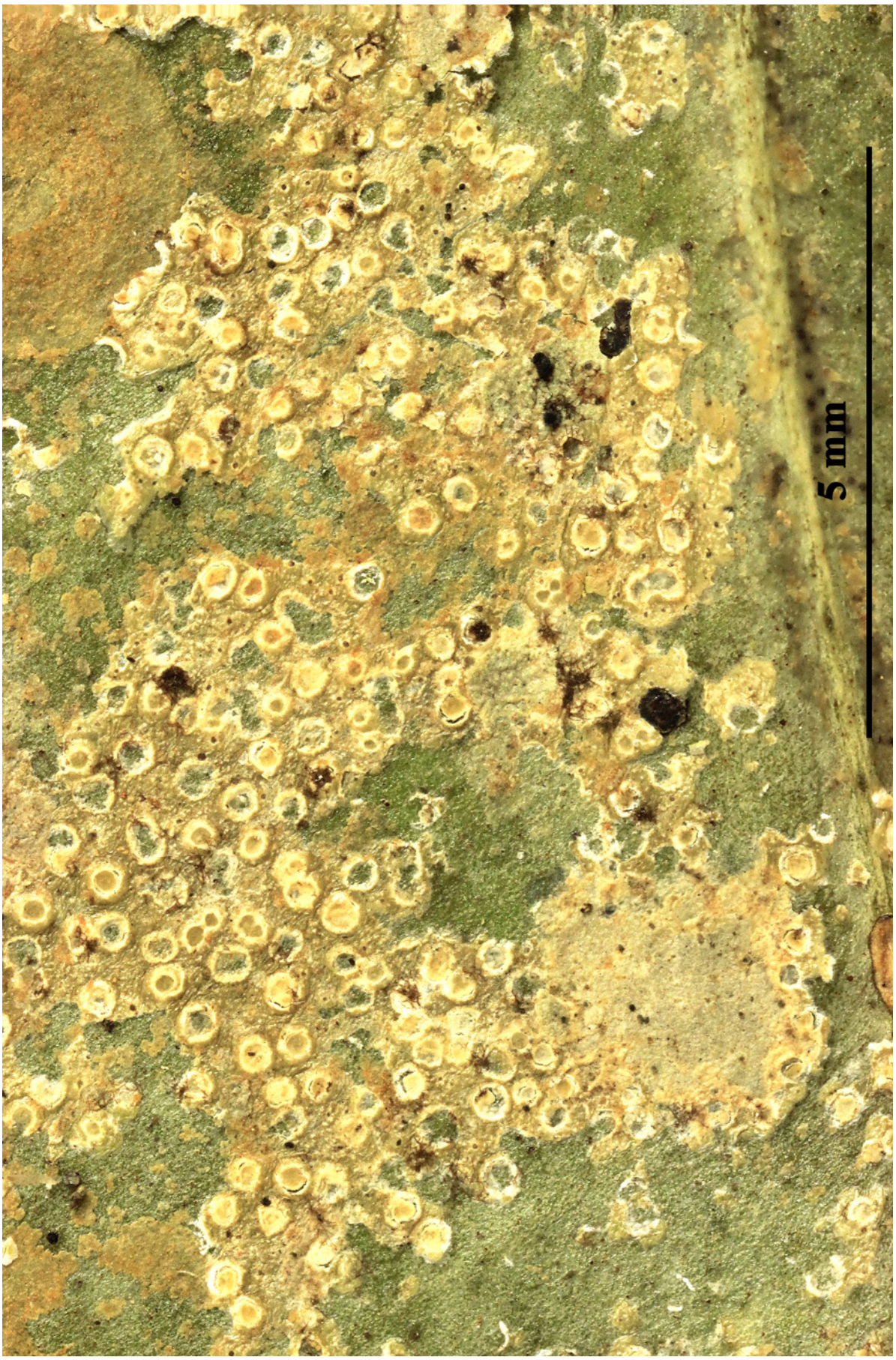
Gyalectidium catenulatum

Gyalectidium catenulatum

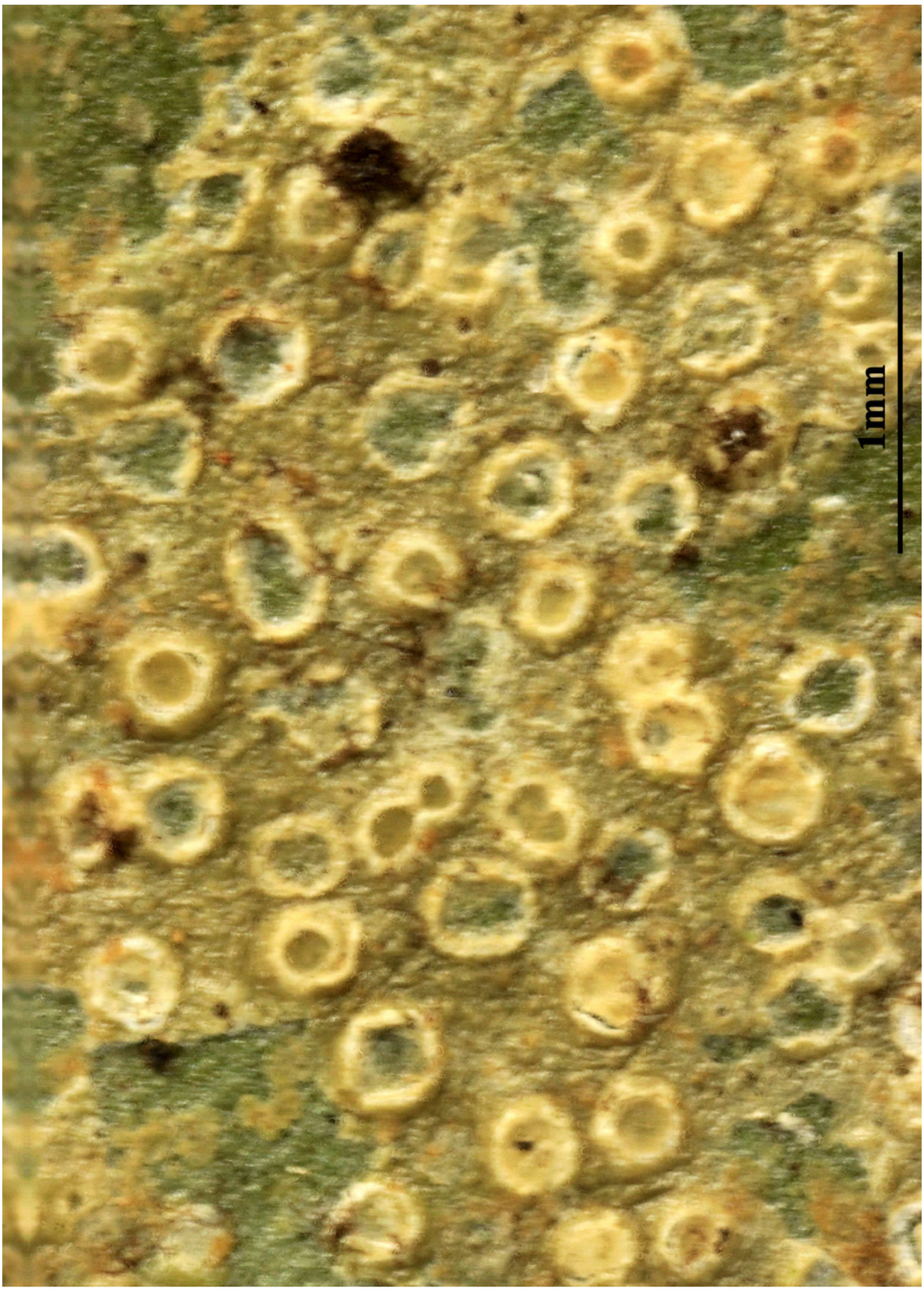
Gyalectidium filicinum Müll. Arg., Flora, Regensburg 64(7): 101 (1881)
= *Ectolechia filicina* (Müll. Arg.) Vain., J. Bot., Lond. 34: 206 (1896)
= *Lopadiopsidomyces coffeae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 265 (1954)
= *Lopadiopsis coffeae* (Müll. Arg.) Zahlbr., Cat. Lich. Univers. 2: 676 (1924)
= *Myxodictyon coffeae* Müll. Arg., Lich. Epiph. Novi: 4 (1890)
= *Sporopodium filicinum* (Müll. Arg.) Zahlbr., Cat. Lich. Univers. 2: 679 (1924)

[VZR44], Insulae Antillarum, Guadeloupe: insula Maria Galante, in faucibus vallis "St. Louis" loco dicto "Grand Bassin", 20-30 m. Ad folia arborum (*Citrus aurantium*). Leg. J. Vivant, 20.-21. 3.1992. det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 44.

Thallus in small, rounded patches 1–5(–10) mm across and 20–30 µm thick, with a cellular, corticiform layer, finely verrucose due to incrustation with calcium oxalate crystals, pale greenish grey; verrucae 0.03–0.07 mm diam., white. Apothecia rounded, 0.2–0.4 mm diam. and 70–100 µm high; disc plane to slightly concave, yellowish green; margin rather thick, slightly prominent, smooth, white to pale green. Excipulum 5–10 µm broad. Hypothecium 5–10 µm high. Epithecium 5–10 µm high, with numerous, epithecial algae, cells 3–5 µm diam. Hymenium 60–70 µm high. Asci 50–60 x 15–20 µm. Ascospores 30–40 x 13–18 µm, 2.5–3 times as long as broad. Hyphophores frequent, formed on thallus surface or near margin, projecting obliquely, squamiform with 2acute, lateral projections, 0.3–0.6mm long and 0.3–0.3 mm wide, white. Chemistry: no substances detected by TLC. Distribution and Ecology: Pantropical, extending into subtropical regions. By far the most common species of the genus, being found in all microclimatic situations but most common in sheltered to semi-exposed places with an oceanic climate.



Gyalectidium filicinum

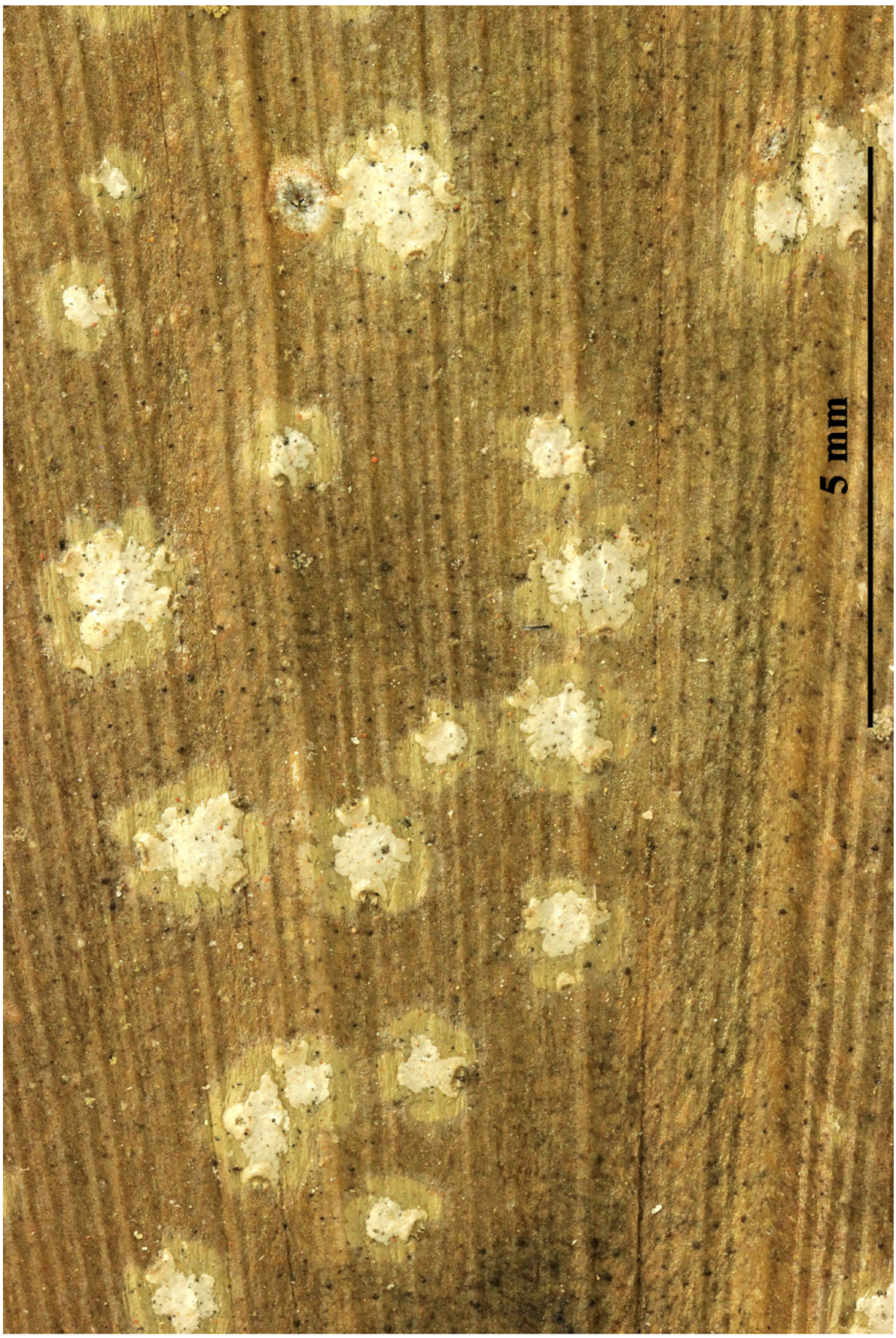


Gyalectidium filicinum

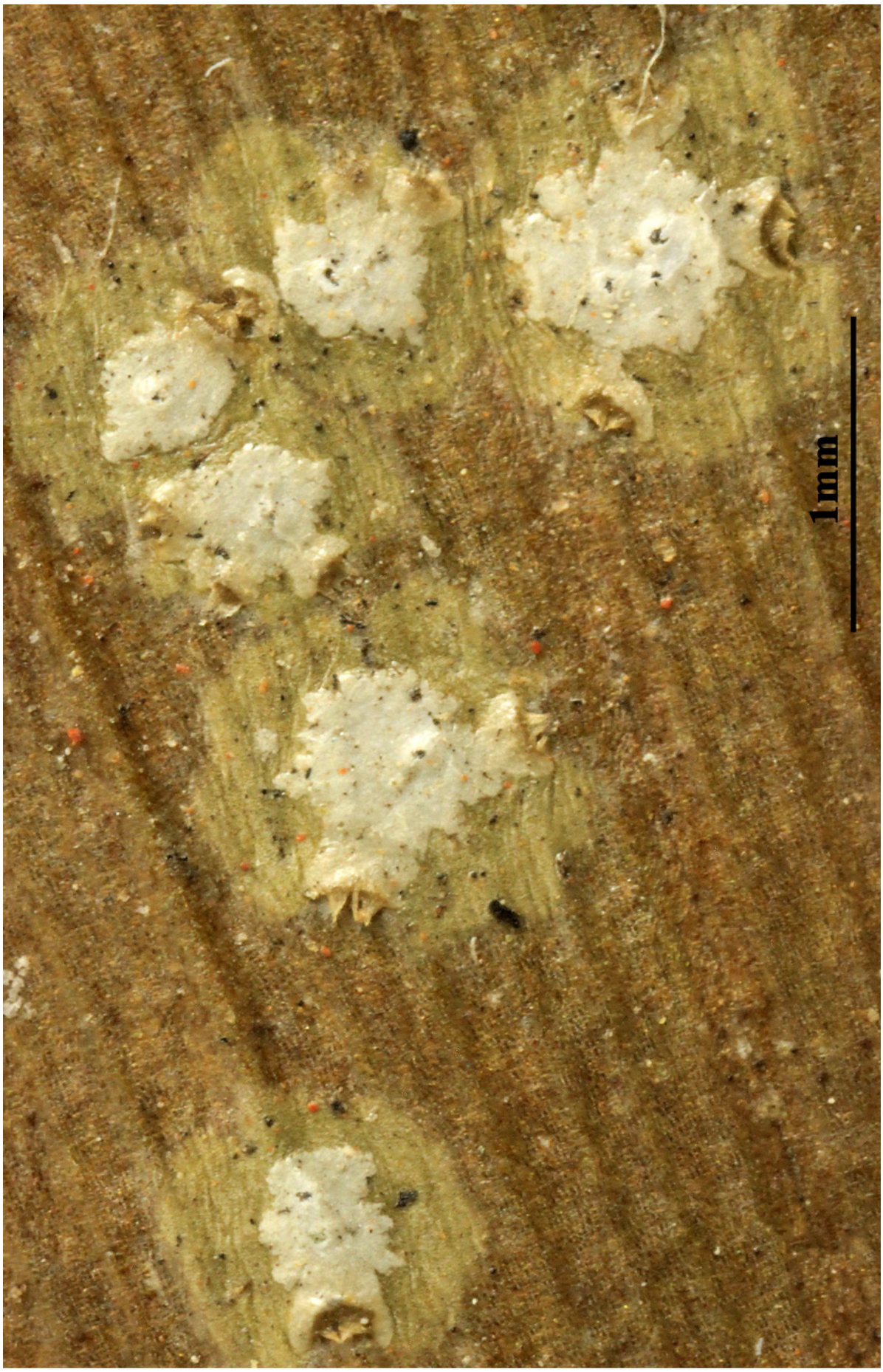
Gyalectidium palmicola Farkas & Vězda, Folia geobot. phytotax. 28(3): 326 (1993)

[VZR93], Cuba, Havanna, hortus botanicus. Foliicola (Palmarum sp.). Leg. E. Farkas, 12.6.1990. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 93.

