F. Schumm (2026):

Images of Lichens
Vezda Lichenes Selecti Exsiccati part 16

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With this volume, I continue the documentation of Vezda's works on exiccata, now with Lichenes Selecti as part 16. I have chosen the genus names that Vezda used, even though others are now more common. However, I also include the currently used names in the synonym list and the index. In addition, I have again made every effort to add species descriptions to the detailed information on the labels from the literature.

For the descriptions of europaean species I 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

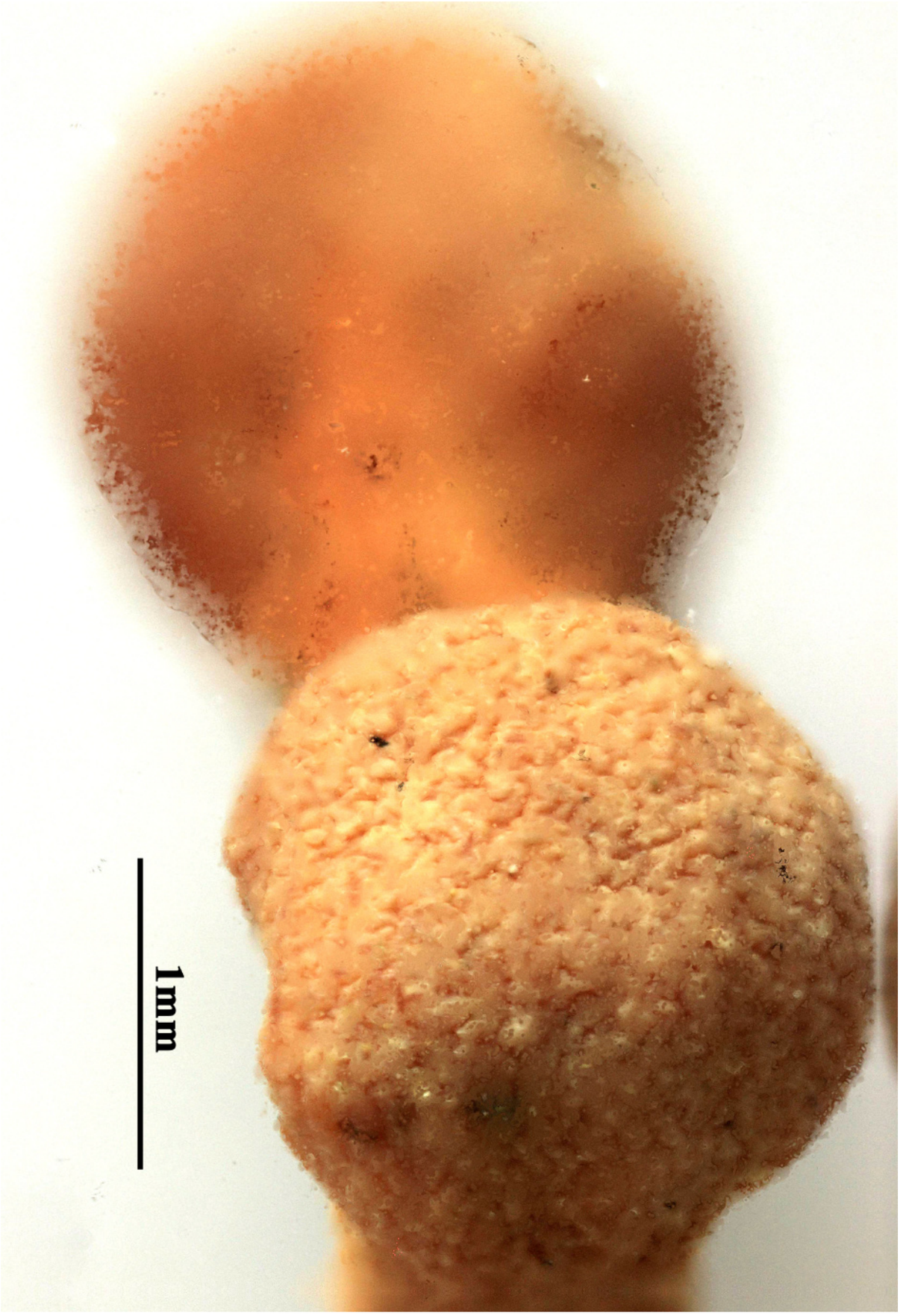
F. Schumm, 2026

Baeomyces fungoides (Sw.) Ach., Methodus, Sectio post. (Stockholmiæ): 320 (1803)
= *Lichen fungoides* Sw. 1788

[VZ2089], Venezuela. Estado Tachira: secus via Pregoneros, inter Boco de Monte Portachuela, 2300 m. Supra terram in fossis viae. Leg. M. López-Figueiras (no. 32465) et A. Morales, 7.7.1985. - Annot.: rev./det. from C. Gierl, 1992 to ***Dibaeis columbiana*** (Vain.) Kalb & Gierl. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2089.

Thallus: hellgrau, grau bis hellbeige, aus deutlichen, voneinander getrennten fast kugeligen Warzen bestehend, die zwar meist dicht gelagert sind, jedoch nur selten zu einem dunnen, staubigen, unebenen Lager miteinander verschmelzen. Durchmesser einer Warze ca 0,2 mm und kleiner, aber alle ± gleich roß.. Podetium: lang und sehr deutlich, hellbeige, Längsgerieft, fast vollstandig mit den gleichen algenhaltigen Warzen, aus denen auch das Lager aufgebaut ist, bedeckt, manchmal dichter stehend als beim Lager vor allm am Fuß des Podetiums. Zum Apothecium hin Warzendichte abnehmend, Höhe des Podetiums: 2 mm (jung) bis 11 mm, Dicke 0,5 mm bis 1,5 mm. Apothecium: rosa bis beige, zu Köpfchen aufgewolbt, eher hoch als breit, staubig, unberandet, Durchmesser ca. 3 mm, ca. 2mm hoch, Scheibenrand nach unten uber das Podetium gewolbt, manchmal entsteht in der Kopfmitte eine Einbuchtung. Sporen: Lange 14-20 x 3.5 µm. hyalin, nicht septiert, lang spindelformig, ein Ende oft langer ausgezogen, das andere abgerundet. Ascus: ca. 75 - 85 x 6 µm, achtsporig. Hymenium: 125 µm hoch, 15 µm davon mit aufgelagerten Flechtenstoffen; Fruchtk6rper meist arachnoid. Chemie: Baeomycessaure, Squamatsaure, Barbatsaure, Lager und Fruchtkorper K+ schwach gelb. Substrat: Erde, lehmiger Boden, sehr haufig über Moosen. Verbreitung: neotropisch, auch oberhalb der Waldgrenze; Bolivien, Columbien, Costa Rica, Ecuador, Peru, Venezuela. - Kurz-Charakteristik: sehr lange Podetien, meist mit kornigen Warzen bedeckt, Lager aus gleichmäßigen, fast kugelf6rmigen Warzen bestehend, die oft dünn das Substrat tiberziehen. - Verwechslungsmoglichkeiten mit: *Dibaeis fungoides:* bei dieser Art ist das Lager undeutlich warzig oder ergossen, die Podetien sind küirzer, nur 4 - 7 mm. Die Verbreitungsbilder von D. columbianus und D. fungoides scheinen sich auszuschließen.

Baeomyces fungoides



Baeomyces fungoides

Baeomyces roseus Pers., Ann. Bot. (Usteri) 7: 19 (1794)
= *Dibaeis baeomyces* (L. f.) Rambold & Hertel, Biblthca Lichenol. 53: 231 (1993)
= *Baeomycetomyces rosei* E.A. Thomas ex Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 272 (1954)
= *Dibaeis rosea* (Pers.) Clem., Gen. fung. (Minneapolis): 175 (1909)
= *Lichen baeomyces* L. f., Suppl. Pl.: 450 (1781)
= *Tubercularia baeomyces* (L. f.) Baumg., Fl. Lips.: 583 (1790)
= *Verrucaria baeomyces* (L. f.) Willd. [as 'beomyces'], Fl. berol. prodr.: 365 (1787)

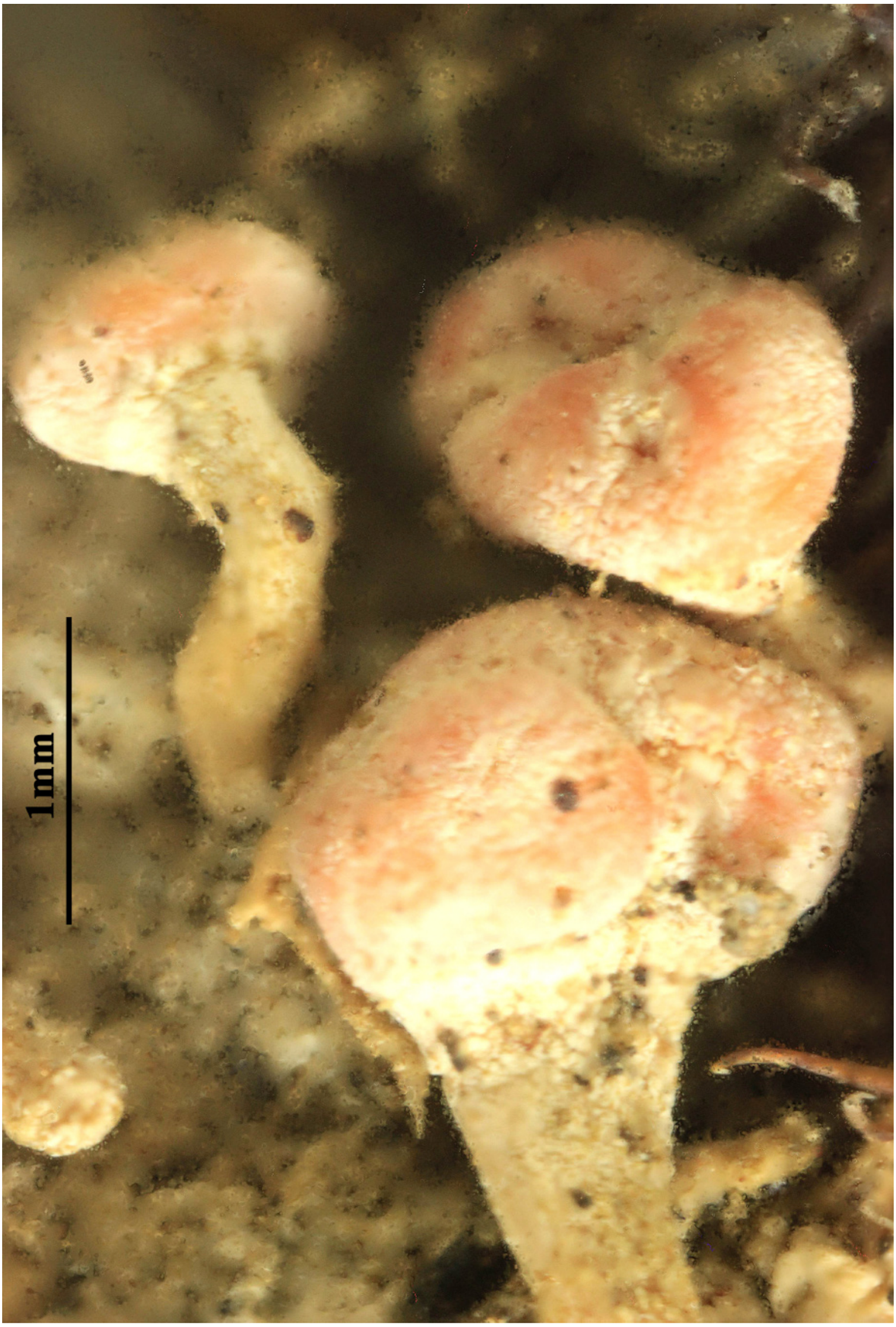
[VZ2352], Tanzania. Mbeya distr.: Kipengere, prope vicum Igoma, 240 m. Ad terram nudam. Leg. T. Pócs et al. (87142), 25.5.1987, det. A. Vězda. Ex A. Vězda Lichenes Selecti Exsiccati Nr. 2352.

Primary thallus crustose, grey, white or very pale grey, thick, areolate, usually with soft, rounded, white to pinkish grey, more or less glossy, wart-like, rarely sorediate schizidia which are up to 1 mm wide in sterile thalli, 0.1-0.3 mm wide in fertile thalli. Cortex of thallus c. 50 µm thick, of thin-walled, vertically oriented hyphae; medulla very loose, paraplectenchymatous in parts; cortex of schizidia consisting of interwoven hyphae parallel to the surface; inner part of stalks with strands of thin-walled 2.5-3 µm thick hyphae, those under the hymenium up to 5 µm thick. Apothecia frequent, globose also when young, often hollow inside, pink, 1-4 mm wide, emarginate or with a narrow margin when young, brought on erect, subfruticose, smooth, ecorticate, white stipes (podetia) which are 2-5(-6) mm tall and to 3 mm wide. Proper exciple poorly developed, of radially arranged hyphae; epithecium with colourless crystals dissolving in K (present also in the hymenium); hymenium colourless, 100-120(-140) µm high, K/I+ blue (reaction ephemeral!); paraphyses simple, not anastomosing, 2-2.5 thick at mid-level, the apical cells only slightly wider; hypothecium colourless or yellowish in upper part. Asci 8-spored, thin walled, cylindrical, the walls and tip K/I+ blue, with a distinct ocular chamber in the tholus, Icmadophila-type. Ascospores 1-celled (some apparently 2-celled for the presence of a pseudo-septum), hyaline, fusiform, (10-)12-26 x 2-3 µm. Pycnidia 0.1-0.2 mm across, immersed in warts, mostly laminal, with a colourless wall (brownish near the ostiole), the conidiogenous cells catenate, barrel-shaped. Conidia pleurogenous, short-bacilliform, 3.5-5 x c. 1 µm. Photobiont chlorococcoid

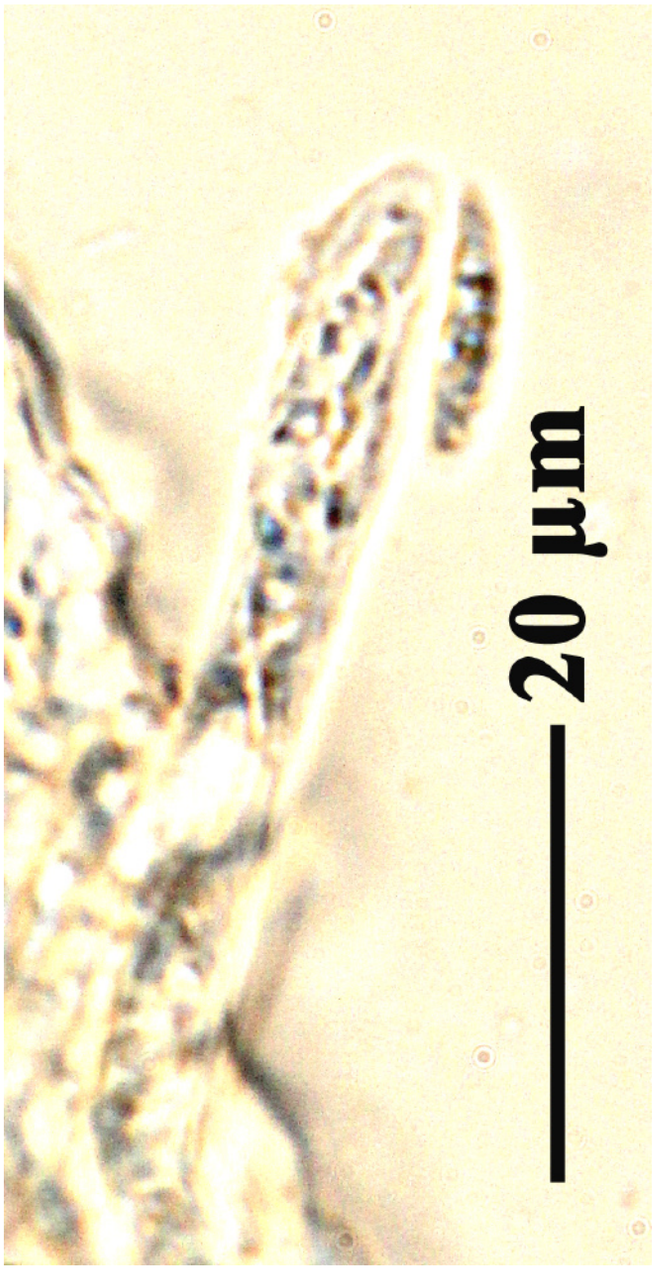
(Coccomyxa). Spot tests: thallus K+ yellow-orange, C-, KC+ orange, P+ yellow to orange, UV+ orange; medulla P+ yellow to orange, UV+ orange. Chemistry: baeomycesic acid, and variable amounts of squamatic and barbatic acids and atranorin. - Note: on humid, disturbed clay soil, often in *Calluna*-heaths, most frequent in upland areas. For further details see Gierl & Kalb (1993).

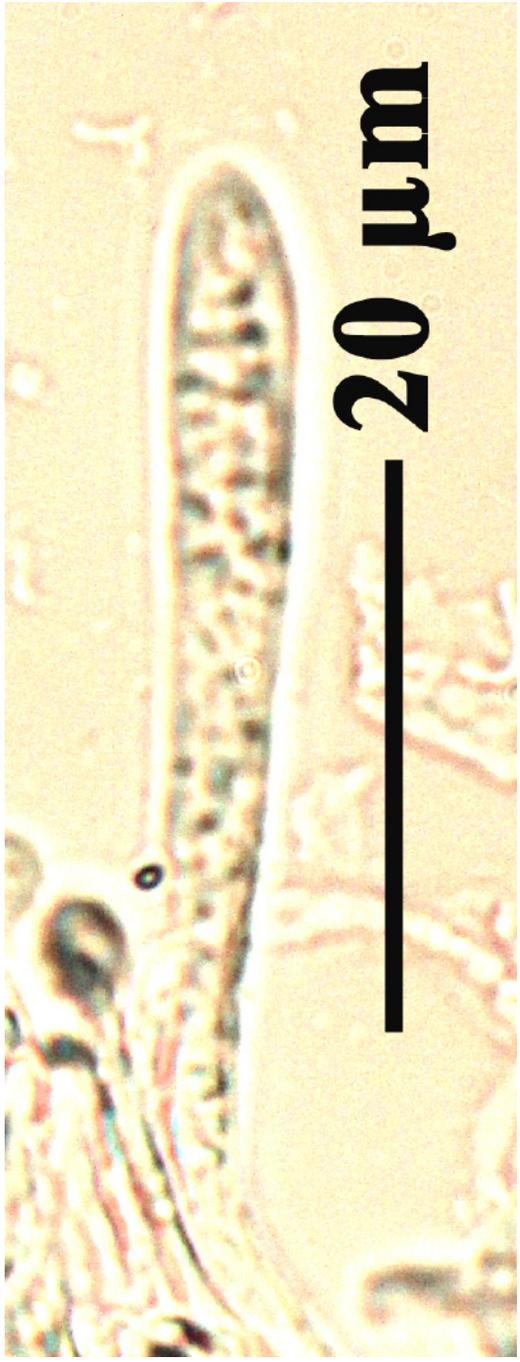
Baeomyces roseus

Baeomyces roseus



Baeomyces roseus





Baeomyces roseus

Cladina stygia (Fr.) Ahti, Beih. Nova Hedwigia 79: 45 (1984)
= *Cladonia stygia* (Fr.) Ruoss, Bot. Helv. 95(2): 241 (1985)
= *Cenomyce gonorega* f. *scabrosa* Ach., Syn. meth. lich. (Lund): 260 (1814)
= *Cenomyce rangiferina* var. *curta* Ach., Lich. Univ.: 566 (1810)
= *Cenomyce squamosa var. scabrosa* (Ach.) Delise, in Duby, Bot. Gall., Edn 2 (Paris) 2: 626 (1830)
= *Cladina rangiferina* f. *stygia* (Fr.) H. Olivier, Mém. Soc. natn. Sci. nat. Cherbourg 36: 110 (1907)
= *Cladonia degenerans* f. *scabrosa* (Ach.) Flörke, De Cladoniis, Difficillimo lichenum genere, Commentatio nova (Rostock): 47 (1828)
= *Cladonia rangiferina* f. *curta* (Ach.) Britzelm., Beih. Botan. Centralbl., Abt. 2 20: 143 (1906)
= *Cladonia rangiferina* f. *stygia* Fr., Nov. Sched. Critic. Lich. (Lundae): 22 (1826)
= *Cladonia squamosa* var. *scabrosa* (Ach.) Grognot, Pl. crypt.-cellul. Saône-et-Loire: 85 (1863)

[VZ2110], Fennia, Regio aboēnsis. Pohja (Pojo): Fiskari (Fiskars), 40 m. Ad terram humosam supra saxa granitica in silva semiaperta. Leg. R. Shti (no. 43903), F. J. A. Daniels et J. Oksanen, 14.5.1985. -Annot.: fumarprotocetrariv and protocetraric acids, atranorin, unknown fatty acid and unknown substance Cph-2 by TLC; nal- T. Ahti and S. Hyvönen. - Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 2110.

Primary thallus crustose, ephemeral, usually not visible. Podetia shrubby, hollow inside, ash-grey to bluish-grey, loosely attached and dying from the base, anisotomically (i.e. main branches thicker) tri- tetrachotomously branched, 4-10 cm tall, to 1(-2) mm thick, the surface esquamulose, ecorticate and minutely arachnoid; terminal branchlets divaricate or unilaterally deflexed, situated around an open or rarely closed axil; algal layer continuous, except at base, where it give rise to characteristic white areoles scattered over the melanotic medulla. Inner part of the main branches coal-black from the base to at least the first ramifications. Apothecia rare, terminal, brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed, on the tips of podetia, with a reddish jelly. Conidia hyaline, curved. Photobiont chlorococcoid, Spot tests: K+ yellow sometimes slowly turning brown, C-, KC-, P+ red, UV-. Chemistry: atranorin and fumarprotocetraric acid complex.
Note: a very rare, probably declining species of subalpine Sphagnum-bogs. To be looked for in the Italian Alps.

Cladina stygia

Cladina stygia

Cladina subtenuis (Abbayes) Hale & W.L. Culb., Bryologist 73(3): 510 (1970)
= *Cladonia tenuis subsp. subtenuis* Abbayes 1939

[VZ1615], USA. Carolina Australis. Horry County: 10 km ad meridiem versus a oppido Loris. Ad terram arenariam in silva. Leg. W. L. Culberson (no. 17380), 23.8.1978. - Annot.: Usnic acid, fumarprotocetraric acid, protocetraric acid (trace) and probably a trace of salazinic acid by TLC, anal. C. F. Culberson and A. Johnson. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1615.

Podetia 3-11 cm tall, greenish yellow to whitish gray, slightly browned at tips, base not melanotic, forming flat, often extensive colonies; branching type anisotomic dichotomy, with subisotomic tendencies, trichotomy and tetrachotomy very infrequent; main axes 0.5-0.7 mm thick, distinct or indistinct, with many secondary, anastomosing axes; branching angle often 90 degrees; axils almost always closed; top branchlets divaricate to suberect, more rarely nodding; mature intemodes 2-4 mm long. Surface layer clearly arachnoid near tips, lower down rather continuously verruculose, with fairly compact, crowded, permanent verrucae. Podetial wall 80-100 µm; ectal layer + medulla 30 µm; stereome 50-70 µm. Conidiomata frequent, cylindrical to dolioliform, 100-200 x 100 µm, containing red slime; conidia 7-9 x 1 µm, falciform. Hymenial disks dark to pale brown, 0.2 mm wide, on subterminal, lateral branchlets; spores 10-12 x 2.5-3 µm, oblong. Illustrations. Ahti, 1961: pl. 18; Thomson, 1968: pi. 25, fig. 111; Hale, 1979: fig. 394. Chemistry. P+ fast red, K-. Usnic acid (rarely absent) and fumarprotocetraric acid and traces of protocetraric and confumarprotocetraric acids, often isousnic and ursolic acids.

Cladina subtenuis

Cladina subtenuis

Cladonia subrangiformis L. Scriba ex Sandst., Abh. naturw. Ver. Bremen 25: 165 (1922)

= *Cladonia furcata* var. *subrangiformis* (L. Scriba ex Sandst.) Hennipman, Persoonia 4(4): 427 (1967)

= *Cladonia furcata* subsp. *subrangiformis* (L. Scriba ex Sandst.) Pišút, Acta Facultatis Rerum Naturalium Universitatis Comenianae, Botanica 6: 525 (1961)

= *Cladonia furcata* (Huds.) Baumg., Fl. Lips.: 577 (1790)

= *Baeomyces furcatus* (Huds.) Ach., Methodus, Sectio post. (Stockholmiæ): 357 (1803)

= *Baeomyces spinosus* var. *palamaeus* Ach., Methodus, Sectio post. (Stockholmiæ): 359 (1803)

= *Capitularia furcata* (Huds.) Mart., Fl. crypt. erlang. (Nürnberg): 272 (1817)

= *Cenomyce furcata* (Huds.) Ach., K. Vetensk-Acad. Nya Handl. 31: 302 (1810)

= *Cladonia fruticosa* var. *furcata* (Huds.) Schaer., Lich. helv. spicil. 1: 41 (1823)

= *Cladonia furcata* f. *palamaea* (Ach.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 30: 115 (1881) [1880]

= *Cladonia furcata* f. *pinnata* (Vain.) M. Choisy, Bull. mens. Soc. linn. Soc. Bot. Lyon 20: 14 (1951)

= *Cladonia furcata* subsp. *pinnata* (Vain.) Fink, Contr. U.S. natnl. Herb. 14(1): 118 (1910)

= *Cladonia furcata* subvar. *pinnata* (Vain.) Maheu, Bull. Soc. Bot. France 54(4): 235 (1907)

= *Cladonia furcata* var. *cancellata* Müll. Arg., Flora, Regensburg 65(19): 296 (1882)

= *Cladonia furcata* var. *palamaea* (Ach.) Nyl., in Vainio, Acta Soc. Fauna Flora fenn. 4(no. 1): 347 (1887)

= *Cladonia furcata* var. *pinnata* Vain., Acta Soc. Fauna Flora fenn. 4(no. 1): 332 (1887)

= *Cladonia furcata* var. *tenuicaulis* Müll. Arg., Flora, Regensburg 65(19): 295 (1882)

= *Cladonia glauca* f. *furcata* (Huds.) Kieff., Bull. Soc. Hist. Nat. Metz 19: 24 (1895)

= *Cladonia narkodes* Kremp., Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 30: 330 (1881) [1880]

= *Cladonia palamaea* (Ach.) Fink, Lich. Fl. U.S.: 255 (1935)

= *Cladonia pinnata* (Vain.) Anders, Beih. Botan. Centralbl., Abt. B 54: 451 (1936)

= *Cladonia scabriuscula* f. *cancellata* (Müll. Arg.) Sandst., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 9(4.2): 220 (1931)

= *Lichen cornucervi* Neck., Method. Muscor. Illustr. (Upsaliae): 64 (1771)
= *Lichen furcatus* Huds., Fl. Angl.: 458 (1762)
= *Lichen subulatus* var. *furcatus* (Huds.) Huds., Fl. Angl., Edn 2: 556 (1778)
= *Scyphophorus furcatus* (Huds.) Trevis., Lichenoth. Veneta 3-4: no. 89 (1869)
= *Verrucaria furcata* (Huds.) Humb., Fl. Friberg. Spec. (Berlin): 41 (1793)

[VZ1210],Bohemoslovacia. Slovacia merid. distr. Stúrovo. In silva Cenkovský les dicta, in vicinitate Danuvii, 110 m. Ad terram humosam arenaceam subcakcaream. Leg. I. Pišút et A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1210.

Primary thallus squamulose, the squamules middle-sized (1-3 mm long and broad), most often ephemeral, brownish green above, white beneath. Podetia branched, hollow inside, brown, stout, to 10 cm tall (usually less), forming irregular tufts, with pointed apices and a smooth to wrinkled surface, non- or very sparsely squamulose, with evident, convex, white medullary outbursts at the base. Apothecia rare, dark brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed on the tips of podetia, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K- or K+ yellowish slowly turning brown, C-, KC-, P+ red. Chemistry: atranorin and fumarprotocetraric acid. - Note: a mild-temperate lichen found on mineral calciferous soil, often amongst bryophytes. This taxon has so far no valid name at subspecific rank, and recent molecular data do not support its separation from C. furcata (Pino-Bodas & al. 2015) so that it could be better treated at the level of forma (Ahti in litt.), but the epithet subrangiformis is a later homonym for f. subrangiformis Vain. ex Zahlbr.

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[VZ1990], RSS. Transcaucasia occidentalis (Georgia): Colchis, distr. Guirips, in valle fluminis Amtkel prope confluentem fluminis Kodora, 400-600 m. Ad terram in alluvio fluminis. Leg. A. Vězda, 26.6.1977. Ex A. Vezda Lichenes Selecti Exsiccati Nr. 1990.

Primary thallus squamulose, the squamules middle-sized (1-3 mm long and broad), most often ephemeral, brownish green above, white beneath. Podetia branched, hollow inside, brown, stout, to 10 cm tall (usually less), forming irregular tufts, with pointed apices and a smooth to wrinkled surface, non- or very sparsely squamulose, with evident, convex, white medullary outbursts at the base. Apothecia rare, dark brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed on the tips of podetia, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K- or K+ yellowish slowly turning brown, C-, KC-, P+ red. Chemistry: atranorin and fumarprotocetraric acid. - Note: a mild-temperate lichen found on mineral calciferous soil, often amongst bryophytes. This taxon has so far no valid name at subspecific rank, and recent molecular data do not support its separation from C. furcata (Pino-Bodas & al. 2015) so that it could be better treated at the level of forma (Ahti in litt.), but the epithet subrangiformis is a later homonym for f. subrangiformis Vain. ex Zahlbr.

Cladonia subrangiformis

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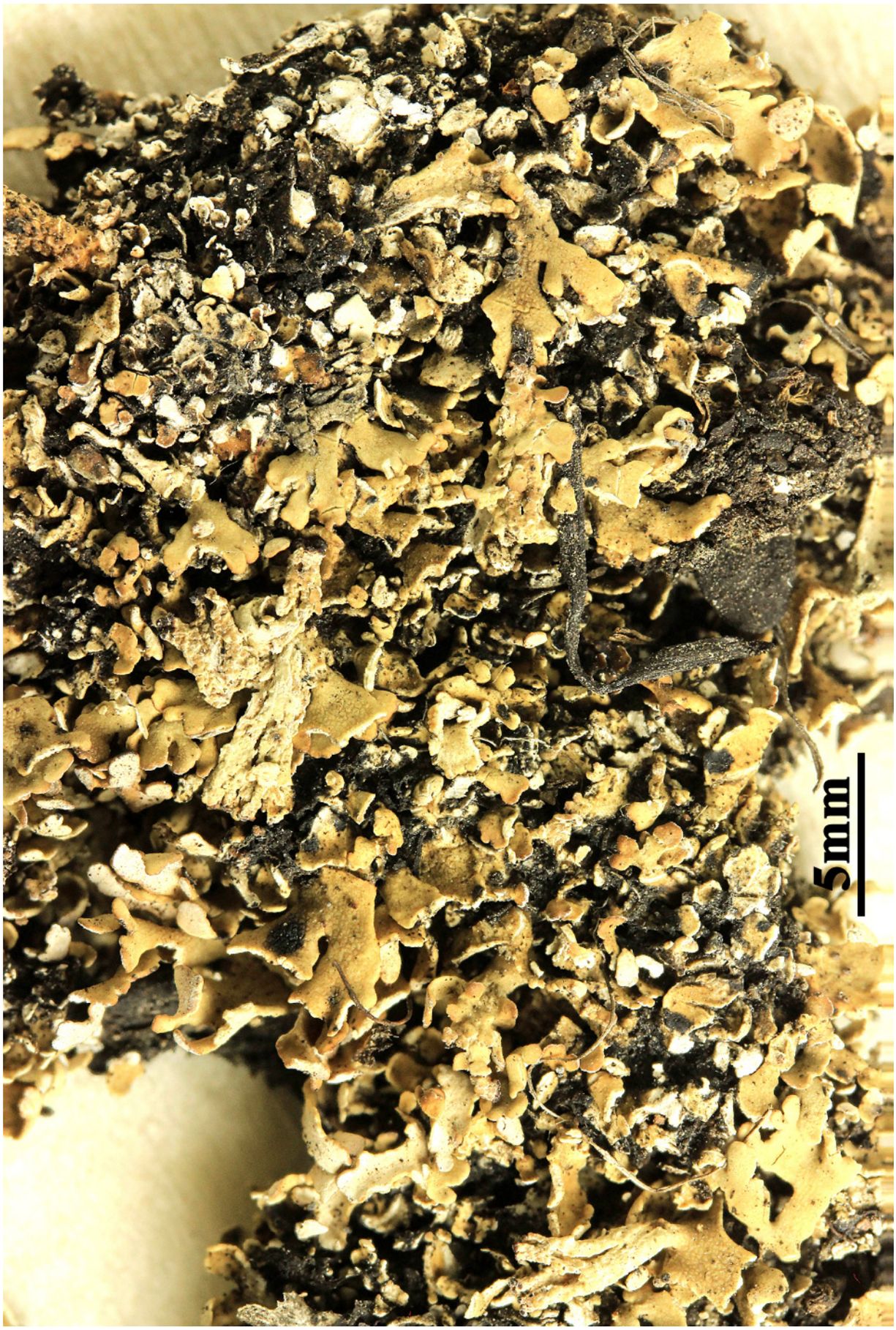
Cladonia symphycarpa (Ehrh. ex Schrad.) Fr. [as 'symphycarpia'], Sched. Crit. Lich. Suec., Fasc. 7: 20 (1826)
= *Lichen symphycarpus* Ehrh. ex Schrad. 1797

[VZ1959], USA. Michigan, Delta County, in peninsula dicta "Garden", ad meridiem a Portage Bay Cmpground. Ad terram calcaream. Leg. et det. R. C. Harris (no. 11666) - Annot.: Atranorin, psoromic acid, conpsoromic acid by TLC, anal. R. C. Harris. Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 1959.

Primary thallus squamulose, persistent and forming mats, the squamules large, (3-)4-6 mm long, 2-4 mm wide, horizontally spreading, with recurved margins, grey-green above (often brownish at tips), sometimes pruinose, white beneath, the margins often darkened with a violet hue. Podetia rather rare, to 1 cm tall, hollow inside, bluish- to olive-green, cupless, simple or branching toward the apex and terminating with apothecia, or with irregular small cups, with a verruculose-areolate, fissured cortex. Apothecia very rare, dark brown, larger than the tips of podetia, often clustered. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark brown to black, semi-immersed, often occurring on the primary squamules, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests and chemistry: seven main chemotypes (all of them C-, KC-, UV-): 1) K+ yellow turning red, P+ yellow (atranorin, norstictic and connorstictic acids), 2) K+ yellow turning red, P+ yellow (atranorin, bourgeanic and norstictic acids); 3) K+ yellow, P+ yellow (atranorin and psoromic acid), 4) K+ yellow, P–(atranorin, rangiformic acid and inconstant zeorin), 5) K+ yellow, P+ red (atranorin, fumarprotocetraric, rangiformic acids, and inconstant zeorin, 6) K+ yellow slowly turning red, P+ red (atranorin, fumarprotocetraric, norstictic and rangiformic acids), 7) K+ yellow slowly turning red, P+ red (fumarprotocetraric, norstictic and rangiformic acids). Chemotype 1) is the most frequent. - Note: a widespread holarctic species found on calcareous ground in dry grasslands or on the top of exposed calcareous boulders, certainly occurring also throughout Southern Italy.



Cladonia symphycarpa

Cladonia symphycarpa

Cladonia umbricola Tønsberg & Ahti, Norw. Jl Bot. 27: 307 (1980)
= *Cladonia polydactyla* (Flörke) Spreng., Syst. veg., Edn 16 4(1): 274 (1827)
= Cenomyce polydactyla Flörke, Deutsche Lich. 10: 13 (no. 195) (1821)
= *Cladonia digitata* f. *polydactyla* (Flörke) Leight., Lich.-Fl. Great Brit. Irel. Chann. Isl.: 70 (1871)
= *Cladonia flabelliformis* var. *polydactyla* (Flörke) Vain., Acta Soc. Fauna Flora fenn. 4(no. 1): 119 (1887)
= *Cladonia incana* var. *polydactyla* (Flörke) Schaer., Lich. helv. spicil. 6: 281 (1833)
= *Cladonia macilenta* f. *polydactyla* (Flörke) Fr., Lich. eur. reform. (Lund): 241 (1831)
= *Cladonia macilenta* var. *polydactyla* (Flörke) Fr., Summa veg. Scand., Sectio Prior (Stockholm): 110 (1845)
= *Cladonia polydactyla* var. *umbricola* (Tønsberg & Ahti) Coppins, British Lichen Society Bulletin, Supplement 72: 75 (1993)

[VZ1798], Norvegia, Nord-Trøndelag, Namsos, Skakanovdalen, 60-100 m. Ad truncum decorticatum (*Picea abies*). Leg. T. Tonsberg (no. 5544). 13.5.1981. Annot.: TLC squamatic acid anal. T. Tonsberg. Ex A. Vězda Lichenes Selecti Exsiccati NHr. 1798.

Primary thallus squamulose, usually persistent, the squamules 2-4 mm long, 1-2 mm wide, with deeply crenulated margins, grey-green on upper side, white and esorediate or sparsely sorediate beneath. Podetia mostly simple, hollow inside, 1-2(-3) cm tall, 0.5-1.5(-2) mm thick, the tips usually without cups, rarely with narrow, irregular, 1-2 mm wide cups, the surface greenish grey to whitish grey, smooth, ecorticate, usually esquamulose, farinose-sorediate up to the base. Apothecia rare, scarlet red, at the margins of cups or terminal. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia scarlet red, semi-immersed at the margins of cups, with a red jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K-, C-, KC-, P-, UV+ white. Chemistry: squamatic acid, a rarer chemotype with thamnolic acid (K+ yellow, P+ yellow, UV-) is known from northern areas; rhodocladonic acid in apothecia and pycnidia. - Note: a mainly western, oceanic to suboceanic species also present in North America, with a few southern records from the Iberian Peninsula and the Western Alps (Switzerland): it grows on decaying wood and at the base of trunks of conifers as well as on acidic soil in humid-shaded situations.