Thallus in small, rounded patches 0.5–2mm across and 10–20 µm thick, with cartilaginous, corticiform layer, coarsely areolate due to incrustation with calcium oxalate crystals, green; areoles 0.2–0.5 mm diam., sometimes confluent in thallus center, white. Apothecia rounded, 0.1–0.2 mm diam. and 60–80 µm high; disc plane, grey and thinly pruinose; margin rather thin, slightly prominent, smooth to irregularly lobulate, white. Excipulum 5–10 µm broad. Hypothecium 5–10 µm high. Epithecium 5–10 µm high, with epithecial algae, cells 2–4 µm diam. Hymenium 50–70 µm high. Asci 40–50 x 15–20 µm. Ascospores 30–45 x 10–15 µm, 3 times as long as broad. Hyphophores frequent, formed near thallus margin along edges of distinctly inflated, crescent-shaped, crystalline bulges, their scales projecting horizontally, broadly squamiform with upper margin coarsely dentate, 0.1–0.2 mm long and 0.3–0.4 mm wide, white translucent with darker base. Chemistry: not tested. Distribution and Ecology. Neotropics (Cuba). Thus far, known only from the rich type collection. - Exsiccatae. Vezda, Lich. Rar. Exs. 93. Gyalectidium palmicola is characterized by its areolate thallus and its horizontally projecting, coarsely dentate, hyphophore scales. Other species with areolate thallus, such as *G. areolatum, G. plicatum*, and *G. fantasticum*, differ clearly in their hyphophore morphology. *Gyalectidium paolae*, which also has an areolate thallus, lacks the crystalline bulges typical of G. palmicola, and its hyphophore scales are very minutely dentate and black.



Gyalectidium palmicola



Gyalectidium palmicola

Gyalidea culbersoniana Vězda & Poelt, Phyton, Horn 30(1): 51 (1990)

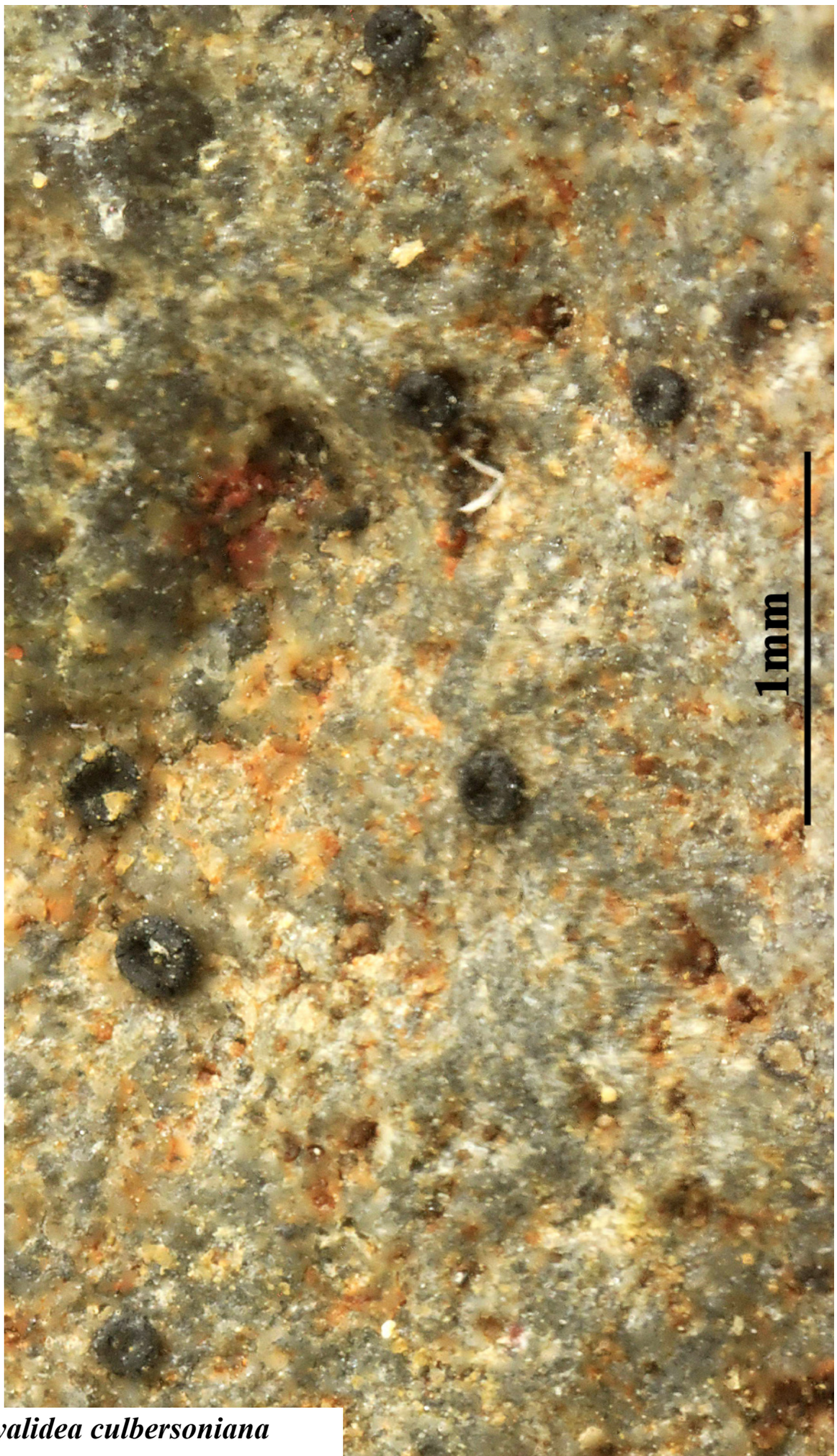
[VZR453], Aequatoria. Prov. Chimborazo, reservatum naturale Sangay, El Altar, prope lacum crateris Laguna Amarilla, alluvium secum rivuli Collantes, 1°40'10" austr., 78°26'15" occid., 39oo m. Ad lapides in ripa rivuli. Leg. Z. Palice, 26.8.1999, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 453.

Thallus crustaceus, tenuis, cinereo-albidus, lapillos incolens. Apothecia orbicularia vel ambitu paulum flexuosa, urceolata, marginibus nigris, discis atrifuscis, concavis vel planis, (0,1-)0,25(-0,35) mm latis, 0,1mm altis, basin versus constrictis. Excipulum atrifuscum, circ. 25 µm crassum. Hymenium 50 \µm altum, hyalinum, in zona epihymeniali atrifuscum. Paraphyses simplices, tubulis 0,8 µm diam. Asci cylindrico-clavati, 8-spori. Ascosporae ellipsoideae, uniseptatae, ad septa paulum constrictae, 9-12 x 3-3,5 µm, membranis exterioribus gelatinosis. Eponymie: Den Sammlern der Art, Chicita und Bill CULBERSON, Durham, die so viel Grundlegendes zur Chemotaxonomie der Flechten beigetragen haben, in Dankbarkeit zugeeignet.

Beschreibung: Thallus sehr dünn, grauweiß, kleine Steinbruchstückchen überziehend, mit Erdstaub durchgemischt und dann kaum erkennbar. Apothecien rund oder am Rande etwas wellig-verbogen, krugförmig, (0,1-)0,25(-0,35) mm breit, 0,1 mm hoch, unten eingeschnürt; Rand schwarzbraun, ± vorstehend, ungeteilt. Discus dunkelbraun, konkav bis flach. Excipulum seitlich um 25 µm breit, schwarzbraun, unten dünner und heller bis fast farblos, vom Hypothecium kaum deutlich abgegrenzt. Hymenium um 50 µm hoch, farblos, im epihymenialen Bereich dunkelbraun. Paraphysen dünn Lumen um 0,8 µm breit, einfach, mit unverdickten Enden. Asci zylindrisch-keulig, mit Tholi versehen, 8sporig. Ascosporen ellipsoidisch, zweizeilig, an den Septen leicht eingeschnürt, 9-12 x 3-3,5 µm, die äußere Wandschicht in Wasser verschleimend (im Mikroskop die Außenkonturen dann nicht erkennbar). Die Art besiedelt kleine (0,5 - 1 cm) Steinbruchstückchen auf feuchter lehmiger Erde, vergesellschaftet mit 2 anderen *Gyalidea*-Arten: G. *dodgei* VEZDA - G. *eulbersoniana* erinnert in vielen Merkmalen an die bisher nur von den Sudeten und den Ostalpen bekannte G. *diaphana* (KOERB.) VEZDA. Beide Arten sehen habituell sehr ähnlich aus, sie haben auch zweizeilige Ascosporen; gut unterscheiden lassen sie sich nur im anatomischem Bau. Das Excipulum bei

G. diaphana ist farblos oder leicht gebräunt, ebenfalls das Hymenium. Die Ascosporen von G. *diaphana* finden sich fast regelmäßig in den Asci zu weniger als 8 und sind dann sehr variabel in Form und Septierung, 4-zellige Ascosporen sind nicht selten. Die Sporen sind mit 15 - 30 x 3 - 5 µmm auch durchschnittlich größer als bei *G. culbersoniana.*

Gyalidea culbersoniana

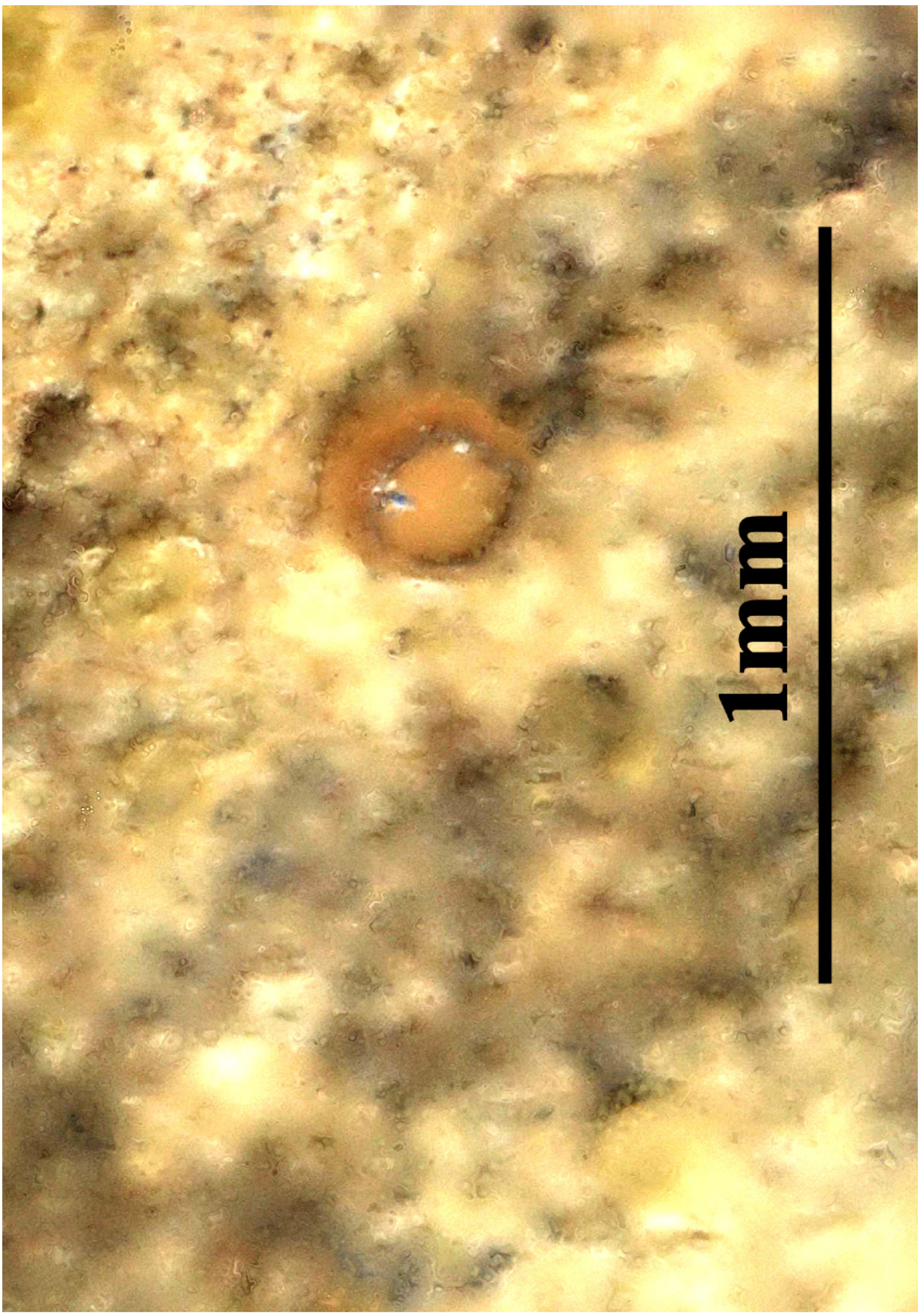


Gyalidea culbersoniana

Gyalidea kawanae H. Harada & Vězda, Nat. Hist. Res. 5(2): 58 (1999)

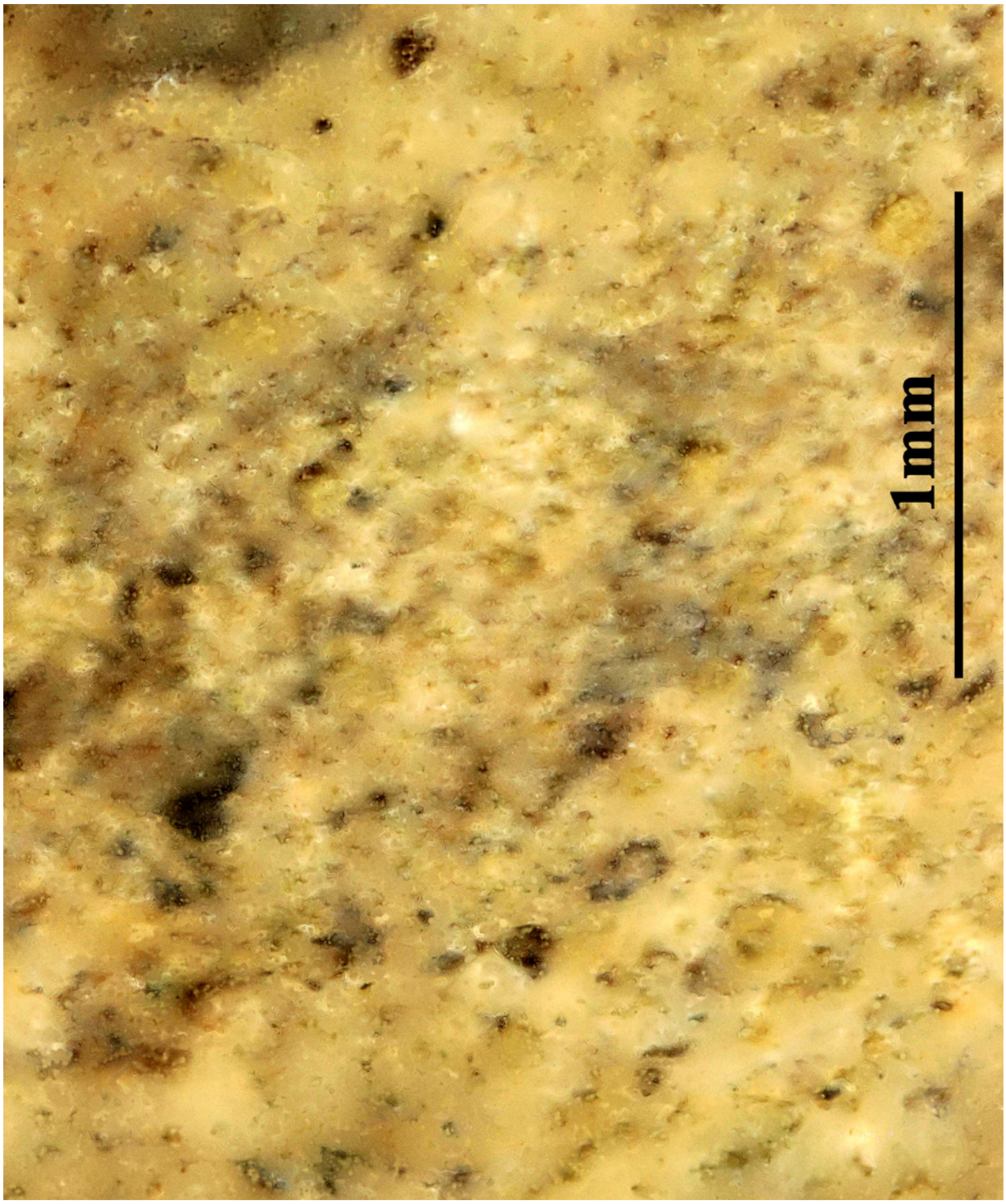
[VZR394], Japonia, Hondsu, Chiba-ken, Futtsushi, Utougi, 38°10' sept., 139°58' occid., 130 m. Ad saxa silicea in syilva clara. Leg. H. Harada, 28.10.1998. EX A. VEZDA: LICHENES RARIORES EXSICCATI NR. 394.

Gyalidea kawanae H Harada et Vezda is described as new on the basis of specimens from Chiba-ken, central Japan. It is characterized by having goniocystangia, relatively large (0.35-1. 00 mm diam.), adnate apothecia with dark brown proper margin and pale brown discs, transversely 3-5(-7)-septate ascospores (15-24 x 6.5-8µm) and by saxicolous habit. It was found on friable rocks in partial shade in forest in the warm temperate zone..
Gyalidea kawanae ist eine Flechtenart, die in Japan gefunden wird und sich durch ihre goniocystangia-haltigen, relativ großen, anliegenden Apothecien mit dunkelbraunem Rand und hellbraunen Scheiben auszeichnet. Sie hat transversely 3-5(-7)-septierte Ascosporen und wächst auf Felsen in Wäldern der warmgemäßigten Zone.



Gyalidea kawanae

Gyalidea kawanae



Gyalidea kawanae

Fig. 2. Anatomy of *Gyalidea kawanae*. A, vertical section of apothecium; B, ascospores; C, ascus paraphyses. (A–C, LPCB preparations from holotype).

Gyalidea kawanae

Gyalideopsis mexicana Tretiach, Giralt & Vězda, Bryologist 99(2): 236 (1996)

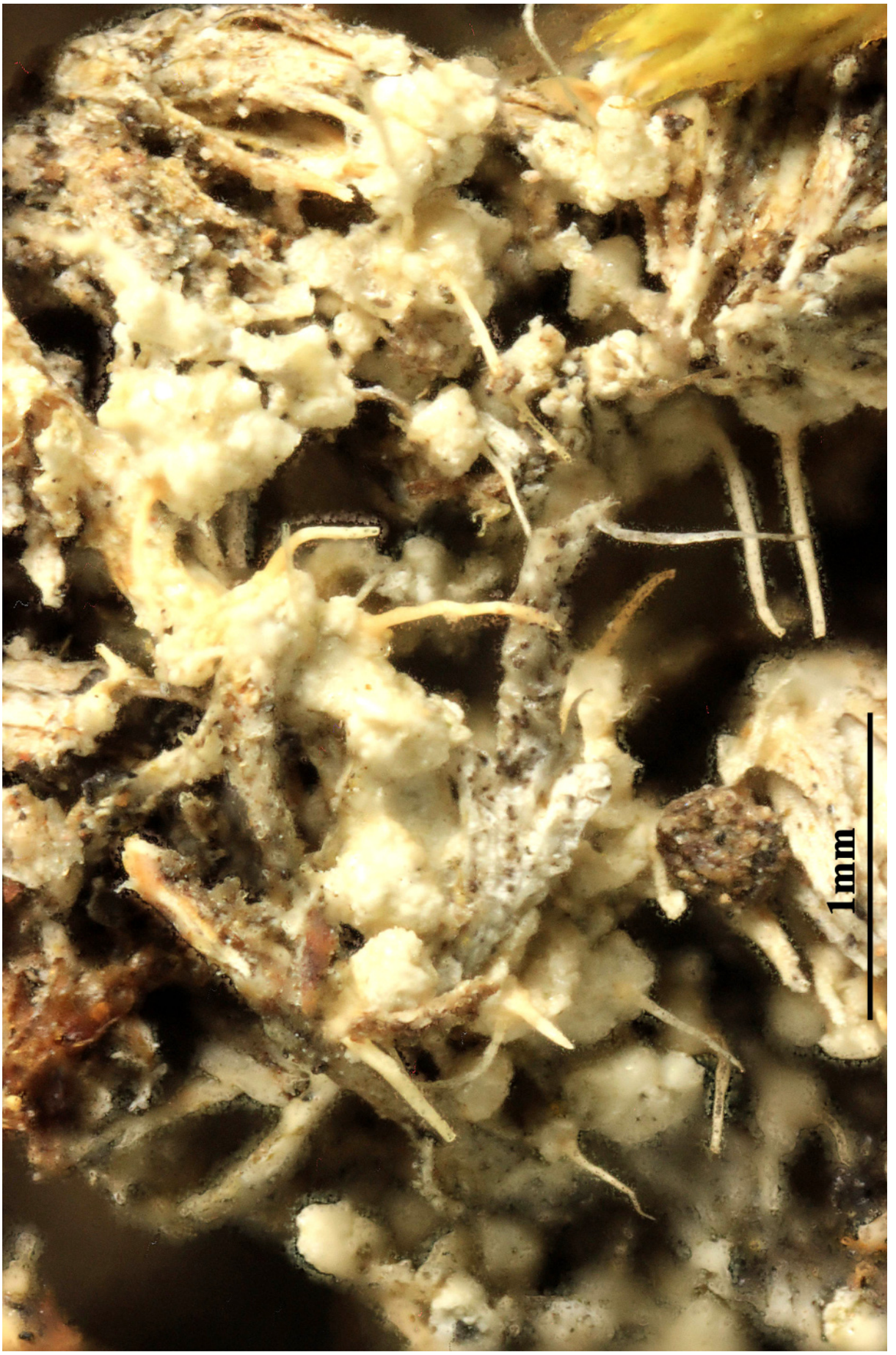
[VZR243], Mexico. Chihuhua. Sierra Madre Occid., in valle fluvii Sirupa, 29°10'55" ad sept., 108°18'45" ad occid., 1700 m. Ad muscos emortuos. Leg. M Tretiach & M. Giralt, 20.12.1994 - Isotypus. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 243.

Thallus tenuis, crustaceus, plantas destructa emortuas praesertim muscos inincolens, verruculis albidis circ, 0.2- 0.5 mm latis formatus, hyphophoris copiosis instructus; hyphophori stipitati, 1.0-1.8 mm alti, apicibus globosis vel conicis usque 0.2 mm diam.; stipes calindricus, hyalinus, basim versum 100 µm, ad apice attenuatus et circa 50 µm crassus; pars aoicalis globosa vel conica, pallide fusca, subpellicida, diahyphis copiosis in fasciculum fingulum, circa 150 µm longis, 1.5 µm crassis, ad septa haud constrictis composita. Apothecia orbicularia, 1.5-2 mm lata, 0.2-0.4 mm alta. basim versus constricta, interdum substipata, discis concavis vel planis, badiis, marginibus paulum elevatis, integris, pallide fuscis. Excipulum 100 µm crassum, hyalinum, badium superficiem versus, ab hamathecio haud distincte limitatum: hypothecium pallide fuscum, K immutatum. Hymenium 70-100 µm altum,zona epihymeniali fusca, ceterum hyalinu. Paraphses ramisae anastomosantesque luminis 1 µm crassis. Asci 2-8 spori. Ascosporae ellipsoideae,(16-)20-26(-28) x (8-)9-12(-14) µm, submurales vel murales, septis transversalibus (2-)3-4(-7), longitudinalibus 1-3.-
Thallus mainly in small orbicular patches, crustose, thin, badly delimited, verrucose, whitish glaucous to pale gray when dry, vivid green when wet, growing on decaying mosses or on plant debris, more rarely directly on soil, warts whitish, ± 0.2-0.5 mm in diam. Hyphophores always present, usually abundant, crowded, ererct, stipitate, 1.0-1.8 mm high; stalk translucent, ca. 100 µm in diam. at base, 50 µm at apex, when immatura with pointed apex; conidial mass apical, white or pale brown, translucent, globose or conic, up to 0.2 mm in diam. Diahyphae numerosus, branched, ±150 µm long, 1.5 µm thick, septate near base, slightly constricted at septa. Apothecia usually absent, scattered or occasionally crowded, contiguous, rusty or deep grown, becoming red-brown and translucent when wet, 1.5-2.0 mm in diam, 0.2-0.4 mm high, constricted at base, sometimes substipate. Disc flat or concave, wizh margin smooth, not elevated. Thalline exciple absent; true exciple formend by thin, branched, anastomosed hyphae, up to 100 µm thick, hyline, light brown near extermal surface, badly delimited fro hymeni-

um. Hymenium 70-100µm tall, hyaline; epithecium brown; hyphecium light brown, not changing color in K. Hamathecium formed by loosely anastomosingt network of thin hyphae immersed in gelatinous matrix; lumina of paraphyses 1 µm wide. Asci 2-8 spore, cylindric clavate, asoplasma I+ orange-red. Ascospore colorless, ellipsoid, submuriform to muriform, with (2-))3-4(-7) transverse septa, and 2-3 longitudinal ones, (16-)20-26(-28(x (9-)8-12(-14) µm

Gyalideopsis mexicana

Gyalideopsis mexicana



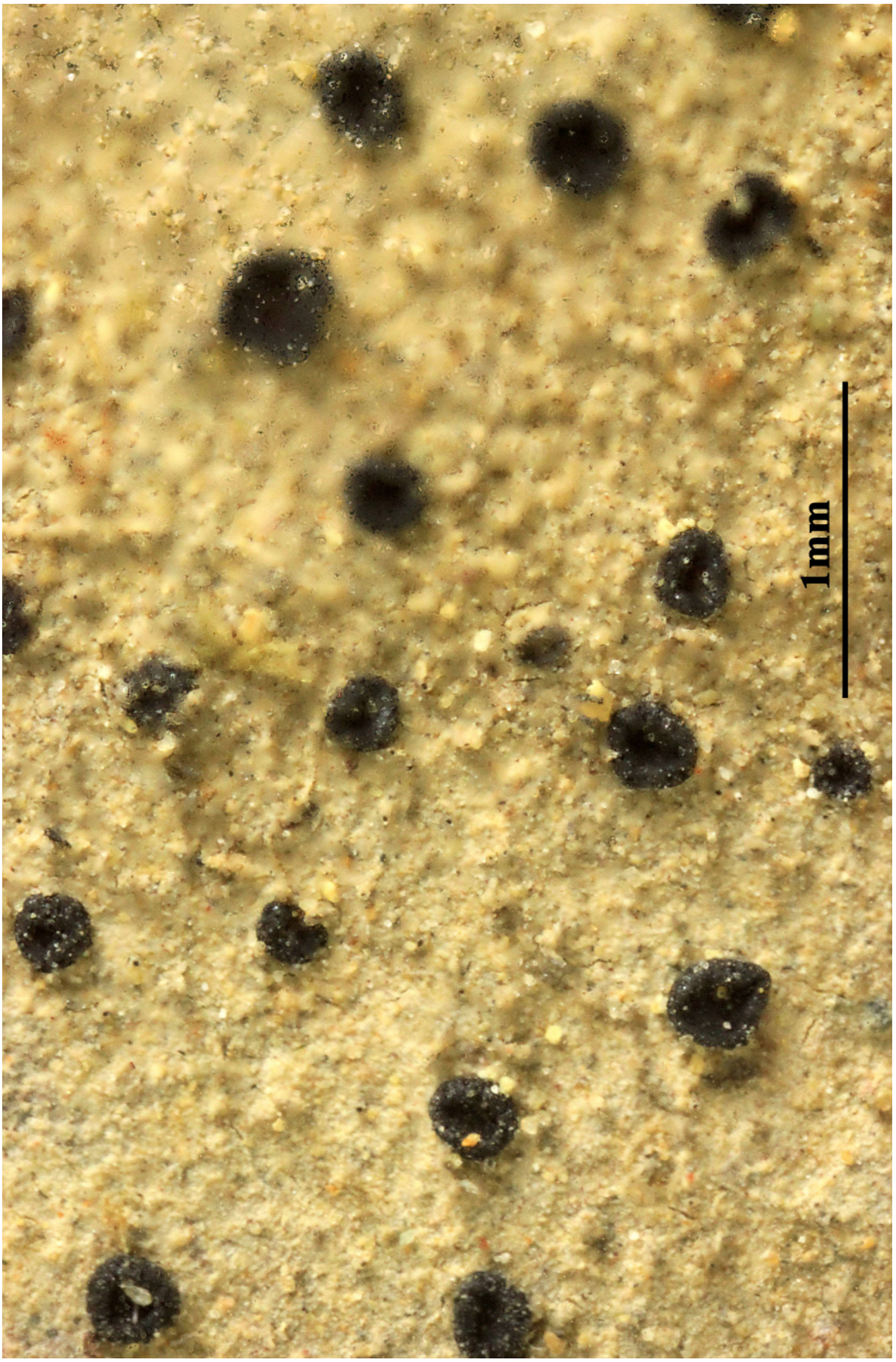
Gyalideopsis mexicana

Gyalideopsis zelandica Vězda & Malcolm [as 'zeylandica'], Australas. Lichenol. 40: 20 (1997)

= *Lithogyalideopsis zelandica* (Vězda & Malcolm) Lücking, Sérus. & Vězda [as 'zeylandica'] 2005

[VZR264], Nova Zelandia, South Island, Nelson, Pig Valley Road, 0.3 km ad occid. a Wairoa Gorge Road, 120 m, 41°27.3' austr., 173!4.8' occid, ad saxa silicea secus viam. Leg. W. Malcolm, 23.9.1994. Ex A, VěZDA: LICHENES RARIORE EXSICCATI NR. 264.

Thallus crustose, smooth or cracked, ashen white, without setae, verrucae or soralia. Phycobiont *Chlorococcaceae*. Hyphophores Aulaxina-type, straight, caylindrical, 0.5 mm tall, furnished at apices with hyline hyphae, palmately stretching outward and forward an bearing bundles of diahyphae. Diahyphae hyaline, septate, moniliform, and fused. Apothecia rounded, lecideine, 0.5-0.75 mm diam., constricted ar base, broadly sessile; disc brown-black, margins entire, wide, black, persistently raised. Exciple strongly developed laterally, c. 100 µm thick, brown-black. Hypothecium and medulla hyaline. Hymenium 60 µm tall, brown-black, in epithecial zone, otherwise clourless. Asci 8-spored (sometimes 4-6-spored and the ascospores rather larger). Ascospores ellipsoidal, transversely septate, rarely submuriform, strongly contricted at septa, 12-16 x 4.6-6 µm. Endemic



Gyalideopsis zelandica

Gyalideopsis zelandica

Haematomma africanum (J. Steiner) C.W. Dodge, Beih. Nova Hedwigia 38: 39 (1971)
= *Haematomma bubalinum* R.W. Rogers, Lichenologist 17(3): 308 (1985)
= *Haematomma puniceum var. africanum* J. Steiner, Bull. Herb. Boissier, 2 sér. 7: 641 (1907)

[VZR255], Australia. New South Wales, transitus Macquarie unter Shellharbour et Moos Valle, 500 m, 34°33' austr., 150°39' occid., ad corticem arboris. Leg. K. & A. Kalb, 4.9.1955, det. K. Kalb. - Annot. Atranorin, Placodiolsäure, Haematommon. EX. A. VěZDA: LICHENES RARIORES NR. 255.

Thallus whitish to greenish grey, even or warty. Soredia and isidia absent. Apothecia sessile, cinnabar red, sometimes yellowish pruinose, 0.5-2 mm wide. Epithecium with dark red pigment, K+ blue-violet, but after short time becoming colourless. Ascospores hyaline, 8/ascus, 11-13(-20)-cellular, 45-80 x 4-5.5 µm, straight or „S“-curved. Chemistry: atranorin, haematommone, placodiolic acid. Pantropical. Lit. Staiger & Kalb (1995).