Cladonia umbricola

Cladonia umbricola

Cladonia verticillata (Hoffm.) Schaer., Lich. helv. spicil. 1: 31 (1823)
= *Cladonia cervicornis* (Ach.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 105 (1850) [1849]
= *Baeomyces cervicornis* (Ach.) Ach., Methodus, Sectio post. (Stockholmiæ): 336 (1803)
= *Baeomyces turbinatus* var. *verticillatus* (Hoffm.) Ach., Methodus, Sectio post. (Stockholmiæ): 340 (1803)
= *Baeomyces verticillatus* (Hoffm.) Wahlenb., Fl. lapp.: 454 (1812)
= *Baeomyces verticillatus* var. *foliaceus* Wahlenb., Fl. Suec. 2: 848 (1826)
= *Capitularia verticillata* (Hoffm.) Flörke, Mag. Gesell. naturf. Freunde, Berlin 3(1-2): 124 (1809)
= *Cenomyce allotropa* var. *verticillata* (Hoffm.) Ach., Lich. Univ.: 555 (1810)
= *Cenomyce cervicornis* (Ach.) Ach., Lich. Univ.: 531 (1810)
= *Cenomyce verticillata* (Hoffm.) Ach., Syn. meth. lich. (Lund): 251 (1814)
= *Cladonia cervicornis* f. *verticillata* (Hoffm.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 30: 115 (1881) [1880]
= *Cladonia cervicornis* subsp. *mawsonii* (C.W. Dodge) S. Stenroos & Ahti, Ann. Bot. Fenn. 27(4): 320 (1990)
= *Cladonia cervicornis* subsp. *pulvinata* (Sandst.) Ahti, Ann. Bot. Fenn. 20(1): 5 (1983)
= *Cladonia cervicornis* subsp. *verticillata* (Hoffm.) Ahti [as 'verticilata'], Lichenologist 12(1): 126 (1980)
= *Cladonia cervicornis* var. *verticillata* (Hoffm.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 105 (1850) [1849]
= *Cladonia cornuta* * *verticillata* (Hoffm.) Stizenb., Ber. Tät. St Gall. naturw. Ges.: 288 (1882) [1880-81]
= *Cladonia degenerans* var. *pleuroclada* Müll. Arg., Flora, Regensburg 65(19): 295 (1882)
= *Cladonia degenerans* var. *prolifera* Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 105 (1845)
= *Cladonia gracilis* f. *cervicornis* (Ach.) Nyl., Act. Soc. linn. Bordeaux 21(4): 283 (1857) [1856]
= *Cladonia gracilis* f. *verticillata* (Hoffm.) Fr., Lich. eur. reform. (Lund): 219 (1831)
= *Cladonia gracilis subsp. cervicornis* (Ach.) Nyl., Syn. meth. lich. (Parisiis) 1(2): 197 (1860)
= *Cladonia gracilis* subsp. *verticillata* (Hoffm.) Nyl., Syn. meth. lich. (Parisiis) 1(2): 197 (1860)
= *Cladonia gracilis* var. *cervicornis* (Ach.) Schaer., Lich. helv. spicil. 6: 297 (1833)

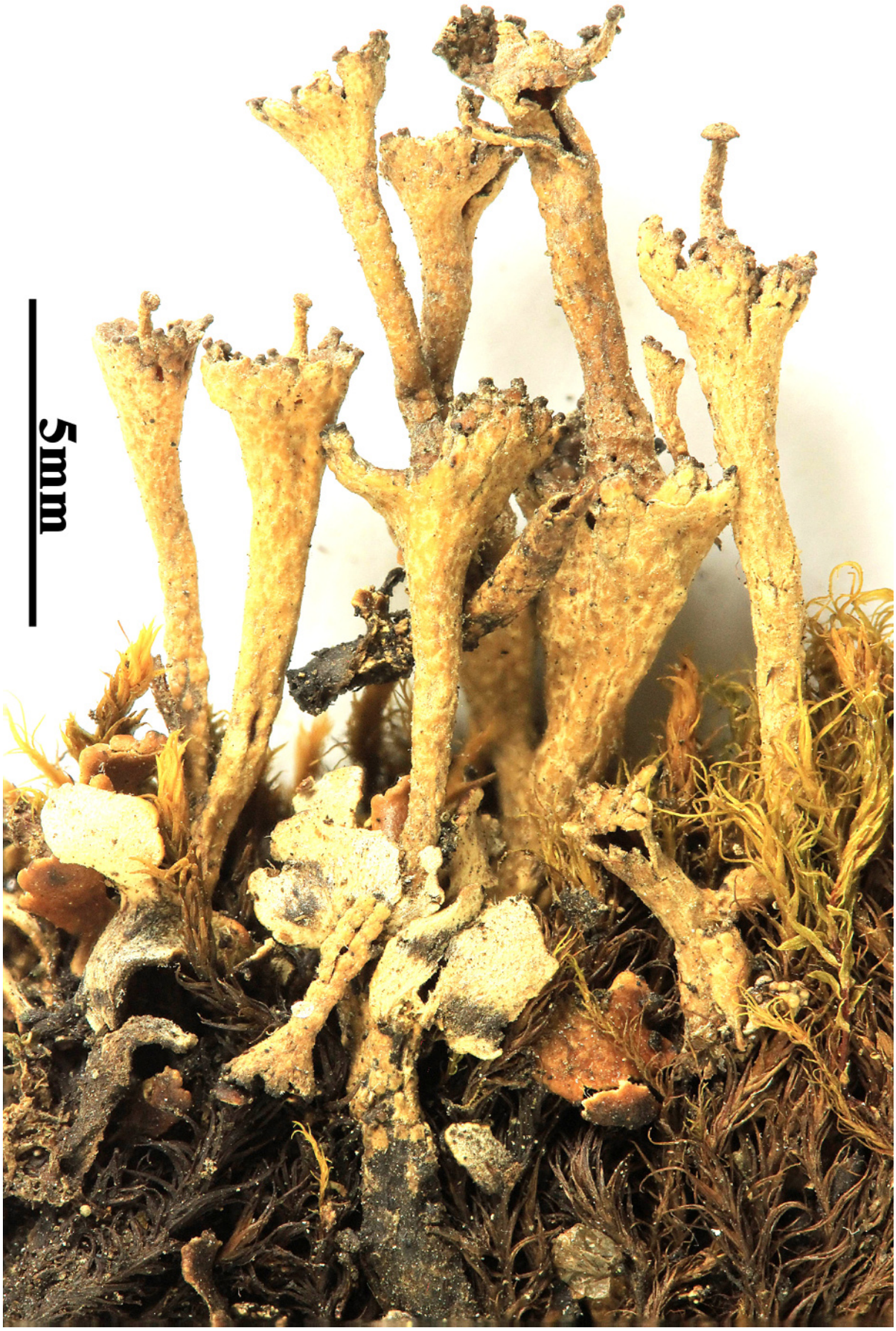
= *Cladonia gracilis* var. *verticillata* (Hoffm.) Hornem., Dansk Oekon. Plantel.: 550 (1837)
= *Cladonia mawsonii* C.W. Dodge [as 'mawsoni'], B.A.N.Z. Antarct. Res. Exped. Rep., Ser. B 7: 128 (1948)
= *Cladonia pityrea* f. *verticillata* (Hoffm.) Maheu & Werner, Bull. Soc. Hist. Nat. Colmar 24: 68 (1934)
= *Cladonia pulvinata* (Sandst.) Herk & Aptroot, Biblthca Lichenol. 86: 200 (2003)
= C*ladonia pyxidata [*unranked*] verticillata* Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 122 (1796) [1795]
= *Cladonia pyxidata* var. *verticillata* (Hoffm.) Flörke, in Weber & Mohr, Beitr. Naturk. 2: 284 (1810)
= *Cladonia rappii* f. *pulvinata* (Sandst.) A. Evans, Trans. Conn. Acad. Arts & Sci. 38: 298 (1952)
= *Cladonia verticillata [unranked] cervicornis* (Ach.) Flot., Linnaea 22: 380 (1849)
= *Cladonia verticillata* f. *cervicornis* (Ach.) Schade, Nova Hedwigia 2: 422 (1960)
= *Cladonia verticillata* f. *pulvinata* Sandst., Cladon. Exsicc.: no. 233 (1918)
= *Cladonia verticillata* subsp. *cervicornis* (Ach.) Nyl., in Norrlin, Meddn Soc. Fauna Flora fenn. 1: 13 (1876)
= *Cladonia verticillata* var. *cervicornis* (Ach.) Flörke, De Cladoniis, Difficillimo lichenum genere, Commentatio nova (Rostock): 29 (1828)
= *Cladonia verticillata* var. *pulvinata* Sandst., Abh. naturw. Ver. Bremen 25: 214 (1922)
= *Lichen cervicornis* Ach., Lich. suec. prodr. (Linköping): 184 (1799) [1798]
= *Scyphophorus cervicornis* (Ach.) Gray [as 'Scyphophora'], Nat. Arr. Brit. Pl. (London) 1: 418 (1821)
= *Scyphophorus verticillata* (Hoffm.) Gray, Nat. Arr. Brit. Pl. (London) 1: 418 (1821)

[VZ1930], Norvegia. Hordaland: Granvin, in loco dicto Skålsaete. Ad terram. Leg. J. J. Havaas, 18.0.1936, det. W. L. Culberson. - Annot.: Fumarprotocetraric acid, protocetraric acid (trace), and unknown compound Cph-2 (trace) by TLC; anal. A. Johnson and C. F. Culberson. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1930.

Primary thallus squamulose, usually persistent and forming mats, the squamules very variable in size, 3-6 mm long, 2-5 mm wide, wedge-shaped or lobed, with indented margins, often ascending, upper surface grey-green to brownish in sun-forms, lower surface whitish, finely

arachnoid. Podetia frequent, hollow inside, greenish grey to brown in sun-forms, 2-6(-8) cm tall, 0.5-3(-4) mm thick, flaring quickly into short, broad cups (up to 9 mm diam.), which tend to proliferate from the centre, often giving rise to up to 7 tiers of superimposed cups. Cortex more or less continuous to areolate, clearly maculate, the areoles smooth, subcontiguous. Apothecia infrequent, brown, convex, small. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, common at margins of apical cups, subglobose to ovoid, sessile, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K- or K+ yellowish slowly turning brown, C-, KC-, P+ red, UV-. Chemistry: fumarprotocetraric acid complex. - Note: a boreal-montane to subarctic-subalpine, circumpolar lichen found on acid soil in open habitats, most frequent in upland areas.

Cladonia verticillata



Cladonia verticillata

Cladonia vulcanica Zoll. & Moritzi, in Hasskarl, Natur Geneerk. Arch. Neerl. Indie 1: 396 (1847)

[VZ1931], USA. Carolina Meridionalis. Charleston County: In silva dicta Francis Marion National Forest,13 km ad meridiem et occidentem versus a Honey Hill secus viam dictam Rt. 200S. Ad basin *Pini* sp. mortuae. Leg. W. L. Culberson (no. 18610) et C. F. Culberson. - Annot.; Barbatic, didymic, subdidymic, condidymic, thamnolic, squamatic (trace), and rhodocladonic acids and an unidentified fatty acid by TLC; anal. A. Jonson and C. F. Culberson. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1931.

Primary thallus persistent, consisting of incon- spicuous squamules, 1-2 x 1-1.5(-4) mm, irregularly split into crenulate or lobulate laciniae, esorediate, upper side usually shiny, even lower side sometimes shiny. Podetia (0.8-) 1.5-2(-5) cm tall, 1-1.5(-8) mm thick, grass green to glaucescent or brownish, with basal necrotic parts yellowing, simple or sparingly branched; tips subulate to bluntish, ascyphose. Surface ecorticate to slightly corticate at base, microsquamulose to partly granulose, esorediate to granulose-sorediate; microsquamules fragile, narrow, commonly projecting downward, after falling exposing bare, translucent, pale to dark brown stereome surface. Podetial wall 220-240 µm; cortex 0-12 µm; medulla 60-80 µm; stereome 120-160 µm, distinctly delimited; inner surface slightly grooved. Conidiomata on primary squamules, rarely terminal, 100-250 µm wide, turbinate, short-stalked, containing red slime; conidia 5-7 x 1 µm, falciform. Hymenial disks not uncommon, 0.5-4 mm wide; spores 10-13 x 5 µm, fusiform. Chemistry: Two major chemotypes: (I) P-, K-. Barbatic and didymic acids (rarely only one of them) and minor satellites of these acids (4-0-demethylbarbatic, condidymic, subdidymic acids). (II) P+ and K+ yellow. Thamnolic and didymic acids, sometimes with additional barbatic acid, and didymic acid occasionally lacking. Squamatic acid is rarely present in both chemotypes. Accessory minor compounds include obtusatic acid and some unknowns. Widespread in the Neotropics. Growing on soil, wood, and tree bases. Pantropical, extending to warm temperate areas in eastern North America (to New Jersey), South America, East Asia, Australasia, Macaronesia, and South Africa.

Cladonia vulcanica

Cladonia vulcanica

Cladonia vulcanica Zoll. & Moritzi, in Hasskarl, Natur Geneerk. Arch. Neerl. Indie 1: 396 (1847)

[VZ1770], Mexico. Querétaro: 19.5 km ad meridiem et occidentem a Pinal de Amoles. Ad lignum putrefactum in silva (*Pinus-Quercus-Arbutus*). Leg. W. L. Culberson (no. 17678) et C. F. Culberson, 19.12.1978, det. E. Ahti, 1980. - Annot.: Barbatic acid and thamnolic acid and a trace of didymic acid by TLC; anal. C. F. Culberson and A. Johnso. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1770.

Primary thallus persistent, consisting of incon- spicuous squamules, 1-2 x 1-1.5(-4) mm, irregularly split into crenulate or lobulate laciniae, esorediate, upper side usually shiny, even lower side sometimes shiny. Podetia (0.8-) 1.5-2(-5) cm tall, 1-1.5(-8) mm thick, grass green to glaucescent or brownish, with basal necrotic parts yellowing, simple or sparingly branched; tips subulate to bluntish, ascyphose. Surface ecorticate to slightly corticate at base, microsquamulose to partly granulose, esorediate to granulose-sorediate; microsquamules fragile, narrow, commonly projecting downward, after falling exposing bare, translucent, pale to dark brown stereome surface. Podetial wall 220-240 µm; cortex 0-12 µm; medulla 60-80 µm; stereome 120-160 µm, distinctly delimited; inner surface slightly grooved. Conidiomata on primary squamules, rarely terminal, 100-250 µm wide, turbinate, short-stalked, containing red slime; conidia 5-7 x 1 µm, falciform. Hymenial disks not uncommon, 0.5-4 mm wide; spores 10-13 x 5 µm, fusiform. Chemistry: Two major chemotypes: (I) P-, K-. Barbatic and didymic acids (rarely only one of them) and minor satellites of these acids (4-0-demethylbarbatic, condidymic, subdidymic acids). (II) P+ and K+ yellow. Thamnolic and didymic acids, sometimes with additional barbatic acid, and didymic acid occasionally lacking. Squamatic acid is rarely present in both chemotypes. Accessory minor compounds include obtusatic acid and some unknowns. Widespread in the Neotropics. Growing on soil, wood, and tree bases. Pantropical, extending to warm temperate areas in eastern North America (to New Jersey), South America, East Asia, Australasia, Macaronesia, and South Africa.

Cladonia vulcanica

Cladonia vulcanica

Cladonia wrightii A. Evans, Bryologist 53: 124 (1950)

[VZ1768], Cuba. Oriente, Sierra Maestra, regio nubigeno montis Pico Turquino: Pico Jóaquin, 1600-1640 m. Ad terram. Leg. T. Pócs (no. 9089), det. A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1769.

Primary thallus soon disappearing, consisting of narrowly laciniate squamules to 6 mm long. Podetia very slender, unbranched or little branched, 4-8(-12) cm tall, 0.4-0.8 mm thick when immature; stouter (up to 2 mm thick) and richly corymbosely branching when bearing hymenial disks; axils and podetial ends often perforated in mature and submature podetia but mainly closed in sterile podetia. Surface of podetia areolate but areolae not much elevated, so that surface appears very smooth, esorediate, usually somewhat squamu- lose; squamules very narrow. Podetial wall 180-200 µm; cortex 20-30 µm; medulla 30-60 µm; stereome 120-150 µm; surface of central canal papillose. Conidiomata at tips of fertile podetia, shortly dolioliform, 100-150 x 100 µm, containing red slime; conidia 7-8 x 1 µm, falciform. Hymenial disks frequent, at tips of lateral branchlets of thickened podetia, pale to medium brown, 0.4-0.5 mm wide; spores 10-13 x 2.5-3.5 µm, fusiform. Illustration. Sandstede, 1938: Taf. 5, fig. 38, as Cladonia rangiformis var. cubana. Chemistry. P+ yellow, K+ yellow. Thamnolic acid and often traces of decarboxythamnolic acid, barbatic acid in specimens with hymenial disks, as well as traces of one to three unknown substances. Distribution: West Indies, in moun- tains of Cuba, Hispani- ola, Jamaica, Puerto Rico, and Guadeloupe.

Cladonia wrightii

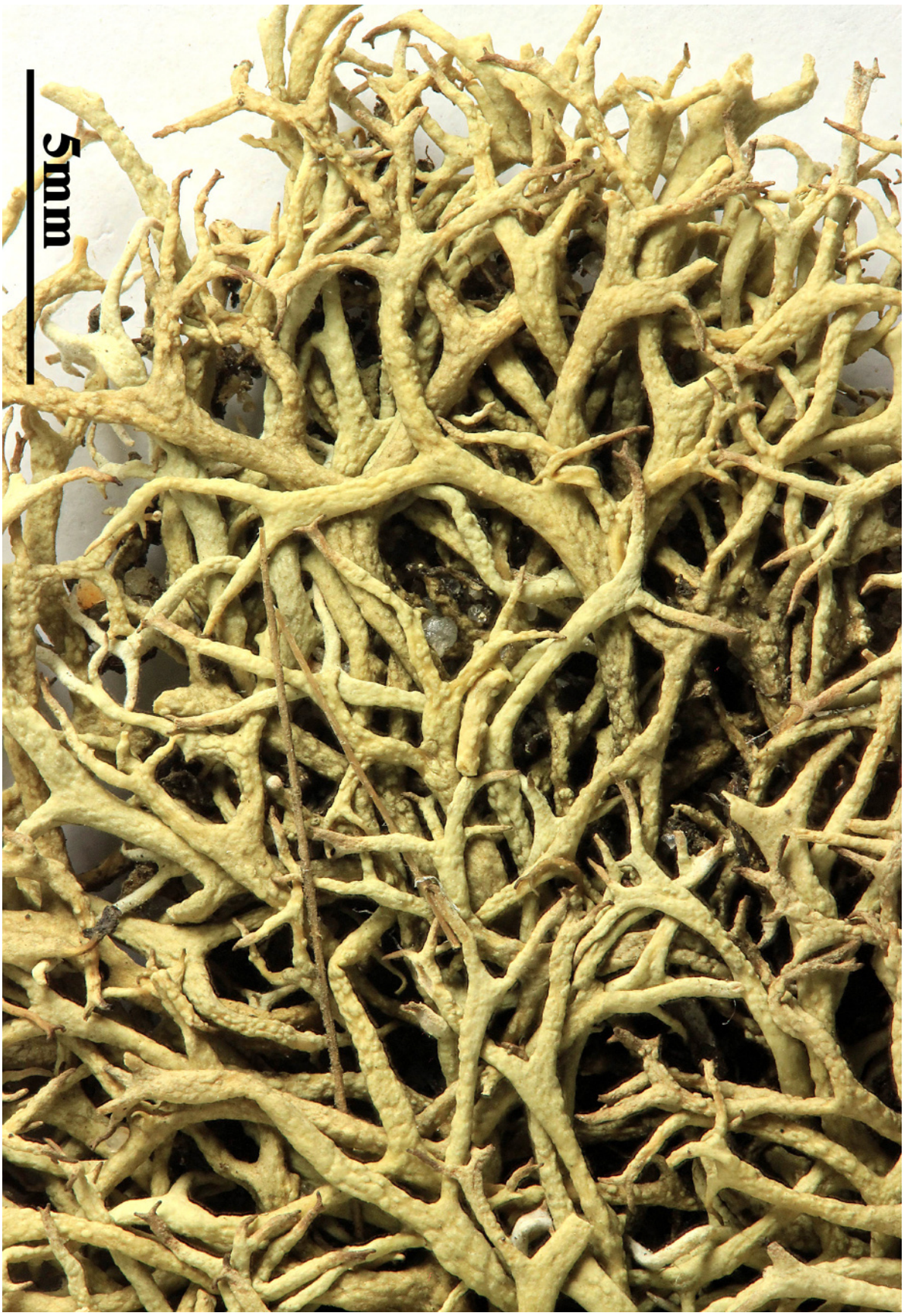
Cladonia wrightii

Cladonia zopfii Vain., Meddn Soc. Fauna Flora fenn. 45: 306 (1919) [1920]
= *Cladonia destricta* Zopf, Ber. dt. bot. Ges. 95: 99 (1908)

[VZ1610], Dania. Jutlandia: Vigsö, ad orientem versus ab Hanstholm. Ad arenam mobilem. Leg, M. S. Christiansen, 28.5.1970. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1610.

Primary thallus evanescent, usually not visible, consisting of inconspicuous, subentire squamules. Podetia dichotomously branched, hollow inside, cupless, decumbent to erect, yellowish green, with closed axils, 23-40(-70) mm long, 0.8-2.5(-5) mm thick (internode length 3-7 mm, length of last branch 2-9 mm), the apices subulate, not darkened but turning bluish in the herbarium due to crystal needles of a terpenoid. Cortex matt, smooth and continuous, with non-thickened cells, sometimes turning verruculose with age; internal surface of podetia striately fibrose. Apothecia unknown. Pycnidia dark, turbinate, constricted at base, terminal, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K-, C-, KC+ yellow, P-, UV-. Chemistry: usnic and destrictinic acids, sometimes terpenoids. - Note: a rare species, found on acid soil in subalpine and alpine tundras, often together with the similar *C. uncialis*.

Cladonia zopfii



Cladonia zopfii

Cladonia zopfii Vain., Meddn Soc. Fauna Flora fenn. 45: 306 (1919) [1920]
= *Cladonia destricta* Zopf, Ber. dt. bot. Ges. 95: 99 (1908)

[VZ1819], Belgia. Prov. Limbourg (Campinia): Gruitrode, in meridionali parte pagi territorii, prope viam ad Obglabbeek versus, 75 m. Ad terram arenosam in vicinitate calluneti. Leg. J. Lambinon (no. 66/1641), 23.10.1966. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1819.

Primary thallus evanescent, usually not visible, consisting of inconspicuous, subentire squamules. Podetia dichotomously branched, hollow inside, cupless, decumbent to erect, yellowish green, with closed axils, 23-40(-70) mm long, 0.8-2.5(-5) mm thick (internode length 3-7 mm, length of last branch 2-9 mm), the apices subulate, not darkened but turning bluish in the herbarium due to crystal needles of a terpenoid. Cortex matt, smooth and continuous, with non-thickened cells, sometimes turning verruculose with age; internal surface of podetia striately fibrose. Apothecia unknown. Pycnidia dark, turbinate, constricted at base, terminal, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K-, C-, KC+ yellow, P-, UV-. Chemistry: usnic and destrictinic acids, sometimes terpenoids. - Note: a rare species, found on acid soil in subalpine and alpine tundras, often together with the similar *C. uncialis*.

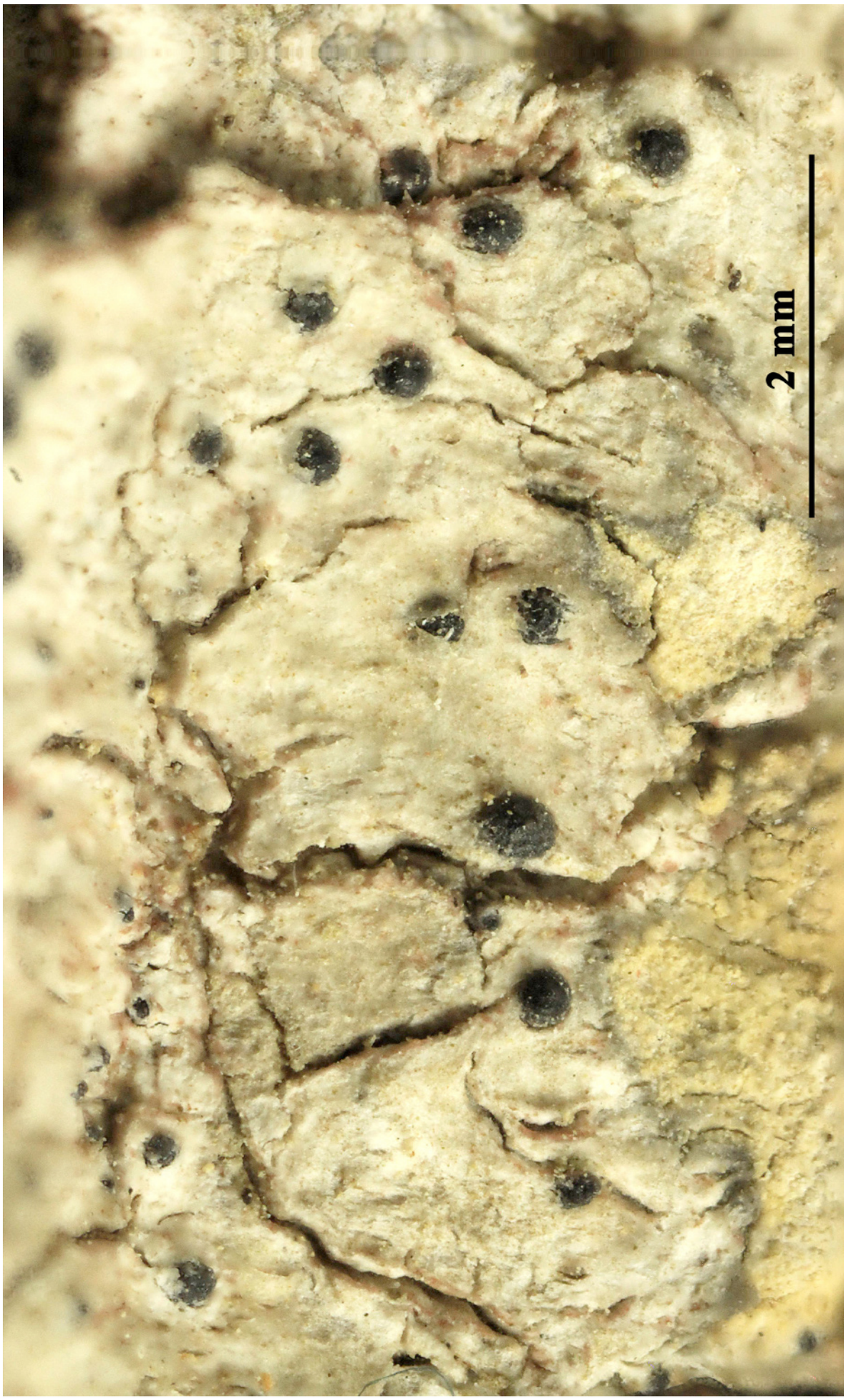
Cladonia zopfii

Cladonia zopfii

Clathroporina caudata Vězda & Vivant, Bull. Soc. bot. Fr., Let. bot. 118(3-4): 288 (1972) [1971]
= Belonia caudata (Vězda & Vivant) P.M. Jørg. & Vězda, in Jørgensen, Vězda & Botnen, Lichenologist 15(1): 54 (1983)
= *Belonia nidarosiensis* (Kindt) P.M. Jørg. & Vězda.
= *Clathroporina calcarea* Walt. Watson.
= *Clathroporinopsis nidarosiensis* (Kindt.) P.F. Cannon.

[VZ1051], Gallia. Montes Pyrenaei occident., St-Just-Ibarre, in valle fluvii Bidouze, 700 m. Ad corticem *Fraxini excelsioris*. Leg. J. Vivant, 17.7.1970. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1051.

Thallus crustose, thinly episubstratic, pale pink-orange, turning white in the herbarium, ecorticate, completely dissolved into an uneven, granular-powdery, continuous or irregularly cracked crust, without a distinct prothallus, often forming large patches. Ascocarps usually rare, pale pink to ochraceous, immersed in globose, 0.25-0.4 mm wide thalline warts, at first perithecioid and opening through a small, depressed pore, later sometimes with a slightly expanded, pale brown disc, and a thick, raised proper margin. Proper exciple 30-55 µm wide laterally, broadening in upper part, of more or less rectangular cells; hymenium colourless, the hymenial gel hemiamyloid, I+ blue-green rapidly turning reddish brown; paraphyses loose, simple, slender and flexuose, 1-1.4 µm thick, the apical cells not swollen; hypothecium colourless. Asci (4-)6-8-spored, narrowly cylindrical, very thin-walled, without apical thickening or apparatus. Ascospores at first (7-)12-15(-19)-transversally septate, soon becoming muriform, hyaline, elongate with attenuated ends, (36-)40-65(-82) x (8-)10-12(-14) µm, sometimes clearly constricted at the middle septum when young. Photobiont trentepohlioid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: hitherto known from the Austrian and French Alps, and from Calabria, where it was found on *Quercus* in a very humid site; it usually occurs on shaded surfaces of calcareous rocks in very humid situations, often in association with *Lepraria*-species.



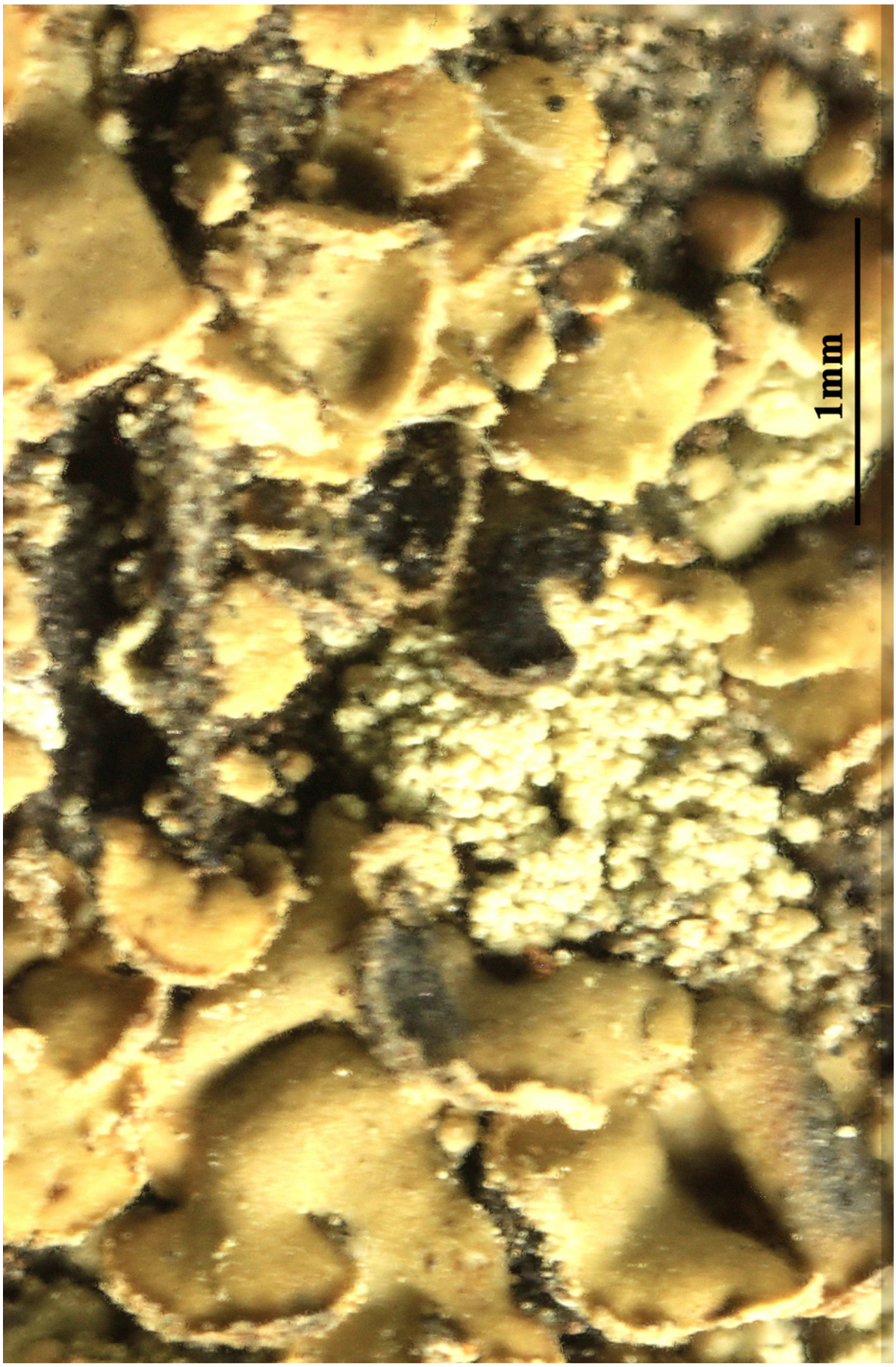
Clathroporina caudata

Clathroporina caudata

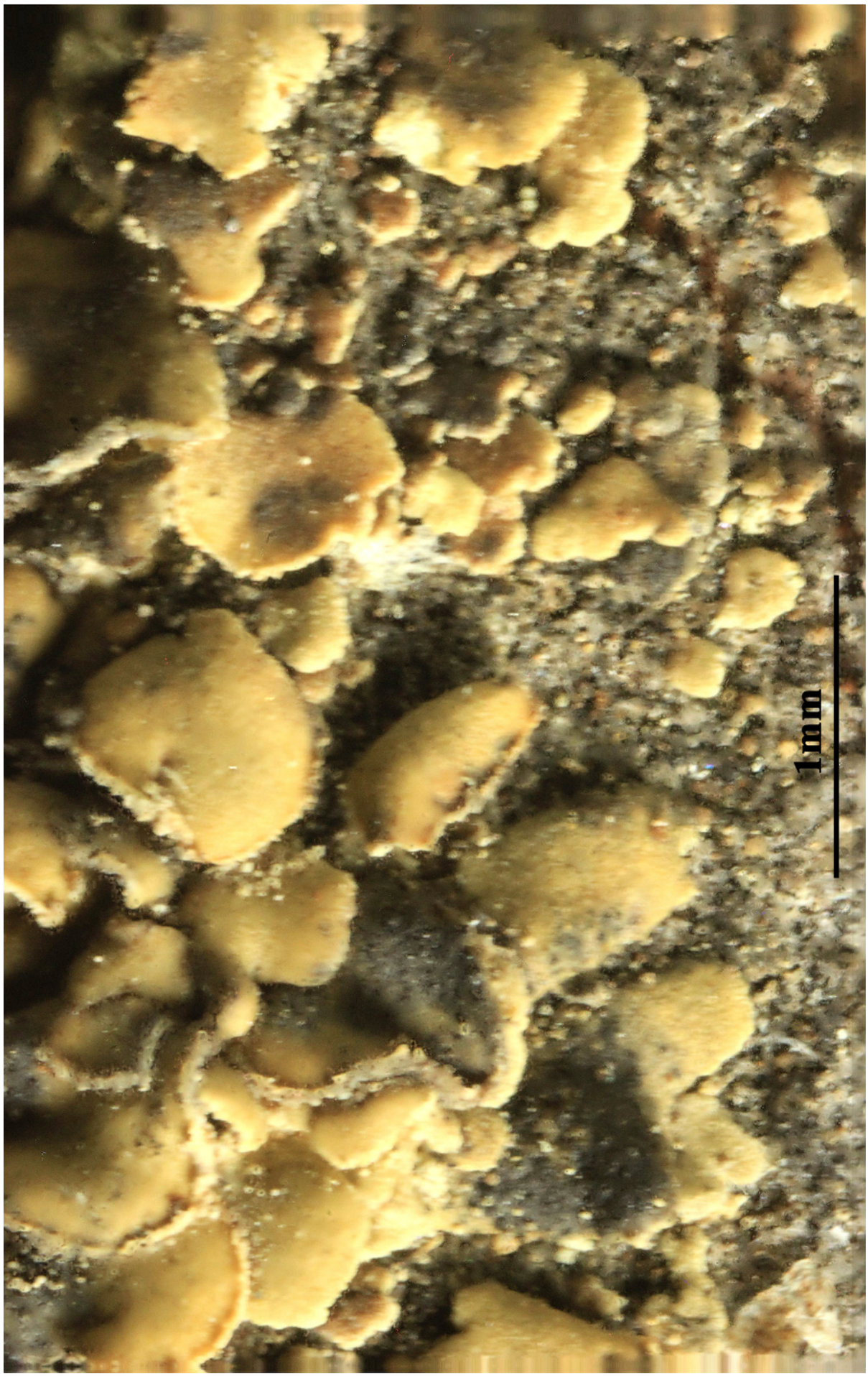
Clypeococcum hypocenomyces D. Hawksw. [as 'hypocenomyceae'], Notes R. bot. Gdn Edinb. 38(1): 167 (1980)

[VZ1899], Austria. Styria. Grazer Bergland: Graz, Niederschöckl, 1200 m. Ad truncum arboris (*Larix decidua*), in thallo lichenis (*Hypocenomyce scalaris*) parasitans. Leg. et det. J. Hafellner, 6.11.1982. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1899.