Haematomma africanum

Haematomma africanum

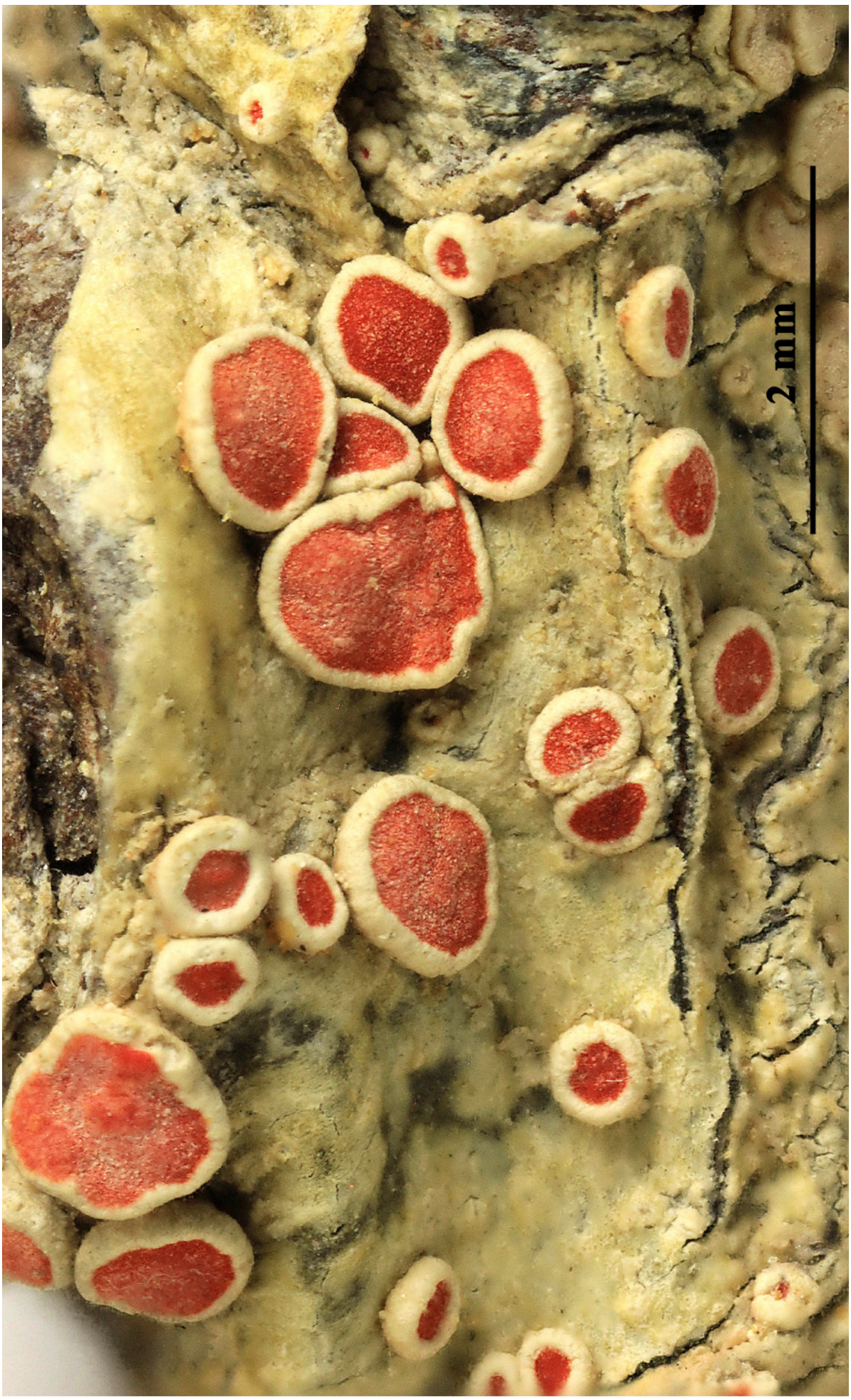
Haematomma babingtonii A. Massal., Bull. Soc. Imp. nat. Moscou 36(1-2): 260 (1863)

[VZR384], Nova Zelandia. South Island, Blue Mountains, 70 km ad occidentem versus a Dunedin, 46°52' austr., 169°19' orient., 990 m. Ad corticem fructis (*Cassinia* sp.). Leg. et det. W. Malcolm. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 384.

Lit: Rogers, R.W. & Barlett, J. K. (1986): The Lichen Genus Haematomma in New Zealand..- Lichenologist 18(3):

Thallus crustose, white to yellow-grey, indeterminate, areolate to granular, esorediate, corticate. Apothecia sessile, constricted at the base, up to 2-5 mm diam; thalline margin well-developed, entire or somewhat distorted, disc pinkish-white to brownish-red, strongly white pruinose especially on young apothecia. Asci 8-spored. Ascospores helically coiled in the ascus, asymmetric, 3-5(-6) transseptate, 30-40 x 2-5-40 µm. Chemistry: atranorin, pseudoplacodiolic acid; epithecium fleeting K + purple-grey, acetone soluble apothecial pigment UV+ gold on t.l.c. plate. This species is quite distinctive in almost all cases as the discs of the apothecia are normally heavily white pruinose, although in some older apothecia the pruina are present only as faint traces close to the margins. In some collections the thallus is rugose and quite thick, such collections also showing a thick and irregular margin to the apothecium. Specimens with thin smooth thalli and thin smooth margins may be found at the same location, and because a continuum of variation can be shown to link the two extremes, no taxonomic rank is proposed for them. This species is common and widespread, especially in the South Island, where it is found mostly at lower altitudes than *H. alpinum*.

SIMPLIFIED DESCRIPTION: Characterised by the white-pruinose apothecial discs (apothecial discs of *H. alpinum* are epruinose) and the presence of pseudoplacodiolic acid, atranorin haematommone.



Haematomma babingtonii

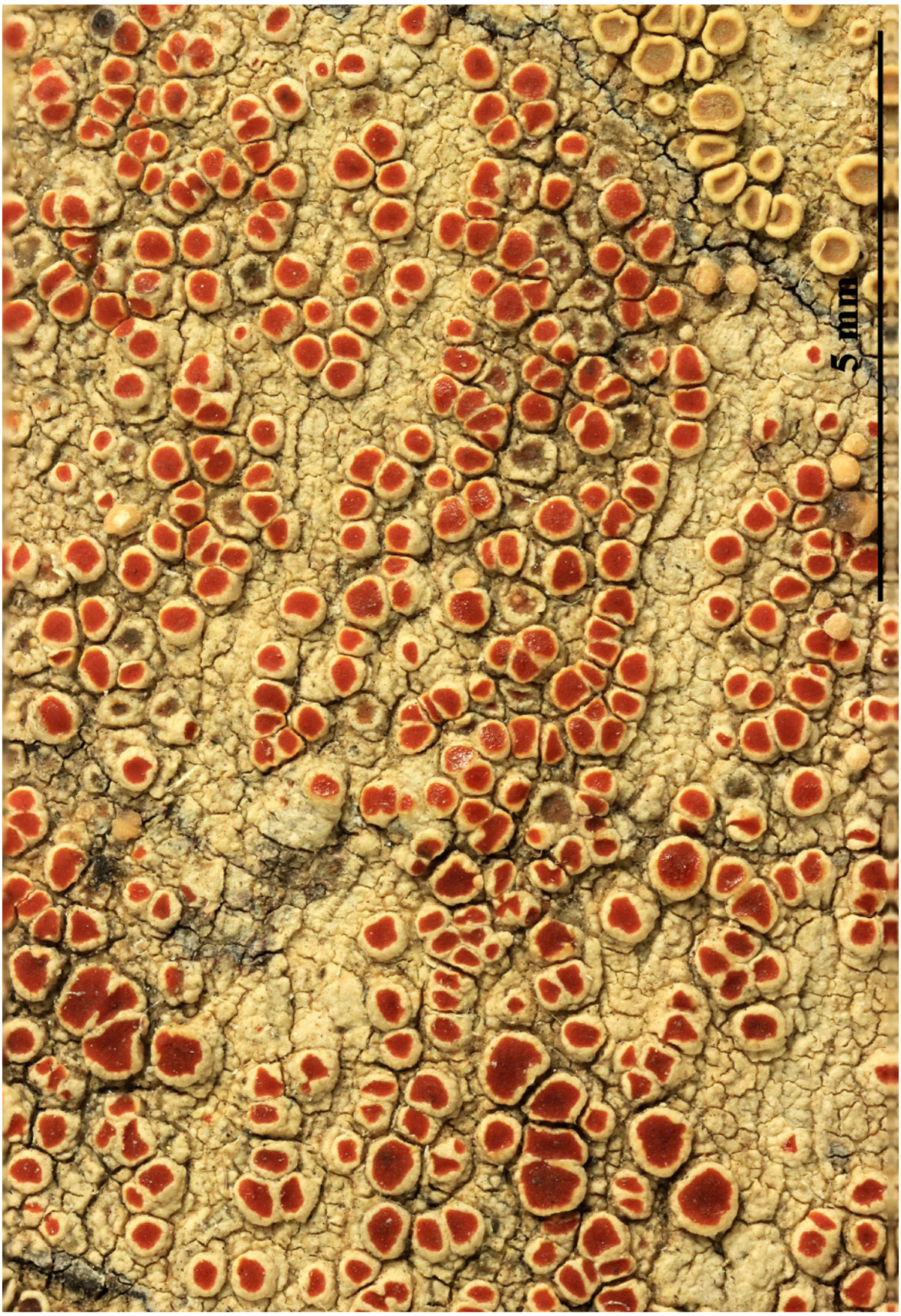
Haematomma babingtonii

Haematomma persoonii (Fée) A. Massal., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 3 5: 253 (1860) [1859-1860]
= *Lecanora persoonii* Fée, Essai Crypt. Exot. (Paris): 119 (1825) [1824]

[VZR451], USA. Pouisiana. St. Martin Parorcia, 1.6 km ad meridiem versus ab oppido Parks. Ad truncum et in ramulis arborum (Celtis sp.) secus viam. Leg. W. L. Culberson, 16.3.1995. -Atranorin, isosphaeric acid, sphaerophorin and russulone by TLC, anal. A. Johnson & F. J. Culberson. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 451.

Thallus whitish to greenish grey, even to warty, ± cracked, 0,3-0,5 mm thick. Soredia and isidia absent. Apothecia broad sessile to immersed, 0.3-1.5 mm wide. Disc red, not pruinose. Thalline margin simple to somewhat crenulate. Epithecium K+ durable red (russulone). Ascospores hyaline, 8/ascus, 7-8-cellular, straight or somewhat „S“-curved, 30-50 x 3.5-5 µm. Chemistry: atranorin, russulone, sphaerophorin (±), isosphaeric acid (±). Thallus K+ gelb, UV-, apothecium margin UVL+ bluish white. Corticolous, pantropical. Lit. Staiger & Kalb (1995)

Thallus white to cream-coloured or pale grey to greenish grey, smooth to rugulose and weakly warted, ±rimose and areolate, 0.3–0.5 mm thick, corticate, esorediate. Apothecia immersed and aspicilioid, rarely becoming sessile, 0.3–1.5 mm diam., sometimes confluent; disc scarlet-red to dark cinnabar-red or reddish brown, epruinose; thalline margin very poorly developed in immersed apothecia, but becoming distinct, smooth or weakly crenulate in sessile apothecia. Ascospores fusiform, 5–7-septate, 30–50 × 3.5–5.0 µm. Conidia curved-filiform, 16–20 × c. 1 µm. CHEMISTRY: Thallus K+ yellow, C–, KC–, Pd+ yellow; disc K+ red; containing atranorin, sphaerophorin (major), isosphaeric acid (minor to major) and russulone (minor). - Also in North, Central and South America, South and East Africa, Réunion, the Philippines and New Caledonia.



Haematomma persoonii

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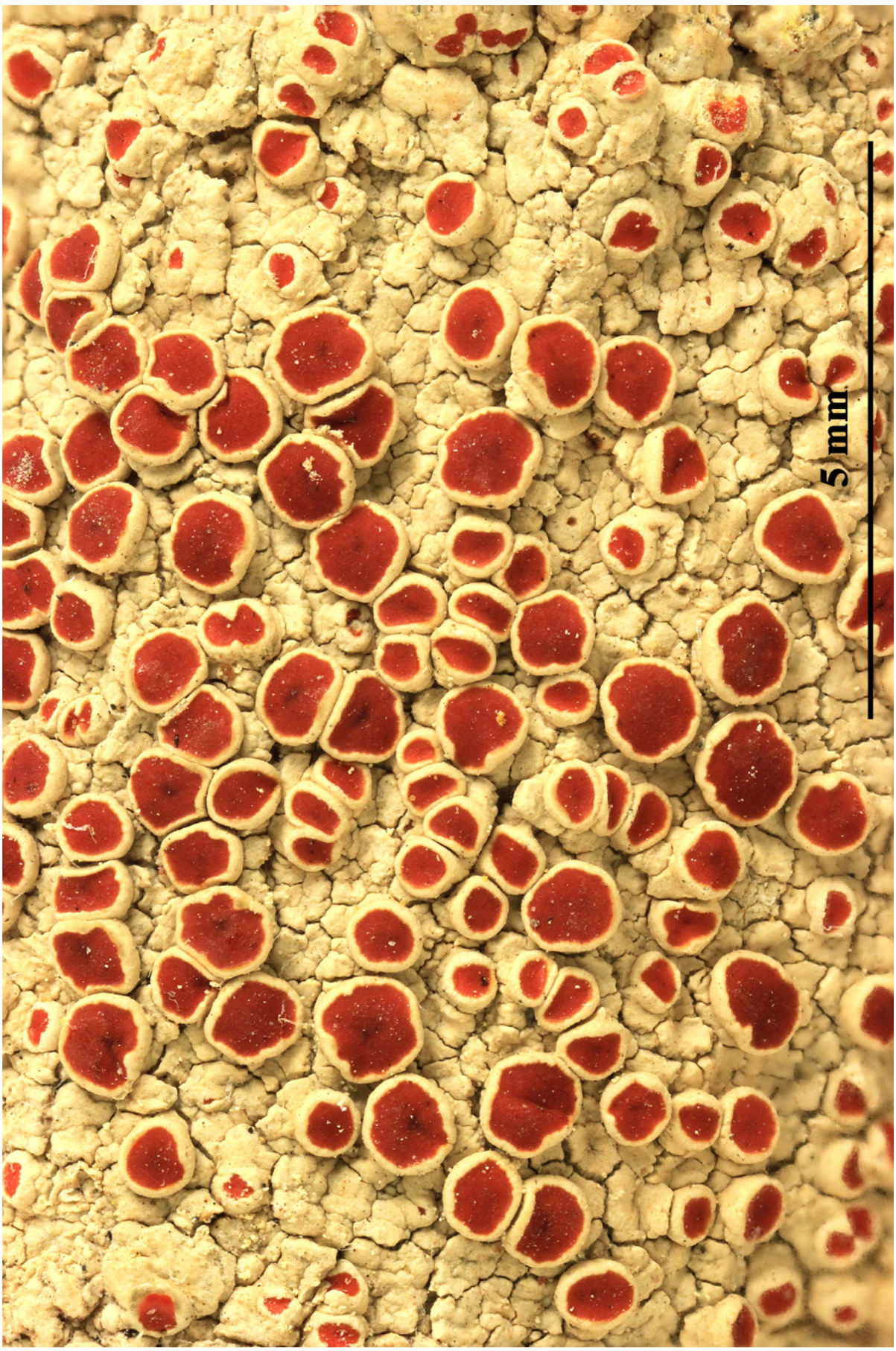
Haematomma persoonii (Fée) A. Massal., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 3 5: 253 (1860) [1859-1860]
= *Lecanora persoonii* Fée, Essai Crypt. Exot. (Paris): 119 (1825) [1824]

[VZR335], Mexico, regio Baja California Sur, 14 km ab merid. ab urbe Todos Santos, secus viam, 330 m. In ramulis arborum (Bursera sp.) Leg. et dez. J. Halda, cont. K. Kalb, 22.11.1996. EX A. VěZDA. LICHENES RARIORES EXSICCATI NR. 335.

Thallus whitish to greenish grey, even to warty, ± cracked, 0,3-0,5 mm thick. Soredia and isidia absent. Apothecia broad sessile to immersed, 0.3-1.5 mm wide. Disc red, not pruinose. Thalline margin simple to somewhat crenulate. Epithecium K+ durable red (russulone). Ascospores hyaline, 8/ascus, 7-8-cellular, straight or somewhat „S“-curved, 30-50 x 3.5-5 µm. Chemistry: atranorin, russulone, sphaerophorin (±), isosphaeric acid (±). Thallus K+ gelb, UV-, apothecium margin UVL+ bluish white. Corticolous, pantropical. Lit. Staiger & Kalb (1995)

Thallus white to cream-coloured or pale grey to greenish grey, smooth to rugulose and weakly warted, ±rimose and areolate, 0.3–0.5 mm thick, corticate, esorediate. Apothecia immersed and aspicilioid, rarely becoming sessile, 0.3–1.5 mm diam., sometimes confluent; disc scarlet-red to dark cinnabar-red or reddish brown, epruinose; thalline margin very poorly developed in immersed apothecia, but becoming distinct, smooth or weakly crenulate in sessile apothecia. Ascospores fusiform, 5–7-septate, 30–50 × 3.5–5.0 µm. Conidia curved-filiform, 16–20 × c. 1 µm. CHEMISTRY: Thallus K+ yellow, C–, KC–, Pd+ yellow; disc K+ red; containing atranorin, sphaerophorin (major), isosphaeric acid (minor to major) and russulone (minor). - Also in North, Central and South America, South and East Africa, Réunion, the Philippines and New Caledonia.



Haematomma persoonii

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Halecania australis Lumbsch, in Lumbsch & Feige, Mycotaxon 52(2): 431 (1994)

[VZR409], Australia,Canberra, Cotter Dam, ad rivum Cotter, 25 km ad orient. versus Canberra, 480 m. Ad saxa conglomerata, p.p. calcarea, inripa rivi, 35°20' merid., 148°56' orient.. Leg. & det. K. Kalb, 6.9.1885, Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 409.