Mycelium: immersed, spreading through the upper part of the algal layer and the lower part of the cortex hyphae: brown, flexuous, frequently branching, thin-walled, mainly 2-3.5 µm wide, regularly encapsulating algal cells Pseudothecia: immersed, globose, ostiolate, 50-100 µm in diam., arising singly but soon becoming aggregated by a common clypeus that remains largely immersed, the clypeus comprising hyphae of the host and invading fungus, finally dark brown to black, mainly 20-30 µm thick pseudothecial wall: 8-15 µm thick, thickest near the ostiole where it is scarcely delimited from the tissues of the clypeus, formed of intertwined thick-walled; dark brown hyphae mainly 2-3.5 µm thick, K+ olivaceous hymenium: hyaline, 50-60 µm tall, I-, K/I-; subhymenium: hyaline, 4-6 µm thick pseudoparaphyses: distinct, persistent, filiform, branched and anastomosing, septate, 1-2 µm thick periphyses: not clearly differentiated asci: elongate-clavate, with a distinct internal apical beak when young, 45-55 x 12-15 µm, 8-spored ascospores: olivaceous brown, irregularly distichous, 1-septate, ellipsoid to soleiform, rounded at the apices, slightly constricted at the septum, the lower cell often somewhat narrower, often guttulate, weakly verruculose, (9-)10-13.5 x (4-)5-6.5 µm Pycnidia: black, immersed, 45-60 µm in diam.; wall: dark brown, K+ olivaceous conidia: hyaline, simple, bacilliform, 5.5-6 x 1 µm. Hosts: thalli of *Hypocenomyce scalaris*, more rarely *H. anthracophila* World distribution: Europe and North America Sonoran distribution: eastern Arizona in a mixed conifer forest.



lypeococcum hypocenomyces

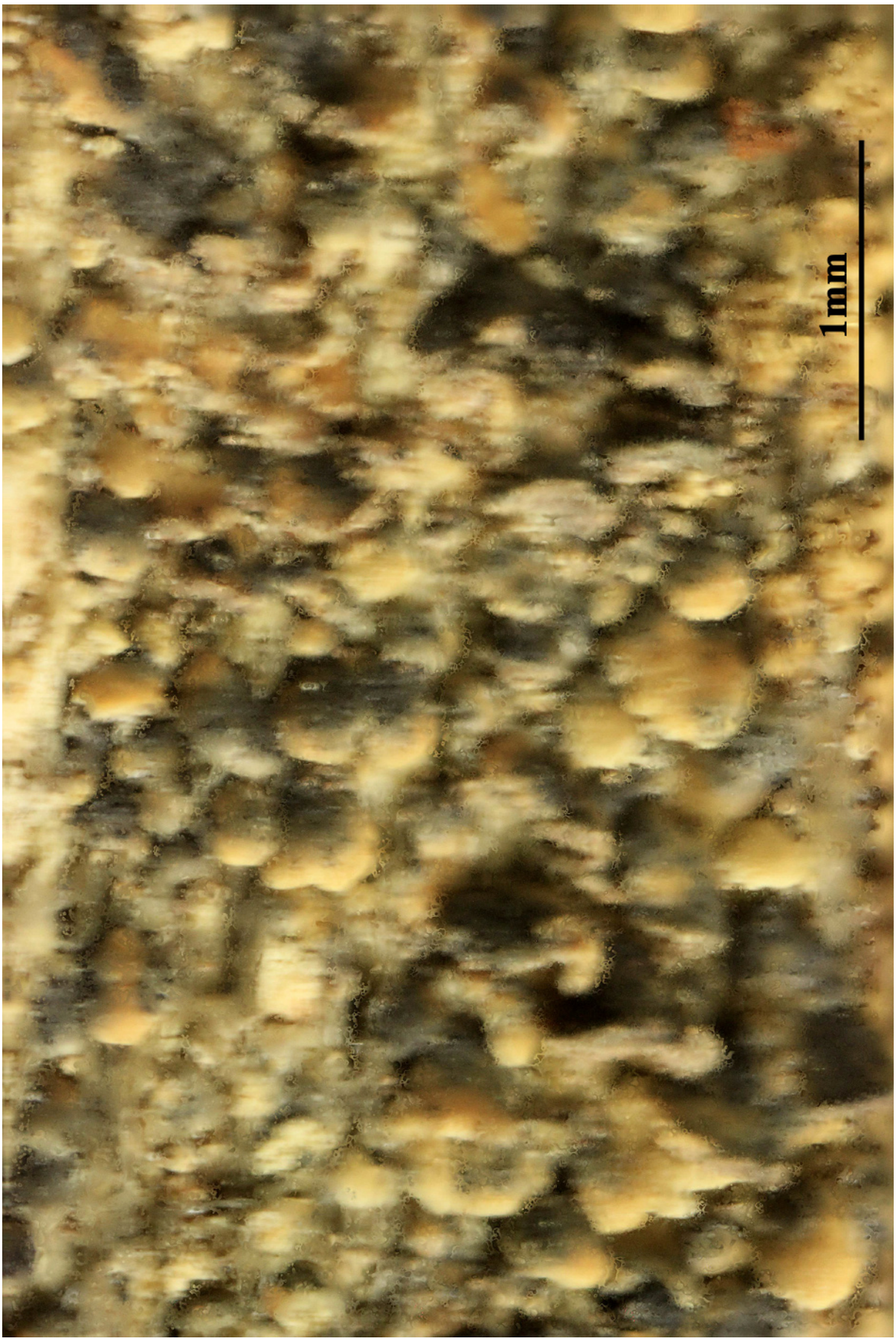


lypeococcum hypocenomyces

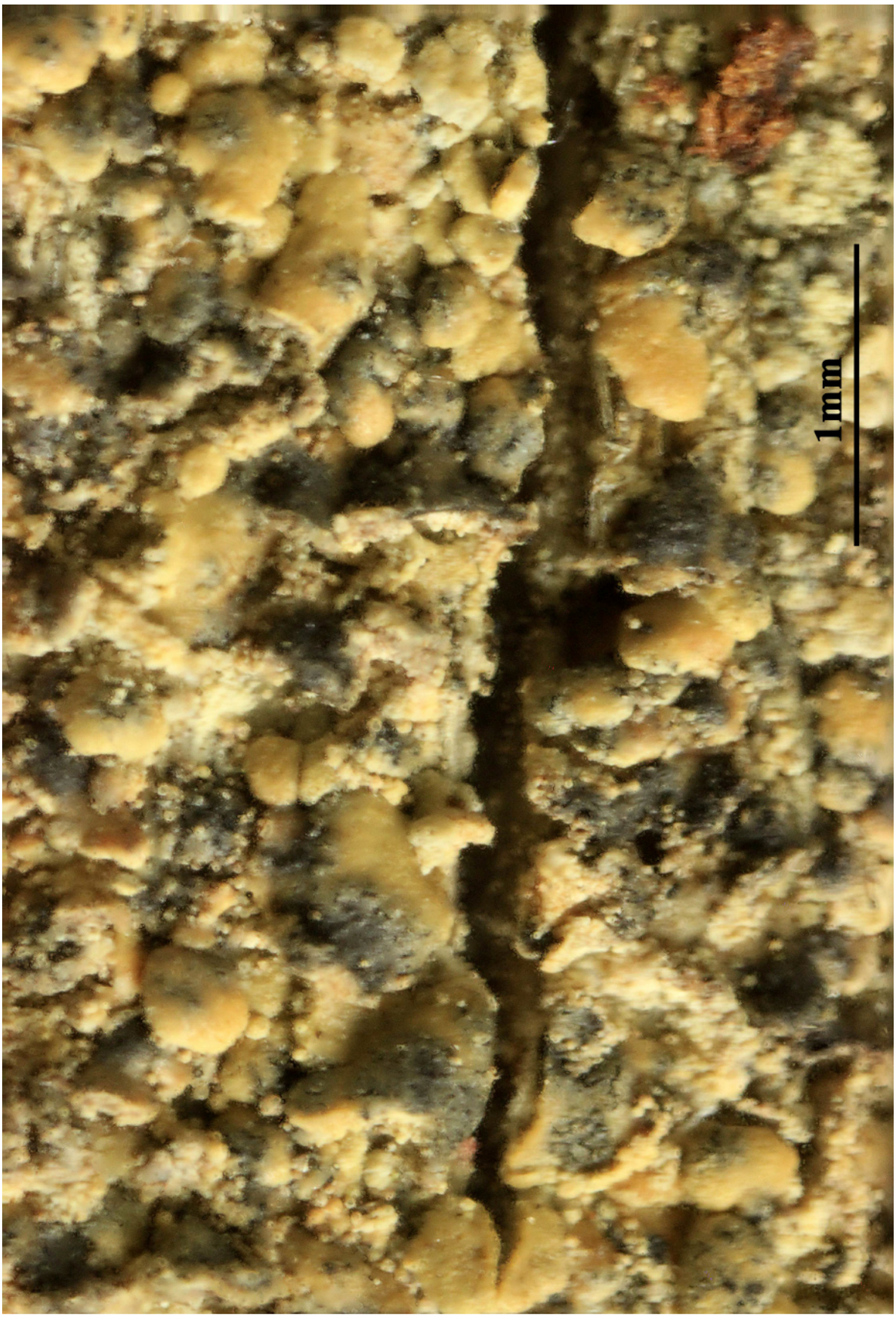
Clypeococcum hypocenomyces D. Hawksw. [as 'hypocenomyceae'], Notes R. bot. Gdn Edinb. 38(1): 167 (1980)

[VZ1898], Dania, Falster: Vaeggerlöse, loco dicto "Bötö Plantage, 0-2 m. Ad truncum arboris (*Pinus sylvestris*), in thallo lichenis (Hypocenomyce scalaris) parasitans. Leg et det. S. M. Christiansen (no. 82357). EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1898.

Mycelium: immersed, spreading through the upper part of the algal layer and the lower part of the cortex hyphae: brown, flexuous, frequently branching, thin-walled, mainly 2-3.5 µm wide, regularly encapsulating algal cells Pseudothecia: immersed, globose, ostiolate, 50-100 µm in diam., arising singly but soon becoming aggregated by a common clypeus that remains largely immersed, the clypeus comprising hyphae of the host and invading fungus, finally dark brown to black, mainly 20-30 µm thick pseudothecial wall: 8-15 µm thick, thickest near the ostiole where it is scarcely delimited from the tissues of the clypeus, formed of intertwined thick-walled; dark brown hyphae mainly 2-3.5 µm thick, K+ olivaceous hymenium: hyaline, 50-60 µm tall, I-, K/I-; subhymenium: hyaline, 4-6 µm thick pseudoparaphyses: distinct, persistent, filiform, branched and anastomosing, septate, 1-2 µm thick periphyses: not clearly differentiated asci: elongate-clavate, with a distinct internal apical beak when young, 45-55 x 12-15 µm, 8-spored ascospores: olivaceous brown, irregularly distichous, 1-septate, ellipsoid to soleiform, rounded at the apices, slightly constricted at the septum, the lower cell often somewhat narrower, often guttulate, weakly verruculose, (9-)10-13.5 x (4-)5-6.5 µm Pycnidia: black, immersed, 45-60 µm in diam.; wall: dark brown, K+ olivaceous conidia: hyaline, simple, bacilliform, 5.5-6 x 1 µm. Hosts: thalli of *Hypocenomyce scalaris*, more rarely *H. anthracophila* World distribution: Europe and North America Sonoran distribution: eastern Arizona in a mixed conifer forest.



lypeococcum hypocenomyces



lypeococcum hypocenomyces

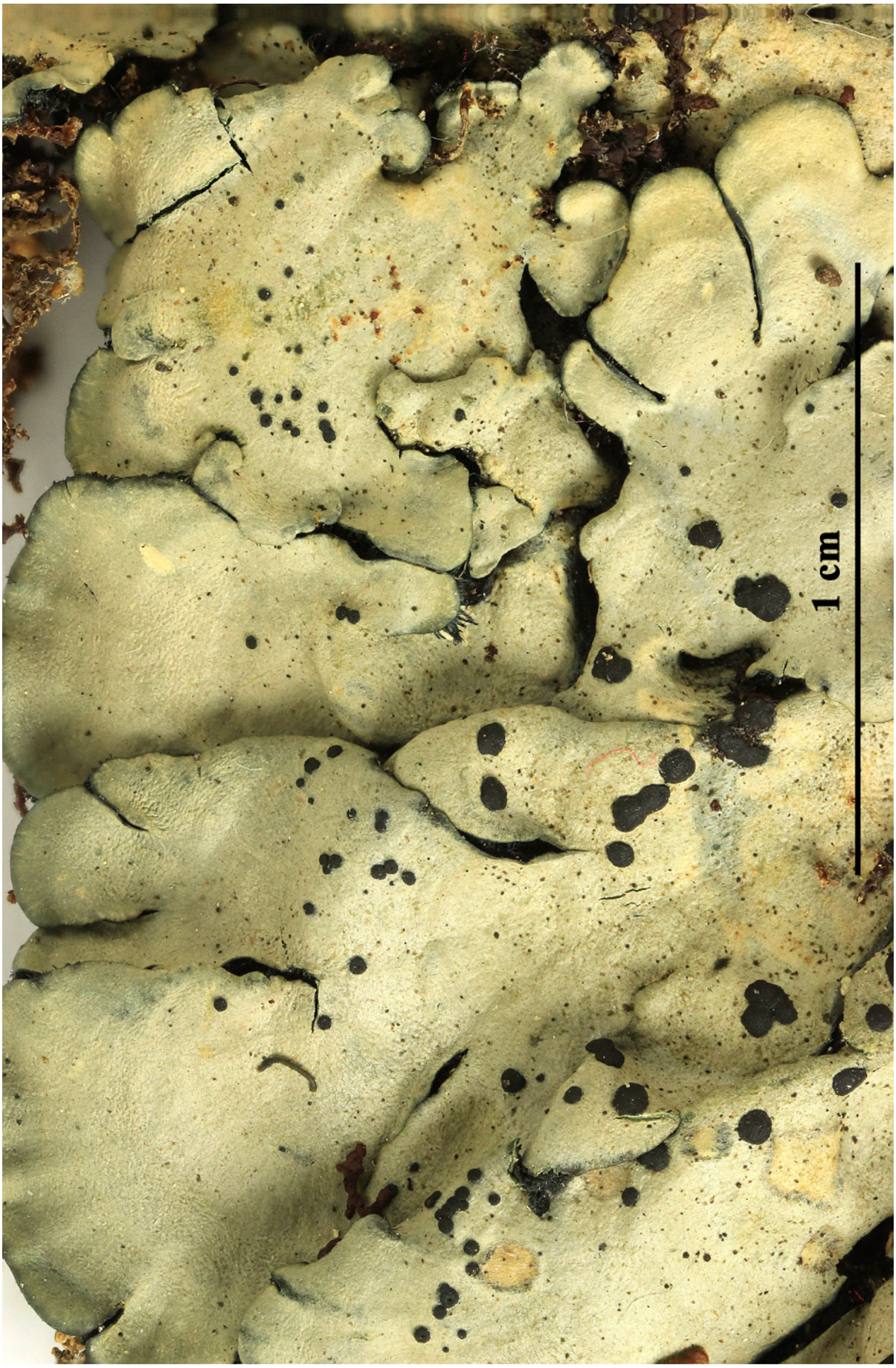
Coccocarpia erythroxyli (Spreng.) Swinscow & Krog [as 'erythroxili'], Norw. Jl Bot. 23(4): 254 (1976)
= *Circinaria erythroxyli* (Spreng.) Fée, Essai Crypt. Exot. (Paris): xcv, 128 (1825) [1824]
= *Coccocarpia aurantiaca* (Hook. f. & Taylor) Mont. & Bosch, Pl. Jungh. 4: 465 (1856)
= *Coccocarpia ciliolata* Mont., Annls Sci. Nat., Bot., sér. 3 10: 129 (1848)
= *Coccocarpia cronia* var. *aurantiaca* (Hook. f. & Taylor) Vain., Ann. Acad. Sci. Fenn., Ser. A 15(no. 6): 24 (1921)
= *Coccocarpia leucorrhiza* Hampe, Linnaea 28: 217 (1857) [1856]
= *Coccocarpia molybdaea* var. *aurantiaca* (Hook. f. & Taylor) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 109 (1858) [1857]
= *Coccocarpia parmelioides* (Hook.) Trevis., Geol. Nat. Hist. Surv. N. Carol. 3: 80 (1867)
= *Coccocarpia pellita var. mesomorpha* Müll. Arg., Bull. Herb. Boissier 4: 92 (1896)
= *Coccocarpia pellita* var. *parmelioides* (Hook.) Müll. Arg., Rev. Mycol., Toulouse 9(no. 35): 139 (1887)
= *Coccocarpia pellita* var. *semiincisa* Müll. Arg., Flora, Regensburg 65: 321 (1882)
= *Lecidea erythroxyli* Spreng., K. svenska Vetensk-Akad. Handl., ser. 3 41: 47 (1820)
= *Lecidea parmelioides* Hook., in Kunth, Syn. pl. (Paris) 1: 15 (1822)
= *Pannaria aurantiaca* (Hook. f. & Taylor) Schwend., in Nägeli, Beitr. wiss. Botan. 3: 194 (1863)
= *Pannaria ciliolata* (Mont.) Hue, Annls Sci. Nat., Bot., sér. 9 10: 129 (1902) [1901]
= *Pannaria parmelioides* (Hook.) Colmeiro, Revista Progr. Ci. Fis. Nat. 16-17: 111 (1867)
= *Placynthium gattefossei* Werner, Bull. Soc. Sci. Nat. phys. Maroc 14(4-6): 150 (1934)
= *Solorina aurantiaca* Hook. f. & Taylor, London J. Bot. 3: 635 (1844)

[VZ1781], Honduras. Distrito Central: 36 km ad septentriones et orientem versus a Comayagüela, prope viam Rt. 3, 760 m. Ad petras, locis partim umbrosis, in pascuo. Leg. 30.12.1979.- Annot.: Unknown pigment SV-1 and faint traces of unidentified compound by TLC, anal. A. Johnson and C. F. Culberson. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1781.

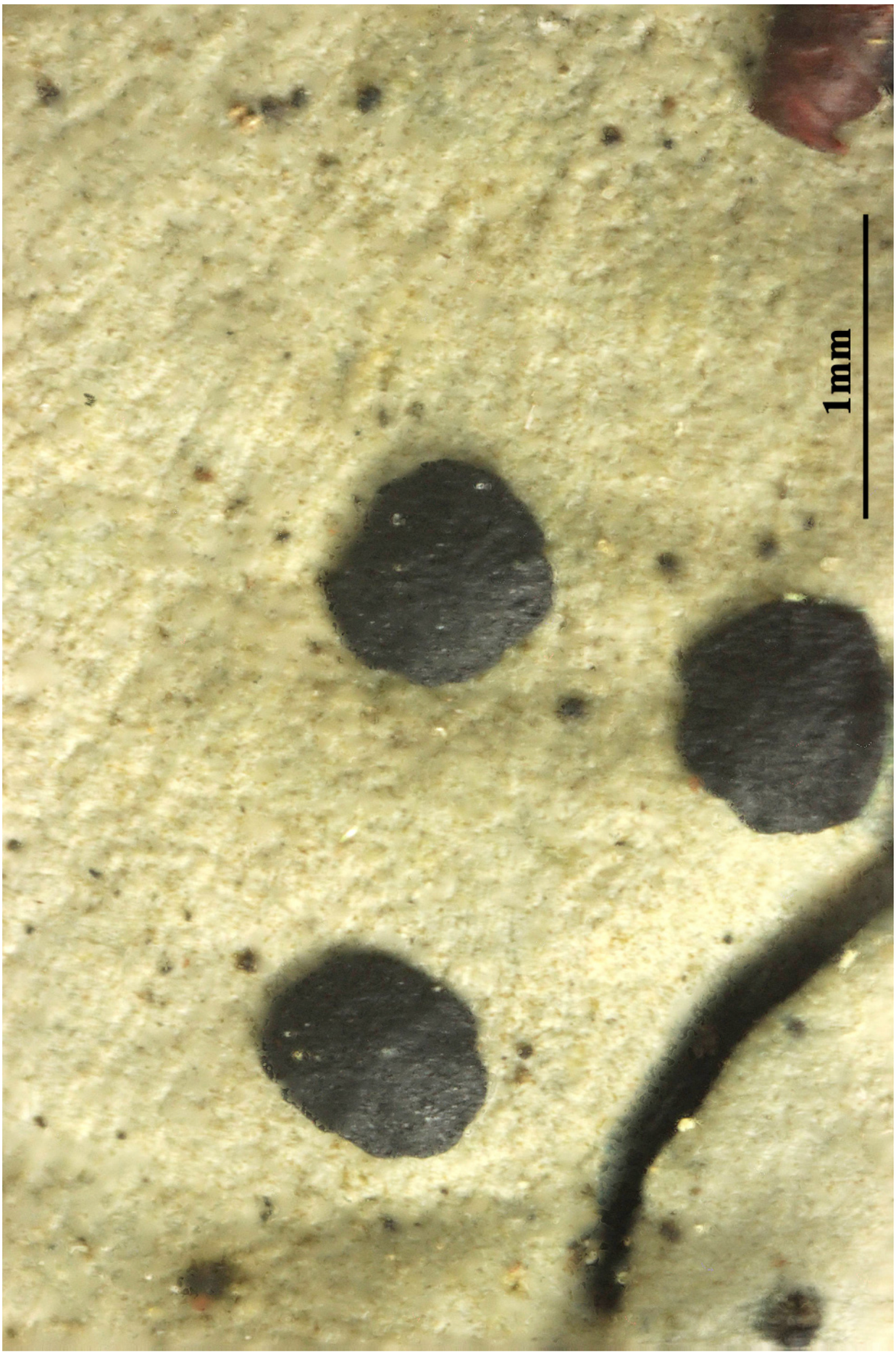
Thallus to 8 cm wide, leaden grey to yellowish grey, rarely bluish black. Lobes 1–7 mm wide, broadly cuneate to flabellate, adjacent or imbri-

cate, rarely somewhat discrete, convex or flat, rarely concave, variously notched or incised, lobulate, not or only sparsely branched; apices round with deflexed margins. Upper surface epruinose, without isidia but often with small, round accessory lobules. Lower surface pale to almost black. Rhizines pale to black, sometimes projecting beyond lobe margins. Apothecia usually present, to 5 mm wide, pale yellowish to black. Ascospores fusiform to ellipsoidal, 7–14 × 3–5 µm. Extends from Darwin, N.T., S to Melbourne, Vic., and in W.A. and Tas. Widely distributed in tropical and subtropical parts of the world. Grows on bark and wood of various trees in rainforest, mangrove communities and sclerophyllous forest. Also on siliceous rocks in eucalypt woodland and open grassland.

Coccocarpia erythroxyli



Coccocarpia erythroxyli



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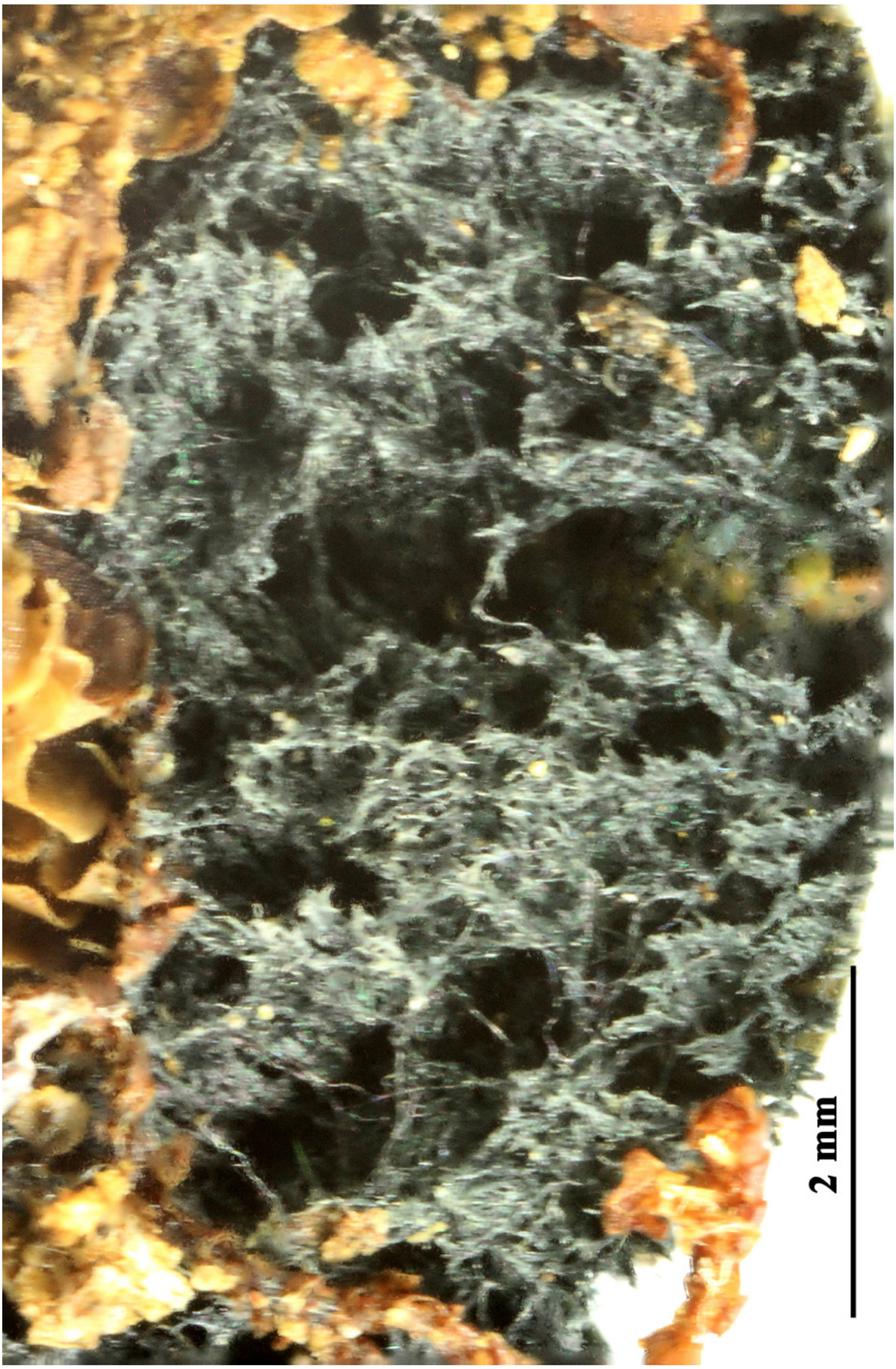


Coccocarpia erythroxyli

Coelocaulon aculeatum (Schreb.) Link, Grundr. Krauterk. 3: 165 (1833)
= *Cetraria aculeata* (Schreb.) Fr., Nov. Sched. Critic. Lich. (Lundae): 32 (1826)
= *Bryopogon aculeatus* (Schreb.) Hazsl. [as 'aculeatum'], Magyar Birodalom Zuzmó-Flórájá: 28 (1884)
= *Cetraria aculeata* var. *sorediata* Du Rietz, Svensk bot. Tidskr. 18: 387 (1924)
= *Cetraria aculeata* var. *spadicea* (Roth) Ach. ex Mong., Bull. Géogr. Bot. 8: 203 (1899)
= *Cetraria tenuissima* (L.) Vain., Meddn Soc. Fauna Flora fenn. 14: 21 (1888)
= *Cetraria tenuissima* var. *aculeata* (Schreb.) Hilitzer, Annls mycol. 22(1/2): 229 (1924)
= *Cetraria tenuissima* var. *spadicea* (Roth) Hilitzer, Annls mycol. 22(1/2): 228 (1924)
= *Cladonia aculeata* (Schreb.) Baumg., Fl. Lips.: 577 (1790)
= *Coelocaulon aculeatum* f. *sorediatum* (Du Rietz) D. Hawksw., in Hawksworth, James & Coppins, Lichenologist 12(1): 106 (1980)
= *Coelocaulon tenuissimum* (L.) R. Howe, Classif. Fam. Usneac.: 19 (1912)
= *Coralloides aculeata* (Schreb.) Hoffm. [as 'aculeatum'], Descr. Adumb. Plant. Lich. 1(1): 26 (1789) [1790]
= *Coralloides aculeatum* (Schreb.) Hoffm., Descr. Adumb. Plant. Lich. 1(1): 26 (1789) [1790]
= *Cornicularia aculeata* (Schreb.) Ach., Methodus, Sectio post. (Stockholmiæ): 302 (1803)
= *Cornicularia aculeata* var. *sorediata* (Du Rietz) Du Rietz, Ark. Bot. 20A(no. 11): 34 (1926)
= *Cornicularia aculeata* var. *spadicea* (Roth) Ach., Syn. meth. lich. (Lund): 300 (1814)
= *Cornicularia spadicea* (Roth) Ach., Methodus, Sectio post. (Stockholmiæ): 301 (1803)
= *Cornicularia tenuissima* (L.) Zahlbr., Annln naturh. Mus. Wien 42: 64 (1928)
= *Cornicularia tenuissima* f. *spadicea* (Roth) Navás, Líquen. de Aragón: 27 (1908)
= *Cornicularia tenuissima* var. *sorediata* (Du Rietz) Zahlbr., Cat. Lich. Univers. 6: 430 (1930)
= *Cornicularia tenuissima* var. *spadicea* (Roth) Keissl., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 10.4(4.2): 219 (1959)
= *Lichen aculeatus* With., Bot. arr. veg. Gr. Brit. (London) 2: 726 (1776)
= *Lichen aculeatus* Schreb., Spic. fl. lips. (Lipsiae): 125 (1771)
= *Lichen islandicus* var. *tenuissimus* L., Sp. pl. 2: 1145 (1753)
= *Lichen spadiceus* Roth, Tentam. Fl. German. 1: 514 (1788)
= *Lobaria aculeata* (Schreb.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 142 (1796) [1795]

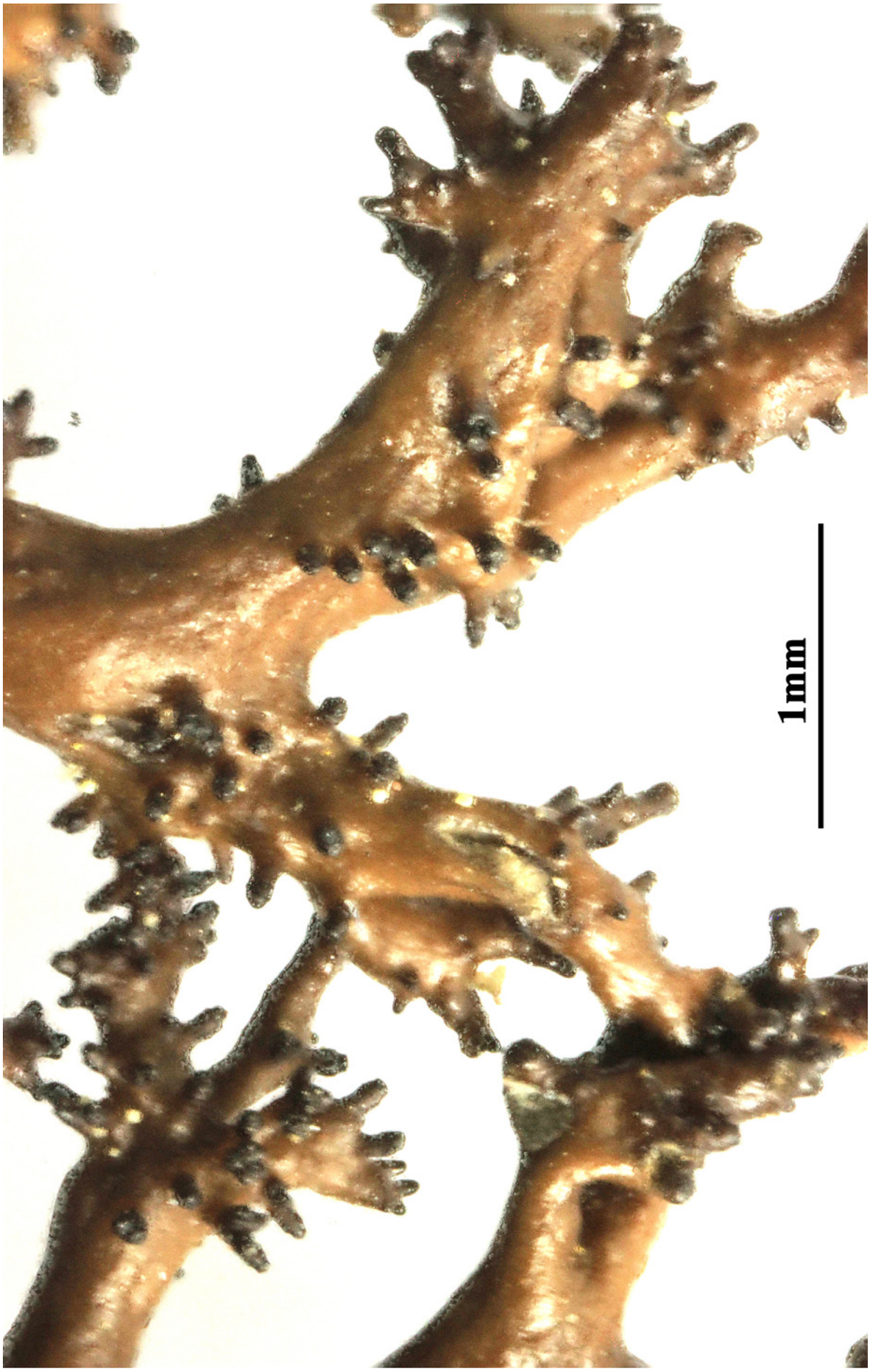
= *Parmelia aculeata* (Schreb.) Spreng., Fl. halensis, Edn 2: 523 (1832)
= *Parmelia spadicea* (Roth) Spreng., Syst. veg., Edn 16 4(1): 298 (1827)
= *Platisma aculeatum* (Schreb.) Frege, Deutsch. Botan. Taschenb. 2: 160 (1812)
= *Platysma aculeatum* (Schreb.) Frege, Deutsch. Botan. Taschenb. 2: 160 (1812)

[VZ1905], Hispania. Prov. Tarragona: Sierra de Prades, 1100 m. Ad terram macram in silva clara. Leg. J. Poelt et A. Vězda, 23.5.1983. - Annot.: Rami in parietibus apicalibus thalli spinulis simplicibus vel ramosis dense tecti. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR-1905.

Thallus fruticose, loosely attached, coarsely dichotomously branched, forming irregular, shrubby tufts, matt to glossy, brown or almost black, the basal parts often reddish, very stiff and brittle. Branches terete, or the largest ones more or less flattened, spinulose, not dorsiventral, 0.5-2(-3) mm thick, up to 6(-8) cm tall (usually less), with an uneven surface and scanty, maculiform, concave, elongate, white pseudocyphellae usually occurring in pits on the main branches. Cortex three-layered, with a denser, brown outer layer with accumulation of dead cells, an intermediate layer with hyphae more or less sparsely distributed in a gelatinous matrix, and a colourless inner layer with more conglutinated cells; medulla white, lax and web-like to hollow in basal parts. Apothecia rare (not seen in Italian material), lecanorine, sessile, mostly subterminal, with a brown disc. Epithecium brown; hymenium colourless, 35-50 µm high, I+ blue; paraphyses coherent, the apical cells slightly swollen; hypothecium colourless, underlain by a dense algal layer. Asci (6-)8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 5.5-6.5 x 2.5-3.5 µm. Pycnidia dark, immersed in short marginal projections. Conidia simple, slightly swollen in the middle, c. 5 x 1 µm. Photobiont chlorococcoid. Spot tests: cortex and medulla K-, C-, KC-, P-, UV-. Chemistry: lichesterinic and protolichesterinic acids. - Note: on siliceous, often sandy mineral soil in clearings of *Calluna*-heaths in wind-exposed situations.

Coelocaulon aculeatum

Coelocaulon aculeatum



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[VZ2081], Hispania. Prov.Soria, Paramera, prope vicum Judes, 1250 m. Supra terram calcaream. Leg. A. Crespo, J. Poelt et A. Vězda, 24.5.1983, det. I. Kärnefelt 1985. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2081.

Thallus fruticose, loosely attached, coarsely dichotomously branched, forming irregular, shrubby tufts, matt to glossy, brown or almost black, the basal parts often reddish, very stiff and brittle. Branches terete, or the largest ones more or less flattened, spinulose, not dorsiventral, 0.5-2(-3) mm thick, up to 6(-8) cm tall (usually less), with an uneven surface and scanty, maculiform, concave, elongate, white pseudocyphellae usually occurring in pits on the main branches. Cortex three-layered, with a denser, brown outer layer with accumulation of dead cells, an intermediate layer with hyphae more or less sparsely distributed in a gelatinous matrix, and a colourless inner layer with more conglutinated cells; medulla white, lax and web-like to hollow in basal parts. Apothecia rare (not seen in Italian material), lecanorine, sessile, mostly subterminal, with a brown disc. Epithecium brown; hymenium colourless, 35-50 µm high, I+ blue; paraphyses coherent, the apical cells slightly swollen; hypothecium colourless, underlain by a dense algal layer. Asci (6-)8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 5.5-6.5 x 2.5-3.5 µm. Pycnidia dark, immersed in short marginal projections. Conidia simple, slightly swollen in the middle, c. 5 x 1 µm. Photobiont chlorococcoid. Spot tests: cortex and medulla K-, C-, KC-, P-, UV-. Chemistry: lichesterinic and protolichesterinic acids. - Note: on siliceous, often sandy mineral soil in clearings of *Calluna*-heaths in wind-exposed situations.

Coelocaulon aculeatum

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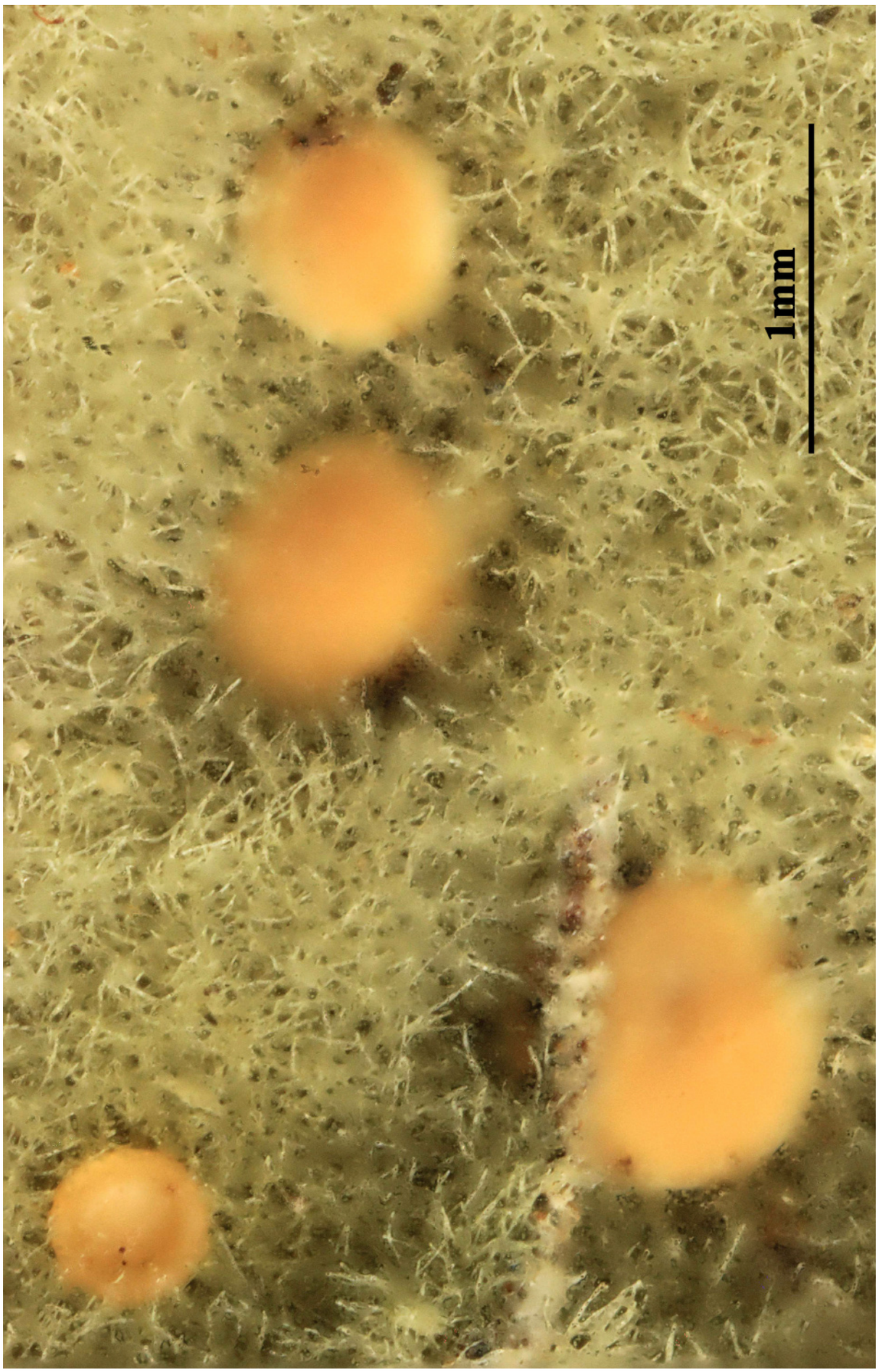
Coenogonium implexum Nyl., Annls Sci. Nat., Bot., sér. 4 16: 92 (1862)
= *Coenogonium acrocephalum* Müll. Arg., Flora, Regensburg 64: 525 (1881)
= *Coenogonium rigidulum* Müll. Arg., Flora, Regensburg 65: 490 (1882)

[VZ2055], Australia, Tasmania. Cox Bight, 10 m. Ad truncum arboris (Pomaderris apetala) in silva humida. Leg. G. Kantvilas et J. Jarman, 6.3.1985. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2055.

Thallus filaments very densely woven, forming a compact mat, loosely or closely attached to substrate. Algal filaments solitary or aggregated in tufts but not closely agglutinated and clubshap. Apothecia sessile, non-pruinose. Ascospores 1-septate, 8-12 µm long, more or less uniseriate.