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Thallus: crustose, c. 4 cm across, rimose to areolate or scurfy-squamulose; prothallus: sometimes visible, thin and dark brown areoles: plane to uneven-warted or slightly verrucose, angular to +round, sometimes upturned at margin and often wavy, incised, rarely imbricate, 0.2-0.4(-0.7) mm wide, c. 0.3 mm thick, not lobulate at the margin surface: pale brown or gray-brown to yellowish brown, not discolored when wet, dull, epruinose; margin: concolorous with the center cortex: not differentiated, mostly ecorticate, occasionally paraplectenchymatous with cells 2-5 µm wide, without an epinecral layer medulla: with indiscernible hyphae; algal layer: with scattered algal cells 5-12 µm wide throughout the thallus Apothecia: frequent, broadly sessile or somewhat immersed, scattered, rarely grouped, 0.2-0.5 mm in diam. disc: red-brown to dark-brown, slightly paler (reddish brown) when wet, plane, sometimes weakly convex, epruinose margin: concolorous with the thallus, up to 0.1 mm wide, swollen when young, narrower when old, sometimes crenulate, not excluded amphithecium: outer edge anatomically similar to cortex of the thallus, with a colorless, superficial, amorphous layer, intermixed with photobiont cells, with algae filling the entire margin and abundant under the hypothecium parathecium: sometimes present, poorly developed, up to c. 20 µm wide at outer part, concolorous with the epihymenium epihymenium: brown, red-brown to orange, without granules, ±uniformly colored, K-, N- ;hymenium hyaline, 6070 µm tall; paraphyses simple to occasionally branched, c. 1.5 µm wide below, slightly swollen (clavate, up to c. 4 µm wide) and short-celled in the upper third and often with brown-black cell walls; hypothecium: hyaline, with unoriented hyphae, up to 150 µm thick in center including subhymenium; asci narrowly clavate, 40-50 x 12-20 µm, with a thin amyloid outer gelatinous coat, lacking an ocular chamber, Catillaria-type, 8-spored; ascospores hyaline, 1-septate, clavate to ovoid, (9-)10-14(-16) x 3-5 µm (in water), thin-walled, halonate; perispore swelling up to c. 2 µm wide in K, often not well developed; Pycnidia occasionally present, inconspicuous, immersed in the thallus,

80-100 µm in diam., pale brown around the ostiole, hyaline below; conidia simple, short bacilliform, 3-4 x 1 µm; Spot tests K-, C-, KC-, P-; Secondary metabolites two unknown triterpenoids detected by TLC. Substrate and ecology: on acidic stones, including volcanic rock; World distribution Australia and North America central and southeastern Arizona. Notes: *Halecania australis* is distinguished by its fine rimose to areolate thallus with occasionally small brown squamules, mostly sessile apothecia, halonate ascospores, including two unknown triterpenoids. In habitus, *H. australis* resembles *Lecania rabenhorstii* or *L. inundata*, and it resembles most of all *Solenopsora "chihuahuana"*, especially by its squamule form. The latter species, not yet formally described, has rather similar paraphyses and asci, but the ascospores are not halonate. Moreover, the thallus of S. "chihuahuana" is not clearly areolate, not even partly so, as is the case in *H. australis*. Rather it is squamulose with relative large squamules. None of the other *Halecania* species known from acidic rocks have a pale brown thallus, that is partly squamulose. According to Lumbsch and Feige (1994), the thallus of *H. australis* is adnate, continuous to areolate and contains atranorin (major), zeorin (major) and chloroatranorin (minor). However, re-examination of the holotype by Prof.J. Elix (personal communication) proved that it had two metabolites belonging to unknown triterpenes. Examination of additional specimens from Australia also showed that *H. australis* is a much more variable species than was initially recognized. The thallus in specimens from the type locality is adnate thin, continuous to areolate, but some Australian specimens have the same small squamulus, as found in the Sonoran material. Even the apothecia show great variability from adnate to more often clearly sessile or somewhat constricted at base in Australian material.The only *Halecania* species reported so far from the Pacific coast (Washington) is *H. viridescens* (Tønsberg 1994). Furthermore, examination of the holotype of the eastern North American species *'Lecania pepegospora'*, showed that it also belongs to *Halecania*. The thallus of *'L. pepegospora'*, which have been found on gneiss reacts P+ orange-red, consists of granular, clustered warts, similar but smaller than European species, such as *H. alpivaga*, that occurs on slightly calcareous rocks and reacts P-. Confusion of *H. australis* is possible with Lecania arizonica, an inland species superficially resembling it and occurring in northwestern and central Arizona. However, *L. arizonica* has clearly pruinose apothecia , verrucose warted areoles 0.3-1.5 mm across, and non-halonate ascospores. I

Halecania australis

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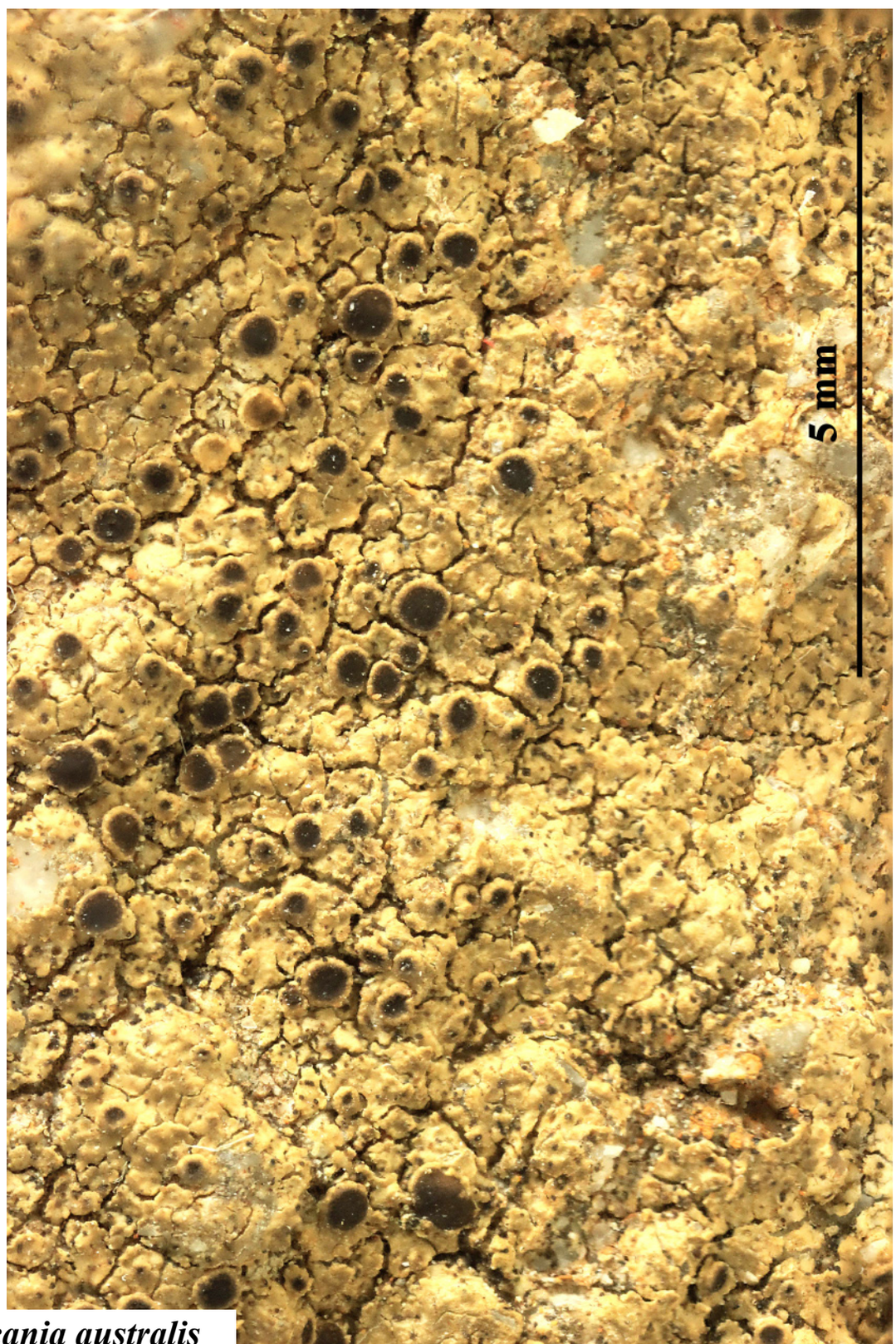
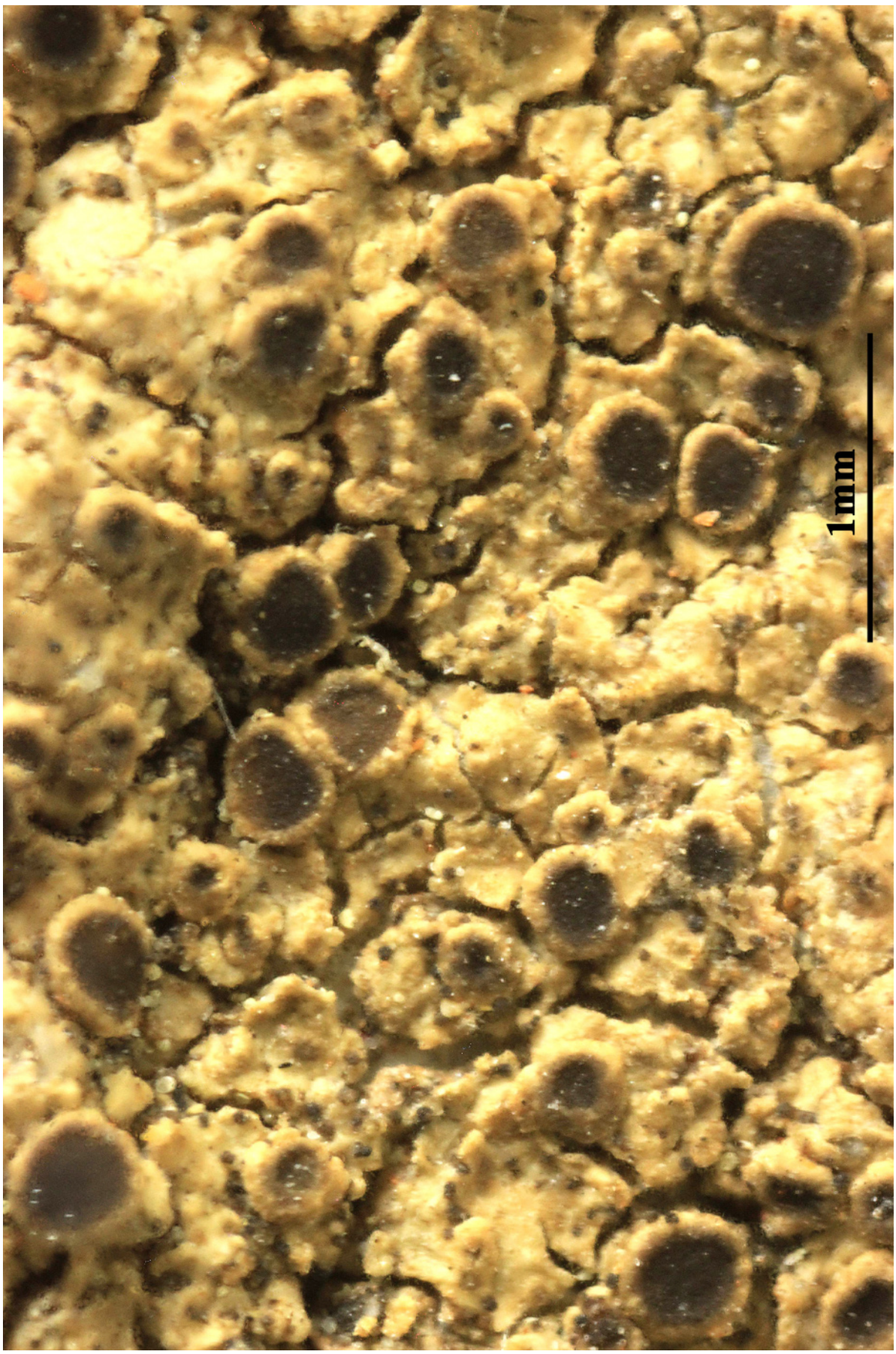


Halecania australis



Halecania australis

Halecania australis Lumbsch, in Lumbsch & Feige, Mycotaxon 52(2): 431 (1994)

[VZR214], Australia, Victoria, Brisbane Ranges, Little River Gorge, 25 km ad meridiem versus a Bacchus March, 37°15' austr., 144°22' orirnt., Ad saxa schistosa. Leg. H. Mayrhofer (2968) & R. B. Filson, 18.10.1981. Ex A. Vězda; Lichenes Rariores Exsiccati Nr. 214.

Thallus: crustose, c. 4 cm across, rimose to areolate or scurfy-squamulose; prothallus: sometimes visible, thin and dark brown areoles: plane to uneven-warted or slightly verrucose, angular to +round, sometimes upturned at margin and often wavy, incised, rarely imbricate, 0.2-0.4(-0.7) mm wide, c. 0.3 mm thick, not lobulate at the margin surface: pale brown or gray-brown to yellowish brown, not discolored when wet, dull, epruinose; margin: concolorous with the center cortex: not differentiated, mostly ecorticate, occasionally paraplectenchymatous with cells 2-5 µm wide, without an epinecral layer medulla: with indiscernible hyphae; algal layer: with scattered algal cells 5-12 µm wide throughout the thallus Apothecia: frequent, broadly sessile or somewhat immersed, scattered, rarely grouped, 0.2-0.5 mm in diam. disc: red-brown to dark-brown, slightly paler (reddish brown) when wet, plane, sometimes weakly convex, epruinose margin: concolorous with the thallus, up to 0.1 mm wide, swollen when young, narrower when old, sometimes crenulate, not excluded amphithecium: outer edge anatomically similar to cortex of the thallus, with a colorless, superficial, amorphous layer, intermixed with photobiont cells, with algae filling the entire margin and abundant under the hypothecium parathecium: sometimes present, poorly developed, up to c. 20 µm wide at outer part, concolorous with the epihymenium epihymenium: brown, red-brown to orange, without granules, ±uniformly colored, K-, N- ;hymenium hyaline, 6070 µm tall; paraphyses simple to occasionally branched, c. 1.5 µm wide below, slightly swollen (clavate, up to c. 4 µm wide) and short-celled in the upper third and often with brown-black cell walls; hypothecium: hyaline, with unoriented hyphae, up to 150 µm thick in center including subhymenium; asci narrowly clavate, 40-50 x 12-20 µm, with a thin amyloid outer gelatinous coat, lacking an ocular chamber, Catillaria-type, 8-spored; ascospores hyaline, 1-septate, clavate to ovoid, (9-)10-14(-16) x 3-5 µm (in water), thin-walled, halonate; perispore swelling up to c. 2 µm wide in K, often not well developed; Pycnidia occasionally present, inconspicuous, immersed in the thallus,

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Halecania australis

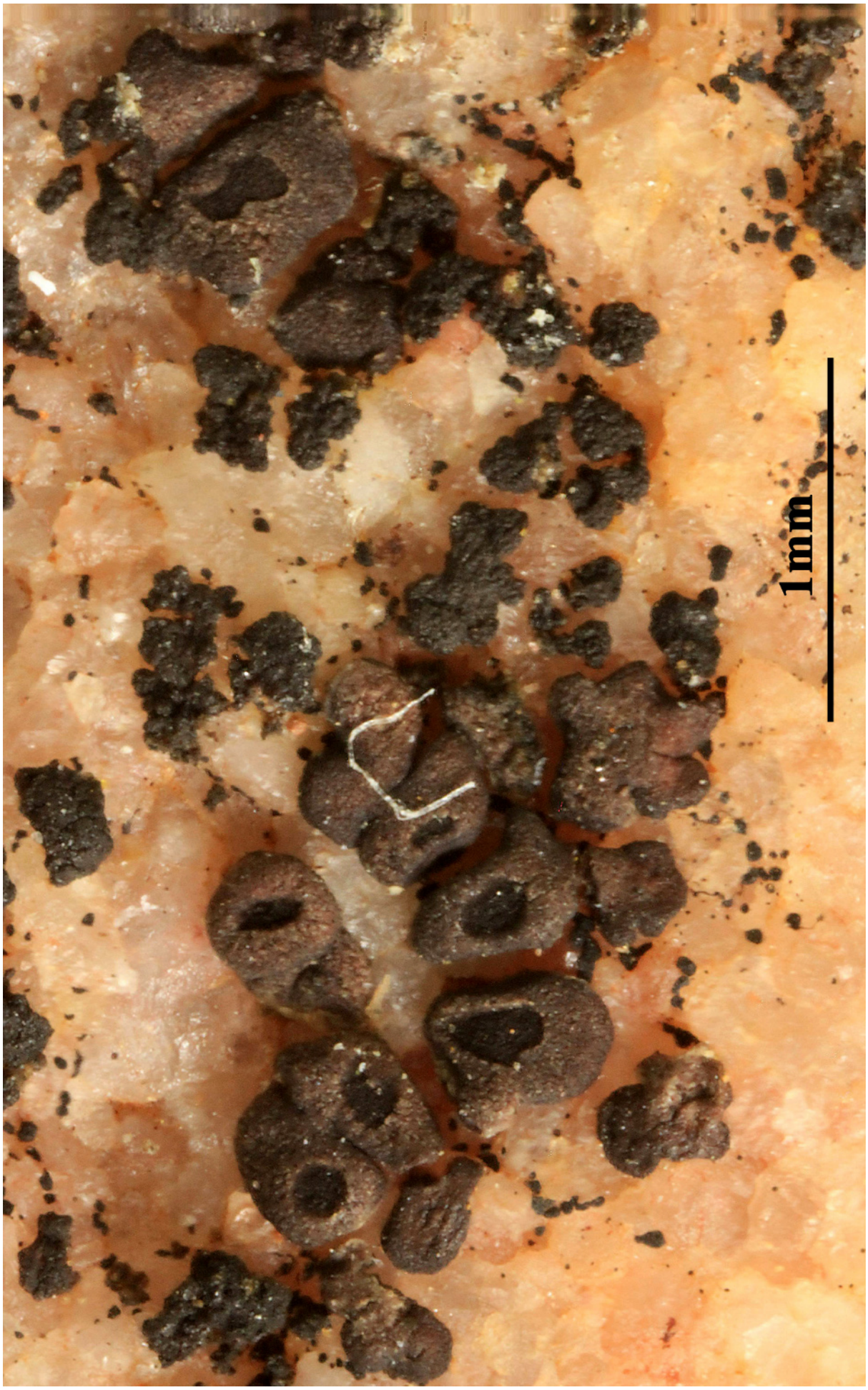
Halecania australis

Harpidium rutilans Flot. ex Körb., Syst. lich. germ. (Breslau): 157 (1855)
= *Acarospora rutilans* (Flot. ex Körb.) Hue, Nouv. Arch. Mus. Hist. Nat., Paris, 5 sér. 1(2): 121 (1909)

[VZR45], Hispania. Castelló, montes Serra d'Espadá, prope urbem Azurbar, in sinu Mosquera dicto, 620 m. Ad saxa quarcitica. Leg. V. Calatayud, 19.2.1992, det V. Calatayud & E. Barreno. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 45.

Thallus crustose, episubstratic, dark reddish brown, areolate, the areoles contiguous, angular, 0.2-0.5(-0.9) mm wide, the peripheral ones slightly elongate, up to 1.1 mm long, forming small, subplacodioid, up to 1 cm wide rosettes, without a distinct pro- or hypothallus. In section the thallus is homoiomerous and pseudoparenchymatous throughout, often overlain by a thin epinecral layer, 130-140 mm thick, the hyphae with more or less isodiametrical, 5-8 mm wide cells. Apothecia pycnoascocarps (developing from pycnidia), lecanorine-aspicilioid, 0.1-0.3 mm across, at first punctiform, then with an expanded disc, immersed in the areoles (usually 1 per areole) with a dark reddish brown, sometimes marginally slightly pruinose disc, and a very thin, finally often excluded thalline margin. Proper exciple poorly developed; epithecium pale reddish brown, K+ blue-purple, K/I+ blue; hymenium colourless, 40-50 mm high, K/I+ blue; paraphyses strongly moniliform, branched in upper part, the apical cells not swollen; hypothecium colourless, opaque, 40-45 mm thick. Asci 8-spored, subglobose, unitunicate-rostrate, the wall composed of an outer, non-expansible and an inner, expansible layer surrounding the protoplast as an amyloid collar, which expands during spore release into a long, tapering rostrum, the outer wall layer strongly amyloid. Ascospores 1-celled, hyaline, narrowly ellipsoid, reniform, allantoid to lunate, rarely shortly sigmoid, twisted in the asci, (8-)9.5-15(-17) x (3-)3.5–6(–6.5) µm. Photobiont chlorococcoid. Spot tests: thallus K+ blue-purple, C-, KC-, P-, UV-, I+ reddish. Chemistry: without lichen substances. - Note: on steeply inclined surfaces of siliceous rocks with periodical water seepage after rain, both in the Mediterranean Region and in dry-warm Alpine valleys; perhaps overlooked, but certainly not common.

Harpidium rutilans



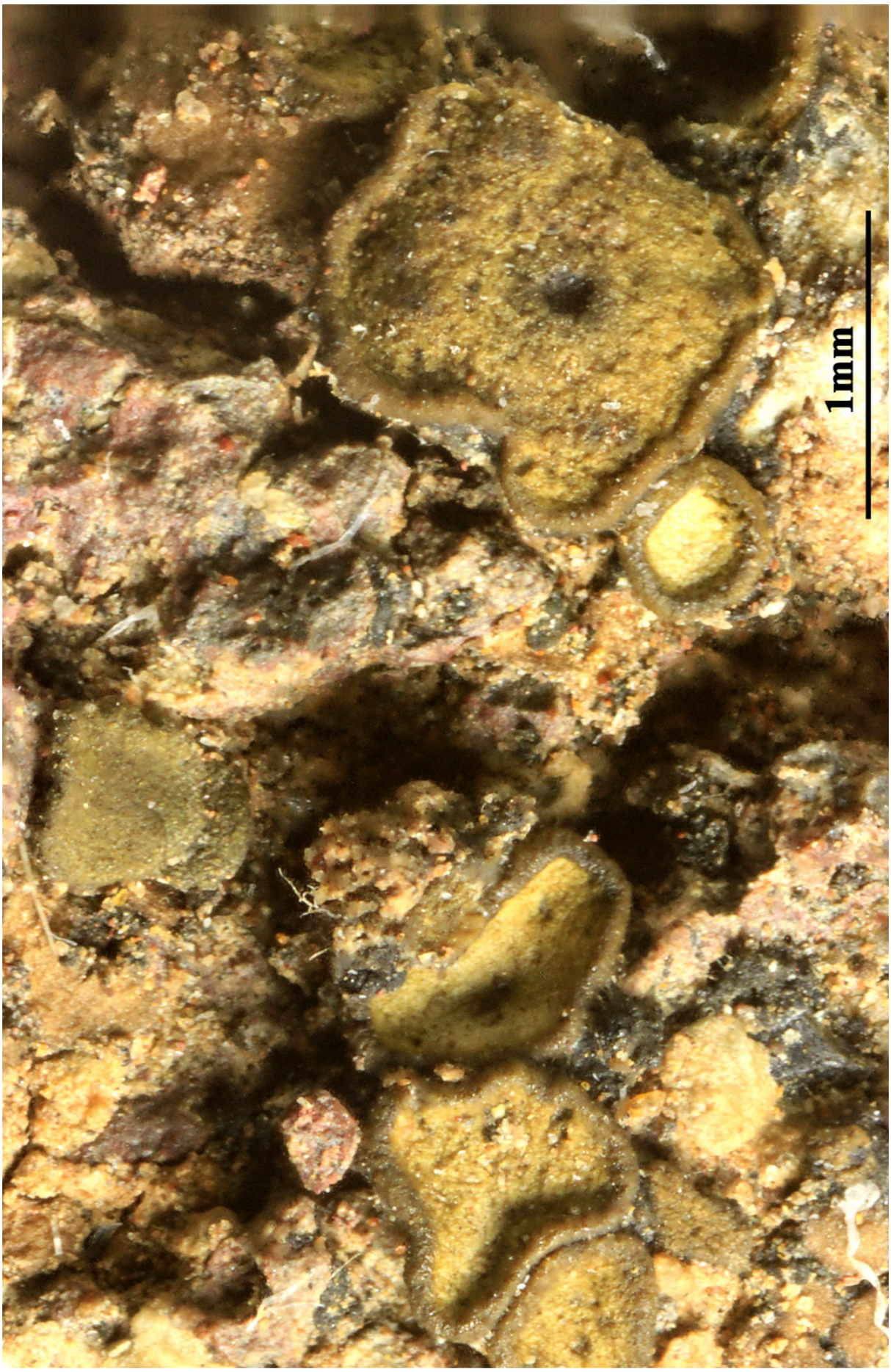
Harpidium rutilans

Heppia adglutinata A. Massal., Geneac. lich. (Verona): 8 (1854)
= *Heppiomyces adglutinatae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 286 (1954)
= *Lecanora adglutinata* Kremp., Flora, Regensburg 34: 675 (1851)
= *Pannaria adglutinata* (A. Massal.) Nyl., Mém. Soc. Sci. nat. Cherbourg 2: 324 (1854)

[VZR154], Insulae Canarienses, Tenerife. Las Montañas de Anaga, Santa Cruz de Tenerife, Igueste, in valle Lomo de la Cruz, 300- 400 m. Ad saxa eruptiva humida. Leg. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 154.

Thallus squamulose, heteromerous, rather thick, olive-yellowish to ochraceous brown both when dry and when moist, with pale punctiform depressions in a reticulate pattern. Squamules subpeltate, 1.5-2(-3) mm broad, at first flat, then concave, contiguous, with rounded ends and a down-turned edges, attached by a mat of 10-14 µm thick, colourless rhizohyphae. Upper cortex paraplectenchymatous, (12-)25-50(-70) µm thick, of periclinally arranged hyphae, covered with a 7-12 µm thick epinecral layer; medulla poorly developed; lower cortex absent or restricted to the margins. Apothecia without a thalline margin, semi-immersed in the squamules, up to 2 mm across, with a dark reddish brown, concave to flat disc, and a thin to indistinct proper margin. Proper exciple 20-50 µm wide laterally; epithecium brownish, K-; hymenium colourless, 120-180(-195) µm high, K/I+ reddish; paraphyses mostly simple, lax, distinctly thickened above; hypothecium colourless, 20-35 µm high. Asci 8-spored, with a very thin wall disintegrating or opening by apical ruptures, Lichina-type. Ascospores 1-celled (sometimes apparently 1-septate), hyaline, ellipsoid, thin-walled, 20-23 x 7-8 µm. Pycnidia dark, immersed. Conidia fusiform, 2.5-3.5 x 1-1.5 µm. Photobiont cyanobacterial, Scytonema-like. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a cool-temperate to boreal-montane, circumpolar, ephemeral lichen of disturbed calciferous soil in dry, open grasslands; in the past it was frequently confused with the Mediterranean-Atlantic *H. lutosa*.

Heppia adglutinata



Heppia adglutinata

Heppia solorinoides (Nyl.) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 110 (1858) [1857]
= *Lecanora solorinoides* Nyl. 1854

[VZR36], Italia. Pelagiae insulae: insula Lampedusa, in parte centrali insulae, 20 m. Ad terram calcaream. Leg. G. Lazzarin, P. L. Nimis & A. Vězda. EX A. VěZDA: LICHENES RARIORES EXSICCATI NR. 36.

Thallus squamulose, brownish under a thick white layer of clustered crystals (pruina) which tends to accumulate in areolate patches, giving the surface a reticulate appearance. Squamules (2-)3-7 mm broad, 300-400 µm thick, elongate, at first flat, then concave, contiguous, with rounded ends and up-turned, undulate edges, attached by a mat of rhizohyphae. Upper cortex paraplectenchymatous, 35-75 µm thick, overlain by a 15-25 µm thick epinecral layer; medulla 60-100 µm thick, paraplectenchymatous; lower cortex 25-30 µm thick, paraplectenchymatous, hardly differentiated from the medulla. Apothecia frequent, without a thalline margin, semi-immersed in the squamules, 0.5-1.5(-2.5) mm across, with a reddish brown, at first concave, then flat disc. Proper exciple poorly developed: epithecium orange-brown, K-; hymenium colourless, 150-200 µm high; paraphyses mostly simple, lax, distinctly thickened above; hypothecium colourless. Asci 8-spored, cylindrical to obovoid, with a very thin wall disintegrating or opening by apical ruptures, Lichina-type. Ascospores 1-celled, hyaline, ellipsoid, thin-walled, 16-26(-29) x (6-)8-12(-13) µm. Pycnidia dark, immersed. Conidia bacilliform. Photobiont cyanobacterial, Scytonema-like. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: on clay or sandy-clay soil, restricted to very dry grasslands in Mediterranean Italy.

Heppia solorinoides

Heppia solorinoides

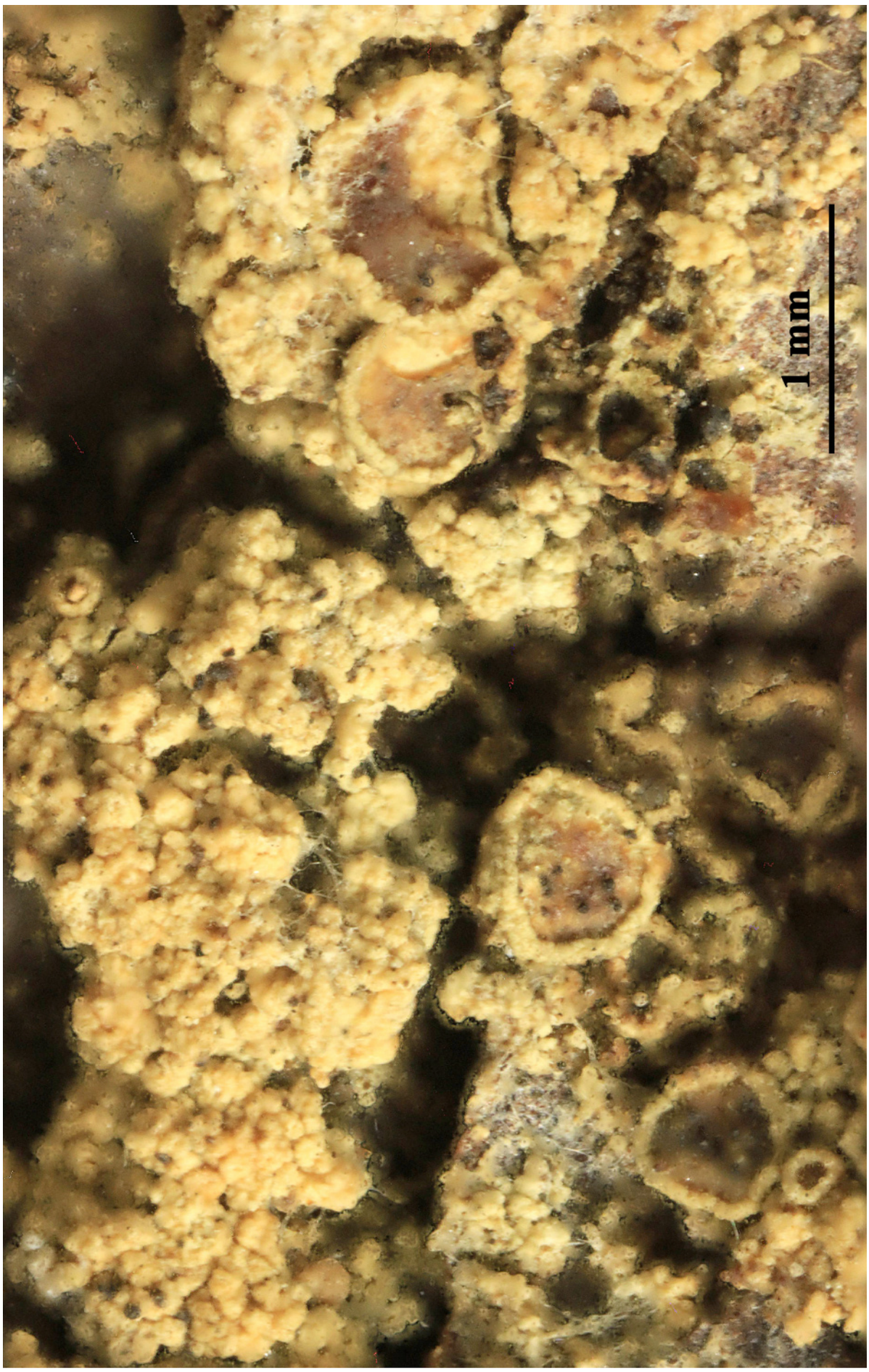
Heppia solorinoides

Hypocenomyce caradocensis (Leight. ex Nyl.) P. James & Gotth. Schneid., in Hawksworth, James & Coppins, Lichenologist 12(1): 107 (1980)
= *Xylopsora caradocensis* (Leight. ex Nyl.) Bendiksby & Timdal, Taxon 62(5): 953 (2013)
= *Bilimbia caradocensis* (Leight. ex Nyl.) A.L. Sm., Monogr. Brit. Lich. 2: 133 (1911)
= *Lecidea acutula* Nyl., Flora, Regensburg 69: 100 (1886)
= *Lecidea caradocensis* Leight. ex Nyl., Act. Soc. linn. Bordeaux 21(4): 383 (1857) [1856]
= *Psora acutula* (Nyl.) Walt. Watson, Census Catalogue of British Lichens: viii (1953)
= *Psora caradocensis* (Leight. ex Nyl.) Mudd, Man. Brit. Lich.: 169 (1861)
= *Toninia caradocensis* (Leight. ex Nyl.) J. Lahm, Jber. Westfäl. Prov.-Vereins 11: 125 (1884) [1882]

[VZR215], Bohemia orientalis, Žamberk, montes Orlické hory, in faucibus fluvii Divoká Orlice loco dicto Zemská brána, 500 m. Ad corticem arborum (*Picea excelsa*). Leg. J. Liška & S. Vězda. Ex A. Vězda: Lichenes Rariore Exsiccati Nr. 251.

Thallus squamulose, the squamules up to 1(-1.5) mm wide, adnate, bullate or ascending, grey green to dark brown, dull, crenulate or incised. Upper cortex of thin-walled hyphae, up to 30 µm thick, including and up to 20 µm thick epinecral layer; lower cortex absent. Apothecia lecideine, up to 0.5(-0.8) mm across, marginal or laminal, with a black, flat, epruinose, sometimes gyrose disc, and a prominent, persisting, more or less flexuose proper margin. Proper exciple of closely conglutinated hyphae, brownish black in outer part, dark brown within, N-; epithecium dark brown, N-; hymenium colourless, 40-50 µm high; paraphyses short-celled, sparingly branched and anastomosing, the apical cells hardly swollen; hypothecium pale brown in young apothecia, later turning dark brown. Asci 8-spored, narrowly rhombic, with an apical amyloid cap and a small, amyloid tholus containing a non-amyloid central plug. Ascospores 1-celled to 1(-3)-septate, hyaline, narrowly ellipsoid to fusiform, (5-)7-12(-15) x 2-5 µm. Pycnidia black, sessile, with a brown wall, N-. Conidia simple, hyaline, narrowly ellipsoid, 2.5-5 x c. 1.2 µm. Spot tests: upper cortex and medulla K-, C-, KC-, P-; cortex UV-, medulla UV+ faintly white. Chemistry: friesiic acid in the medulla. - Note: a cool-temperate to boreal-montane lichen, mostly found on conifers in the upper montane and subalpine belts; probably more widespread in the Alps.