Coenogonium implexum

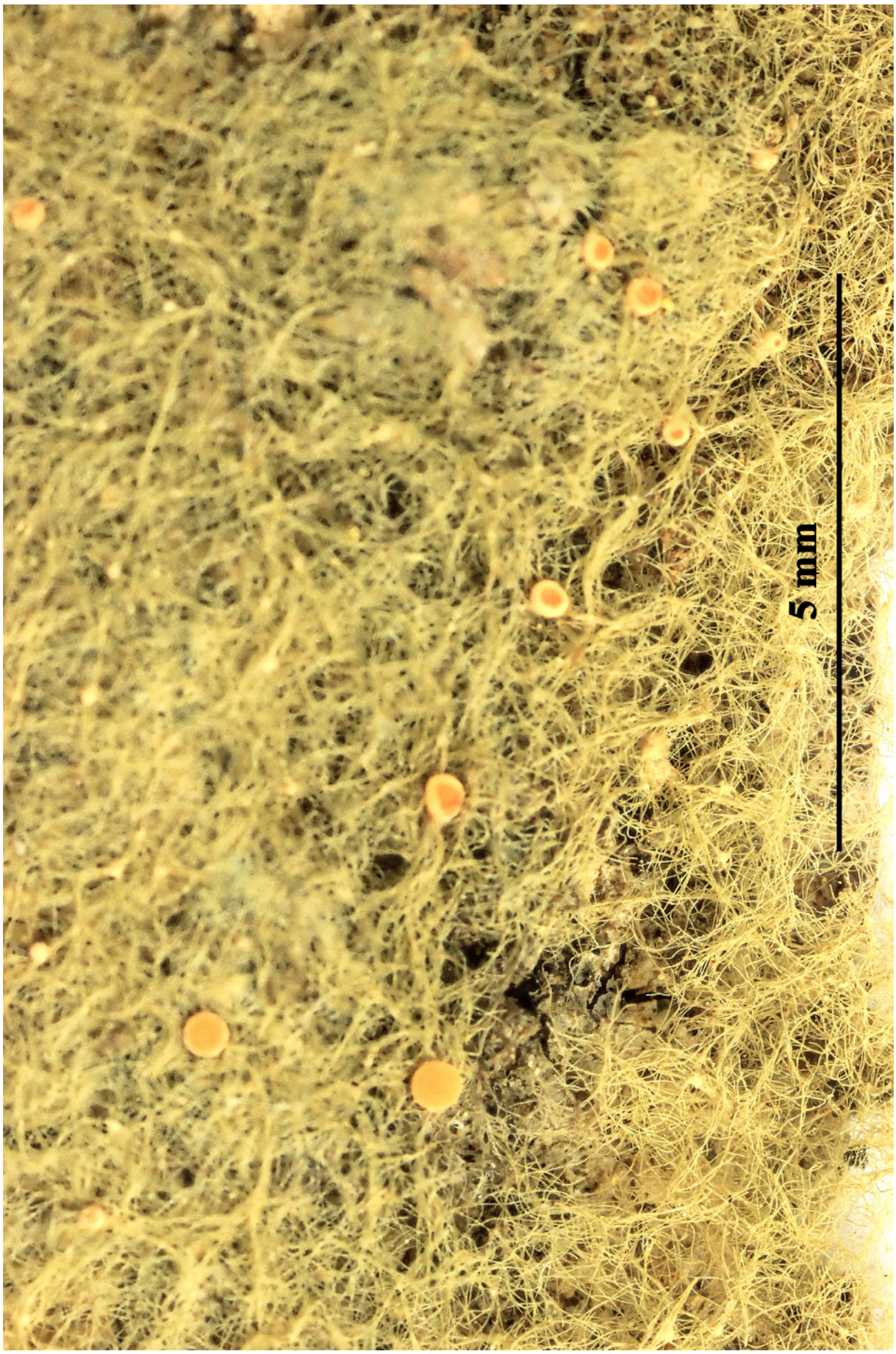


Coenogonium implexum

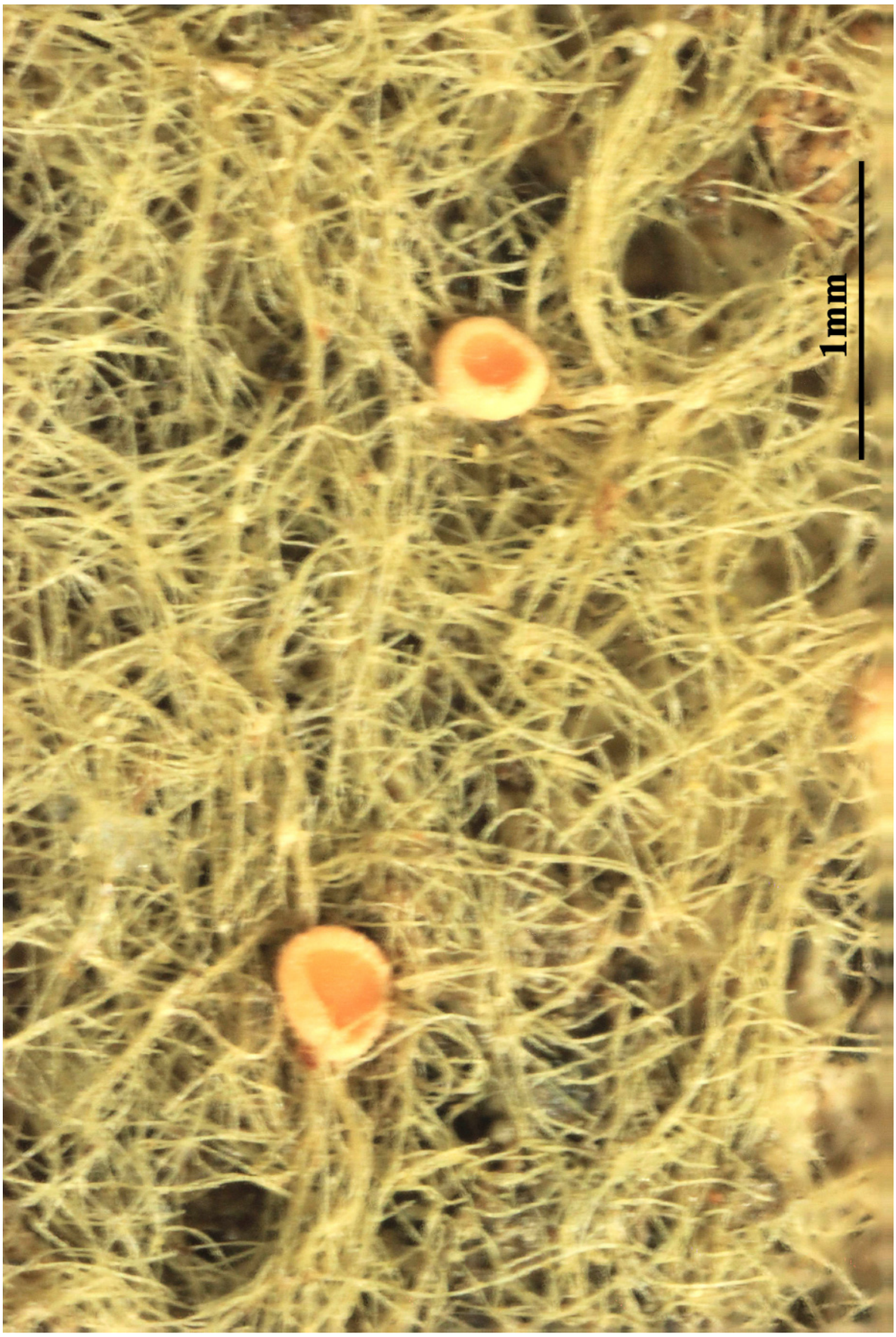
Coenogonium interplexum Nyl., Annls Sci. Nat., Bot., sér. 4 16: 92 (1862)

[VZ1481], USA. Lousiana. Fricke's Cave, ad meridiem versus a Franklinton. Ad corticem arboris decidui. Leg. E. Sérosiaux (no. 1804), 11ö6ö1976. det. A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1481.

Thallus filamentous, prostrate and effuse, irregularly woven, with large interspaces between individual filaments, yellow-green. Apothecia rounded, 0.3-1.0 mm in diam., substipitate, 130-150 µm high; disc flat, yellow-orange; margin thin, not prominent, smooth, cream-colored. Asci 60-70 µm×4-6 µm. Ascospores uniseriate, ellipsoid, 1-septate, 6-9 µm× 2.5-3.75 µm, 2-3 times as long as wide. Pycnidia not found. hemistry: No lichen compounds detected. -
Coenogonium interplexum Nyl. is a green to yellow-orange filamentous lichen commonly found on tree bark, rocks, and soil. The mycobiont is the ascomycetous fungus Coenogonium. The ultrastructure of the lichenized phycobiont, Trentepohlia, closely resembles that of the non-lichenized form, a filamentous subaerial green alga. The mycobiont has a typical fungal ultrastructure, and the cell wall sometimes appears thinner at points of contact with the phycobiont wall. Several branched fungal hyphae are usually randomly arranged around a Trentepohlia filament, and may in some cases completely ensheath the alga. Although no haustoria were observed, this relationship may still be termed a lichen since there is some modification of the alga and the lichen is structurally distinct from the two symbionts.



Coenogonium interplexum



Coenogonium interplexum

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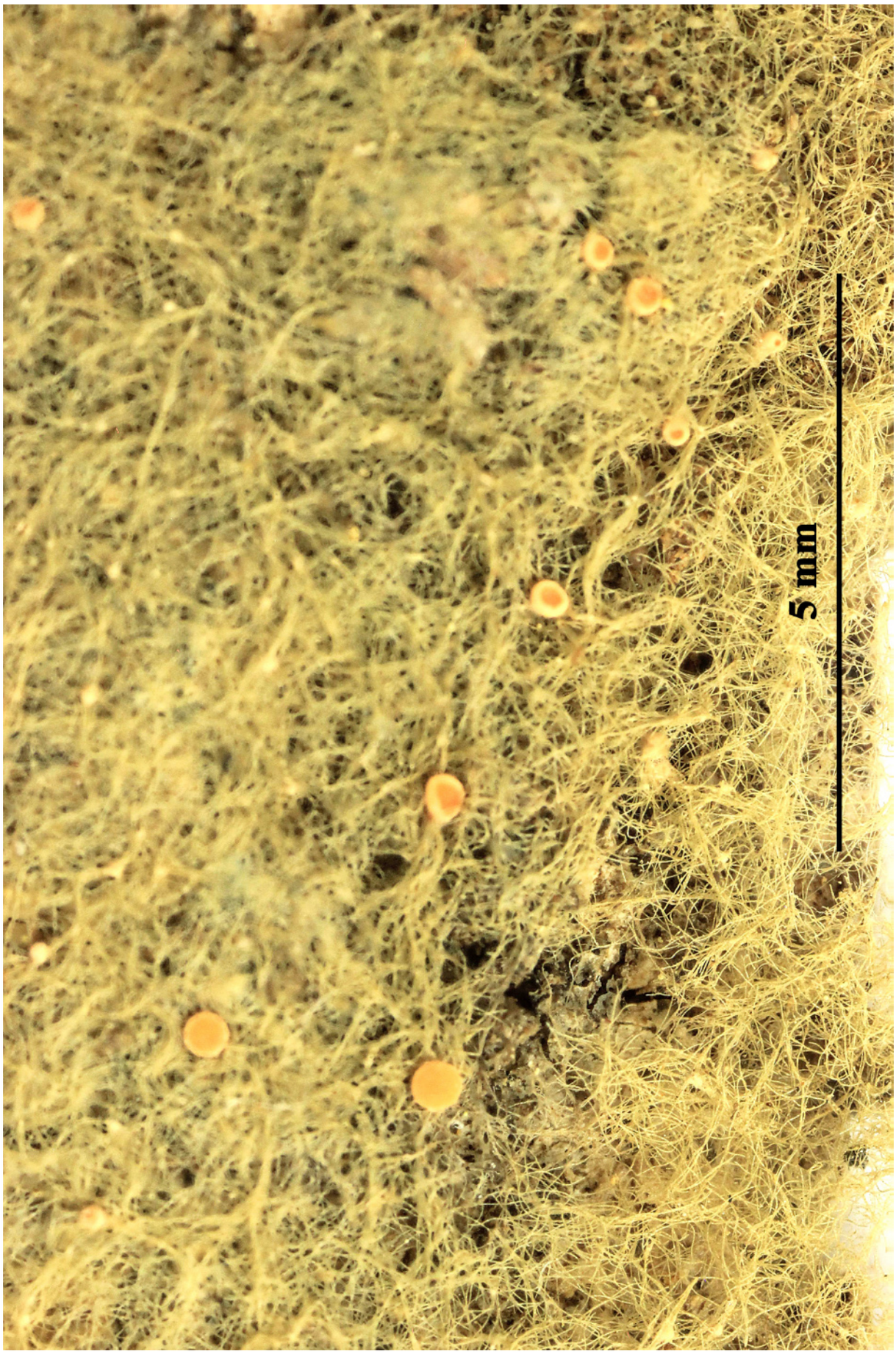
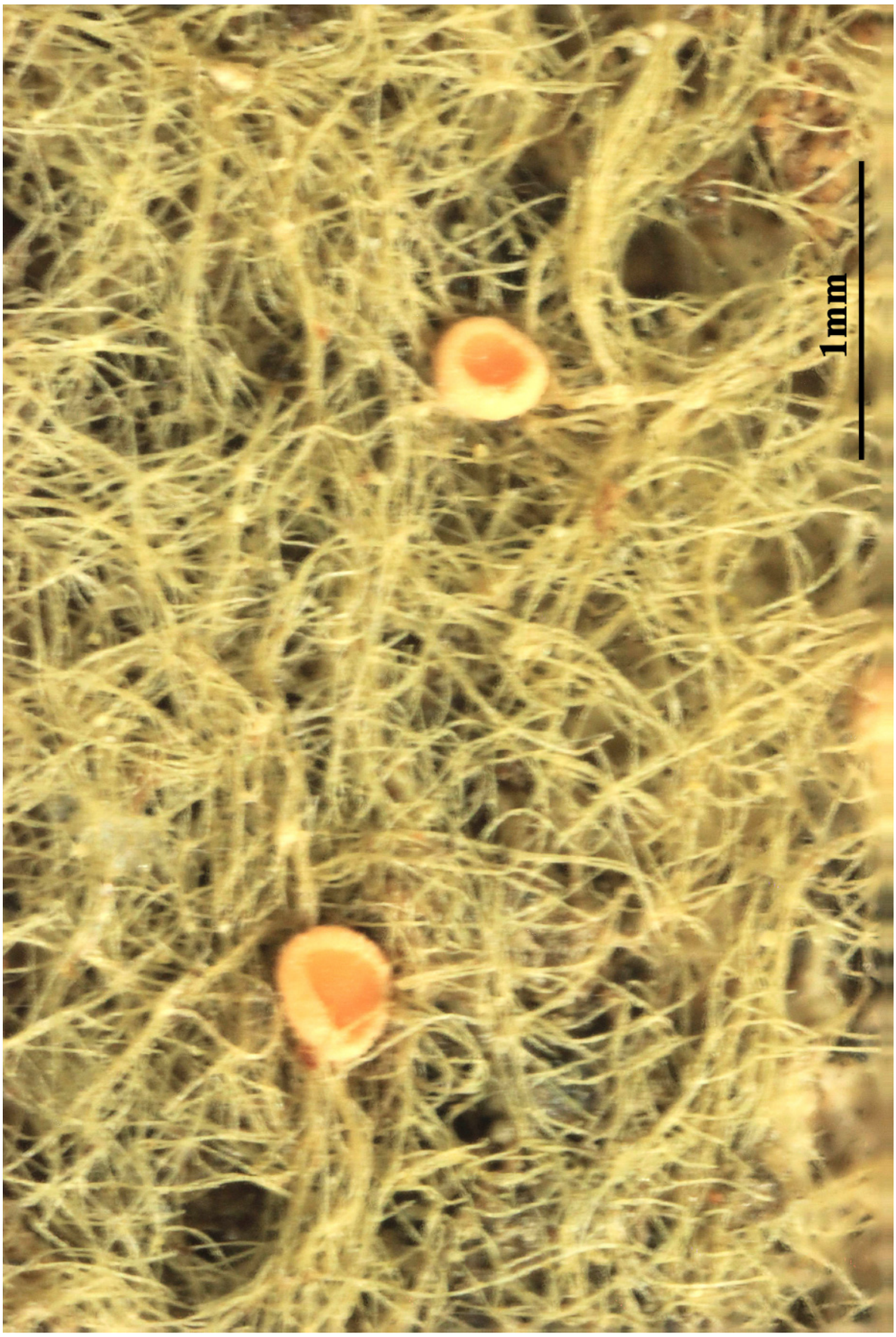


Coenogonium interplexum

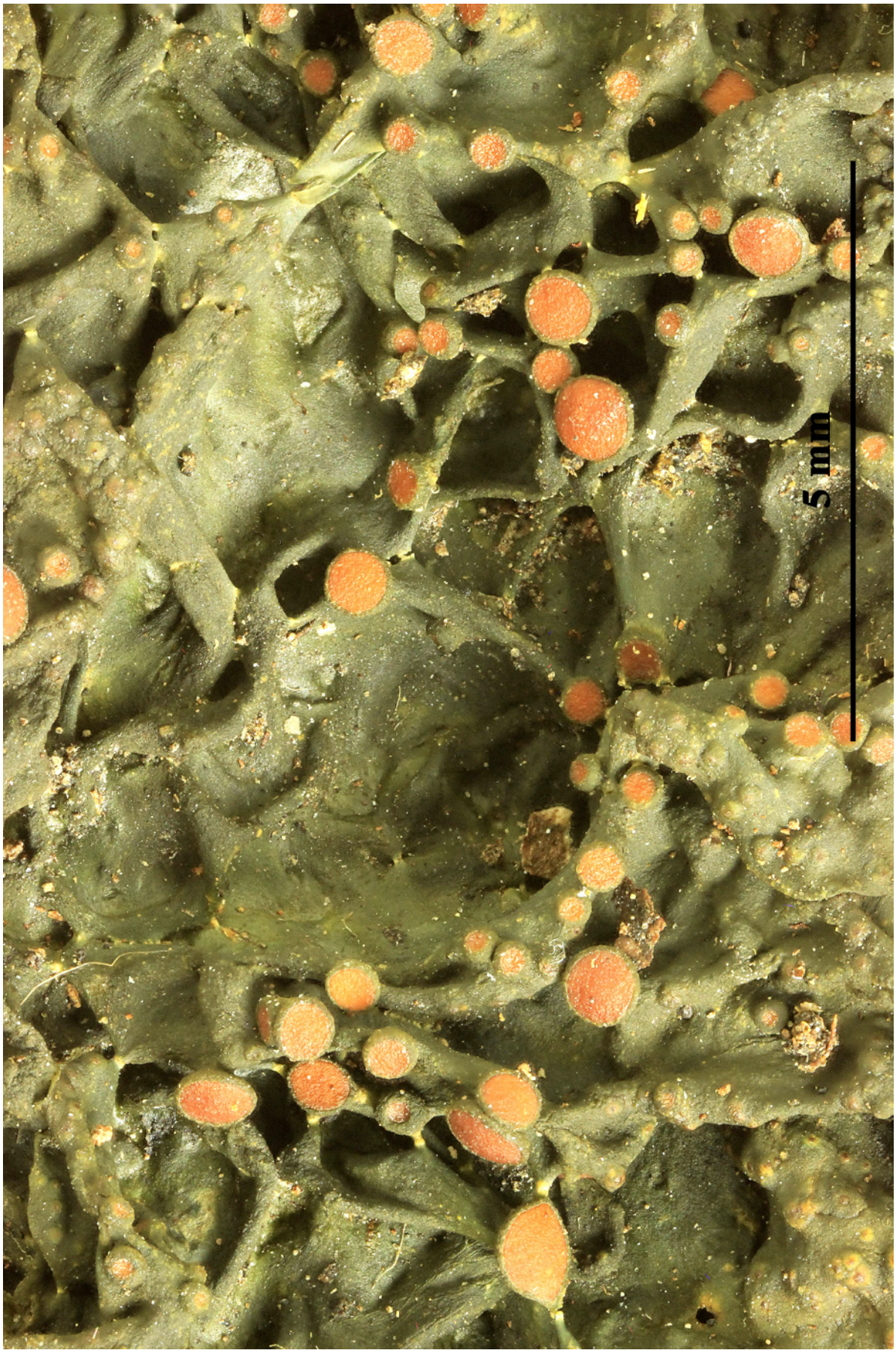


Coenogonium interplexum

Collema complanatum Hue, J. Bot., Paris 20: 85 (1906)

[VZ1387], Japonia. Provincia Mutsu: Sukayu, in monte Hokkoda, 300 m. Ad corticem arborum in silvis. Leg. M. E. Hale (no. 29330), 3.9.1964, det. G. Degelius. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1387.

Thallus of *nigrescens* (*subnigrescens*) type. medium-sized to large (up to c. 10 cm diam. though usually less. often a few cm), foliose. membranous, thin (see below). ± rounded but often unilaterally developed. adnate, strongly ridged (ridges radiating, denser or looser.Iong or short, ± narrow. rather high, straight or flexuose, simple or somewhat branched and anastomosing). in marginal parts often more pustulate, ±deeply and broadly lobate (sometimes rather indistinctly lobate). usually dark olive-green (lower surface concolorous or paler, sometimes greyish or bluish), matt or in part somewhat glossy, without isidia. Lobes and lobules few, ± rounded or extended, ± imbricate. margin entire and often bent downwards or upwards; lobules up to 1.5 cm broad but usually less. - Thallus (lobes) 56-90 µm thick (when moist). Hyphae of about same type as in C. subnigrescens ; no typical pseudocortex seen. -Nostoc-cells in chains. globose (3-4 µm) or oblong; heterocysts up to 6.5 µm; gelatine I-. - Apothecia usually numerous and dense, sometimes crowded, superficial (mainly on ridges). sessile with constricted base (sometimes broadly stipitate), 0.5-0.8 mm mm diam. (rarely more). Discus plane to (later on) a little convex. paler or darker red (sometimes very dark). matt or a little glossy. epruinose (rarely. in young apothecia slightly pruinose). Margo thallinus ± thin. entire, smooth (or finely rugose), generally not prominent. persistent or (in convex apothecia) disappearing. - Apothecia studied c. 430-530 µm thick (when moist); Exclpulum thalinum with about same structure and I-reacticn as thallus; a ± well developed primitive pseudocortex usually occurs (cells from outside seen rounded, small), in some specimens a typical one (pseudocortex at times lacking). Excipulum proprium in central part up to at least 60 µm thick (in marginal part thinner). euparaplectenchymatous (cells in central part up to 18 µm diam. though usually less: to 8.5 µm or 10.5 µm 13 µm (in margo part smaller), in some specimens prevailingly euthyplectenchymatous (to subparaplectenchymatous), colourless or pale yellow, I-. Subhymenium up to 105 µm thick, pale or yellowish (or somewhat reddish), I + constantly blue. Hymenium 100-150 µm high. I + rapidly and constantly blue. Para-



Collema complanatum

Collema complanatum

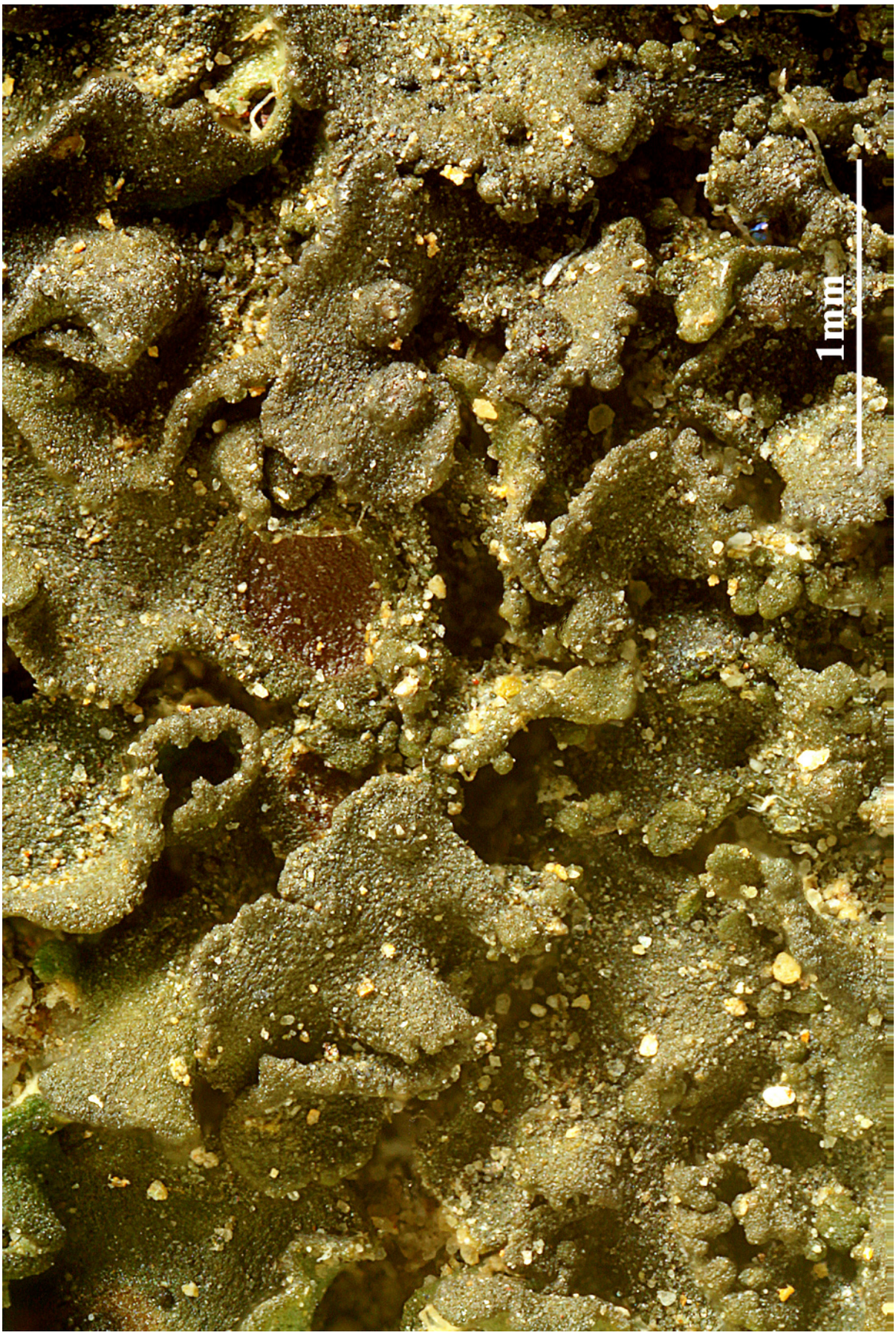
Collema crispum (Huds.) F.H. Wigg. [as 'crispa'], Prim. fl. holsat. (Kiliae): 89 (1780)
= *Lichen crispus* Huds. 1762
= *Blennothallia crispa* (Huds.) Otálora, P.M. Jørg. & Wedin 2013
= *Blennothallia cheilea* (Ach.) Trevis.
= *Collema anemoides* Samp.?
= *Collema brutium* (Jatta) Jatta
= *Collema cheileum* (Ach.) Ach.
= *Collema cheileum* var. *brutium* Jatta
= *Collema conchilobum* (Flot.) Körb.
= *Collema crispum* var. *metzleri* (Arnold) Degel.
= *Collema granulosum* Hoffm.
= *Collema marginale* (Huds.) Hoffm.
= *Collema platycarpum* Durieu & Mont.
= *Homodium subcuspidans* Nyl.

[VZ1353], Bulgaria. Distr. Varna: inter Alexandrovo et Veselino (via Smjadovo - Karnobat), 200 m. Ad saxa arenacea. Leg. A. Kiszely et A. Vězda, 14.08.1975 - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1353.

Thallus foliose, homoiomerous, subgelatinous when wet, deeply and broadly lobed, often forming irregular, 2-3(-5) cm wide patches. Lobes often crowded and imbricate, 0.5-1(-6) mm wide, rather thin (70-200 µm when wet), rounded, flat or concave, often ascending and ear-shaped, dark green, olive or greenish black (more green in shaded situations), with flattened, c. 0.15-0.3 mm wide isidia-like outgrowths which sometimes obscure the thallus. Lower surface paler, with white hapters. Upper and lower cortices absent, but the central thallus layer paraplectenchymatous. Apothecia rather rare, lecanorine, sometimes slightly constricted at base, 1-2(-2.5) mm across, with a brown disc and a thin, granulose to lobulate, usually persistent thalline margin. Thalline exciple ecorticate or with a primitive pseudocortex; proper exciple thin, sub- to euthyparaplectenchymatous; epithecium pale brown; hymenium colourless, 130-170 µm high, I+ blue; paraphyses simple or sparingly branched in upper part, 1.5-2 µm thick at mid-level, the apical cells up to 4.5 µm wide; hypothecium colourless to pale yellow, I+ blue. Asci (4-6-)8-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores 3-septate (rarely submuriform), slightly constricted at septa, hyaline, ovoid to subellipsoid with rounded

ends, (18-)26-34(-47) x (9-)13-15(-17) µm. Pycnidia immersed, paler than thallus. Conidia bacilliform, usually slightly swollen at both ends, 4.5-6 x 1.5-1.8(-2) µm Photobiont cyanobacterial (Nostoc, the cells in short chains with less than 4 cells). Spot tests: all negative. Chemistry: without lichen substances.

Collema crispum



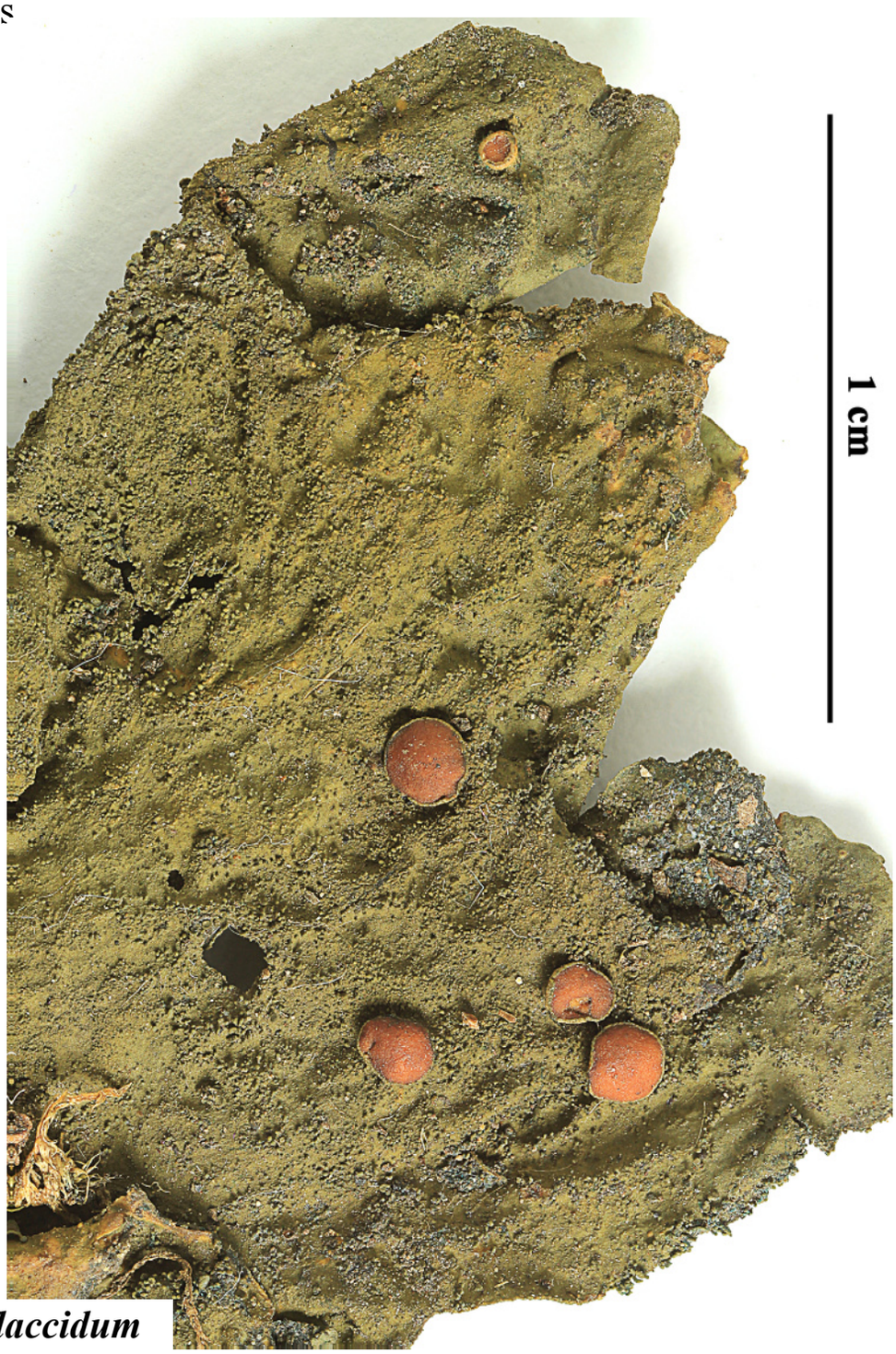
Collema crispum

Collema flaccidum (Ach.) Ach., Lich. Univ.: 647 (1810)
= *Collema furvum* var. *flaccidum* (Ach.) Spreng., Fl. halensis, Edn 2: 540 (1832)
= *Collema rupestre* var. *flaccidum* (Ach.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 51 (1845)
= *Collemodiopsis flaccidum* (Ach.) Hav., Bergens Mus. Årbok, Naturv. raekke(no. 2): 24 (1918)
= *Collema atroplumbeum* Hue
= *Collema furvum var. flaccidum* (Ach.) Spreng.
= *Eucollema flaccidum* (Ach.) Horw., Hand-list Lich. Gr. Brit.: 6 (1912)
= *Lathagrium flaccidum* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 400 (1821)
= *Lathagrium rupestre* (Sw.) A. Massal.
= *Lichen flaccidus* Ach., K. Vetensk-Acad. Nya Handl. 16(1): 14 (1795)
= *Lichen rupestris* Sw., Method. Muscor. Illustr. (Upsaliae): 37 (1781)
= *Parmelia flaccida* (Ach.) Ach., Methodus, Sectio post. (Stockholmiæ): 229 (1803)
= *Parmelia rupestris* F. Desp., Flore de la Sarthe: 385 (1838)
= *Parmelia rupestris* var. *flaccida* (Ach.) Schaer., Lich. helv. spicil. 11: 527 (1842)
= *Synechoblastus flaccidus* (Ach.) Körb., Syst. lich. germ. (Breslau): 413 (1855)
= *Synechoblastus rupestris* (F. Desp.) Trevis., Caratt. Tre Nuov. Gen. Collem.: 3 (1853)

[VZ1257], Hungaria. Montes Matra, regio montis Agasvár, in valle rivuli Csörgö, 480 m. Ad saxa andesitica. Leg. G. Kiszely, T. Pócs et A. Vězda, 5.06.1974. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1257.

Thallus foliose, homoiomerous, gelatinous when wet, blackish brown to black, 70-170(-200) µm thick when wet, smooth, loosely attached, up to 6 cm in diam. (usually less). Lobes (0.5-)1-2(-3) cm broad, rounded at apex, flattened, contiguous, appressed, with an entire, undulate, not swollen margin, with isidia-like outgrowths that are globular when young, but soon become flattened and squamiform, 0.2-0.5(-0.8) mm wide, diffuse and mostly simple. Lower surface usually paler, with sparse white hapters. Upper and lower cortex absent. Apothecia rare, lecanorine, sessile and constricted at base, up to 2.5(-3) mm across, with a reddish brown, epruinose or white-pruinose, flat to finally convex disc and a thin, entire, smooth, persistent or finally excluded thalline margin. Thalline exciple pseudocorticate; proper exciple subpa-

raplectenchymatous to rarely almost euthyplectenchymatous; epithecium brownish; hymenium colourless, 90-130 µm high, I+ blue; paraphyses simple or sparingly branched, 2(-4) µm thick, with clavate to subglobose tips; hypothecium colourless. Asci 8-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores transversely 3-5-septate, hyaline, fusiform-elongate, (20-)25-35(-40) x 6-7 µm. Pycnidia common, usually thicker than thallus. Conidia bacilliform, sometimes slightly thickened at the ends, straight, (3-)4-4.5(-6) x 1-1.5(-2) µm. Photobiont cyanobacterial (Nostoc, the cells in long chains). Spot tests: all negative. Chemistry: without lichen substances



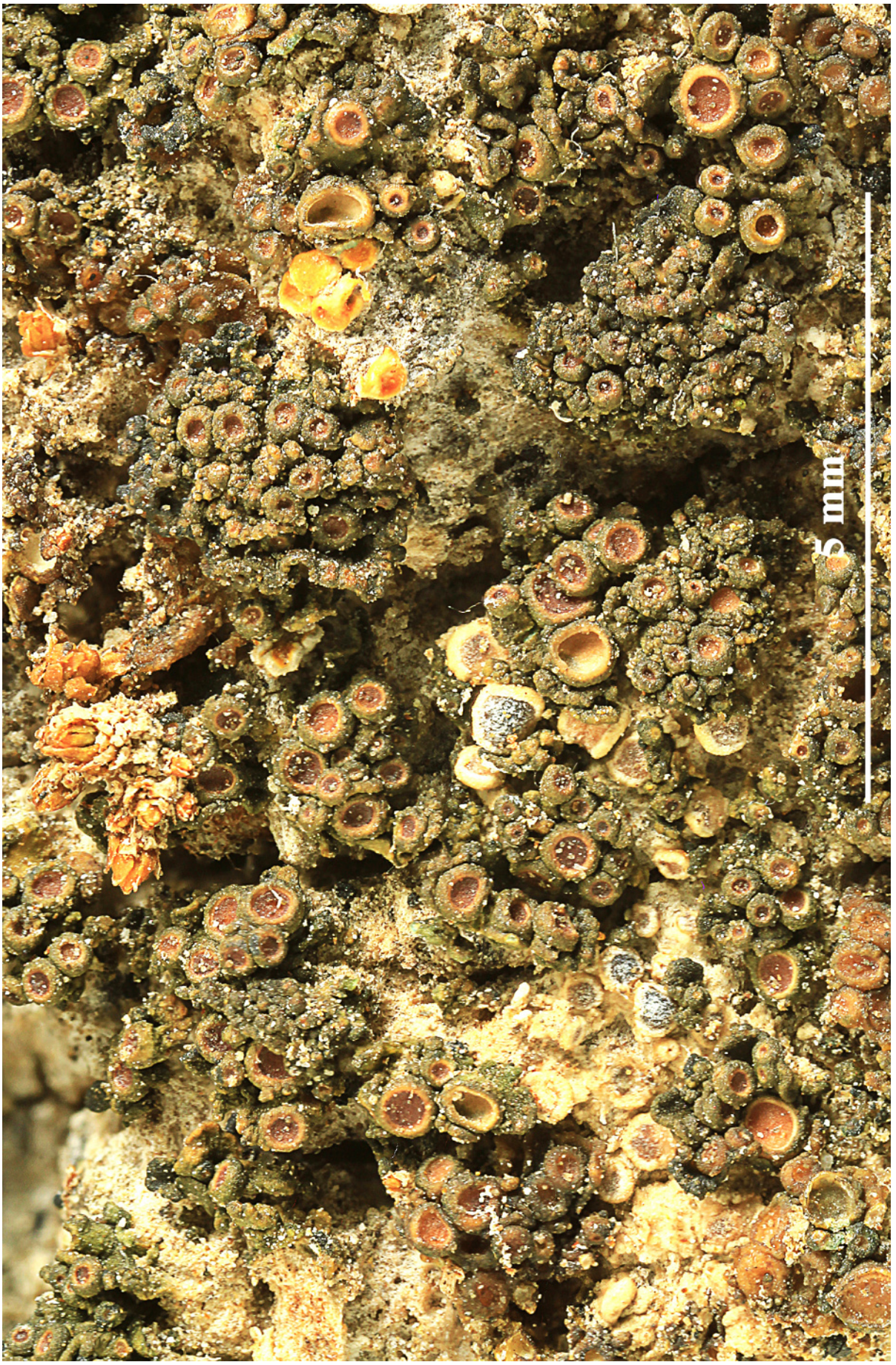
Collema flaccidum

Collema flaccidum

Collema fragrans (Sm.) Ach. [as 'fragans'], Syn. meth. lich. (Lund): 311 (1814)
= *Scytinium fragrans* (Sm.) Otálora, P.M. Jørg. & Wedin 2013

[VZ2232], Hispania. Prov. Lérida: Riu del Pendís, Col de Pendís, 1300 m. Supra corticem trunci *Populi nigrae*. Leg. N. L. Hladun (nr.1538), 22.07.1987. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 2232.

Thallus to 0.5 cm diam., but thalli often numerous and crowded together, foliose, deeply lobed forming ± rounded rosettes or cushions,- usually fixed to substratum in centre; lobes c. 0.3 - 1.5 mm wide, free or imbricate, channelled, ± flattened, not swollen, often crenate, appressed or ascending to erect or somewhat spreading; upper surface dark olive-green to blackish, smooth or with globose, isidia-like papillae or terete to flattened lobules on margins and on upper surface . Apothecia often numerous and crowded in centre of thallus; disc 0.4-0.7 mm diam., ± immersed at first, flat to concave with a thin to moderately thick thalline exciple, entire or papillate. Asci (4-)8-spored. Ascospores 16-30 x 8.5- 17 µm, submuriform, with 2-5 transverse and 2-5 longitudinal septa, oval or ± ellipsoid. On nutrient-enriched bark, especially of Ulmus, in old parkland, very rarely on rocks; rare and declining. This species forms small , scattered or ± contiguous, neat rosettes of ± stellately arranged lobes, often with abundant apothecia towards the thallus centre.