Hypocenomyce caradocensis



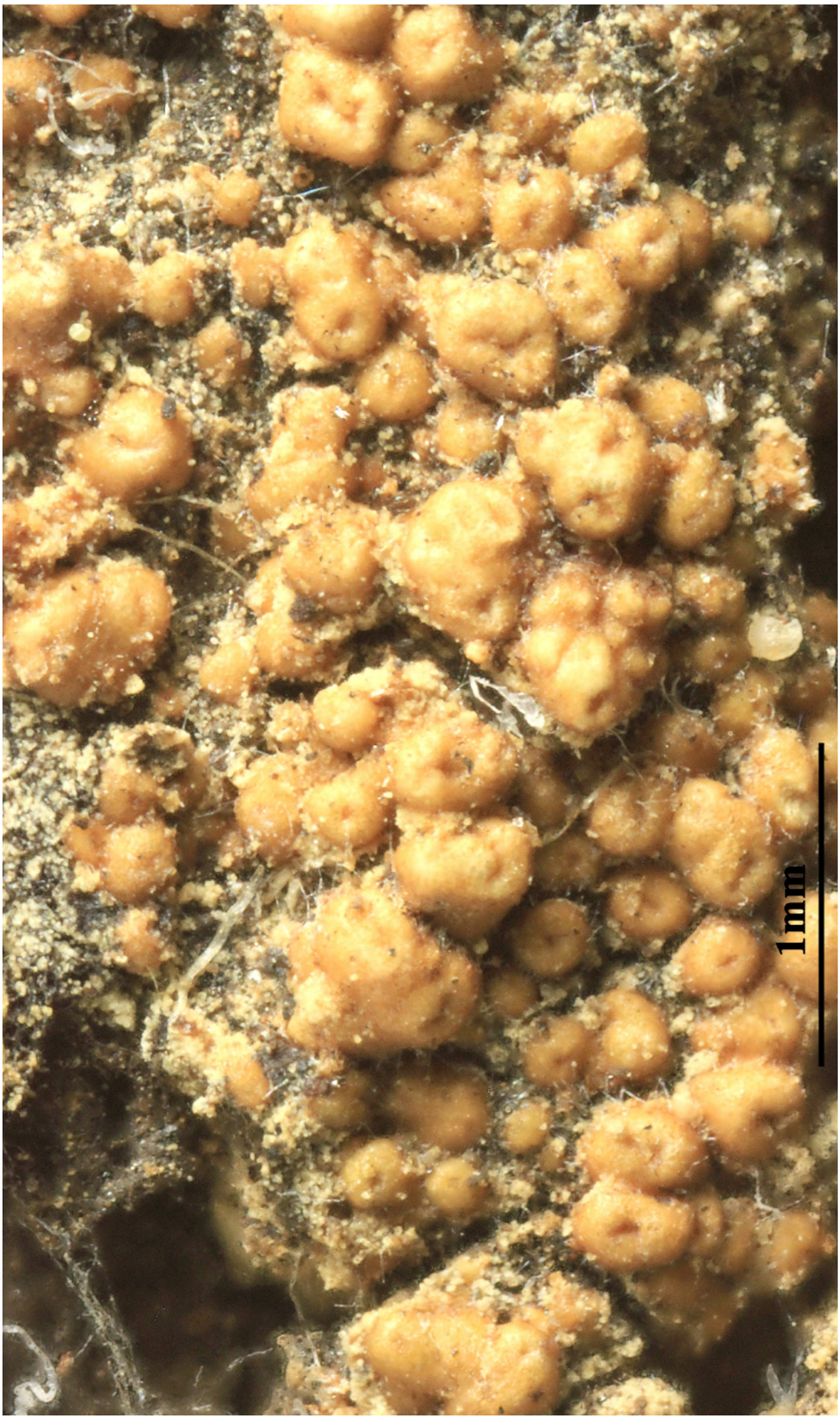
Hypocenomyce caradocensis

Hypocenomyce foveata Timdal, Nordic J. Bot. 4(1): 98 (1984)
= *Carbonicola foveata* (Timdal) Bendiksby & Timdal=
= *Biatora foveata* (Timdal) Hafellner, Herzogia 9: 729 (1993)

[VZR28], Australia. Victoria, reservatum naturae "Grampians Nationalpark", in monte Abrupt (37°30' austr., 142°25' orient.). Ad lignum carbonatum (Eucalyptus). Leg. H. T. Lumbsch & H. Ewers, 30.7.1881. Ex A. Vezda: Lichenes Rariores Exsiccati Nr. 28.

Squamules glossy chestnut-brown, adnate, plane to convex, usually markedly so, 0.2–0.8(–1) mm wide, to 0.3 mm thick, roundish, dispersed or contiguous but remaining discrete, more rarely fused or overlapping, not sorediate, frequently with an apical, pore-like dimple, forming spreading, diffuse, irregular colonies to
30 cm wide. Apothecia occasional, usually 1 per squamule, to 0.7 mm wide, commencing development in the apical depression of the squamules, becoming thinly marginate with a plane disc, soon convex to subglobose, basally constricted and immarginate, single or fusing in clusters to 1.5 mm wide; disc redbrown, smooth or unevenly dimpled; proper exciple in section deflexed, suffused reddish brown, to 15–30 µm thick. Hypothecium 60–140 µm thick, hyaline to pale yellow-brown, with photobiont cells beneath. Hymenium 40–50 µm thick, hyaline to suffused red-brown, darkest in the uppermost part; paraphyses with apices 3.5–6 µm wide, with an internal brown cap; asci 25–31 × 6–9 µm. Ascospores fusiform, simple, (6-8.9)–10.5(–11) × 1.5–*2.2*(–2.5) µm. Pycnidia black to brown-black, *c.* 0.1 mm wide; conidia filiform 10–14 × 0.8 µm.Chemistry: colensoic acid, 4-*O*-methylphysodic acid, plus traces of related substances; medulla K–, KC+ purple, C–, P–, UV+ bluish white. - A common and widespread species in sclerophyll forests where it forms extensive colonies on the charred bark and wood of old eucalypt trunks and logs, almost invariably associated with *Hypocenomyce australis* Timdal. It is similarly widespread on the Australian mainland.

Hypocenomyce foveata

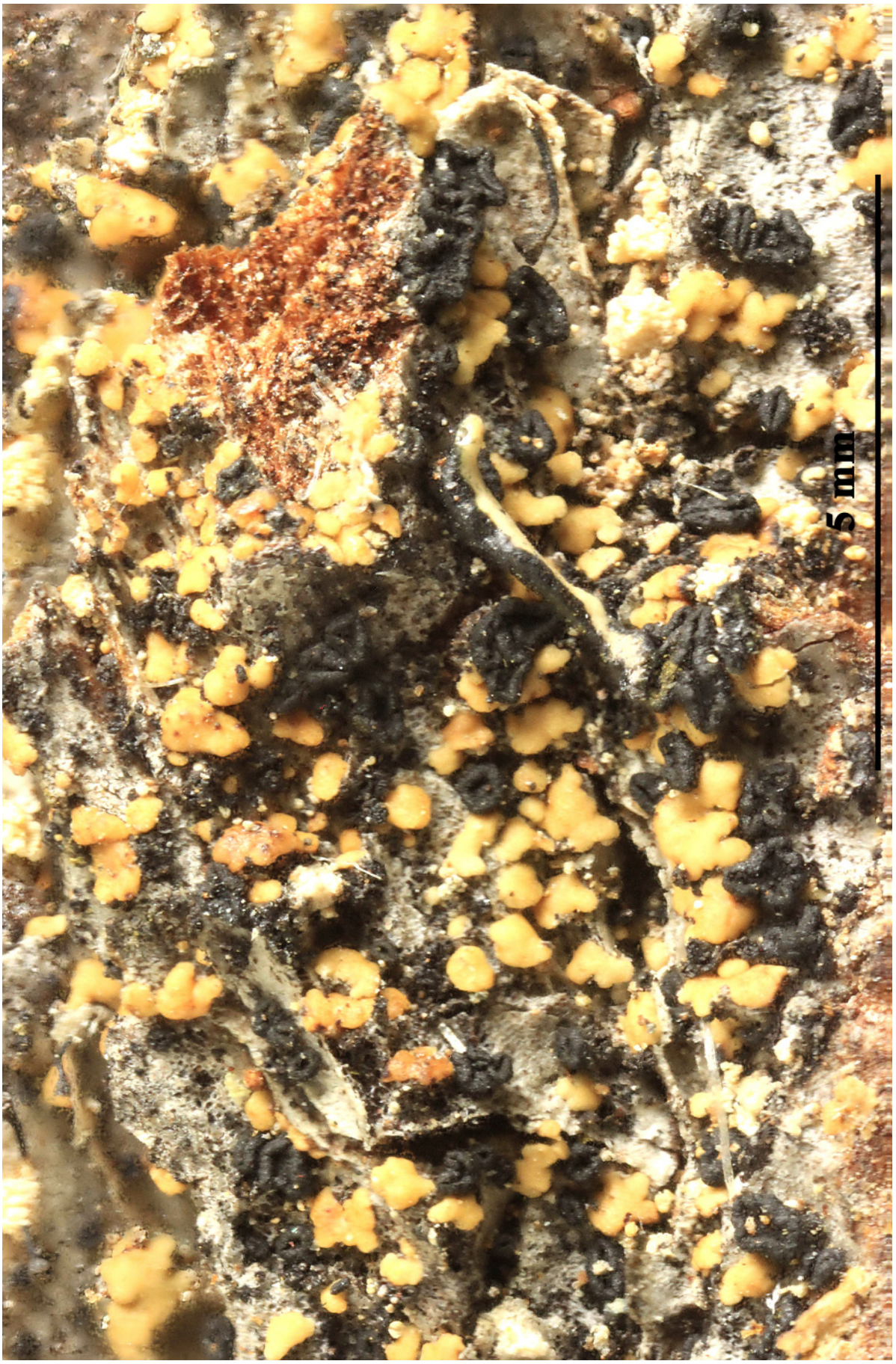


Hypocenomyce foveata

Hypocenomyce friesii (Ach.) P. James & Gotth. Schneid., in Schneider, Biblthca Lichenol. 13: 84 (1980) [1979]
= *Xylopsora friesii* (Ach.) Bendiksby & Timdal, Taxon 62(5): 953 (2013)
= *Biatora friesii* (Ach.) Tuck., Syn. N. Amer. Lich. (Boston) 2: 15 (1888)
= *Lecidea friesii* Ach., in Liljeblad, Utkast Sv. Fl., Edn 3 (Upsala): 610 (1816)
= *Psora friesii* (Ach.) Hellb., K. svenska Vetensk-Akad. Handl., ny följd 9(no. 11): 61 (1870)
= *Psora ostreata* f. *friesii* (Ach.) Boistel, Nouv. Fl. Lich. (Paris) 2: 94 (1903)

[VZR452], Bohemia australis, motes Šumava (Gabreta), distr. Volary, in valle fluvii Vltava loco Ovesná dicto, 730 m. Ad corticem arboris (*Pinus silvestris*). Leg. et det. Z. Palice (4215(, 8.4.2000. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 452.

Thallus squamulose, the squamules up to 1(-1.5) mm wide, adpressed or rarely ascending, concave to weakly convex, grey green to dark brown, usually shiny, crenulate or incised. Upper cortex of thin-walled hyphae, up to 50 µm thick, including the up to 30 µm thick epinecral layer; lower cortex absent. Apothecia lecideine, usually abundant, up to 1(-1.5) mm across, laminal, with a black, epruinose and sometimes gyrose disc and a prominent, more or less flexuose, persistent proper margin. Proper exciple of closely conglutinated hyphae, brownish black in outer part, dark brown within, N-; epithecium dark brown, N-; hymenium colourless 45-60 µm high; paraphyses long-celled, sparingly branched. Asci 8-spored, narrowly rhombic, with an apical amyloid cap and a small, amyloid tholus containing a non-amyloid central plug. Ascospores 1-celled, hyaline, ellipsoid, 4.5-8 x 2-4 µm. Pycnidia black, sessile, with a brown-black wall, N-. Conidia narrowly, hyaline, ellipsoid to shortly bacilliform, 2.5-5 x c. 1 µm. Photobiont chlorococcoid. Spot tests: cortex and medulla K-, C-, KC-, P-; cortex UV-, medulla UV+ faintly white. Chemistry: friesiic acid in the medulla. - Note: a mainly boreal-montane lichen found on bark of conifers (especially *Pinus*) and on charred wood, with optimum in the upper montane and subalpine belts; perhaps more widespread in the Alps.



Hypocenomyce friesii

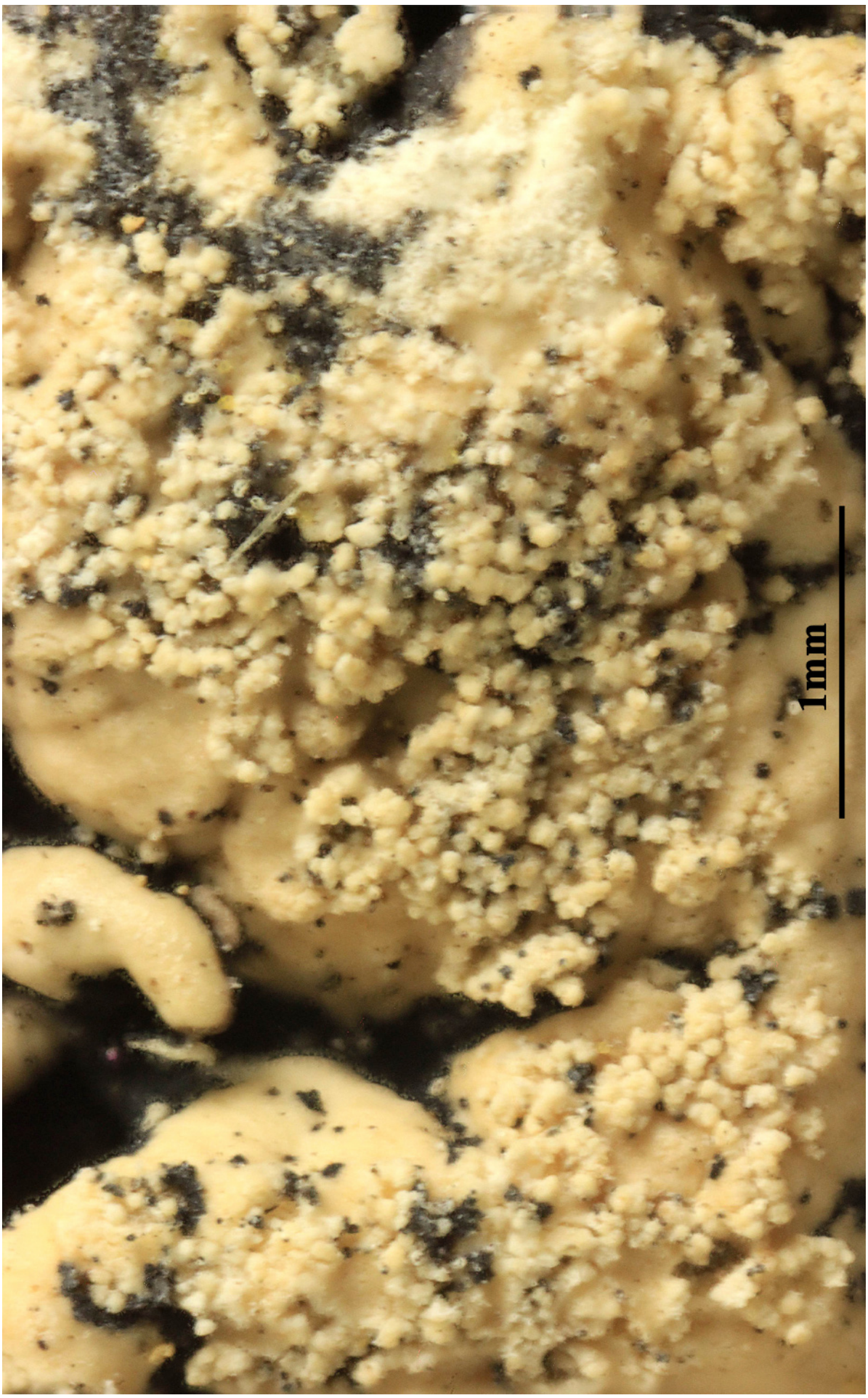
Hypocenomyce friesii

Hypogymnia farinacea Zopf, Justus Liebigs Annln Chem. 352: 42 (1907)
= *Ceratophyllum bitterianum* (Zahlbr.) M. Choisy, Bull. mens. Soc. linn. Soc. Bot. Lyon 20: 138 (1951)
= *Hypogymnia bitteriana* (Zahlbr.) Räsänen, Lichenotheca Fennica: no. 152 (1947)
= *Parmelia bitteriana* Zahlbr., Verh. zool.-bot. Ges. Wien 76: 95 (1927)
= *Parmelia farinacea* Bitter, Hedwigia 40: 174 (1901)
= *Parmelia physodes* var. *farinacea* Lynge, Bergens Mus. Årbok(no. 9): 85 (1910)

[VZR498], Italia, Calabria, Consenza, Sila Grande, reservatum naturae loco "valle Fossiata" dicto, 1250 m. Ad corticem arborum (*Pinus laritio*). Leg. & det. D. Pintillo. 19.6.1994. EX A. VěZDA: LICHENES RARIORES EXSICCATI N. 498.