Collema fragrans

Collema fragrans

Collema furfuraceum Du Rietz, Ark. Bot. 22A(no. 13): 5 (1929)
= *Collema furfuraceum* var. *luzonense* (Räsänen) Degel., Symb. bot. upsal. 20(no. 2): 179 (1974)
= *Collema nigrescens* [unranked] *furfuraceum* Schaer., Enum. critic. lich. europ. (Bern): 252 (1850)
= *Collema nigrescens* var. *furfuraceum* (Du Rietz) H. Olivier
= *Collema nigrescens* f. *furfuraceum* (Schaer.) Zahlbr., Cat. Lich. Univers. 3: 56 (1924) [1925]
= *Synechoblastus nigrescens* f. *furfuraceus* (Schaer.) Zahlbr., Cat. Lich. Univers. 3: 56 (1924) [1925]
= *Synechoblastus nigrescens* var. *furfuraceum* (Schaer.) Arnold, Flora, Regensburg 64(8): 115 (1881)

[VZ383], Gallia,Vaucluse: Auribeau, prope fontem Badelune, 650 m. Ad truncum *Quercus pubescentis*, propter viam publicam. Leg. G. Clauzade, J. Lambinon & A. Vězda, 24.04.1965. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 383.

Thallus foliose, homoiomerous, subgelatinous when wet, membranous and closely adnate, broadly lobed, (2-)3-8(-10) cm across. Lobes 0.5-1 cm broad, (50-)60-105 µm thick, apically rounded, dark olive-green to brownish black, paler and subtransparent when wet, strongly ridged and often pustulate in young parts, covered in simple or branched, mostly terete, cylindrical (globular when young) isidioid outgrowths which are 0.05-0.15 mm wide and up to 0.3 mm long and mostly concentrated on the pustules/ridges. Lower surface dark olive-green to brownish black, paler than upper surface, with scattered white hapters. Upper and lower cortices absent. Apothecia rare, 0.5-1.5 mm across, with a brown disc and a densely pseudoisidiate thalline margin. Thalline exciple usually pseudocorticate; proper exciple euthy- to subparaplectenchymatous; epithecium brownish; hymenium colourless, 85-110 µm high; paraphyses coherent, simple or sparingly branched, 2-3 µm thick at mid-level, the apical cells swollen; hypothecium pale yellow. Asci 8-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores 4-5-septate, hyaline, bacilliform to acicular, often curved, 40-80 x 3-6.5(-8) µm. Pycnidia common, globose, superficial centrally but immersed marginally, on both sides of thallus. Conidia bacilliform, somewhat swollen towards ends, 4-6 x c. 1 µm. Photobiont cyanobacterial (Nostoc, the cells in long chains). Spot tests: all negative. Chemistry: without lichen substances.

Collema furfuraceum

Collema furfuraceum

Collema limosum (Ach.) Ach., Lich. Univ.: 629 (1810)
= *Enchylium limosum* (Ach.) Otálora, P.M. Jørg. & Wedin 2013
= Lichen limosus Ach.,Lichenogr. Suec. Prodr.: 126, 1799.
= *Collema forissii* Szatala
= *Collema glaucescens* Hoffm.
= *Collema viscosum* A. Massal.

[VZ1004], Bohemoslovacia. Moravia, distr. Brno, supra pagum Bosonohy, 300 m. Terricola in parietibus loesaceis. Leg. A. Vězda, 25.04.1971. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1004.

Thallus crustose to subfoliose, homoiomerous, gelatinous and 100-500 µm thick when wet, dark olive-green to brownish black, granulose to membranous, sometimes indistinctly lobed at margin, usually best developed around the apothecia, often tending to disappear with age. Upper and lower cortex absent. Apothecia frequent, lecanorine, sessile, 1-3(-4) mm across, with a red-brown to brown-black, flat to convex disc and a thick, often verrucose or lobulate thalline margin. Thalline exciple ecorticate or pseudocorticate only in basal parts; proper exciple poorly developed, euthyplectenchymatous or rarely subparaplectenchymatous, up to 40 µm wide laterally; epithecium brownish; hymenium colourless, 80-120 µm high, I+ blue; paraphyses simple or sparingly branched in upper part, 1.5-2 µm thick at mid-level, the apical cells clavate to subglobose, 3-4.5 µm wide; hypothecium colourless to pale yellow. Asci (2-)4-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores muriform or submuriform, with 3-5 transverse septa and 1-2 longitudinal septa, hyaline, ellipsoid to subovoid with obtuse to rarely subacute ends, (20-)25-35(-40) x (8-)10-15(-17) µm. Pycnidia rare, immersed or projecting, appearing as small reddish dots. Conidia straight, bacilliform, 4-6 x 1-1.8 µm. Photobiont cyanobacterial (Nostoc, the cells in long chains). Spot tests: all negative. Chemistry: without lichen substances.

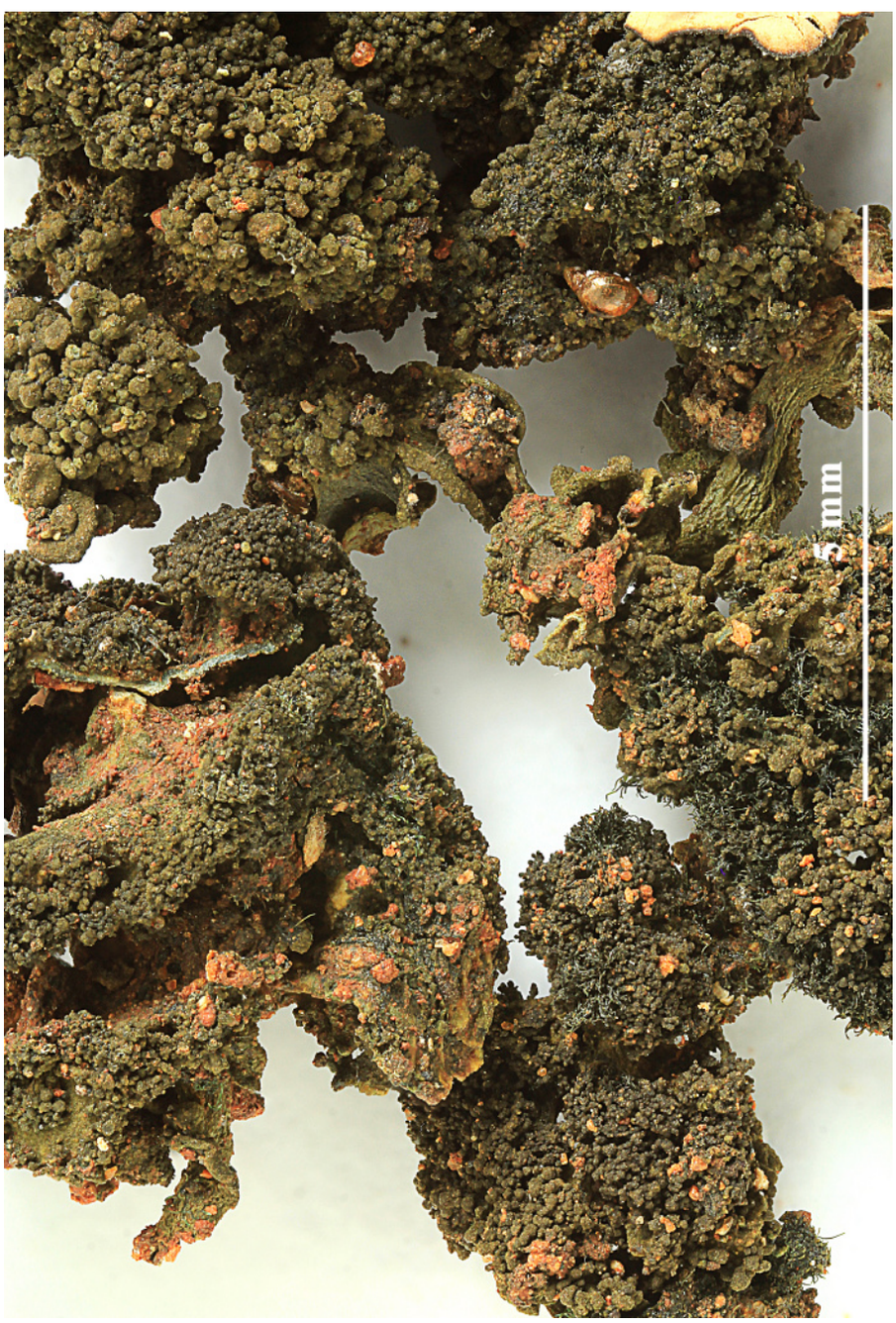
Collema limosum

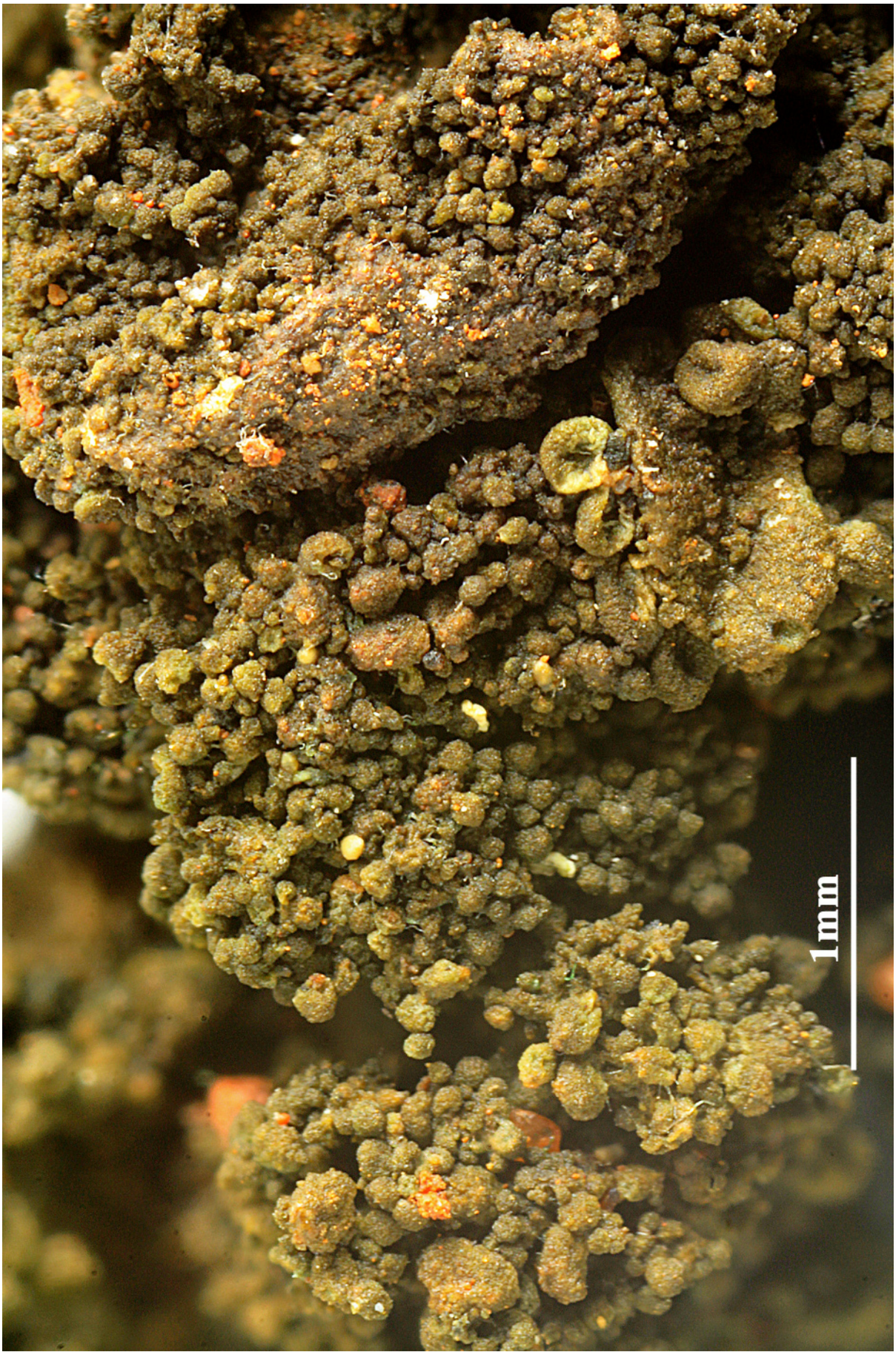
Collema limosum

Collema neglectum Degel., Svensk bot. Tidskr. 56: 145 (1962)
= *Lathagrium neglectum* (Degel.) Otálora, P.M. Jørg. & Wedin 2013

[VZ2115], Venezuela. Estado Falcon, Peninsula de Paraguaná: in cacume loci Fila Tausabana dicti, via El Rodeo - Muchuruca, 90 m. Ad saxa eruptiva basica. Leg. M. López-Figueiras (nr. 32503) et al, 12.11.1985, det. G. Degelius. - Ex A. VěZDA: LICHENES SELECTI EXSICCATI NR. 2115.

Thallus isidiate. Lobules linear and ± narrowly canaliculated, up to 3 mm br. Isidia very small (up to o.1 mm diam.), globular; apothecia normaly epruinose; excipulum thallinum without cortex; excipulum proprium euparaplectenchymatisch; spores muriform, ± ellipsoid not fusiform; mainly corticolous.





Collema neglectum

Collema occultatum Bagl., Comm. Soc. crittog. Ital. 1(fasc. 1): 23 (1861)
= *Rostania occultata* (Bagl.) Otálora, P.M. Jørg. & Wedin 2013
= *Collema quadratum* J. Lahm ex Körb.
= *Leptogium occultatum* (Bagl.) Zahlbr.
= *Rostania quadrata* (Körb.) Trevis.

[VZ2005], Suecia. Värmland: Södra Finnskoga, Avensasen, 390 m. Ad corticem arborum (*Acer platanoides*). Leg. Sigurd W. Sundell, 27.07.1979. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 2005.

Thallus subcrustose to indistinctly subsquamulose-subplacodioid, homoiomerous, gelatinous when wet, forming a thin, effuse crust of scattered to contiguous, 120-170(-200) µm wide granules. Lobes absent or few, small and short, 150-200 µm thick (when moist), smooth, more or less channelled but sometimes becoming coralloid and forming c. 1 mm wide rosettes. Upper surface dark olive-green to black, dull, epruinose, semi-translucent when wet. Apothecia often numerous, sessile, mostly terminal, 0.1-0.3(-0.5) mm across, globose and perithecioid when young, with an initially punctiform, later concave, dark red to rarely pale yellow-brown disc, an entire to lobulate, finall sometimes excluded thalline margin and often a paler, up to 15 µm wide parathecial ring. Thalline exciple with a simple pseudocortex; proper exciple euthyplectenchymatous, with small-ellipsoid to rectangular cells, c. 10 µm thick; epithecium brown; hymenium colourless, 80-140 µm high, I+ blue; paraphyses c. 2 µm thick at mid-level, the apical cells up to 5 µm wide; hypothecium colourless, 15-50 µm high. Asci 8-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores subglobose when young, then more or less cuboid with rounded angles and truncate ends, muriform with (4-)8-12 cells in optical view, (11-)13-18(-22) x 9-15 µm. Pycnidia immersed, globose. Conidia bacilliform, 4-5 x c. 1 µm. Photobiont cyanobacterial (Nostoc, in chains of up to 10 cells). Spot tests: all negative. Chemistry: without lichen substances.

Collema occultatum

Collema occultatum

Collema occultatum

Collema occultatum

Collema ryssoleum (Tuck.) Tuck., Gen. lich. (Amherst): 92 (1872)
= *Synechoblastus ryssoleus* (Tuck.) Fink, Contr. U.S. natnl. Herb. 14(1): 135 (1910)
= *Collema meridionale* Hue
= *Collema nigrescens* f. *rupestre* (Bagl.) Zahlbr.
= *Lathagrium nigrescens* var. *rupestre* Bagl.

[VZ1598], Bulgaria. Pontus Euxinus. Distr. Sozopol. 5 km ad meridiem versus a pago Sozopol, 3-5 m. Ad scopulum maritimum. Leg. A. Vězda, 20.09.1978. - EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1598.

Thallus foliose, homoiomerous, subgelatinous when wet, membranous and adnate, broadly lobed, 1-6 cm in diam. Lobes 0.4-1 cm wide, 50-85 µm thick when wet (but much thicker on the ridges and pustules), rounded and often somewhat ascending at apex, densely pustulate and coarsely ridged, dark olive-green to brown or rarely black, often pale yellowish brown in older parts. Lower surface greenish brown, with a few, scattered, white hapters. Upper and lower cortices absent. Apothecia common, lecanorine, crowded, (0.3-)0.5-1(-1.5) mm across, with a flat to convex, brownish red to black disc and an entire, persistent thalline margin. Thalline exciple usually pseudocorticate; proper exciple thin, euthyplectenchymatous; epithecium brownish; hymenium colourless, 80-110 µm high, I+ blue; paraphyses coherent, simple or sparingly branched, 2-3 µm thick at mid-level, the apical cells swollen; hypothecium colourless or pale yellow-brown. Asci 8-spored, cylindrical-clavate, the apex strongly thickened, the apical dome K/I+ pale blue, with a downwardly projecting K/I+ deep blue tubular structure. Ascospores 4-7-septate, hyaline, ellipsoid to fusiform, straight or slightly curved, 22-47 x 4-11 µm, with pointed ends. Pycnidia immersed or semi-immersed, on both sides of the thallus, pale. Conidia bacilliform or with slightly swollen ends, 4-5 x c 1 µm. Photobiont cyanobacterial (Nostoc, the cells in long chains). Spot tests: all negative. Chemistry: without lichen substances.

Collema ryssoleum

Collema ryssoleum

Combea mollusca (Ach.) Nyl., Syn. meth. lich. (Parisiis) 1(2): 257 (1860)
= *Combea pruinosa* De Not., G. bot. ital. 2(1.1): 223 (1846)
= *Dactylina mollusca* (Ach.) Tuck., Gen. lich. (Amherst): 7 (1872)
= *Dufourea mollusca* (Ach.) Ach., Lich. Univ.: 524 (1810)
= *Lichen squarrosus * mollusca* (Ach.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 419 (1813)
= *Parmelia mollusca* Ach., Methodus, Sectio post. (Stockholmiæ): 253 (1803)
= *Roccella mollusca* (Ach.) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 97 (1858) [1857]

[VZ1255], Africa Austro-Occidentalis Lüderitz, loco Grosso Bucht dicto prope Lüderitzbucht, in territorio desertorum Namib, in proximate maris, 30 m. In ramulis emortuis fruticum (*Lycium* et *Salsola* sp.) locis vento salso expositis. Leg. O. Volk, 7.2.1974, det. V. Wirth. Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 1255.

Thallus saxicolous or rarely lignicolous, grey, not sorediate, composed of branched, terete lobes, texture rather soft, corallinoid, surface smooth, holdfast internally white to brown. Cortex branched type. Apothecia terminal at expanded tips, round, immersed in the lobe tips, discs dark brown to black, naked or slightly pruinose. Hypothecium hyaline. Ascospores hyaline, 3-septate, 15–18 × 4–5 µm. Cortex C + red, K – , P–, medulla C + red, major substances erythrin, schizopeltic acid, lecanoric acid.

Combea mollusca

Combea mollusca

Combea mollusca (Ach.) Nyl., Syn. meth. lich. (Parisiis) 1(2): 257 (1860)
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= *Parmelia mollusca* Ach., Methodus, Sectio post. (Stockholmiæ): 253 (1803)
= *Roccella mollusca* (Ach.) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 97 (1858) [1857]

[VZ2024], Africa Austro-Occidentalis, Namib: Lüderitz, Diaz Point, in vicinitate maris. Ad trabes vetustas pontis. Leg. H. Schindler, 3.10.1984. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2024.

Thallus saxicolous or rarely lignicolous, grey, not sorediate, composed of branched, terete lobes, texture rather soft, corallinoid, surface smooth, holdfast internally white to brown. Cortex branched type. Apothecia terminal at expanded tips, round, immersed in the lobe tips, discs dark brown to black, naked or slightly pruinose. Hypothecium hyaline. Ascospores hyaline, 3-septate, 15–18 × 4–5 µm. Cortex C + red, K – , P–, medulla C + red, major substances erythrin, schizopeltic acid, lecanoric acid.

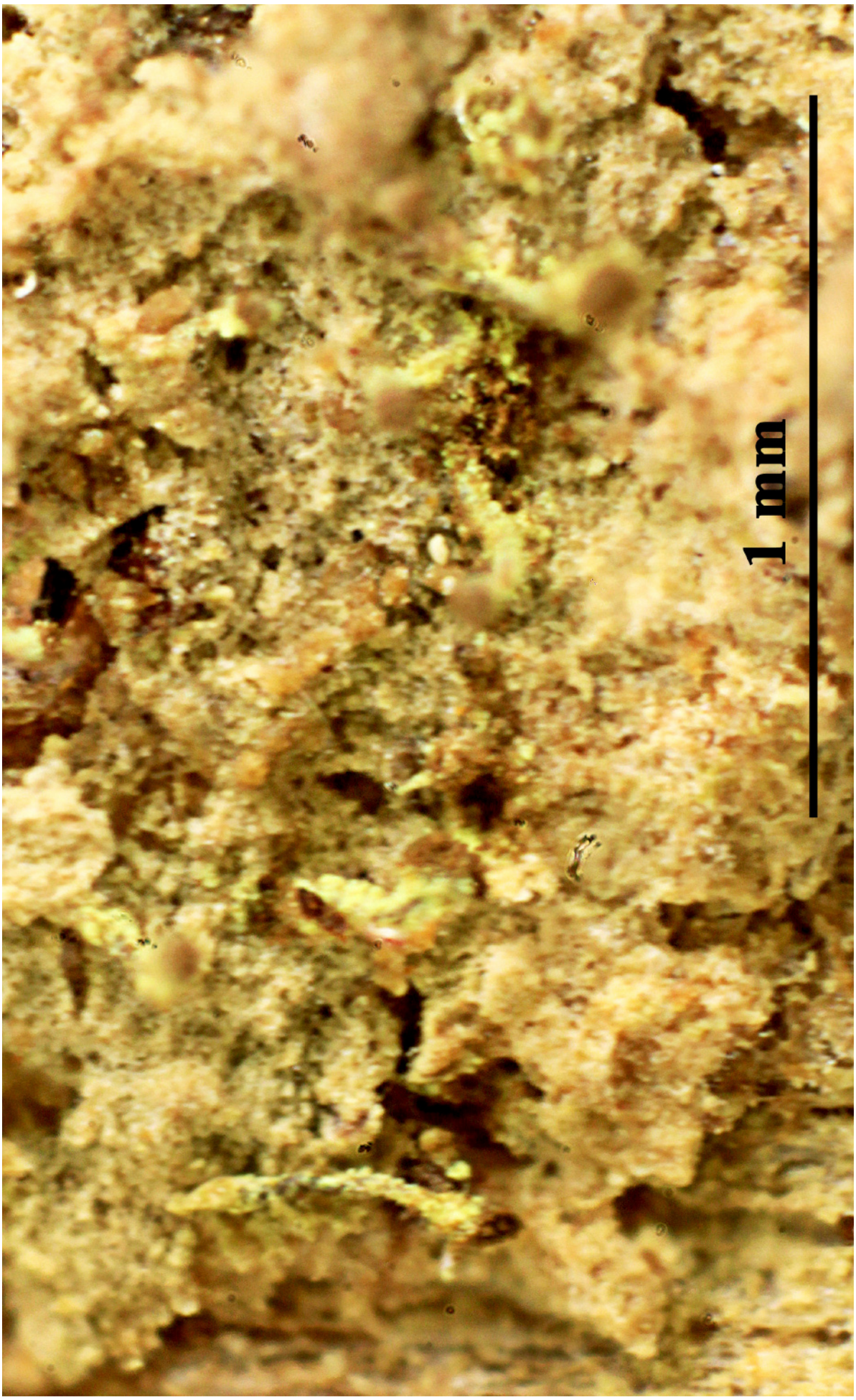
Combea mollusca

Combea mollusca

Coniocybe sulphurea (Retz.) Nyl. ex Cromb., Grevillea 15(no. 73): 14 (1886)
= *Chaenotheca brachypoda* (Ach.) Tibell, Symb. bot. upsal. 27(no. 1): 71 (1987)
= *Calicium furfuraceum var. sulphurellum* Link [as 'sulphurella'], Grundr. Krauterk. 3: 223 (1833)
= *Coniocybe brachypoda* Ach., K. Vetensk-Acad. Nya Handl. 4: 287 (1816)
= *Coniocybe furfuracea subsp. brachypoda* (Ach.) Arnold, Flora, Regensburg 68(4): 59 (1885)
= *Lichen sulphureus* Retz., K. svenska Vetensk-Akad. Handl., ser. 1 30: 249 (1769)

[VZ1254], Suecia. Wärmland: Östra Fågelvik, septentrionem versus a Flatvik, 70m. Ad lignum siccum Betulae. Leg. S. W. Sundell (no. 9529), 16. 03.1974. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1254.

Thallus crustose, endosubstratic and poorly visible. Apothecia stalked, pin-like, the stalk slender, 0.4-1.4 mm high, 0.04-0.08 mm thick, densely yellowish green-pruinose except sometimes in the black lowermost part, the inner part of periclinally arranged, medium brown hyphae, the outer part of dark brown, sclerotized hyphae. Capitulum spherical, 0.1-0.2 mm across, yellowish-green-pruinose, with a poorly developed excipulum of periclinally arranged hyphae, continuous with the stalk tissue and often reduced to a small basal collar. Mazaedium well-developed, dark to medium brown, but usually greenish-pruinose at least in young stages; hypothecium dark brown, with a convex upper surface. Asci cylindrical or irregular, formed in chains, dissolving early. Ascospores 1-celled, medium brown, globose to cuboid, 3-4.5 µm wide, the wall with a very minute ornamentation of tiny ridges and conspicuous, larger irregular cracks. Photobiont chlorococcoid, with rectangular cells (Stichococcus). Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus and pruina of the apothecia with pulvinic and vulpinic acids. - Note: on decorticated stumps of deciduous and coniferous trees, more rarely on bark and siliceous rocks in old humid forests, on faces slightly protected from rain.



Coniocybe sulphurea

Coniocybe sulphurea (Retz.) Nyl. ex Cromb., Grevillea 15(no. 73): 14 (1886)
= *Chaenotheca brachypoda* (Ach.) Tibell, Symb. bot. upsal. 27(no. 1): 71 (1987)
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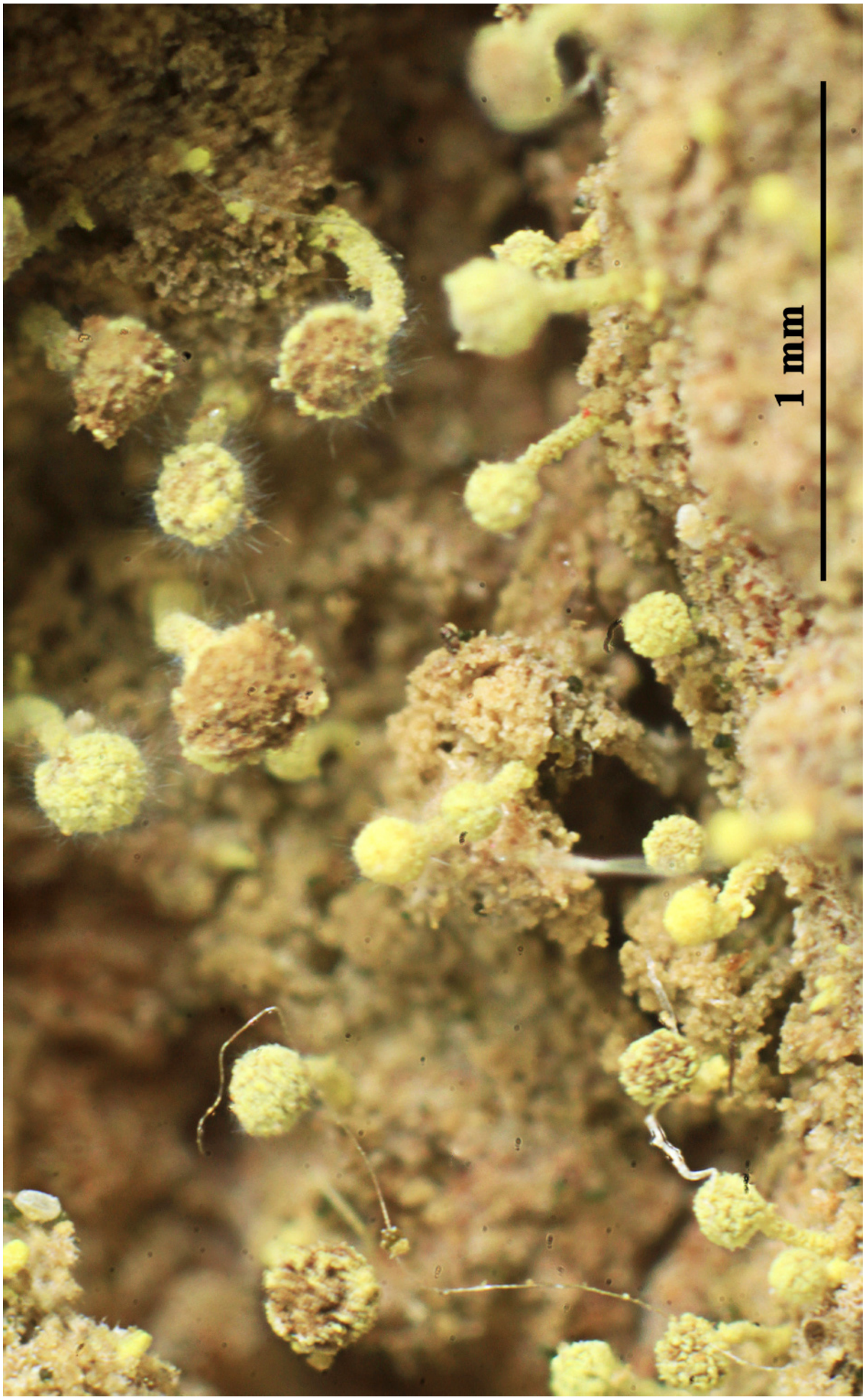
= *Lichen sulphureus* Retz., K. svenska Vetensk-Akad. Handl., ser. 1 30: 249 (1769)

[VZ2473], Magna Britannia, Anglia. Suffolk: Capel St. Mary, 35 m. Ad corticem Sambuci nigrae. Leg. P. M. Earland-Benett, 13.02.1990, det. B. J. Coppins. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2473.

Thallus crustose, endosubstratic and poorly visible. Apothecia stalked, pin-like, the stalk slender, 0.4-1.4 mm high, 0.04-0.08 mm thick, densely yellowish green-pruinose except sometimes in the black lowermost part, the inner part of periclinally arranged, medium brown hyphae, the outer part of dark brown, sclerotized hyphae. Capitulum spherical, 0.1-0.2 mm across, yellowish-green-pruinose, with a poorly developed excipulum of periclinally arranged hyphae, continuous with the stalk tissue and often reduced to a small basal collar. Mazaedium well-developed, dark to medium brown, but usually greenish-pruinose at least in young stages; hypothecium dark brown, with a convex upper surface. Asci cylindrical or irregular, formed in chains, dissolving early. Ascospores 1-celled, medium brown, globose to cuboid, 3-4.5 µm wide, the wall with a very minute ornamentation of tiny ridges and conspicuous, larger irregular cracks. Photobiont chlorococcoid, with rectangular cells (Stichococcus). Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus and pruina of the apothecia with pulvinic and vulpinic acids. - Note: on decorticated stumps of deciduous and conife-

rous trees, more rarely on bark and siliceous rocks in old humid forests, on faces slightly protected from rain.

Coniocybe sulphurea



Coniocybe sulphurea

Conotremopsis weberiana Vězda, Folia geobot. phytotax. 12: 314 (1977)

[VZ2229], Australia. Tasmania. Bonds Range, 2 km ad australem a lacu Lake Lea, 880 m. Muscicola et corticicola ad truncum *Nothofagi cunninghamii* in pluviisilva. Leg. G. Kantvilas (2/28), 21.1.1988. EX A.. VěZDA LICHENES SELECTI EXSICCATI NR. 2229.

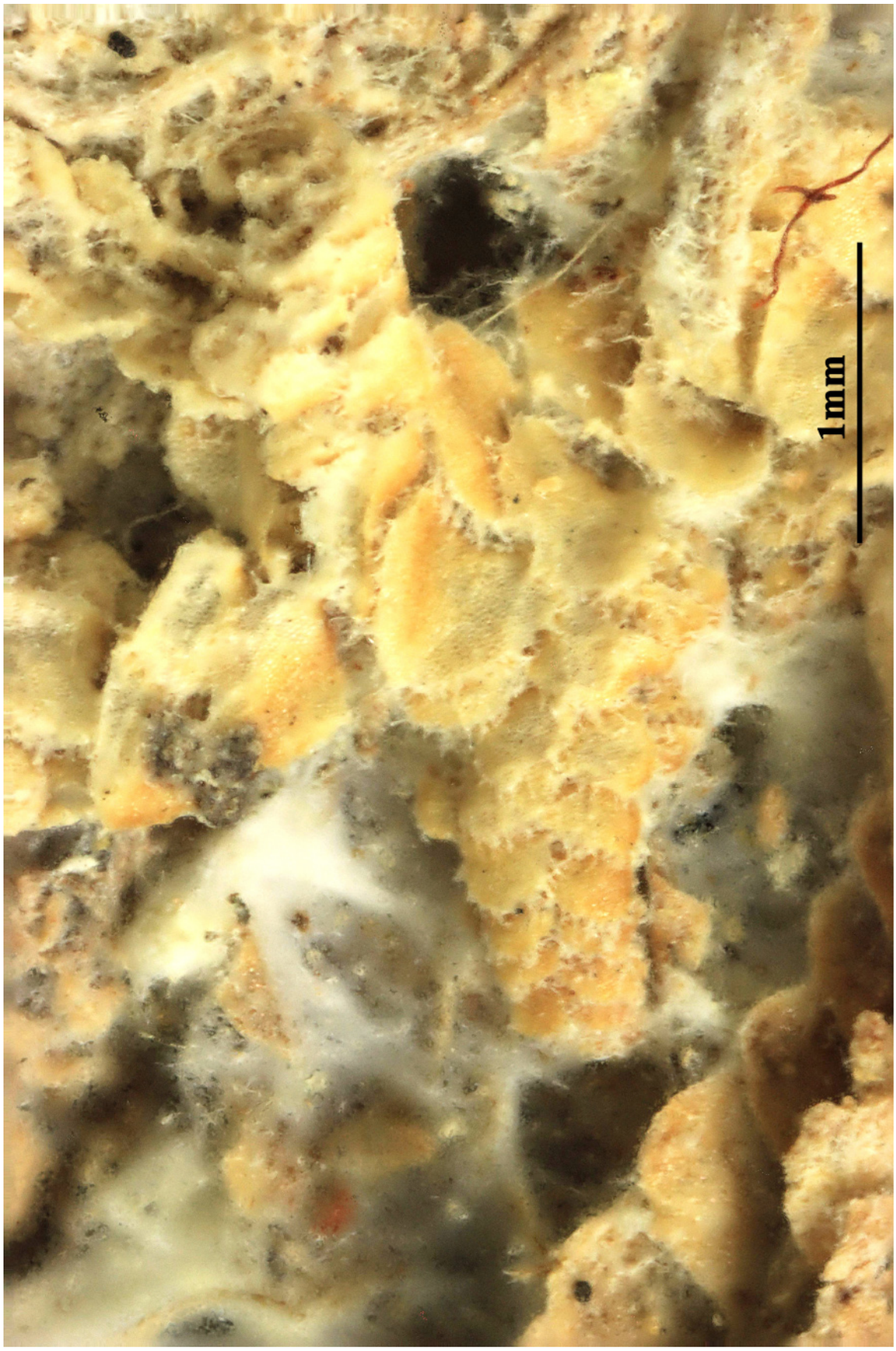
Thallus effusus, albidus, spongioso-byssinus, e filamentis liberis vel (in partibus senioribus) flocculoso-conglutinatis pseudocrustam formantibus contextus. Alga ad Trentepohliam pertinens, cellulis concatenatis, rotundato-oblongis vel subeylindraceis et dein fila articulata hyphis hyalinis obtecta formantibus. Apothecia doliiformia, 0,5—0,8 mm alta, 0,25—0,3 mm, lata, nigra, thallo albido flocculoso-lacerato tenuiter tecta, primum clausa, demum in apice stellatim dehiscentia et discum profundum atrogriseum aperientia. Margo aperturae grosse dentatus, dentibus 4—6. Excipulum integrum, subcarbonaceum, maturitate urceolatum (in parte basali clausum), fusco-nigrum, in parte basali fusco-rubrum, 25-30 (-50) um crassum, extus hyphis hyalinis thallinis laxisque tectum. Hymenium 500-600 µm altum, hyalinum; hypothecium circ. 50 µm crassum, hyalinum. Paraphyses densae, simplices, filiformes, rectae, 1 µm crassae (in KOH visae). Asci eylindrici, 430-500 µm longi, 8-10 µm crassi, membranis tenuibus, 1 µm crassis, in apice tholo distineto instructi. Sporae 8: nae, hyalinae, filiformi-aciculates, 400-420 x 2-2.5 µm, transverse pluriseptatae (septis 80-100, haud distinete visis), halonatae. Hymenium J+ caerulescens. Pycenidia non visa.
Das schneeweisse Lager überzieht abgestorbene Lebermoose. Die Randpartien und jiingere Thalli sind deutlich fadenférmig. In den &lteren und dickeren Lagerpartien wachsen die Faden mehr oder weniger dicht zusammen und bilden undeutlich begrenzte, vielfach zerschlitzte Schollen, die bei gehäuftem Auftreten das Aussehen einer zusammenhingenden Kruste annehmen. Die Fiaden bestehen aus Trentepohlia-Filamenten und den sie umgebenden feinen Hyphen des Flechtenpilzes. Die Algenzellen sind tonnenférmig bis fast zylindrisch, die von ihnen gebildeten Filamente stets „rosenkranzformig". Demgegenüber sind die Algenzellen der kompakten Lagerpartien kiirzer und fast kugelig. Zwischen beiden Formen kommen aber haufig Übergänge vor. Die verlingert-tonnenformigen Apothecien sind 0.6-0.8 mm lang und in der Mitte 0.25-0.30 mm breit; sie sind schwarz, aber mit einer diinnen Lage von weissen Lagerhyphen bedeckt, so dass sie wie bereift aussehen. Sie sitzen den mehr kompakten Lagerpartien auf und brechen leicht

ab. Die jungen Apothecien sind geschlossen; mit den wattigen Lagerresten auf der Oberfliche haben sie eine gewisse Ahnlichkeit mit Schmetterlingspuppen. Die Apothecien beginnen sich am apicalen Ende mit einem Porus zu 6ffnen, der sich bald erweitert und die ziemlich tief im Fruchtkérper liegende Scheibe entblésst. Der Rand der Offnung ist strahlenartig in 4-7 zuletzt abgerundete Zahne zerrissen. Bei alten Apothecien erweitert sich die Offnung, und die Zahne werden allméhlich undeutlicher. Im trockenen Zustande ist der dunkelgraue, unbereifte Discus ringsum durch einen Riss vom Rand getrennt. Auf einem Vertikalschnitt durch ein Apothecium sind folgende Einzelheiten erkennbar: Excipulum 25-30 µm, basal und im Randbereich bis 50 µm dick, bei unreifen Apothecien ringsum geschlossen, bei reifen langkrugférmig, dunkelbraun, unten rotbraun, von kohlig-harter Struktur, chne Innenstruktur (auch in sehr diinnen Schnitten), lediglich innen etwas heller und nicht so stark kohlig wie aussen; Oberfliche des Excipulums mit einer sehr diinnen Schicht von Lagerhyphen mit zerstreuten Algenzellen bedeckt. Hymenium 500-600 µm hoch, farblos. Hypothecium bis 50 µm, farblos. Paraphysen zahlreich, dicht, einfach, gerade, 1 µm dick (in KOH-Losung), am Ende nicht geschwollen, nicht deutlich septiert, linger als die Asci. Asci 430 - 500 x 8—10 µm, zylindrisch; Ascuswand um 1 µm dick, nur apikal deutlich verdickt (bei unreifen Asci wesentlich dicker als bei reifen) und mit einem trichterigen Hohlraum versehen, ohne amyloide Strukturen. Sporen zu 8, parallel liegend, farblos, 400 - 420 x 2-2.6 µm, fadenformig bis nadelformig, mit vielen, schwer sichtbaren Quersepten (80-100); reife Sporen diinn halonat. Mit J farbt sich das Hymenium blau. Pykniden wurden nicht beobachtet. Charakteristisch fiir die Art ist der weisse, fädige Thallus, der bei Häufung eine weisse, unregelmaéssig zerfranzte Kruste bildet. Die fädigen Sporen gehoren zu den längsten die bisher bei den Flechten beobachtet wurden (unseres Wissens besitzt nur die foliicole Bacidia marginalis (VAIN.) R. SANT. längere Sporen. Diefreien Lagerfäden mit verlängert-tonnenformigen Trentepohlia-Zellen erinnern an die Faden des *Coenogonium*-Lagers. Mit Ausnahme der „rosenkranzférmigen“ Algen {*Physolinum monile* PRINTZ.) bei *Coenogonium monsliforme* Tuck. sind jedoch die Algen der meisten *Coenogonium*-Arten zylindrisch (*T'rentepohlia* sect. Heterothallus), ‘auch dann, wenn sie eine „Pseudokruste* bilden [*Coenogonium pallidulum* (MOLL. ARG.) Vezda= *Biatorinopsis pallidula* Müll. Arg.]. Offensichtlich gehéren die *Trentepohlia*-Algen bei *Conotremopsis weberiana*

Conotremopsis weberiana

nicht zur Sect. Heterothallus, sondern zu der Arten-Gruppe, die z. B. bei den *Gyalecta*-und *Dimerella*-Arten vorhanden ist. Der Bau der Apothecien von *Conotremopsis* gleicht in den Hauptmerkmalen dem der *Conotrema*-Arten: das Excipulum besitzt eine kohlenartige Struktur, die Paraphysen sind einfach, die zylindrischen Asci haben auffallig lange, querseptierte Sporen; das bei Flechten ungewöhnlich hohe Hymenium von *Conotrema* kommt auch bei *Conotremopsis* vor. Demgegeniiber erinnert der grobgezähnelte Rand der Apothecien von *Conotremopsis* an die Gattung *Ramonia* Stiz. em. VEzDA, wo der lobate oder gezdhnelte Rand ein Gattungsmerkmal ist (VEzda 1966). Auch hier schliessen die anatomischen Eigenschaften der Apothecien eine nähere verwandtschaftliche Beziehungen der beiden Genera nicht aus; nur die bei Ramonia stets vorhandenen Periphysoiden konnten bei *Conotremopsis* nicht festgestellt werden. Nach dem Apothecien-Bau stellt Conotremopsis demnach einen Ubergangstypus zwischen *Conotrema* und *Ramonia* dar. Auf die verwandtschaftlichen Beziehungen zwischen *Ramonia* und *Conotrema* und deren Verbindungen mit anderen Gattungen der Thelotremataceen incl. Diploschistaceen und den Stictis-Arten (Ostropales) wurde schon früher aufmerksam gemacht (Vezda 1966: 159). Die Verwandtschaft wurde auch von Gilestam (1969) naher studiert; im Bau der Apothecien.

Conotremopsis weberiana



Conotremopsis weberiana

Conotremopsis weberiana

Cornicularia muricata (Ach.) Ach., Methodus, Sectio post. (Stockholmiæ): 302 (1803)
= *Cetraria muricata* (Ach.) Roum., Rev. Mycol., Toulouse 2(1): 31 (1880)
= *Cetraria aculeata* f. *hispida* Cromb., J. Linn. Soc., Bot. 17(no. 104): 561 (1880)
= *Cetraria aculeata* f. *muricata* (Ach.) Leight., Lich.-Fl. Great Brit. Irel. Chann. Isl.: 98 (1871)
= *Cetraria aculeata* var. *muricata* (Ach.) Schaer., Enum. critic. lich. europ. (Bern): 17 (1850)
= *Cetraria stuppea* (Flot. ex Körb.) Sandst., Abh. naturw. Ver. Bremen 21(1): 208 (1912)
= *Cetraria tenuissima* f. *muricata* (Ach.) Dalla Torre & Sarnth., Fl. Tirol, Vorarlberg, Liechtenstein, IV Band. Die Flechten von Tirol: 104 (1902)
= *Coelocaulon aculeatum* subsp. *hispidum* (Cromb.) D. Hawksw., in Hawksworth, James & Coppins, Lichenologist 12(1): 106 (1980)
= *Coelocaulon muricatum* (Ach.) J.R. Laundon, Lichenologist 16(1): 55 (1984)
= *Cornicularia aculeata* f. *muricata* (Ach.) Flot., Übers. Arbeiten Veränd. Schles. Ges. Vaterl. Kultur [27]: 101 (1850) [1849]
= *Cornicularia aculeata* subsp. *muricata* (Ach.) Arnold, Flora, Regensburg 64(13): 200 (1881)
= *Cornicularia aculeata* var. *hispida* (Lightf.) Cromb., J. Linn. Soc., Bot. 17(no. 104): 561 (1880)
= *Cornicularia aculeata* var. *muricata* (Ach.) Ach., Lich. Univ.: 612 (1810)
= *Cornicularia aculeata* var. *stuppea* Flot. ex Körb., Syst. lich. germ. (Breslau): 8 (1855)
= *Cornicularia stuppea* (Flot. ex Körb.) Sandst., Strauch- und Laubflechten Mitteleur.: 174 (1928)
= *Cornicularia tenuissima* f. *hispida* (Lightf.) Zahlbr., Cat. Lich. Univers. 6: 424 (1930)
= *Cornicularia tenuissima* var. *hispida* (Lightf.) Keissl., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 9.5(4.2): 212 (1959)
= *Cornicularia tenuissima* var. *muricata* (Ach.) Dalla Torre & Sarnth., Fl. Tirol, Vorarlberg, Liechtenstein, IV Band. Die Flechten von Tirol: 104 (1902)
= *Lichen hispidus* Lightf., Flora Scotica (London) 2: 883 (1777)
= *Lichen muricatus* Ach., Lich. suec. prodr. (Linköping): 214 (1799) [1798]

[VZ1465], Tanzania (Africa orientalis), Kilimanjaro, planities Shira dicta, inter casas alpinas Shira et Arrow Glacier dictas, 4200-4500 m. Ad terram desertam. Leg. T. Pócs (6928), 27.6.1976, det. A. Vězda. - Annot.: ad var. alpinam (Schaer.) vergens. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1465.

Thallus fruticose, richly dichotomously branched, forming dense, shrubby, loosely attached tufts, matt to glossy brown or almost black, fragile. Branches more or less terete, not dorsiventral, usually rather smooth and even, delicate 1-3(-5) cm tall, spinulose, the main ones 0.3-0.5 mm thick; pseudocyphellae punctiform, flat to slightly depressed, more or less circular, often poorly visible. Cortex three-layered, with a denser, brown outer layer with accumulation of dead cells, an intermediate layer with hyphae more or less sparsely distributed in a gelatinous matrix, and a colourless inner layer with more conglutinated cells; medulla white, lax but usually solid also in basal parts. Apothecia rare (not seen in Italian material), lecanorine, sessile, up to 8 mm across. Epithecium brown; hymenium colourless, 35-50 µm high, I+ blue; paraphyses coherent, the apical cells slightly swollen; hypothecium colourless, underlain by a dense algal layer. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 5.5-6.5 x 2.5-3.5 µm. Pycnidia dark, terminal or immersed in the spinulose projections. Conidia simple, slightly swollen in the middle, 5-6 x 1-1.5 µm. Photobiont chlorococcoid. Spot tests: cortex and medulla K-, C-, KC-, P-. Chemistry: medulla with lichesterinic and protolichesterinic acids. - Note: optimum on siliceous soil in wind-exposed siliceous ridges above treeline, but also found on decalcified soils on calcareous substrata. The distinction from C. aculeata is not always clear.

Cornicularia muricata

Cornicularia muricata

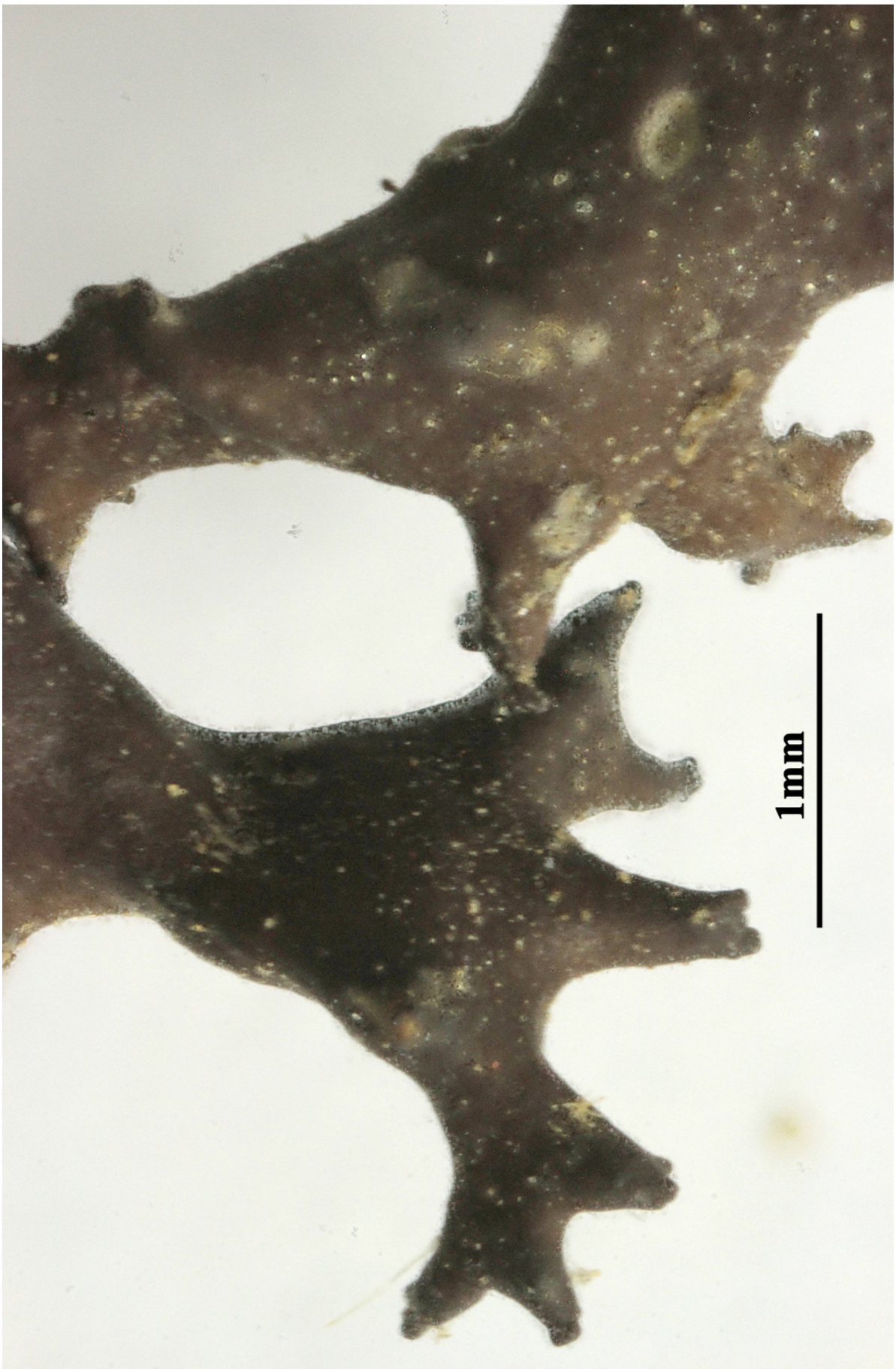
Cornicularia muricata

Cornicularia steppae Savicz, Notul. syst. Inst. cryptog. Horti bot. petropol. 3: 187 (1924)

[VZ1270], Romania. Dobrogea. Tirguşor, in colle supra vallem fluminis Casimcea prope pagum Casian, 80 m. Ad terram stepposam. Leg. A. Vězda, 1.5.1874. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 127ß.

Thallus caespitoso-fruticuloso. corniculatus,submollos et fere haud fragilis, teretiusculus vel anguloso-inaequalis. intus subfistulosus. vel fistulosus, badio-spadiceus vel castaneus, haud nitidus, sed omnino opacus, ramis divaricatis saepius curtis. apicem versus aculeatis, ramosus vel ramosissimus. Stratum corticale 85-112 µm, stratum medullare vulgo circa 250 µm, stuppeum. K-. C-, I-. Apothecia ignota. Vix dubie species bene distinvcta a *Cornicularia tenuissima*, quacum substrato crescendi modo, statura satis congruit, at thallo crassiore haud rigido, haud fragili et haud nitido, ramis glabris haud nigro-spinulosis ab ea bene differens.

Cornicularia steppae



Cornicularia steppae

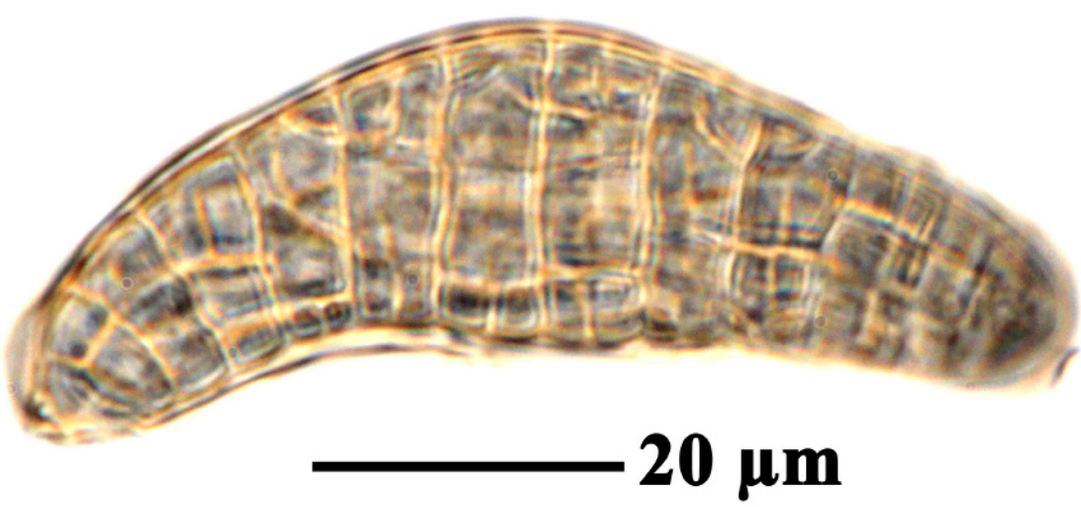
Cryptothecia candida (Kremp.) R. Sant., Symb. bot. upsal. 12(no. 1): 65 (1952)
= *Myriostigma candidum* Kremp. [as 'candicum'], Nuovo G. bot. ital. 7(1): 45 (1875)
= *Arthonia candida* (Kremp.) Vain., Proc. Amer. Acad. Arts & Sci. 58(3): 143 (1923)
= *Arthothelium candidum* (Kremp.) Müll. Arg., Flora, Regensburg 73: 194 (1890)

[VZ1601], Zaire. Oriv. Haut-Zaire. Kisangani, 7 km in septentrione a Kisangani, prope pagum Battembele. Epiphjylla. Leg. S. Lisowski, 15.5.1977, det. A. Vezda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1601.

Thallus foliicolous or corticolous on smooth bark or bamboo, epiphyllous or sometimes hypophyllous, continuous but marginally often effuse, smooth to indistinctly farinose-byssoid, 10-50(-80) mm across and 15-25 µm thick, ecorticate, pale greyish green, matt, with colourless, hydrophobic crystals dissolving in K. Photobiont a species of *Trentepohlia*, cells rounded to oblong, 8-13 x 5-8 µm, in irregular plates or short threads leaving large interspaces. Ascomata (ascigerous areas) erumpent, slightly raised above thallus level, rounded to angular or irregular in outline, 0.5-2.5 mm diam. and 100-120 µm high, white to pale greenish or yellowish white and with darker dots indicating individual asci. Ascigerous layer covered by 15-25 µm high, algiferous thallus layer. Ascigerous layer 70-100 µm high, dark grey due to inspersion of paraphyses with numerous small crystals (dissolving in K), I+ bluish, KI+ blue then greenish. Asci obovate to globose, shortly stalked, 70-95 x 60-80 µm, I-, KI-. Ascospores (6-)8 per ascus, oblong-ellipsoid, muriform, with very slight constrictions at septa, 45-65 x 15–25 µm, 2.5-3.5 times as long as broad, colourless. Pycnidia not observed. Chemistry. 2'-O-methylperlatolic and 2'-O-methylanziaic acids (thallus and ascomata C+ red because of the latter). - Distribution. African and Eastern Paleotropics (except Australia). Specimens have been reported from Democratic Republic of Congo, Angola, Sri Lanka. Malaysia, Indonesia (Sumatra, Java, Borneo). the Philippines, Papua New Guinea (New Guinea, Bismarck Archipelago). - Specimens reported from the Neotropics by Santesson (1952) belong to *Cryptothecia filicina*.

Cryptothecia candida

Cryptothecia candida



Cryptothecia candida

Cyphelium inquinans (Sm.) Trevis., Flora, Regensburg 45(1): 3 (1862)
= *Acolium inquinans* (Sm.) A. Massal., Memor. Lich.: 150 (1853)
= *Acolium tympanellum* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 482 (1821)
= *Acolium tympanellum* var. *inquinans* (Sm.) Körb., Syst. lich. germ. (Breslau): 303 (1855)
= *Calicium inquinans* (Sm.) Schaer., Naturwiss. Anzeiger Allgem. Schweizer. Gesellsch. Naturwiss. 5: 35 (1821)
= *Calicium tympanellum* Ach., Methodus, Sectio prior (Stockholmiæ): 89 (1803)
= *Cyphelium inquinans* f. *tympanellum* (Ach.) Vain., Acta Soc. Fauna Flora fenn. 57(no. 1): 23 (1926)
= *Cyphelium tympanellum* (Ach.) Ach., K. Vetensk-Acad. Nya Handl. 3: 264 (1815)
= *Cyphelium tympanellum* var. *inquinans* (Sm.) Ach., K. Vetensk-Acad. Nya Handl. 3: 263 (1815)
= *Lecidea tympanella* (Ach.) Link, Handb. Erk. Gew. 3: 206 (1833)
= *Lichen inquinans* Sm., in Smith & Sowerby, Engl. Bot. 12: tab. 810 (1801)
= *Trachylia inquinans* (Sm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 69 (1845)
= *Trachylia tympanella* (Ach.) Fr., Corpus Fl. Prov. Suec. 1: 282 (1835)

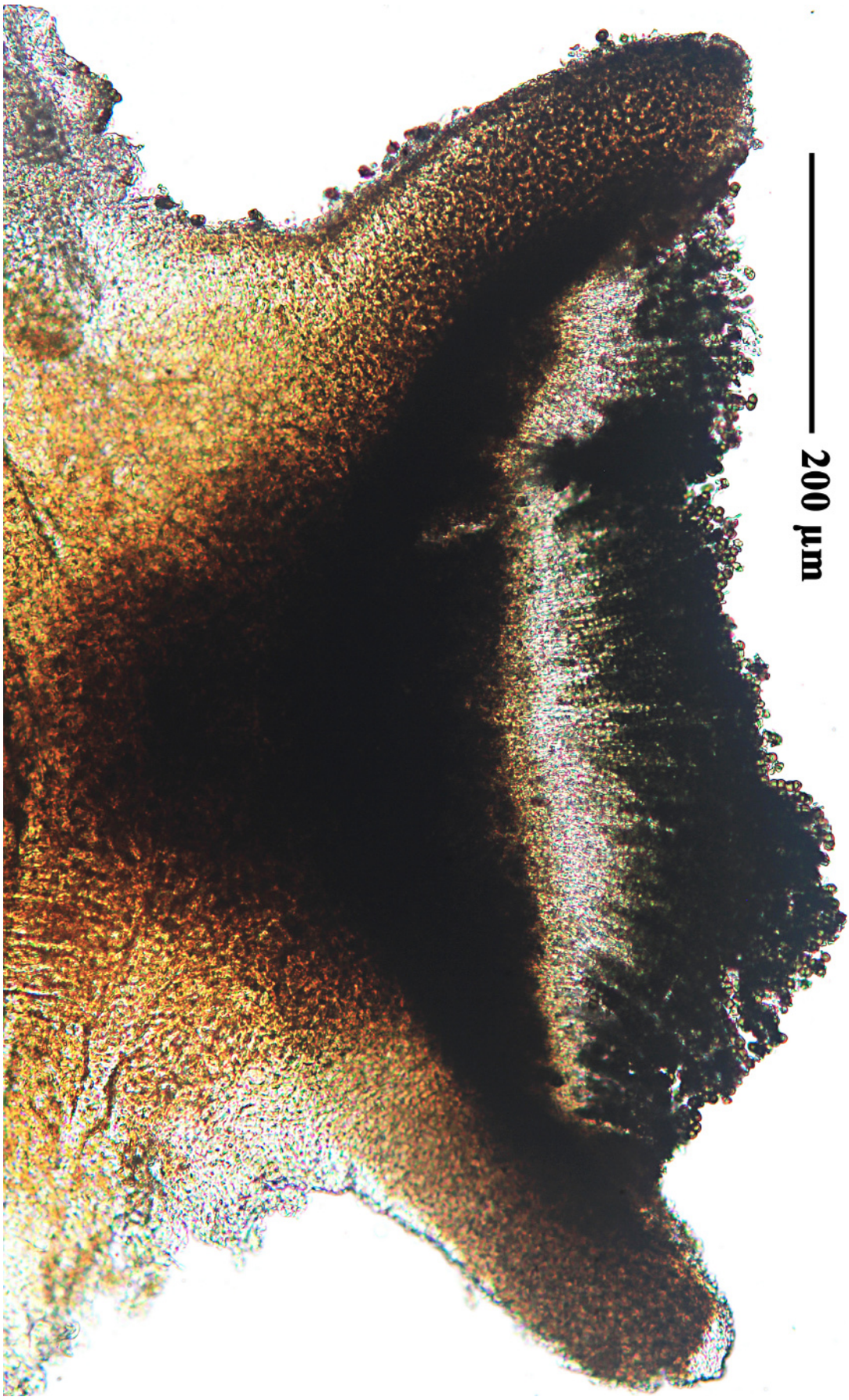
[VZ2131], Bohemoslovacia. Slovacia, montes Carpates Centrales, Tatra Magna, in valle Koprová dolina, secus viam ad lacum Temnosmrečianské pleso, 1400 m. Ad lignum trunci (Picea excelsa). Leg. E. Farkas et A. Vězda, 23.06.1986. EX A. VěZDA: LICHENES SELECTI EXSICCATI NO. 2131.

Thallus crustose, episubstratic, granular, rimose-areolate to verrucose, usually thick and well developed, rarely thin and subimmersed, pale to dark grey. Apothecia abundant, sessile or somewhat immersed, 0.8-1.5(-2.5) mm across, 0.4-0.7 mm high, short cylindrical to lenticular, with a black mazaedium and a faint white pruina on the outer surface of the margin. Exciple brown, 80-170 µm thick laterally, of strongly sclerotized, interwoven hyphae, with an outer, 6-9 µm thick, gelatinous layer, strongly thickened at base (up to 450 µm high); hypothecium dark brown, up to 170 µm high, of periclinally arranged, sclerotized hyphae. Asci cylindrical, formed singly from hooked ascogenous hyphae, persisting until the spores are nearly ripe, with uniseriately arranged spores. Ascospores 1-septate, slightly constricted at septum, brown, broadly ellipsoid, 14-19(-21) x (7.5-)8-11 µm, with an ornamentation

of mainly longitudinally arranged, minute ridges in young spores, later disrupted by a few irregular cracks, the surface appearing striated. Pycnidia spherical to slightly flattened, semi-immersed in the thallus, initially with a punctiform ostiole, later with an irregularly split ostiolar area, with branched conidophores. Conidia simple, hyaline, cylindrical, 3-4 x 1 µm, tapering at one end. Photobiont chlorococcoid. Spot tests: thallus K+ yellow to reddish brown, C-, KC-, P-, P+ pale yellow or P+ yellowish red. Chemistry: placodiolic acid, plus sometimes a yellow, unidentified pigment, and other unidentified substances. - Note: a temperate to southern boreal-montane, circumpolar lichen found on old conifer stumps, more rarely on lignum of broad-leaved deciduous trees (especially Quercus and Castanea), and on wooden fence-posts, with optimum in upland areas.

Cyphelium inquinans

Cyphelium inquinans



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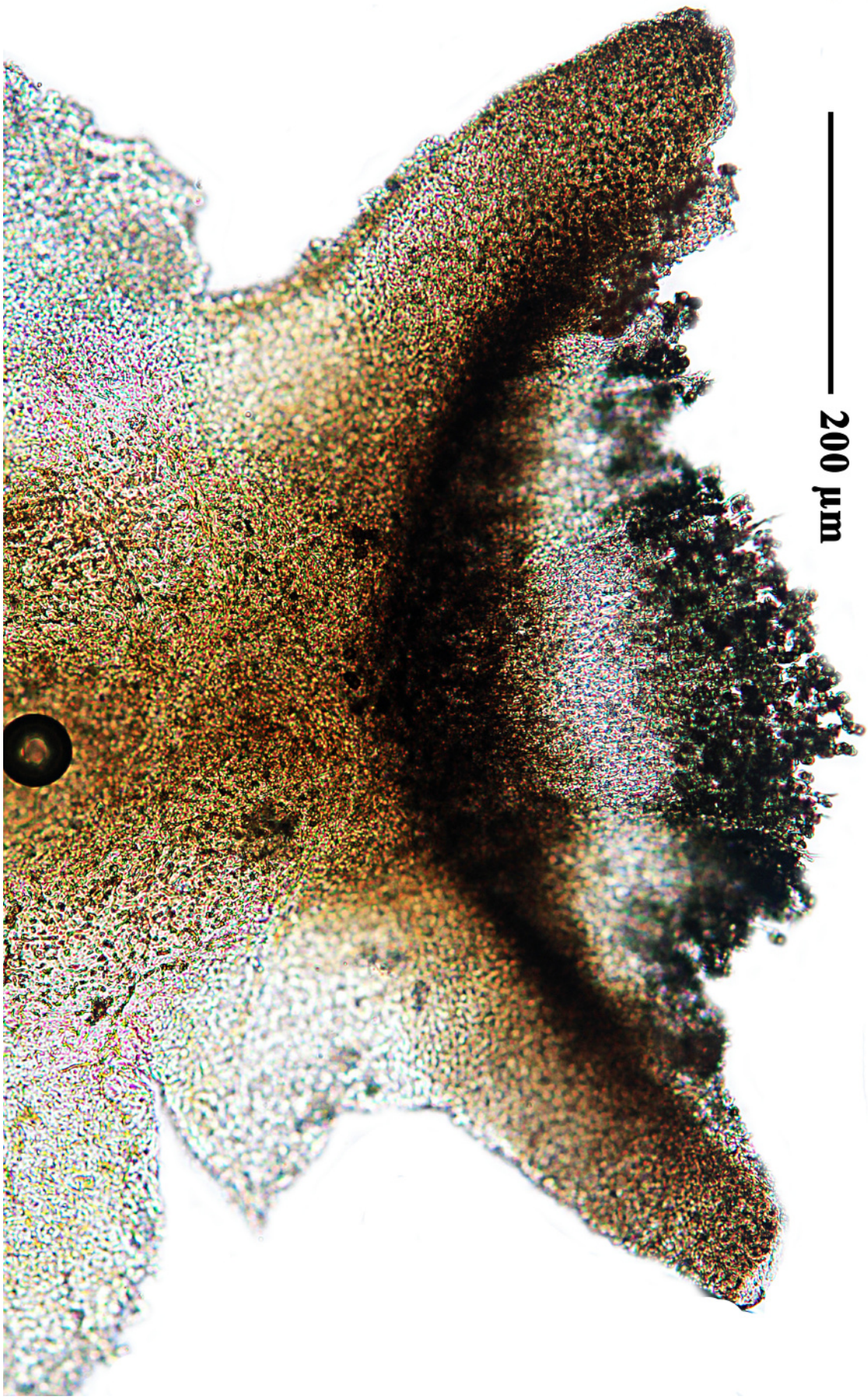
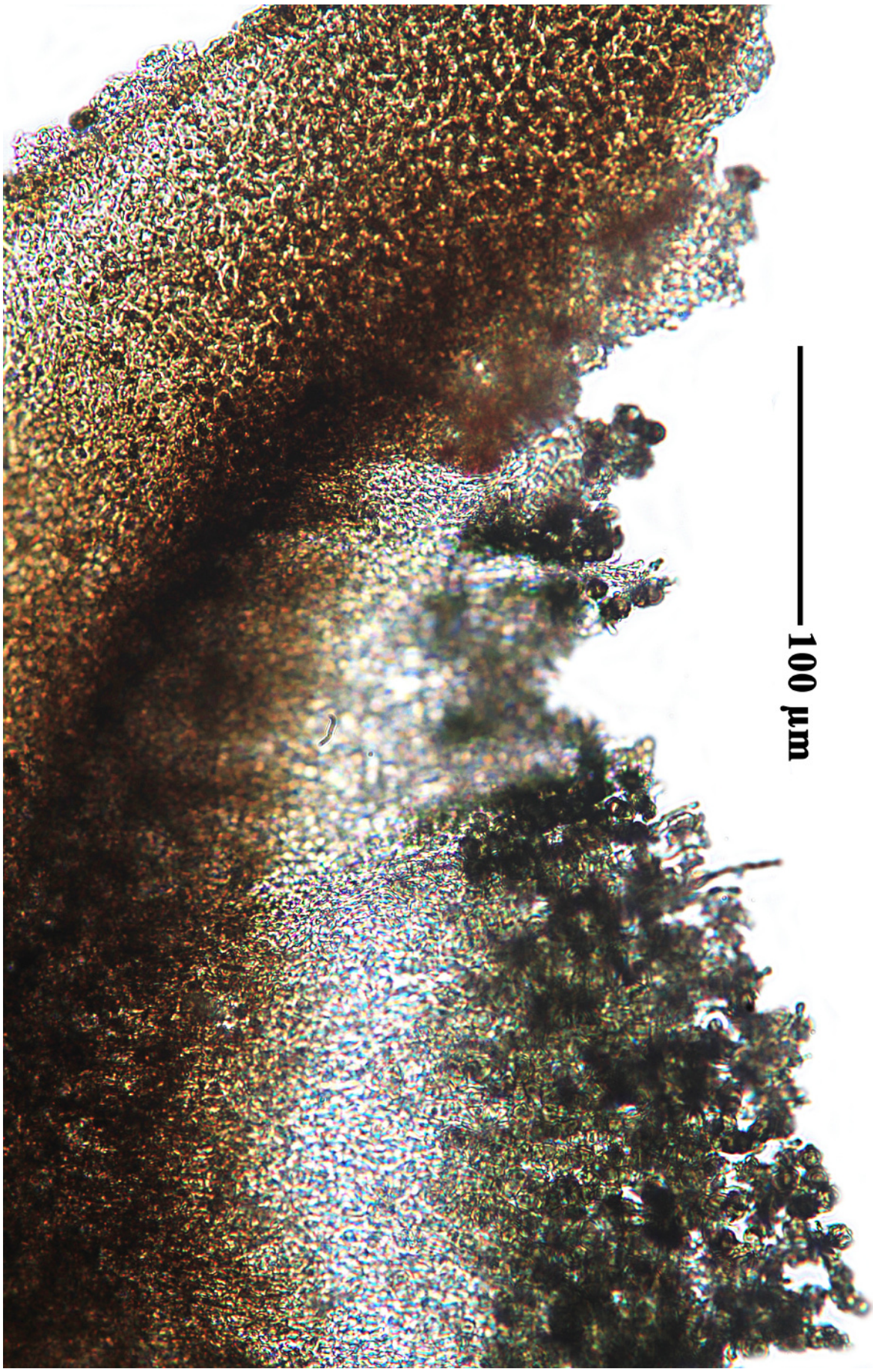
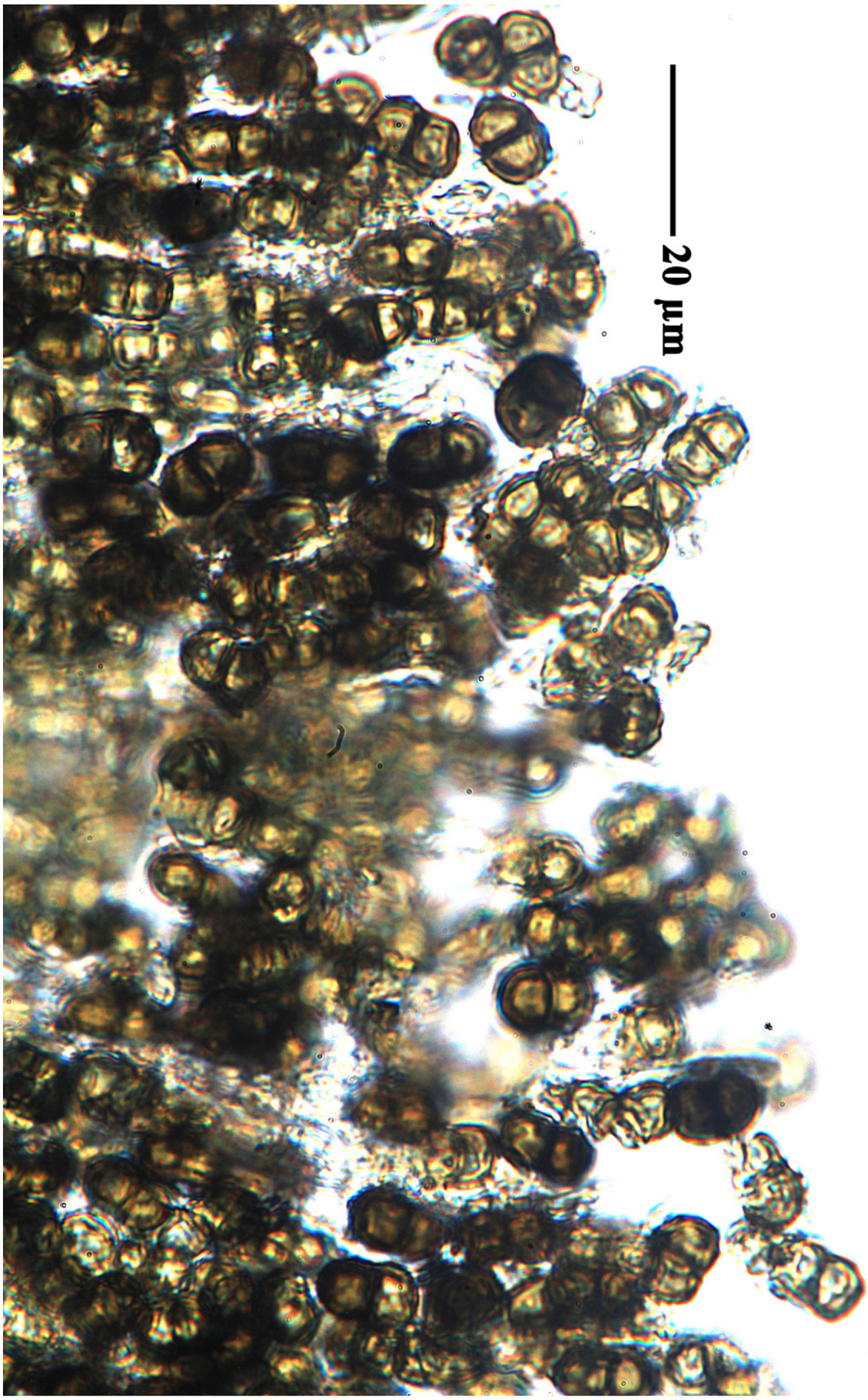


Cyphelium inquinans



Cyphelium inquinans



Cyphelium inquinans

Cyphelium inquinans (Sm.) Trevis., Flora, Regensburg 45(1): 3 (1862)
= *Acolium inquinans* (Sm.) A. Massal., Memor. Lich.: 150 (1853)
= *Acolium tympanellum* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 482 (1821)
= *Acolium tympanellum* var. *inquinans* (Sm.) Körb., Syst. lich. germ. (Breslau): 303 (1855)
= *Calicium inquinans* (Sm.) Schaer., Naturwiss. Anzeiger Allgem. Schweizer. Gesellsch. Naturwiss. 5: 35 (1821)
= *Calicium tympanellum* Ach., Methodus, Sectio prior (Stockholmiæ): 89 (1803)
= *Cyphelium inquinans* f. *tympanellum* (Ach.) Vain., Acta Soc. Fauna Flora fenn. 57(no. 1): 23 (1926)
= *Cyphelium tympanellum* (Ach.) Ach., K. Vetensk-Acad. Nya Handl. 3: 264 (1815)
= *Cyphelium tympanellum* var. *inquinans* (Sm.) Ach., K. Vetensk-Acad. Nya Handl. 3: 263 (1815)
= *Lecidea tympanella* (Ach.) Link, Handb. Erk. Gew. 3: 206 (1833)
= *Lichen inquinans* Sm., in Smith & Sowerby, Engl. Bot. 12: tab. 810 (1801)
= *Trachylia inquinans* (Sm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 69 (1845)
= *Trachylia tympanella* (Ach.) Fr., Corpus Fl. Prov. Suec. 1: 282 (1835)

[VZ2008], Jugoslavia. Crna Gora (Montenegro): montes Durmitor, loco Surdup dicto supra lacum Zminje jezero, 1500-1600 m. Ad corticem arborum (*Abies*) in silva virginea. Leg. A. Vězda, 20.8.1984. Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 2008.

Thallus crustose, episubstratic, granular, rimose-areolate to verrucose, usually thick and well developed, rarely thin and subimmersed, pale to dark grey. Apothecia abundant, sessile or somewhat immersed, 0.8-1.5(-2.5) mm across, 0.4-0.7 mm high, short cylindrical to lenticular, with a black mazaedium and a faint white pruina on the outer surface of the margin. Exciple brown, 80-170 µm thick laterally, of strongly sclerotized, interwoven hyphae, with an outer, 6-9 µm thick, gelatinous layer, strongly thickened at base (up to 450 µm high); hypothecium dark brown, up to 170 µm high, of periclinally arranged, sclerotized hyphae. Asci cylindrical, formed singly from hooked ascogenous hyphae, persisting until the spores are nearly ripe, with uniseriately arranged spores. Ascospores 1-septate, slightly constricted at septum, brown, broadly ellipsoid, 14-19(-21) x (7.5-)8-11 µm, with an ornamentation of mainly longitudinally arranged, minute ridges in young spores, later

disrupted by a few irregular cracks, the surface appearing striated. Pycnidia spherical to slightly flattened, semi-immersed in the thallus, initially with a punctiform ostiole, later with an irregularly split ostiolar area, with branched conidophores. Conidia simple, hyaline, cylindrical, 3-4 x 1 µm, tapering at one end. Photobiont chlorococcoid. Spot tests: thallus K+ yellow to reddish brown, C-, KC-, P-, P+ pale yellow or P+ yellowish red. Chemistry: placodiolic acid, plus sometimes a yellow, unidentified pigment, and other unidentified substances. - Note: a temperate to southern boreal-montane, circumpolar lichen found on old conifer stumps, more rarely on lignum of broad-leaved deciduous trees (especially Quercus and Castanea), and on wooden fence-posts, with

Cyphelium inquinans

Cyphelium inquinans

Cyphelium inquinans (Sm.) Trevis., Flora, Regensburg 45(1): 3 (1862)
= *Acolium inquinans* (Sm.) A. Massal., Memor. Lich.: 150 (1853)
= *Acolium tympanellum* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 482 (1821)
= *Acolium tympanellum* var. *inquinans* (Sm.) Körb., Syst. lich. germ. (Breslau): 303 (1855)
= *Calicium inquinans* (Sm.) Schaer., Naturwiss. Anzeiger Allgem. Schweizer. Gesellsch. Naturwiss. 5: 35 (1821)
= *Calicium tympanellum* Ach., Methodus, Sectio prior (Stockholmiæ): 89 (1803)
= *Cyphelium inquinans* f. *tympanellum* (Ach.) Vain., Acta Soc. Fauna Flora fenn. 57(no. 1): 23 (1926)
= *Cyphelium tympanellum* (Ach.) Ach., K. Vetensk-Acad. Nya Handl. 3: 264 (1815)
= *Cyphelium tympanellum* var. *inquinans* (Sm.) Ach., K. Vetensk-Acad. Nya Handl. 3: 263 (1815)
= *Lecidea tympanella* (Ach.) Link, Handb. Erk. Gew. 3: 206 (1833)
= *Lichen inquinans* Sm., in Smith & Sowerby, Engl. Bot. 12: tab. 810 (1801)
= *Trachylia inquinans* (Sm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 69 (1845)
= *Trachylia tympanella* (Ach.) Fr., Corpus Fl. Prov. Suec. 1: 282 (1835)

[VZ1402], Suecia. Värmland. Tveta, Mossvik, 75 m. Ad corticem *Alni glutinosae*. Leg. S. W. Sundell (no. 10259), 2.5.1975. EX A. VěZDA: LICHENES DELECTI EXSICCATI NO. 1402.