Thallus foliose, heteromerous, dorsiventral, closely adpressed, up to 5(-6) cm broad, the lobes contiguous, grey to brownish grey, wrinkled, dull, 1-2(-3) mm broad, mostly convex, the apex much swollen and hollow inside, the surface largely covered by soredia arising from wrinkles on the upper surface, which crack and develop soredia along the edges of cracks. Lower surface black (brown at margins and lobe tips), rugose, erhizinate. Upper cortex of tightly packed, more or less anticlinally oriented hyphae, the cell walls with Cetraria-type lichenan; medulla soon becoming hollow, lining the cavity inside the lobes, the ceiling of the cavity white or dark, the floor dark; lower cortex dark, paraplectenchymatous. Apothecia extremely rare, lecanorine. Epithecium brown; hymenium and hypothecium colourless; paraphyses coherent, simple or sparingly branched in upper part. Asci 8-spored, clavate, Lecanora-type. Ascospores 1-celled, hyaline, subglobose, 5-6 x 4-5 µm. Pycnidia immersed, black. Conidia rod-shaped to weakly bifusiform. Photobiont chlorococcoid. Spot tests: upper cortex K+ yellow, C-, KC-, P- or P+ pale yellow, UV-; medulla K-, C-, KC+ orange-red, P-, UV+ pale violet-blue. Chemistry: upper cortex with atranorin and chloroatranorin; medulla with physodic acid (major), 3-hydroxyphysodic acid (accessory), 2'-O-methylphysodic acid (minor accessory), and other accessory unknown substances. - Note: a cool-temperate to boreal-montane lichen, most frequent in the Alps, much rarer in the mountains of Southern Italy.

Hypogymnia farinacea



Hypogymnia farinacea

Hypogymnia imshaugii Krog, Norsk Polarinstitutt Skrifter 144: 96 (1968)

[VZR322], USA. Washington. Kittitas County. Prope Rimrock Lake, 8 km ad occidentem a loco Rimrock Retreat. Ad ramos emortuos *Pini ponderosae*. Leg. W. L. Culberson(22379) & R. Ornduff, 2.8.1996. - Atranorin, physodalic acid (major), protocetraric acid by TLC, anal. A. Johnson & C.F. Culberson. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 322.

Thallus erect to suberect, up to 8 (-13) cm broad or long; texture cartilaginous; branching isotomic dichotomous to irregular; budding absent or rare; lobes separate to centrally contiguous, 0.3-2 (-4) mm broad, sometimes black bordered; profile even; width/height ratio: 1-3; tips and axils rarely perforate; upper surface white to greenish gray or brown, sometimes dark mottled, smooth to rugose; soredia and isidia absent; lobules sparse or lacking; medulla hollow, semi-solid, or solid; ceiling of cavity white; floor of cavity white; lower surface black, rarely perforate; Apothecia common, substipitate to stipitate, up to 10 (-20) mm in diam; stipe mainly funnel-shaped, hollow; disc light brown to dark red brown; ascospores broadly ellipsoid, 6.3-8 x 3.8-5.2 µm; Pycnidia common; conidia rod-shaped, 7-7.5 x 0.5-0.6 µm; Spot tests cortex K+ yellow, C-, KC-, P+ pale yellow, UV-; medulla K-, C-, KC+ orange-red, P- or P+ orange-red, occasionally P+ yellow; Secondary metabolites: upper cortex with atranorin and chloroatranorin; medullary chemistry highly variable, containing virtually all combinations of diffractaic acid (minor, accessory), physodic acid (major), physodalic acid (major), protocetraric acid (minor), 3-hydroxyphysodic acid (minor, frequency about 20%), 2'-O-methylphysodic (minor accessory), and various accessory unknowns. The most frequent chemotype is P+, with diffractaic, physodic, physodalic, and protocetraric acids. Also common is a P- chemotype with physodic acid as the only major substance in the medulla; Substrate and ecology: on bark or wood, including both conifers and hardwoods, occurring in a wide range of habitats, including semi-arid suboceanic forest, oceanic woodlands and forests; World distribution western North America, Alaska to northern Baja California, inland to Sierra Nevada, Montana, and Alberta Sonoran. Notes: Hypogymnia imshaugii is extremely variable in morphology and chemistry, probably reflecting multiple closely related species or phenotypic plasticity, or both. The most typical form occurring throughout its range has imperforate lobe tips, hollow lobes, open,

dichotomous branching, suberect or erect lobes, and medulla P+ orange. This form is infrequent in southern California. Another form is restricted to southern California and is very compact and appressed, with compressed to folded, hollow lobes, usually P-, and a distinctive set of unknowns by TLC. A third form, also restricted to southern California, has lobes collapsed and ± channeled on the lower surface, semi-solid to solid, with or without extended lobes that are hollow, not black mottled, the central part of the upper cortex strongly rugose, and medulla P+ orange. This form can have sparse subapical and subaxillary perforations, suggesting a relationship to *H. gracilis*.

Hypogymnia imshaugii

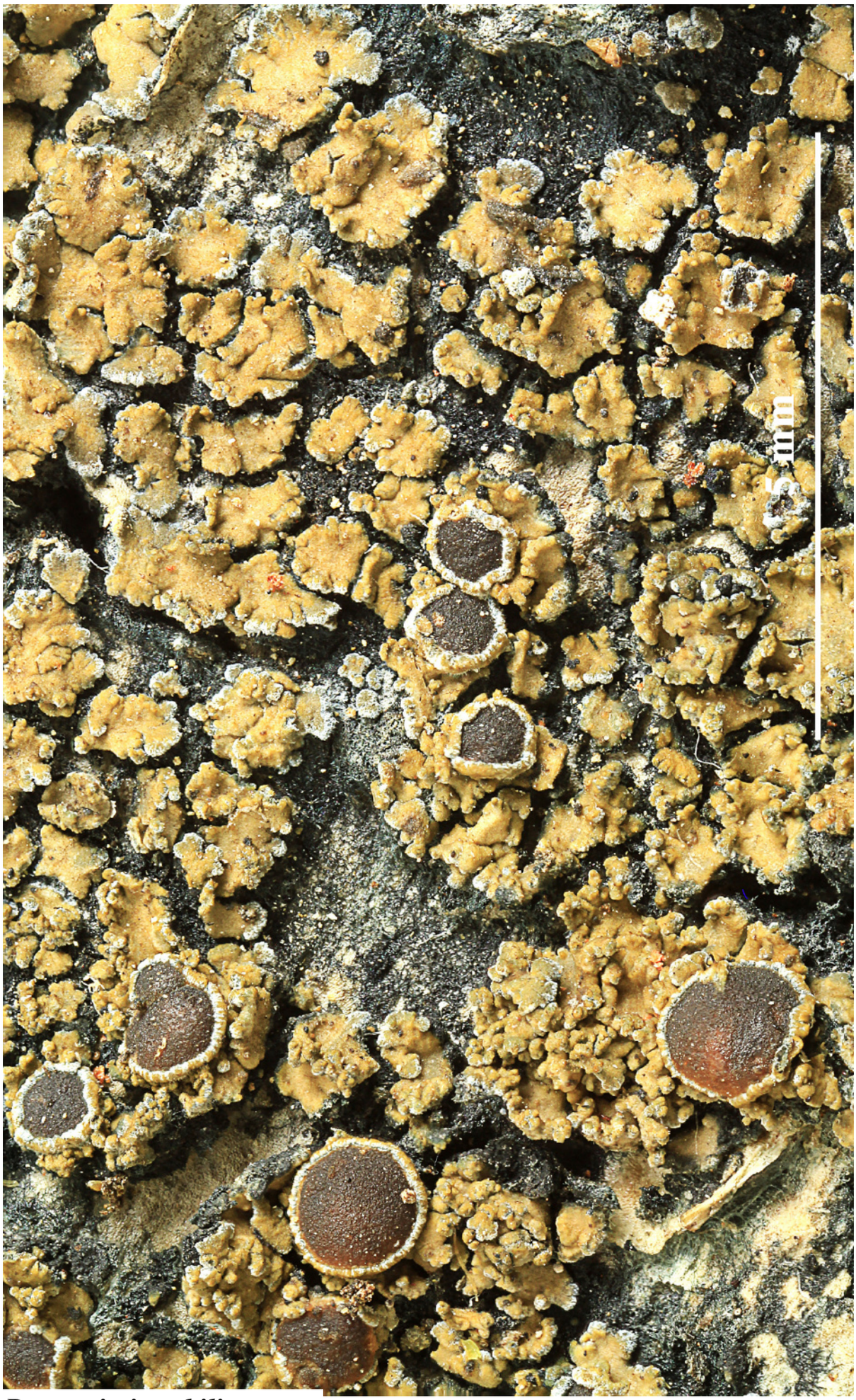
Hypogymnia imshaugii

Hypogymnia imshaugii

Pannaria ignobilis Anzi, Comm. Soc. crittog. Ital. 1(fasc. 3): 138 (1862)
= *Fuscopannaria ignobilis* (Anzi) P.M. Jørg., J. Hattori bot. Lab. 76: 205 (1994)
= *Pannaria servitiana* Gyeln., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 9.2(2.2): 237 (1940)

[VZR166], Graecia. Creta. Nomós Chanion: secus viam in vallecula prope vicum Lemni, 300 m. Ad corticem arborum (*Castanea sativa*). Leg. F. Ceni & A. Vězda, 3.04.1995. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 166.

Thallus crustose-subsquamulose, heteromerous, episubstratic, pale grey, blue-grey or brownish grey, of (0.3-)0.5-1(-1.5) mm wide, incised, dispersed to usually contiguous or imbricate areoles/squamules with a whitish margin, developing on a blue-black hypothallus and often forming a cracked crust. Upper cortex sclerenchymatous, 20-30 μm thick, of thick-walled cells; lower cortex absent. Apothecia lecanorine, 0.3-1 mm across, with a soon convex, orange-brown to red-brown disc, a finally excluded, pale brown proper margin, and an often incompletely developed, granular-verrucose thalline margin. Proper exciple paraplectenchymatous, 20-40 μm wide; epithecium pale brown; hymenium colourless, 100-140(-180) μm high, hemiamyloid, I+ blue-green turning reddish; paraphyses simple, coherent, the apical cells slightly swollen; hypothecium colourless to yellowish, 200-300 μm high. Asci 8-spored, subcylindrical to clavate, with a I+ blue tholus and an internal, more intensely I+ blue apical plug. Ascospores 1-celled, hyaline, ellipsoid, usually with a single large guttule, apiculate at one or both ends, with a variably thick epispore, 10-14(-16) x (6-)7-9(-11) μm, including the epispore 18-28(40) x (7-)9-12 μm. Pycnidia wart-like. Conidia bacilliform. Photobiont cyanobacterial (Nostoc, the cells in clusters). Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. Note: a Mediterranean-Atlantic species, usually found in cracks of the bark of ancient trees, near the base of the boles.



Pannaria ignobilis

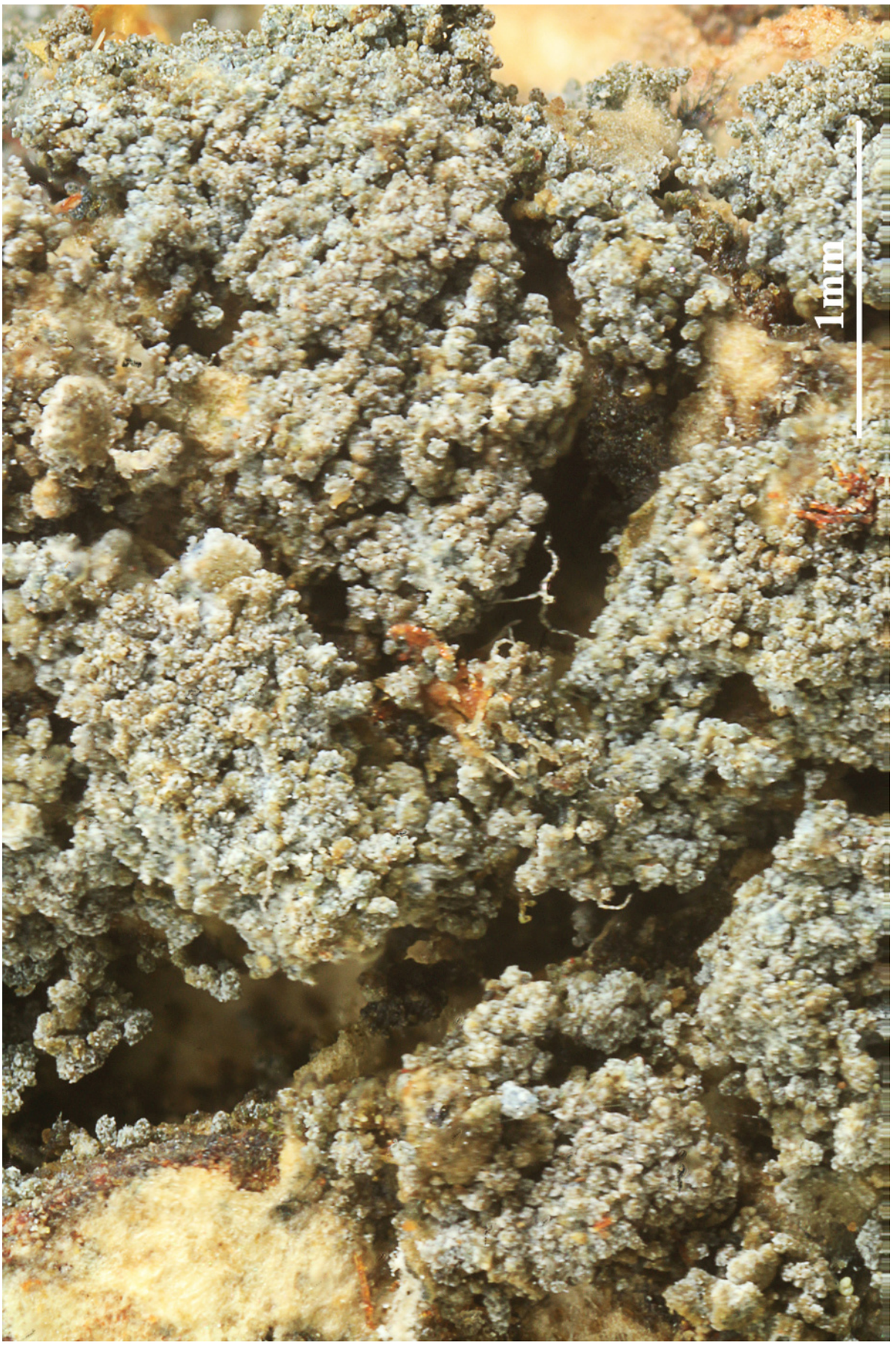
Pannaria ignobilis

Pannaria mediterranea Tav., Portug. acta biol., Sér. B 8: 5 (1965)
= *Fuscopannaria mediterranea* (Tav.) P. M. Jørg., J. Hattori bot. Lab. 76: 205 (1994)

[VZR55], Italia. Sardinia. Prov. Nuoro: Catena del Marghine, Badde Salighes, 950 m. Ad corticem Castaneae sativae vetustae. Leg. J. Poelt. A. Vězda,19.07.1987, det. P. M. Jørgensen. EX A. VěZDA: LICHENES RARIORES EXSICCATI NR. 55.

Thallus crustose-subsquamulose, heteromerous, episubstratic, bluish grey to olive-brown, of 2-3 mm wide, 160-230 µm thick, contiguous or imbricate, sorediate areoles/squamules with a white-felted, upturned margin, developing on a thin, often inconspicuous, blue-black hypothallus, usually forming a thick, cracked crust. Soredia granular, lead-grey or violet-grey, arranged in marginal, sometimes finally confluent soralia often covering the central parts of thallus, which often appear woolly in herbarium material (accumulation of fine crystals). Upper cortex sclerenchymatous, 30-40 µm thick, of thick-walled cells; lower cortex absent. Apothecia very rare, lecanorine, 0.5-1.5(-2) mm across, with a brown disc and a granular, sometimes sorediate, often poorly developed thalline margin. Proper exciple subparaplectenchymatous, 40-70 µm wide; epithecium pale brown; hymenium colourless, c. 100 µm high, hemihamyloid, I+ blue-green turning reddish; paraphyses simple, coherent, the apical cells slightly swollen; hypothecium colourless. Asci 8-spored, subcylindrical to clavate, with a I+ blue tholus and an internal, more intensely I+ blue apical plug. Ascospores 1-celled, hyaline, ellipsoid, with a thick epispore 4nd broadly attenuated apices, measuring (10-)13-16 x 7-8(-9) µm without epispore, 17-23 x 8-10 µm with epispore. Photobiont cyanobacterial (*Nostoc*, the cells in clusters). Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: fatty acids and steroids.

Pannaria mediterranea



Pannaria mediterranea

A

B