Thallus crustose, episubstratic, granular, rimose-areolate to verrucose, usually thick and well developed, rarely thin and subimmersed, pale to dark grey. Apothecia abundant, sessile or somewhat immersed, 0.8-1.5(-2.5) mm across, 0.4-0.7 mm high, short cylindrical to lenticular, with a black mazaedium and a faint white pruina on the outer surface of the margin. Exciple brown, 80-170 µm thick laterally, of strongly sclerotized, interwoven hyphae, with an outer, 6-9 µm thick, gelatinous layer, strongly thickened at base (up to 450 µm high); hypothecium dark brown, up to 170 µm high, of periclinally arranged, sclerotized hyphae. Asci cylindrical, formed singly from hooked ascogenous hyphae, persisting until the spores are nearly ripe, with uniseriately arranged spores. Ascospores 1-septate, slightly constricted at septum, brown, broadly ellipsoid, 14-19(-21) x (7.5-)8-11 µm, with an ornamentation of mainly longitudinally arranged, minute ridges in young spores, later disrupted by a few irregular cracks, the surface appearing striated.

Pycnidia spherical to slightly flattened, semi-immersed in the thallus, initially with a punctiform ostiole, later with an irregularly split ostiolar area, with branched conidophores. Conidia simple, hyaline, cylindrical, 3-4 x 1 µm, tapering at one end. Photobiont chlorococcoid. Spot tests: thallus K+ yellow to reddish brown, C-, KC-, P-, P+ pale yellow or P+ yellowish red. Chemistry: placodiolic acid, plus sometimes a yellow, unidentified pigment, and other unidentified substances. - Note: a temperate to southern boreal-montane, circumpolar lichen found on old conifer stumps, more rarely on lignum of broad-leaved deciduous trees (especially Quercus and Castanea), and on wooden fence-posts, with optimum in upland areas.

Cyphelium inquinans

Cyphelium inquinans

Cyphelium lucidum (Th. Fr.) Th. Fr.
= *Calicium lucidum* (Th. Fr.) M. Prieto & Wedin Fungal Divers, 2016 (MB 817534).
= *Trachylia lucida* Th. Fr. - Öfvers. K. Vetensk.-Akad. Handl., 12: 18, 1855.
= *Acolium lucidum* Rabenh.

[VZ1201], Bohenoslovacia, Slovacia,Carpati, montes Tatra Minor. Vernár. 1 km septentrionem versus a pago Venár, 900 m. Ad corticem *Laricis* in rupibus calcareis. Leg. A. Vězda et V. Wirth. EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1201.

Thallus crustose, areolate to warted, the marginal areoles somewhat elongate, bright yellow-green to golden yellow. Cortex 9-13 µm thick, of minute, isodiametric, 2-3 µm wide cells; photobiont layer densely inspersed with minute yellow crystals. Apothecia 0.5-1 mm across, with a distinctly yellow-pruinose margin. Exciple 28-50 µm wide laterally, blackish brown, strongly thickened at base, of sclerotized, interwoven hyphae; mazaedium present, black; hypothecium dark, convex, up to 225 µm thick in the central part. Asci 8-spored, clavate, formed singly from hooked ascogenous hyphae, dissolving early, with uniseriately arranged ascospores. Ascospores 1-septate and constricted at septum, brown, ellipsoid, 17-22 x 8-10 µm, at first smooth but soon with a coarsely rimose-areolate surface. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus and yellow pruina of the apothecia with vulpinic acid. - Note: a mainly boreal-montane, circumpolar species found on old conifers in humid, open, montane to subalpine forests with frequent fog.

Cyphelium lucidum

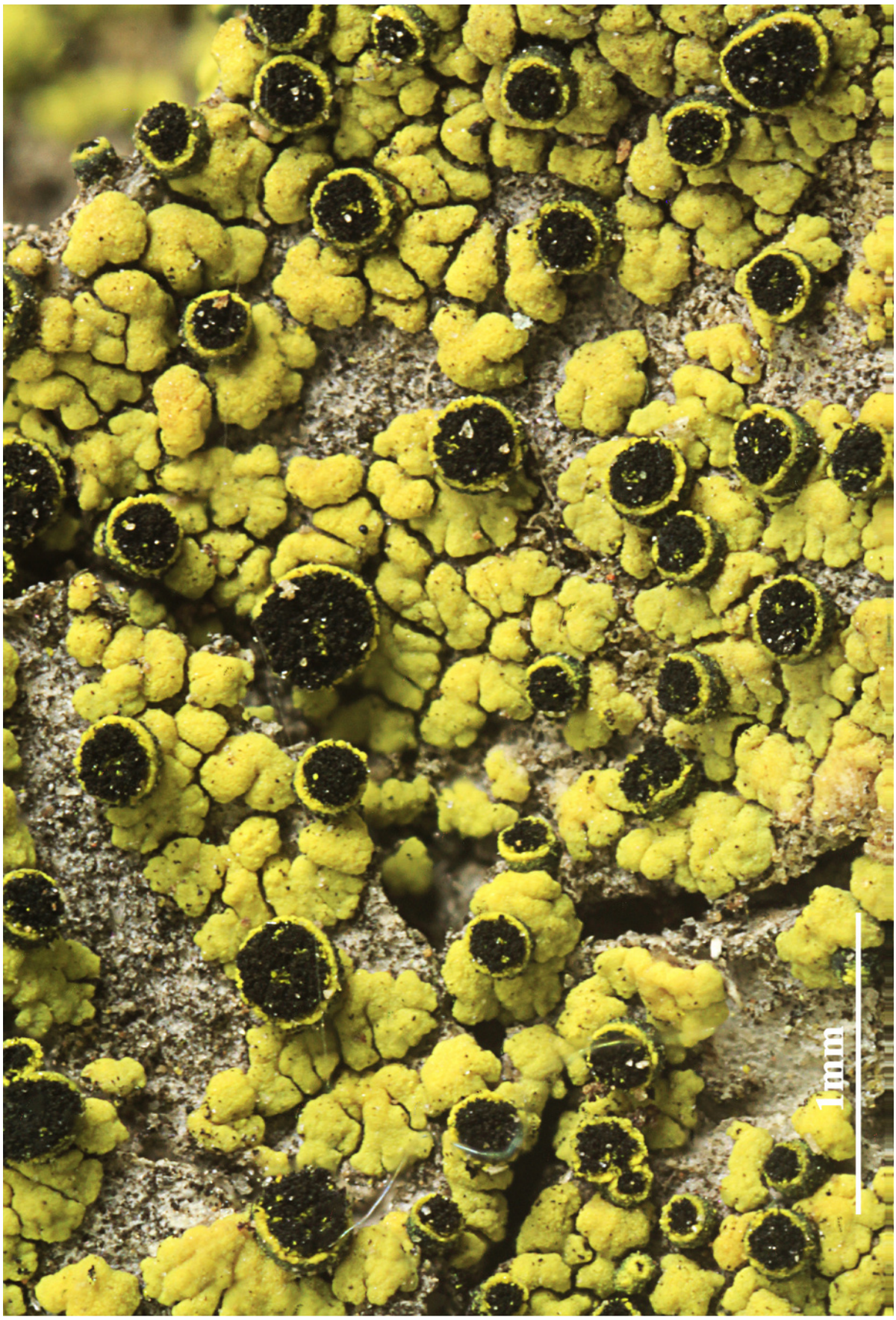
Cyphelium lucidum

Cyphelium lucidum (Th. Fr.) Th. Fr.
= *Calicium lucidum* (Th. Fr.) M. Prieto & Wedin Fungal Divers, 2016 (MB 817534).
= *Trachylia lucida* Th. Fr. - Öfvers. K. Vetensk.-Akad. Handl., 12: 18, 1855.
= *Acolium lucidum* Rabenh.

[VZ2256], Corea Borealis. Prov. Ryanggang, montes Paekdusan, prope urbem Samjiyon, 1500 m. Ad corticem arboris (*Larix gmelinii* var. *olgensis*). Leg.L. Lökös, 29.06.1988, det A. Vězda. EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 2256.

Thallus crustose, areolate to warted, the marginal areoles somewhat elongate, bright yellow-green to golden yellow. Cortex 9-13 µm thick, of minute, isodiametric, 2-3 µm wide cells; photobiont layer densely inspersed with minute yellow crystals. Apothecia 0.5-1 mm across, with a distinctly yellow-pruinose margin. Exciple 28-50 µm wide laterally, blackish brown, strongly thickened at base, of sclerotized, interwoven hyphae; mazaedium present, black; hypothecium dark, convex, up to 225 µm thick in the central part. Asci 8-spored, clavate, formed singly from hooked ascogenous hyphae, dissolving early, with uniseriately arranged ascospores. Ascospores 1-septate and constricted at septum, brown, ellipsoid, 17-22 x 8-10 µm, at first smooth but soon with a coarsely rimose-areolate surface. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus and yellow pruina of the apothecia with vulpinic acid. - Note: a mainly boreal-montane, circumpolar species found on old conifers in humid, open, montane to subalpine forests with frequent fog.

Cyphelium lucidum



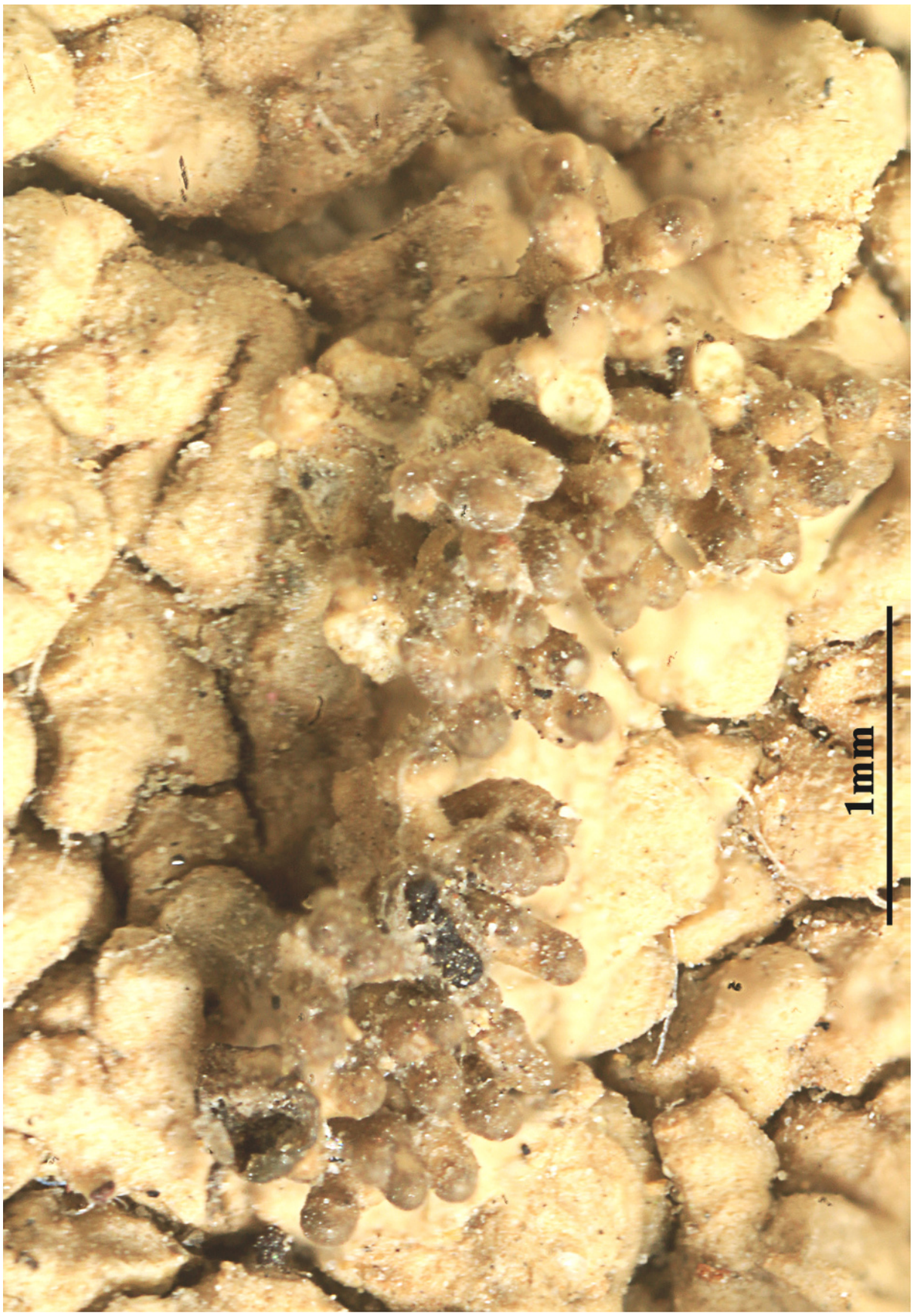
Cyphelium lucidum

Cyphelium marcianum B. de Lesd., Bull. Soc. bot. Fr. 55: 420 (1908)
= *Acolium marcianum* (B. de Lesd.) M. Prieto & Wedin, Fungal Diversity 82: 233 (2016)

[VZ1307], Hispania. Catalaunia. Cap de Creus, prope Port de la Selva, 100 m . Supra Pertusariae pseudocorallinae vigens, in rupe schistosa. Leg. C. Llimona et V. Wirth, 5.08.1972, rev. L. Tibell. EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1307

Thallus crustose, lead-grey, pillow-like or poorly evident, infecting the thalli of silicicolous Pertusaria-species. Cortex colourless, 22–80 µm thick, inspersed with crystals; medulla dark in lower part. Apothecia immersed in thalline warts, 0.5-0.8 mm across, usually epruinose, with a black mazaedium. Exciple 36–64 µm thick laterally, dark brown, of strongly sclerotized, interwoven hyphae, with an outer gelatinous layer, strongly thickened (140–160 µm) at base; hypothecium dark brown, of periclinally arranged, sclerotized hyphae. Asci narrowly clavate, formed singly from hooked ascogenous hyphae, persisting until the spores are nearly ripe, with biseriately arranged spores, 28-42 x 3-5 µm. Ascospores 1-septate and constricted at septum, brown, broadly ellipsoid, (10-)11-15(-18) x (6-)7-10(-12) µm, with an ornamentation of a few, spirally arranged, shallow wall fissures. Photobiont chlorococcoid. Spot tests: K-, C-, KC-, P-. Chemistry: without lichen substances. - Note: a rare lichen growing on silicicolous pertusarioid species, espe-

Cyphelium marcianum



Cyphelium marcianum

Cyphelium ocellatum (Flot. ex Körb.) Trevis., Flora, Regensburg 45(1): 4 (1862)
= *Pseudothelomma ocellatum* (Flot. ex Körb.) M. Prieto & Wedin, Fungal Diversity 82: 235 (2016)
= *Acolium ocellatum* Flot. ex Körb., Parerga lichenol. (Breslau) 3: 285 (1861) [1865]
= *Thelomma ocellatum* (Flot. ex Körb.) Tibell, Bot. Notiser 129(3): 240 (1976)
= *Trachylia ocellata* (Flot. ex Körb.) Flot. ex Körb., Parerga lichenol. (Breslau) 3: 285 (1861) [1865]
= *Trachylia tympanella* var. *ocellata* (Flot. ex Körb.) Fr., Ber. Tät. St Gall. naturw. Ges.: 273 (1835) [1880-81]

[VZ1252], Austria, Salisburgia, Kützbühler Alpen, Zell am See, Schmittenhöhe, 1800 m. Ad scandulas vetustas. Leg. K. Kalb, 08.09.1973, det. L. Tibell.1975. EX A. VěZDA LICHENES SELECTI EXSICCATI NR.1252.

Thallus crustose, episubstratic, well-delimited, areolate to coarsely warted, grey, covered in subglobose, 27-40 µm wide, blue or brown-black isidioid outgrowths gathered in more or less convex, soralia-like clusters located on the top of 1.5-2(-2.5) mm wide warts with a rough upper surface. Cortex 22-32 µm thick, without crystals or granules, formed by anticlinally arranged hyphae sometimes with swollen and brownish apices, overlain by a c. 10-13 µm thick, colourless layer; medulla white, I+ dark blue. Apothecia rare, immersed in the warts, the disc 0.5-1 mm across, covered in a sometimes greenish yellow-pruinose mazaedium. Exciple not sclerotized, poorly developed laterally, forming a very thick, blackish brown cushion at the base, the upper part very thin and colourless, the central part brownish black, the outer parts yellowish-green; hymenium 80-110 µm high; hypothecium blackish brown. Asci cylindrical, formed singly, with a single functional wall layer dissolving at an early stage, with uniseriately arranged spores. Ascospores 1-septate, somewhat constricted at the septum, dark brown, broadly oblong at maturity, 22-28 x 12-15 µm, with a slightly uneven surface. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-; medulla I+ dark blue. Chemistry: occasionally with low amounts of usnic acid, atranorin, or norstictic acid; mazaedium and edge of exciple with rhizocarpic acid and epanorin. - Note: a circumborealmontane species found on hard rotting wood, e.g. on poles and fences, more rarely on Larix and Pinus cembra.

Cyphelium ocellatum

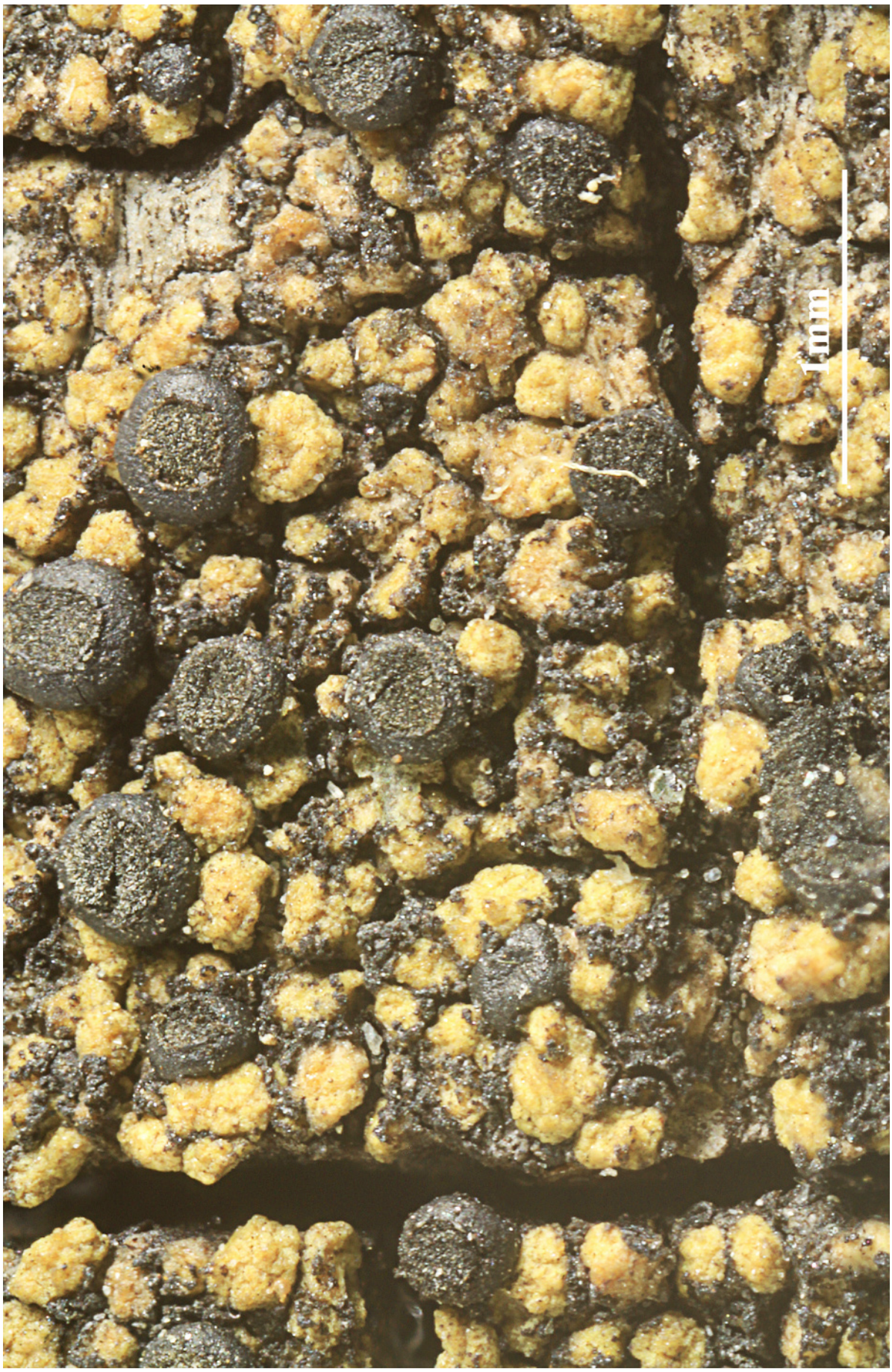
Cyphelium ocellatum

Cyphelium pinicola Tibell, Svensk bot. Tidskr. 63: 477 (1969)
= *Calicium pinicola* (Tibell) M. Prieto & Wedin, Fungal Diversity 82: 233 (2016)

[VZ1253], Helvetia,. Wallis, Zermatt, in monte Sunnega, 2100-2200 m. Ad lignum *Pini cembrae*. Leg. K. Kalb, 05.06.1974. Ex A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1243.

Thallus crustose, episubstratic or almost endosubstratic, most often verrucose, intensely greenish yellow. Cortex 11-30 µm thick, of hyaline, gelatinized hyphae, densely inspersed with small yellow crystals in lower part. Apothecia glossy black, epruinose, 0.4-0.7 mm across, sessile and constricted at base, with a well-developed, black proper margin which is usually somewhat inflexed over the black mazaedium. Exciple 45-95 µm wide laterally, of dark brown, sclerotized, irregularly interwoven hyphae, strongly thickened and 120-160(300) µm wide at base, extending deep down into the thallus; hypothecium dark, indistinctly delimited. Asci 8-spored, cylindrical to narrowly clavate, persisting until the spores are nearly mature, with 1- to 2-seriate spores. Ascospores 1-septate and slightly constricted at septum, dark brown, ellipsoid, 13-16 x 7-9 µm, the wall smooth in young spores, then with a few irregular and rather shallow fissures. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus with rhizocarpic acid. - Note: a mainly temperate to southern boreal-montane lichen found on bark of conifers, and especially of Pinus, near the base of trunks.

Cyphelium pinicola



Cyphelium pinicola

Cyphelium tigillare (Ach.) Ach., K. Vetensk-Acad. Nya Handl. 3: 261 (1815)
= *Calicium tigillare* (Ach.) Pers., Ann. Wetter. Gesellsch. Ges. Naturk. 2(1): 14 (1810)
= *Acolium tigillare* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 482 (1821)
= *Lecidea tigillaris* (Ach.) Ach., Methodus, Sectio prior (Stockholmiæ): 46 (1803)
= *Lichen tigillaris* Ach., Lich. suec. prodr. (Linköping): 67 (1799) [1798]
= *Patellaria tigillaris* (Ach.) DC., Fl. franç., Edn 3 (Paris) 5/6: 181 (1815)
= *Trachylia tigillaris* (Ach.) Fr., Corpus Fl. Prov. Suec. 1: 282 (1835)

[VZ1649], Mexico. Durango: 10,5 km ad orientem versus a Navios et 54 km a septentriones et orientem versus a El Salto. Ad lignum arborum coniferarum in pascuo aprica. Leg. S. L. et Ch. F. Culberson (No.17488), 24.07.1978. - Rhizocarpic acid and traces uf unidentified compounds by TLC, anal. A. Johnson and C. F. Culberson. EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1649.

Thallus crustose, usually verrucose, rarely almost endosubstratic, intensely yellowish green (but grey forms without rhizocarpic acid are known from the Alps). Cortex 14-25 µm thick, with numerous small yellowish green crystals in lower part. Apothecia black, epruinose, immersed in thalline warts, (0.2-)0.4-1 mm across, with a black mazaedium. Exciple uniformly thin throughout, 14-28 µm wide, blackish brown, of sclerotized, strongly intertwined hyphae with thickened walls; hypothecium very thin, pale to medium brown. Asci pyriform, dissolving early, with 2-3-seriately arranged spores. Ascospores 1-septate and constricted at septum, brown, broadly ellipsoid, 17-22 x (6-)7-10(-11) µm, with a smooth wall. Pycnidia rather rare, at first globose to ellipsoid, later confluent and forming irregular, up to 0.4 mm wide aggregates. Conidia simple, hyaline, ellipsoid, 3-4 x c. 1.5 µm. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus with rhizocarpic acid (rarely lacking in some forms), epanorin and two unidentified substances. - Note: a mainly boreal-montane, circumpolar lichen found in upland areas on hard, dry wood, especially of conifers, on wooden fences and fence-posts.

Cyphelium tigillare

Cyphelium tigillare

Dactylina arctica (Richardson) Nyl., Syn. meth. lich. (Parisiis) 1(2): 286 (1860)
= *Cetraria arctica* (Richardson) Tuck., Syn. N. Amer. Lich. (Boston) 1: 30 (1882)
= *Cladonia arctica* (Richardson) Th. Fr., Nova Acta R. Soc. Scient. upsal., Ser. 3 3: 260 (1861) [1860]
= *Dufourea arctica* Richardson, Narrat. of a Journ. Polar-Sea, App. VI: 34 (1823)
= *Evernia arctica* (Richardson) Tuck., Proc. Amer. Acad. Arts & Sci. 1: 203 (1848)

[VZ2280], Svalbard. Woodfjorden-Bockjorden, 100 m. Ad terram moraenae glacei concretae Nygardbreen dictae. Leg J. Lišca, 24.7.1958. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2280.

Fruticose, club-like chlorolichen. Inflated balloon-like yellow to orangish hollow branches. May branch once or rarely twice but lacking numerous small side branches. Lacking pruina, isidia, soralia. Apothecia appear as brown discs on branch tips.

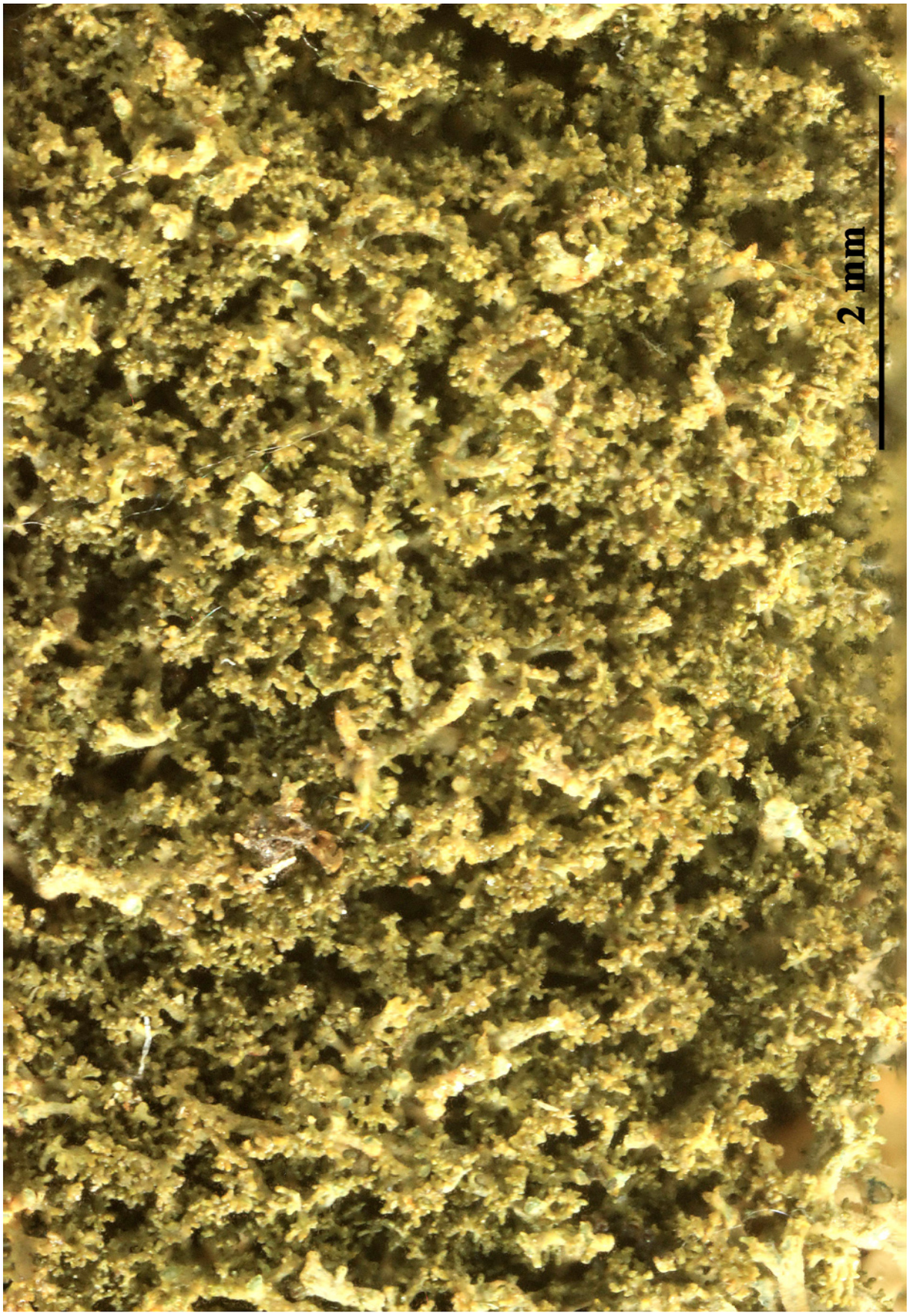
Dactylina arctica

Dactylina arctica

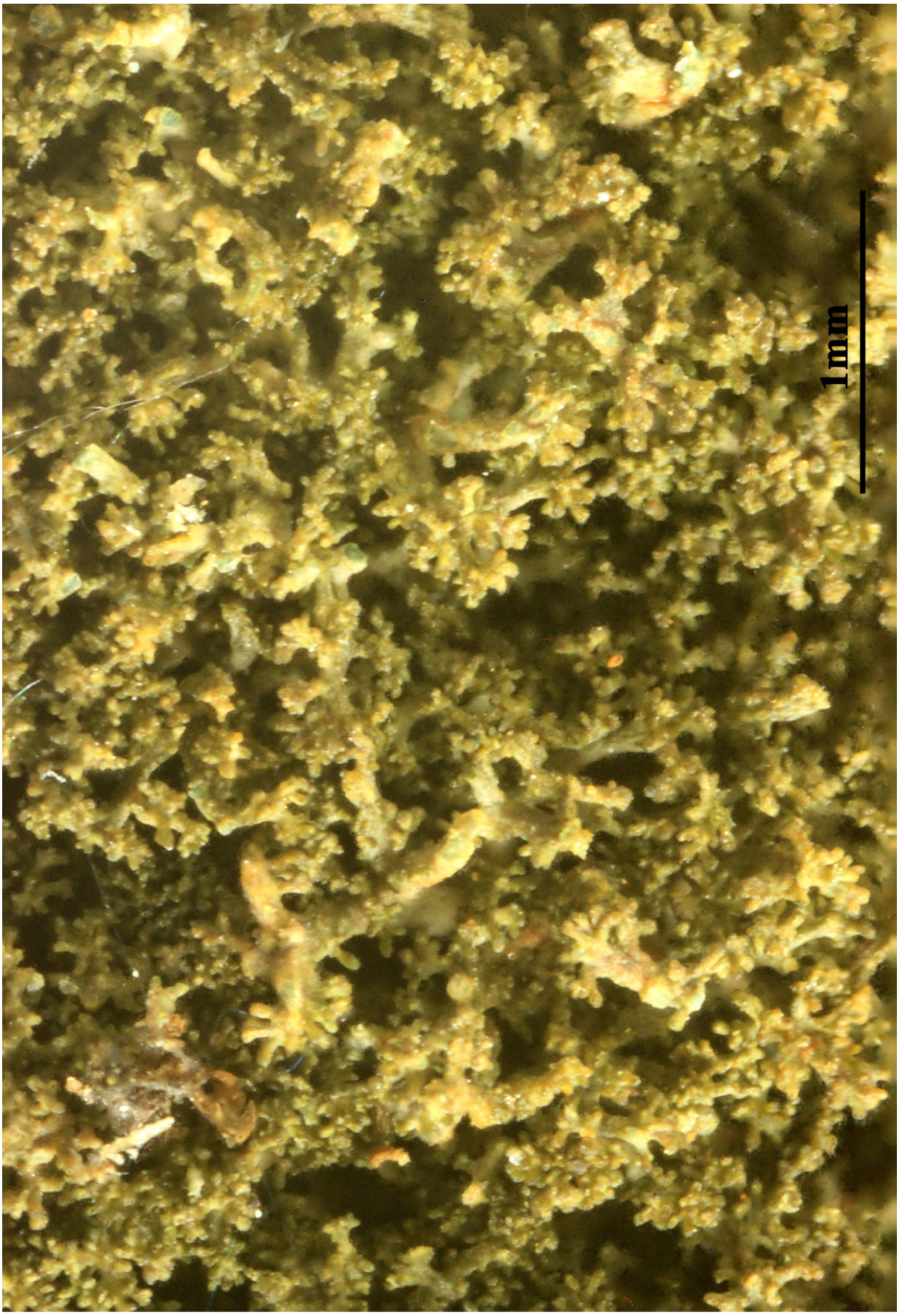
Dendriscocaulon umhausense (Auersw.) Degel., Ark. Bot. 30A(no. 3): 28 (1941)
= *Cornicularia umhausensis* Auersw. 1869

[VZ2385], Italia. Sardinia. Prov. Nuoro: montes Gennargentu, secus viam inter Fonni et Désulo, 6 km a Fonni, 1100 m. Ad corticem *Castaneae sativae* vetustae. Leg. P. L. Nimis, C. Roux, M. Tretiach et A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2385.

Thallus small-fruticose, irregularly branched, 1-3 cm tall, consisting of terete to slightly flattened, apically coralloid branches originating from a subterete basal holdfast, forming bush-like cushions with a more or less distinct main stem, blue-grey to brown (darker at apices), often maculate, paler in the shaded interior of the cushions. Outer surface glabrous or sometimes minutely pubescent, with short, moniliform hairs; cortex of 3-4 layers of cells; interior hyphae longitudinally oriented and radiating out into the branches. Apothecia and pycnidia unknown. Photobiont cyanobacterial (Nostoc), radially arranged below the cortex in primary branches, more or less homoiomerous towards apices of secondary coralloid branchlets. Spot tests: all negative. Chemistry: without lichen substances. - Note: on bark of broad-leaved trees and on epiphytic mosses in warm-humid areas, mainly Tyrrhenian in Italy. This is the cyanobacterial morph of *R. amplissima*.



Dendriscocaulon umhausense



Dendriscocaulon umhausense

Dactylina madreporiformis (Ach.) Tuck., Proc. Amer. Acad. Arts & Sci. 5: 398 (1862) [1860]
= *Allocetraria madreporiformis* (Ach.) Kärnefelt & A. Thell, Nova Hedwigia 62(3-4): 508 (1996)
= *Cetraria madreporiformis* (Ach.) Müll. Arg., Flora, Regensburg 53: 325 (1870)
=*Cetraria nivalis* var. *madreporiformis* (Ach.) Schaer., Enum. critic. lich. europ. (Bern): 14 (1850)
= *Dufourea madreporiformis* Ach., Lich. Univ.: 525 (1810)
= *Dufoureomyces madreporiformis* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(1): 69 (1953)
= *Evernia fertilis* Fr., Lich. eur. reform. (Lund): 24 (1831)
= *Evernia fertilis* subsp. *madreporiformis* (Ach.) Fr., Lich. eur. reform. (Lund): 25 (1831)
= *Evernia madreporiformis* (Ach.) Fr., Lich. eur. reform. (Lund): 25 (1831)
= *Isidium madreporiforme* (Ach.) Chevall., Fl. gén. env. Paris (Paris) 1: 598 (1826)
= *Lichen madreporiformis* Wulfen [as 'madreporaeformis'], in Jacquin, Collnea bot. 3: 105 (1791) [1789]
= *Lichen squarrosus* * *madreporiformis* (Ach.) Lam., Encycl. Méth., Bot. Suppl. (Paris) 3(2): 419 (1813)
= *Parmelia madreporiformis* (Ach.) Spreng., Syst. veg., Edn 16 4(1): 278 (1827)
= *Siphula madreporiformis* (Ach.) Duby, Bot. Gall., Edn 2 (Paris) 2: 619 (1830)

[VZ1728], URSS. Caucasus Magnus. Ad latera occidentalia montis Elbrus, loco Krugozor dicto, 3000-3100 m. Supra plantas destructas in rupibus. Leg. A. Vězda, 21.6.1980. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1728.

Thallus fruticose, greenish to yellowish green, sometimes turning brown in sun-forms, sparsely isotomic-dichotomously branching from near the base, forming tufts. Branches soft, slightly foveolate, ascending to erect, rarely prostrate in forms of wind-swept ridges, subterete or slightly irregular, up to 4 cm tall, 1-2 mm thick. Cortex paraplectenchymatous; medulla white, lax, arachnoid throughout. Apothecia extremely rare (not seen in Italian material), zeorine, subterminal, with a pale brown disc. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, thick-walled, broad-

ly ellipsoid to subglobose, 6-10 x 4-8 µm. Pycnidia dark, immersed to slightly projecting. Conidia thread-like, slightly curved, swollen at one end, 13-20 x 0.5-1 µm. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; medulla with lichesterinic acid. - Note: an arctic-alpine species found in open grasslands and in wind-exposed ridges above treeline, in areas with calciferous substrata; probably widespread throughout the Italian Alps. The record from Abruzzo (central Apennines) is the southernmost one in Europe.

Dactylina madreporiformis

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= *Cetraria madreporiformis* (Ach.) Müll. Arg., Flora, Regensburg 53: 325 (1870)
=*Cetraria nivalis* var. *madreporiformis* (Ach.) Schaer., Enum. critic. lich. europ. (Bern): 14 (1850)
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= *Siphula madreporiformis* (Ach.) Duby, Bot. Gall., Edn 2 (Paris) 2: 619 (1830)

[VZ2148], URSS. Asia centralis, Kirghizia: montes Titan-shan, iugum Kirghiziski khrebet, invalle fluminis Ala-Archa, 27 km ad australem ab oppido Franze, 2000-2200 m. Ad terram humosam in rupidus. Leg. V. Vašák 28.4.1986, det. A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2148.

Thallus fruticose, greenish to yellowish green, sometimes turning brown in sun-forms, sparsely isotomic-dichotomously branching from near the base, forming tufts. Branches soft, slightly foveolate, ascending to erect, rarely prostrate in forms of wind-swept ridges, subterete or slightly irregular, up to 4 cm tall, 1-2 mm thick. Cortex paraplectenchymatous; medulla white, lax, arachnoid throughout. Apothecia extremely rare (not seen in Italian material), zeorine, subterminal, with a pale brown disc. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, ap-

proaching the Lecanora-type. Ascospores 1-celled, thick-walled, broadly ellipsoid to subglobose, 6-10 x 4-8 µm. Pycnidia dark, immersed to slightly projecting. Conidia thread-like, slightly curved, swollen at one end, 13-20 x 0.5-1 µm. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; medulla with lichesterinic acid. - Note: an arctic-alpine species found in open grasslands and in wind-exposed ridges above treeline, in areas with calciferous substrata; probably widespread throughout the Italian Alps. The record from Abruzzo (central Apennines) is the southernmost one in Europe.

Dactylina madreporiformis

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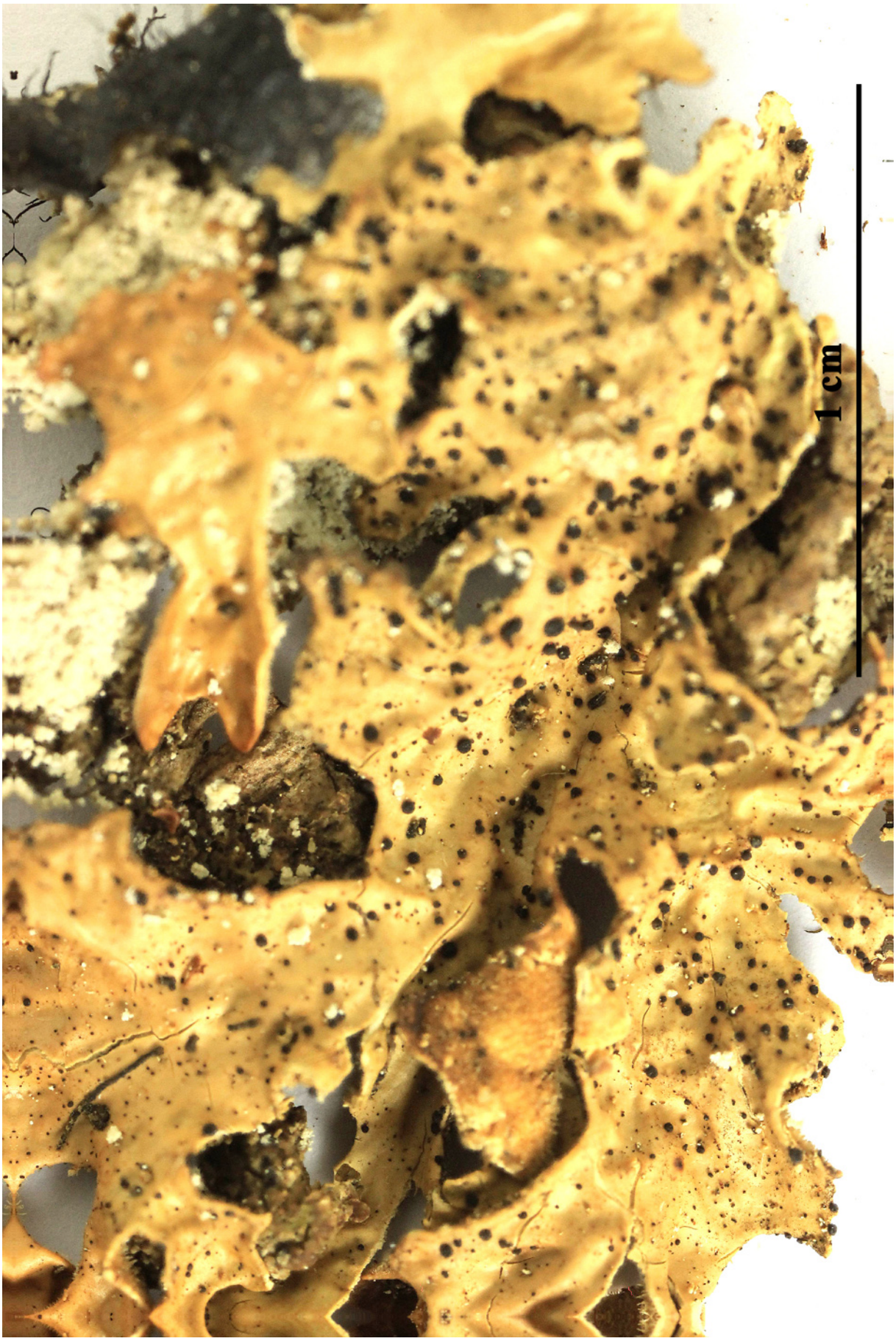
Dactylospora lobariella (Nyl.) Hafellner, Beih. Nova Hedwigia 62: 118 (1979)
= *Sclerococcum lobariellum* (Nyl.) Ertz & Diederich, in Diederich, Lawrey & Ertz, Bryologist 121(3): 398 (2018)
= *Abrothallus lobariellus* (Nyl.) Zopf [as 'lobariellum'], Hedwigia 35(6): 363 (1896)
= *Buellia lobariella* (Nyl.) Arnold, Flora, Regensburg 53(30–31): 478 (1871) [1870]
= *Buelliella nuttallii* (Calk. & Nyl.) Fink, Lich. Fl. U.S.: 373 (1935)
= *Karschia lobariella* (Nyl.) Arnold, Flora, Regensburg 57(7): 105 (1874)
= *Lecidea lobariella* Nyl., Flora, Regensburg 52(19): 296 (1869)
= *Lecidea nuttallii* Calk. & Nyl., Bot. Gaz. 22: 334 (1896)

[VZ1700], Magna Britannia. Caledonia: Argyllshire, Oban, Seil, Ballachuan, 5 m. In thallo *Lobariae pulmonariae* vigens. Leg. B. J. Coppins (no. 3704). EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1700.

Apothecien: zerstreut dem Wirtsthallus aufsitzend, flach mit zartem Rand, spiter konvex mit zuriicktretendem Rand, schwarz, 0.3-0.6 mm im Durchmesser; Excipulum im Schnitt hell- bis dunkelrotbraun, strahlig, mit manchmal etwas verquellenden Zellwinden, aufen dicht und dunkelbraun, Hypothecium dunkelbraun bis dunkelrotbraun, aus etwas verquollenen Hyphengliedern, Hymenium hyalin, ziemlich stark verleimt, 50-70 µm hoch, Epihymenium dünn, rotbraun bis rußigrotbraun. Asci mit Gallertkappen, leicht keulig bis zylindrisch, 45-60 x 11-15 µm groß, meist mit 8 Sporen. Paraphysen septiert, meist nur oben verzweigt, um 2 µm dick, Enden nur leicht keulig und etwas gebräunt, rotbraunes Pigment zumindest teilweise in der Gallerte. Sporen: zweizellig, rotbraun, langelliptisch, dünnwandig, hintere Sporenzelle oft etwas schmäler und kiirzer als die vordere, Sporenwand durch sehr kleine Warzen rauh, Warzenabstand und Größe unter 1 µm, 12-14.0-17 x 4.5-5.2-6.5 um groß, Lingen-Breiten-Index um 2,7. Jodreaktion: Gallertkappen und Hymenialgallerte J+ blau. K-Reaktion: Epihymenium K+ triib olivbraun. - Dactylospora lobariella steht in der Gattung ziemlich isoliert, erfiillt aber exakt die Gattungskriterien.



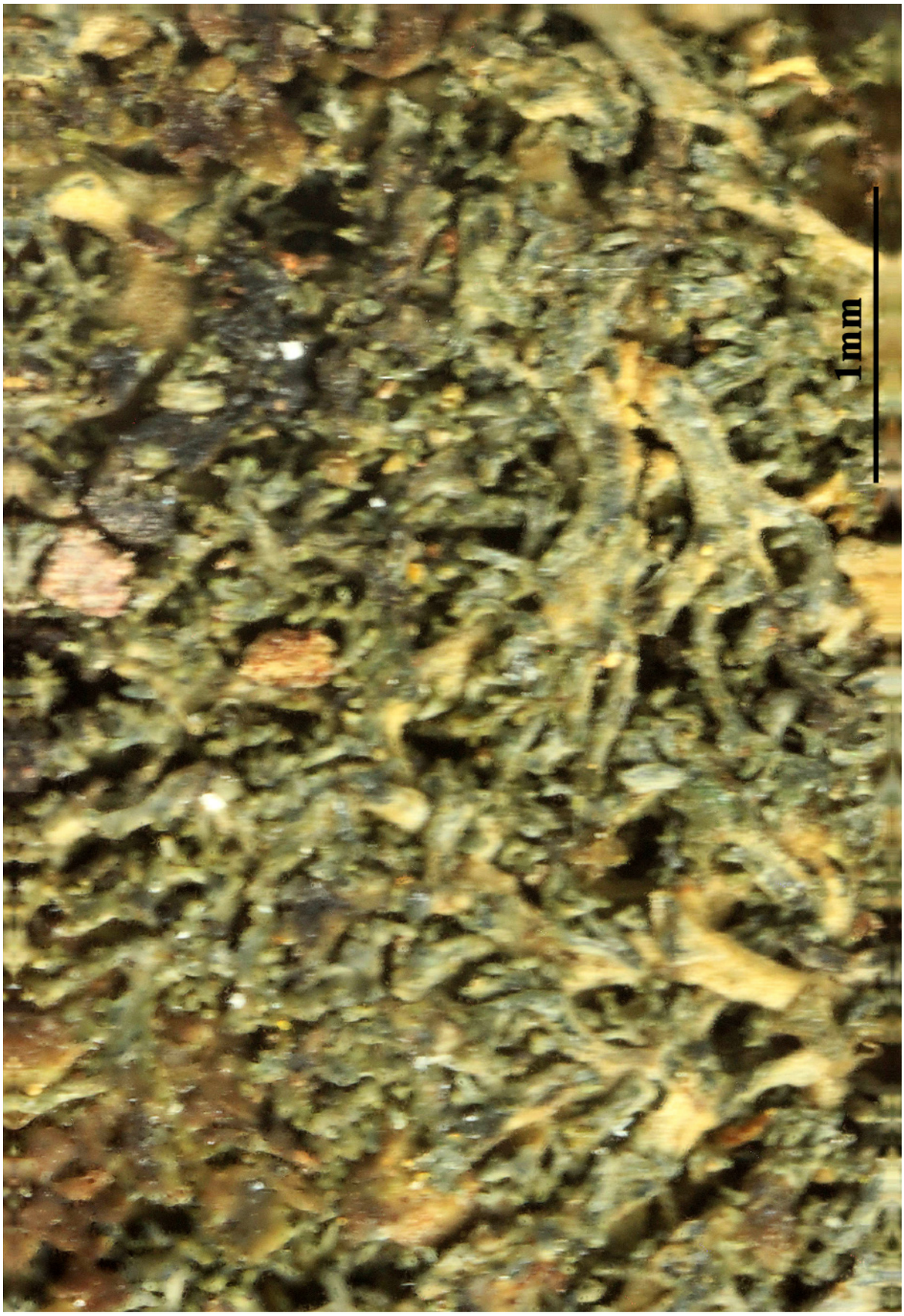
Dactylospora lobariella

Dactylospora lobariella

Dendriscocaulon umhausense (Auersw.) Degel., Ark. Bot. 30A(no. 3): 28 (1941)
= *Cornicularia umhausensis* Auersw. 1869

[VZ1956], Italia. Roma. prope Frascati, in colle Tuscilo, 550 m. Ad truncum Quercus vetustae, in fissuris corticis. Leg. P. L. Nimis, 15.11.1983. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1956.

Thallus small-fruticose, irregularly branched, 1-3 cm tall, consisting of terete to slightly flattened, apically coralloid branches originating from a subterete basal holdfast, forming bush-like cushions with a more or less distinct main stem, blue-grey to brown (darker at apices), often maculate, paler in the shaded interior of the cushions. Outer surface glabrous or sometimes minutely pubescent, with short, moniliform hairs; cortex of 3-4 layers of cells; interior hyphae longitudinally oriented and radiating out into the branches. Apothecia and pycnidia unknown. Photobiont cyanobacterial (Nostoc), radially arranged below the cortex in primary branches, more or less homoiomerous towards apices of secondary coralloid branchlets. Spot tests: all negative. Chemistry: without lichen substances. - Note: on bark of broad-leaved trees and on epiphytic mosses in warm-humid areas, mainly Tyrrhenian in Italy. This is the cyanobacterial morph of *R. amplissima*.



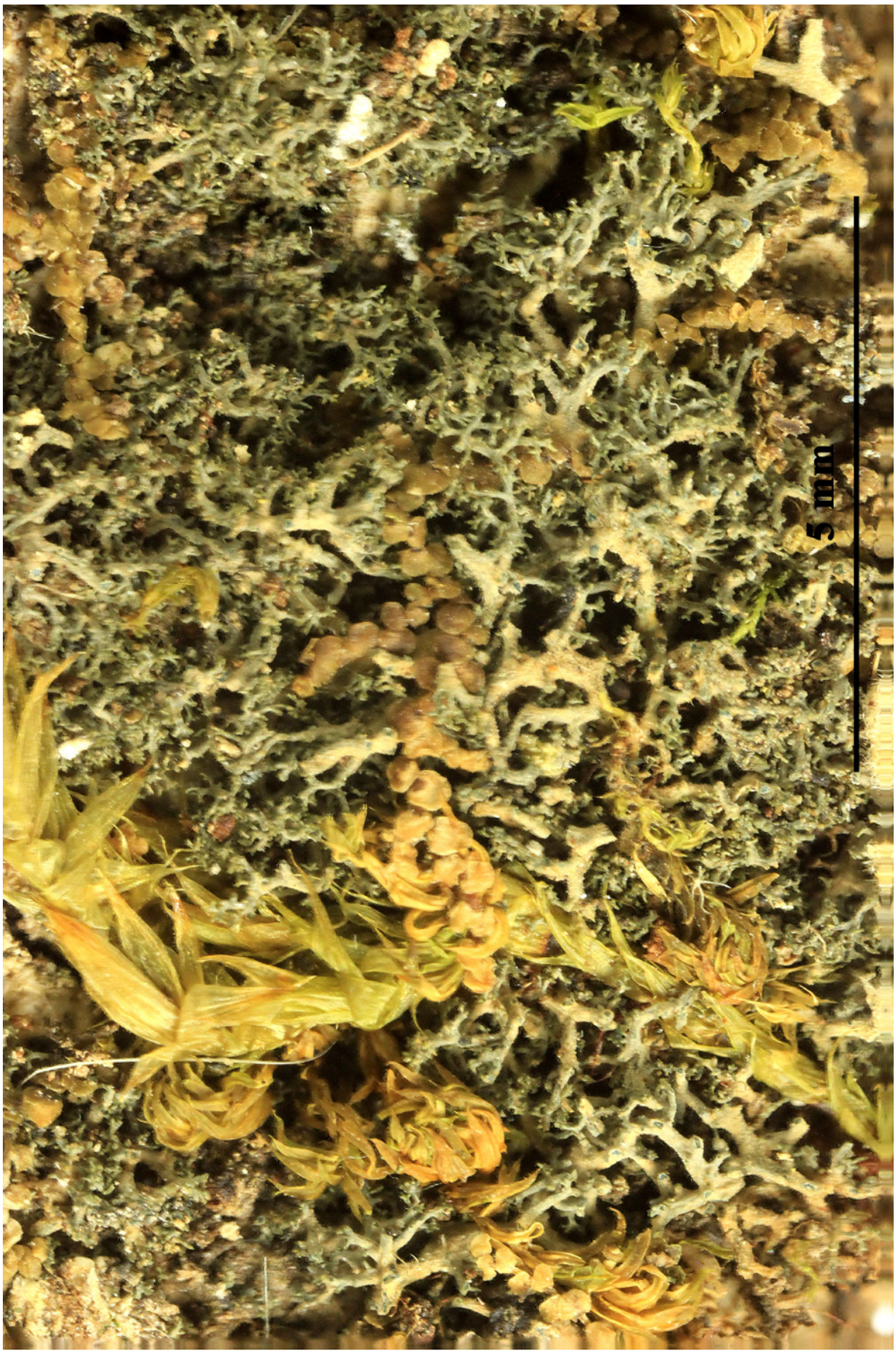
Dendriscocaulon umhausense

Dendriscocaulon umhausense

Dendriscocaulon umhausense (Auersw.) Degel., Ark. Bot. 30A(no. 3): 28 (1941)
= *Cornicularia umhausensis* Auersw. 1869

[VZ2205], Italia. Sardinia. Prov. Nuoro: Barbagia Seuio, Mt. Arbu, in valle rivi Girolamo, 800-1100 m. Ad corticem *Quercus ilicis*. Leg. E. Barreno et A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2205.

Thallus small-fruticose, irregularly branched, 1-3 cm tall, consisting of terete to slightly flattened, apically coralloid branches originating from a subterete basal holdfast, forming bush-like cushions with a more or less distinct main stem, blue-grey to brown (darker at apices), often maculate, paler in the shaded interior of the cushions. Outer surface glabrous or sometimes minutely pubescent, with short, moniliform hairs; cortex of 3-4 layers of cells; interior hyphae longitudinally oriented and radiating out into the branches. Apothecia and pycnidia unknown. Photobiont cyanobacterial (Nostoc), radially arranged below the cortex in primary branches, more or less homoiomerous towards apices of secondary coralloid branchlets. Spot tests: all negative. Chemistry: without lichen substances. - Note: on bark of broad-leaved trees and on epiphytic mosses in warm-humid areas, mainly Tyrrhenian in Italy. This is the cyanobacterial morph of *R. amplissima*.



Dendriscocaulon umhausense

Dendriscocaulon umhausense

Dendrographa minor Darb., Biblthca Bot. 9(no. 45): 67 (1898)
= *Dendrographa leucophaea* (Tuck.) Darb..
= *Roccella leuchophaea* Tuck.

[VZ2279], USA. California. Marin County: In reservato Point Reyes National Seashore dicto, loco Kehoe Beach, 10 m. Ad rupes verticales. Leg. W. L. Culberson (no. 20704) et C. F. Culberson.- Annot.: Protocetraric acid and traces of unknown Pmc-1 and an unidentified compound by TLC; anal. A. Johnson et C.F. Culberson. - EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2279.

Thallus without ascomata, internodes 1-5 mm, with abundant lateral branchlets. Distribution and habitat.- The distribution of Dendrographa leucophaea f. minor is somewhat more restricted than that of D. leucophaea f. leucophaea. It is hitherto known only from Monterey Co. in California, U.S.A., to southern Baja California Norte, Mexico. In the northern part of its range, from Santa Barbara County to Monterey County, it is more common than Dendrographa leucophaea f. leucophaea. Dendrographa leucophaea f. minor occurs most abundantly on shaded, north-exposed rocks. It is also often found on bark in shaded situations.

Dendrographa minor

Dendrographa minor

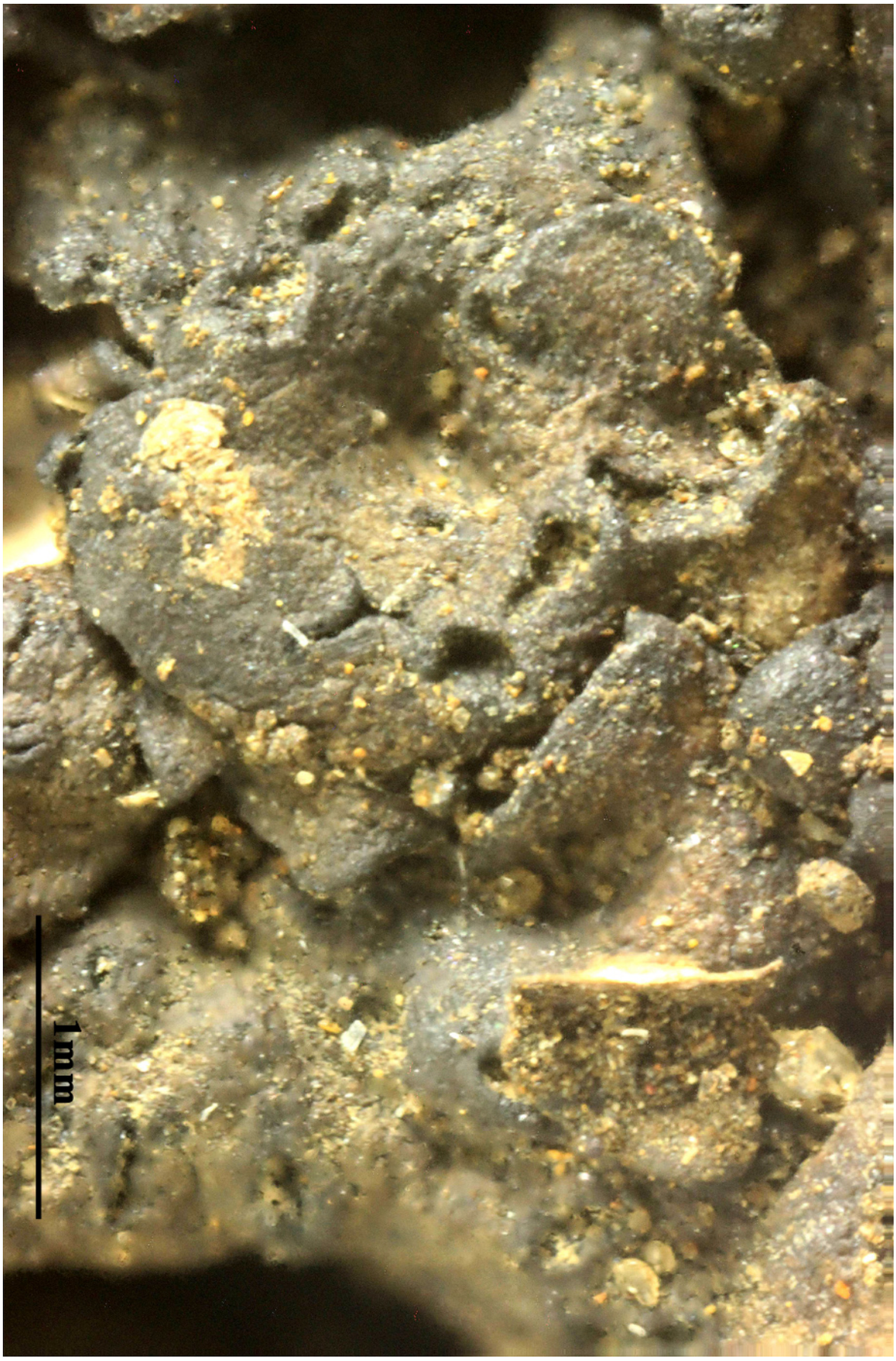
Dermatocarpon aequinoctiale (Hochst. ex Flot.) Müll. Arg., Bot. Jb. 6: 377 (1885)
= *Endocarpon aequinoctiale* Hochst. ex Flot. 1843

[VZ2477], Tanzania.Morogoro distr., montes Uluguru, planitia Lukwangule, cataracta fluminis Mgeta, 2330-2370 m. Ad saxa in ripa fluminis. Leg. T. Pócs, R. Ochyra et H. Bernarek, 8.-9.6.1988, det. T. Pócs. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 2477.

Description from Swinscow, T. D. V. & Krog, H. (1975): Dermatocarpon in East Africa. - Lichenologist 7:148-154.

Thallus saxicolous, monophyllous, attached by an umbilicus, more or less orbicular, up to 5 cm diameter, with the margins down-rolled here and there; above ash grey or stramineous to dark grey, below black, matt to scabrous to minutely verrucose, with a few ridges peripherally. Pruina in extensive crystalline plaques on upper surface. Rhizines absent. Perithecia showing black ostioles at surface; excipulum colourless. Spores 12-18 x 6-10 µm simple. The upper surface is usually pale or ashy grey to medium grey or stramineous, but it can range through darker greys to brownish grey and occasionally almost black. Pruina may be absent or present; if the latter it varies from sparse to abundant, and sometimes appears on the underside also. Though the underside is usually black, it may be chestnut brown or even paler. The surface is generally matt, sometimes punctiform scabrous, occasionally glossy. Orbicular or elongate verrucae or prominent vein-like ridges are often evident on some part of the underside and may cover most of it. Perithecia are generally abundant. The spores vary considerably in size, as is usual in pyrenocarpous genera. The measurements given above for the lectotype are commonly seen, though often the maximum length is slightly less about 16 µm. The morphological variation to which *Dermatocarpon aequinoctiale* is subject may suggest that it should be split into two or more species. But the transitions from one form to another are too frequent and too continuous to denote anything but variations in response to the environment.

Dermatocarpon aequinoctiale



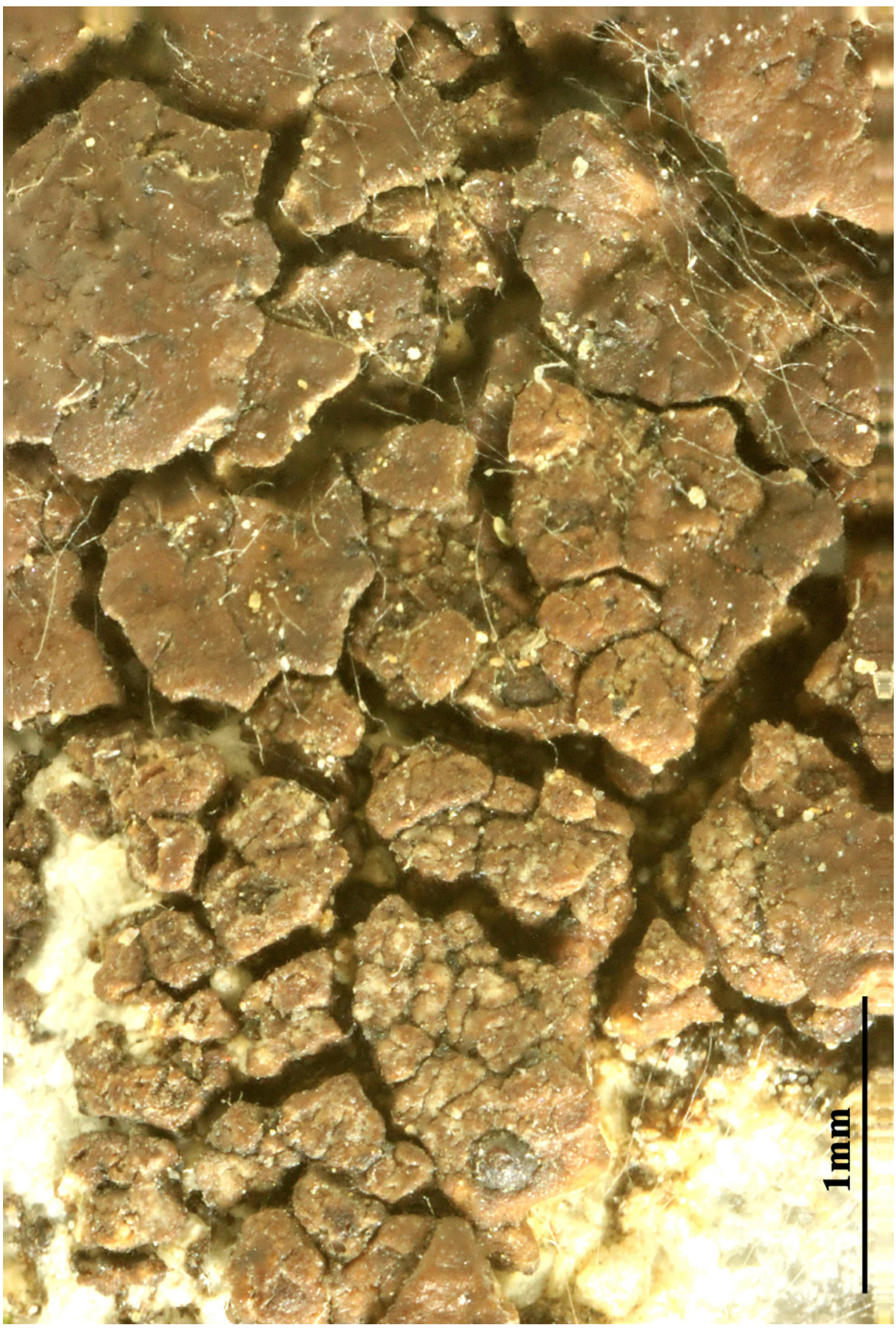
Dermatocarpon aequinoctiale

Dermatocarpon compactum (A. Massal.) Lettau, Hedwigia 52: 97 (1912)
= *Heteroplacidium compactum* (A. Massal.) Gueidan & Cl. Roux, Bull. Inf. Ass. Franç. Lichén. 33(1): 25 (2008)
= *Catapyrenium compactum* (A. Massal.) R. Sant., Lichens of Sweden and Norway (Stockholm): 82 (1984)
= *Endocarpon compactum* (A. Massal.) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 136 (1858) [1857]
= *Endopyrenium compactum* (A. Massal.) Körb., Parerga lichenol. (Breslau) 4: 303 (1863) [1865]
= *Placidium compactum* A. Massal., Miscell. Lichenol.: 32 (1856)
= *Placocarpus compactus* (A. Massal.) Trevis., Conspect. Verruc.: 19 (1860)
= *Rhodocarpon compactum* (A. Massal.) Lönnr., Flora, Regensburg 41: 619 (1858)
= *Verrucaria compacta* (A. Massal.) Jatta, Syll. Lich. Ital. (Trano): 501 (1900)

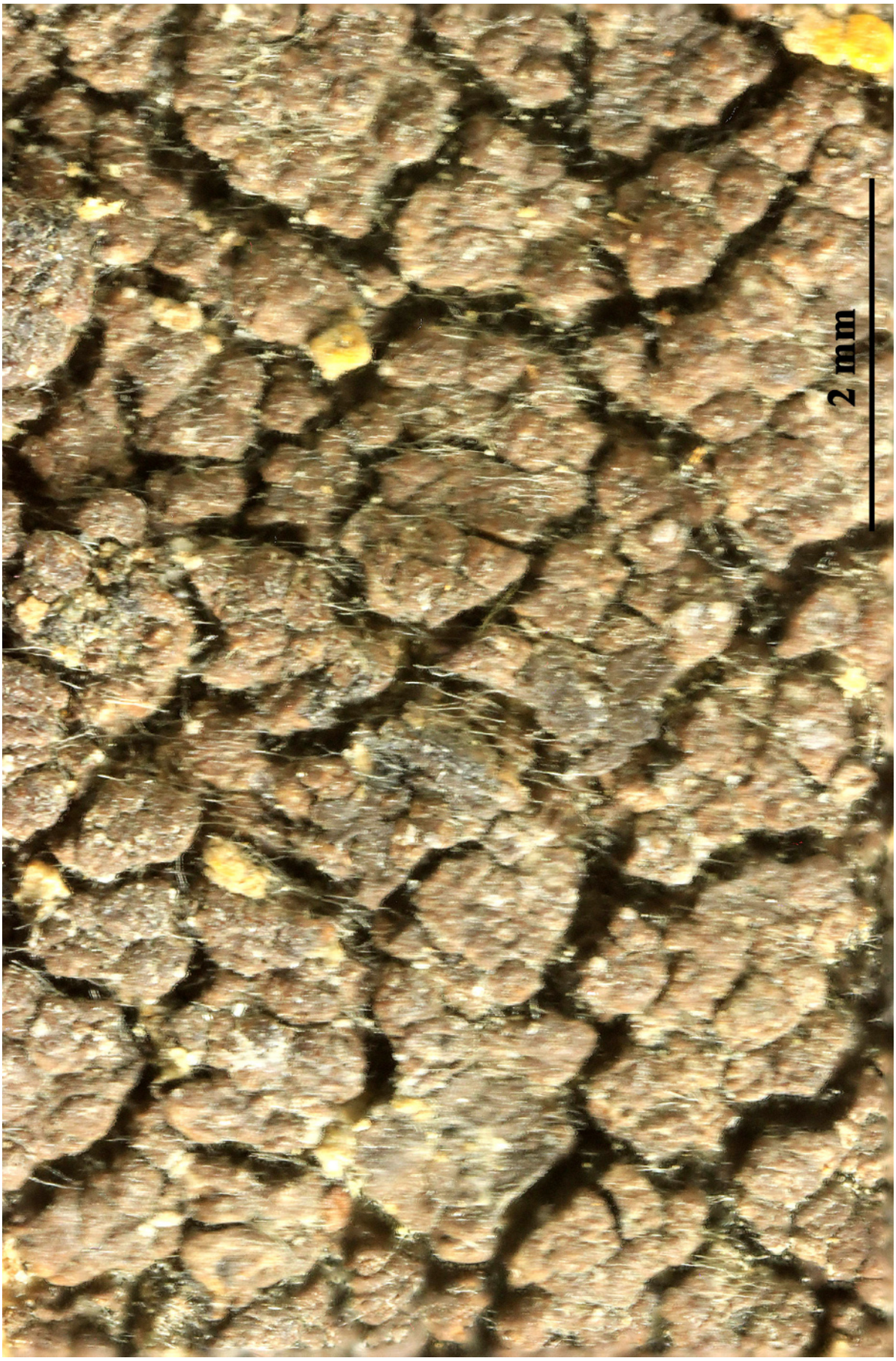
[VZ1101], Gallia. Savole. Reservatum naturae Vanoise, 2000-2500 m. Ad saxa calcarea. Leg. J. Asta et. C. Roux. - Annot. O- Breuß: it is *Verrucaria zomenhofiana*. - . Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 1101.

Thallus crustose-areolate to subsquamulose, medium to usually dark brown, smooth, dull. Areoles at first angular, then rounded, flat to slightly convex, to 4 mm wide and to 0.6 mm thick, sometimes sublobate and partly overlapping, constricted at base to form short peg-like projections composed of vertically oriented hyphae. Upper cortex paraplectenchymatous, of 5-8 µm wide cells, 10-25 µm thick, with a brown uppermost layer overlain by an up to 20 µm thick epinecral layer; medulla white, paraplectenchymatous; lower cortex absent. Perithecia immersed, 0.25-0.4 mm across, without involucrellum; exciple subglobose, colourless with only the apex brown-black, darkening throughout with age; hamathecium of periphyses and periphysoids, interascal filaments absent; hymenial gel hemiamyloid. Asci 8-spored, clavate, I-, fissitunicate, the wall thickened above, Verrucaria-type, 55-70 x 13-20 µm. Ascospores 1-celled, hyaline, broadly ellipsoid to subglobose, 13-18 x 8-10 µm, biseriately arranged in the asci. Pycnidia laminal, immersed, black, of the Dermatocarpon-type. Conidia bacilliform, 5-7 x c. 1.5 µm. Photobiont chlorococcoid (Myrmecia). Spot tests: cortex and medulla K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: on more or less calcareous rocks, sometimes

on other crustose lichens, but not parasitic, usually in upland areas but below treeline. This name probably includes several taxa.



Dermatocarpon compactum



Dermatocarpon compactum

Dermatocarpon spitsbergense Lynge, Skr. norske Vidensk.-Akad., Mat.-naturv. Kl., N.S.(no. 6): 35 (1938)

{VZ1951], Groenlandia occidentalis. Disko: Godhavn, adversum pedem orientalem montis Lyngmarksfjeld, 300 m. Ad saxa interdum irrigata in torrente. Leg. J. Poelt et H. Ullrich, 30.7.1983, det. J. Poelt. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1951.

Lager unterseits ohne Rhizinen, mit Adern oder Falten versehen. Lager um 1.5-2 cm breit. Unterseite gelbbraun. Sporen12-14 x 6-7 µm. Asci J+ blau.

Dermatocarpon spitsbergense

Dermatocarpon spitsbergense

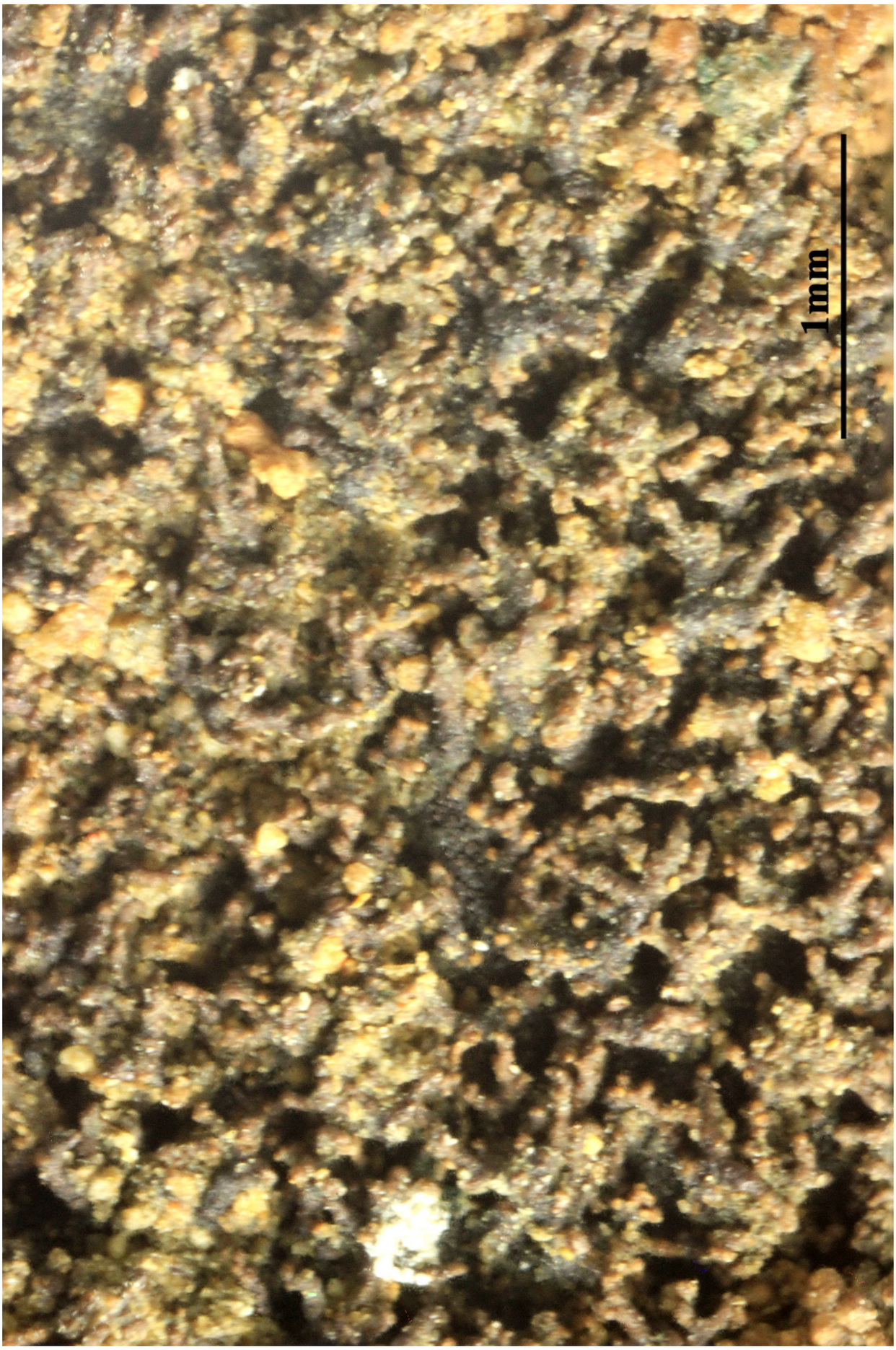
Dermatocarpon vellereum Zschacke, Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 9(1.1): 638 (1934)

[VZ1501], URSS. Georgia, Caucasus Magnus. Tbilisi, secundum viam vetustam militarem caucasicamm inseptrionale urbis Tbilisi, 459 m. Ad saxa conglomerata eruptiva. Leg. A. Vězda, 28.5.1976. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. 1401.

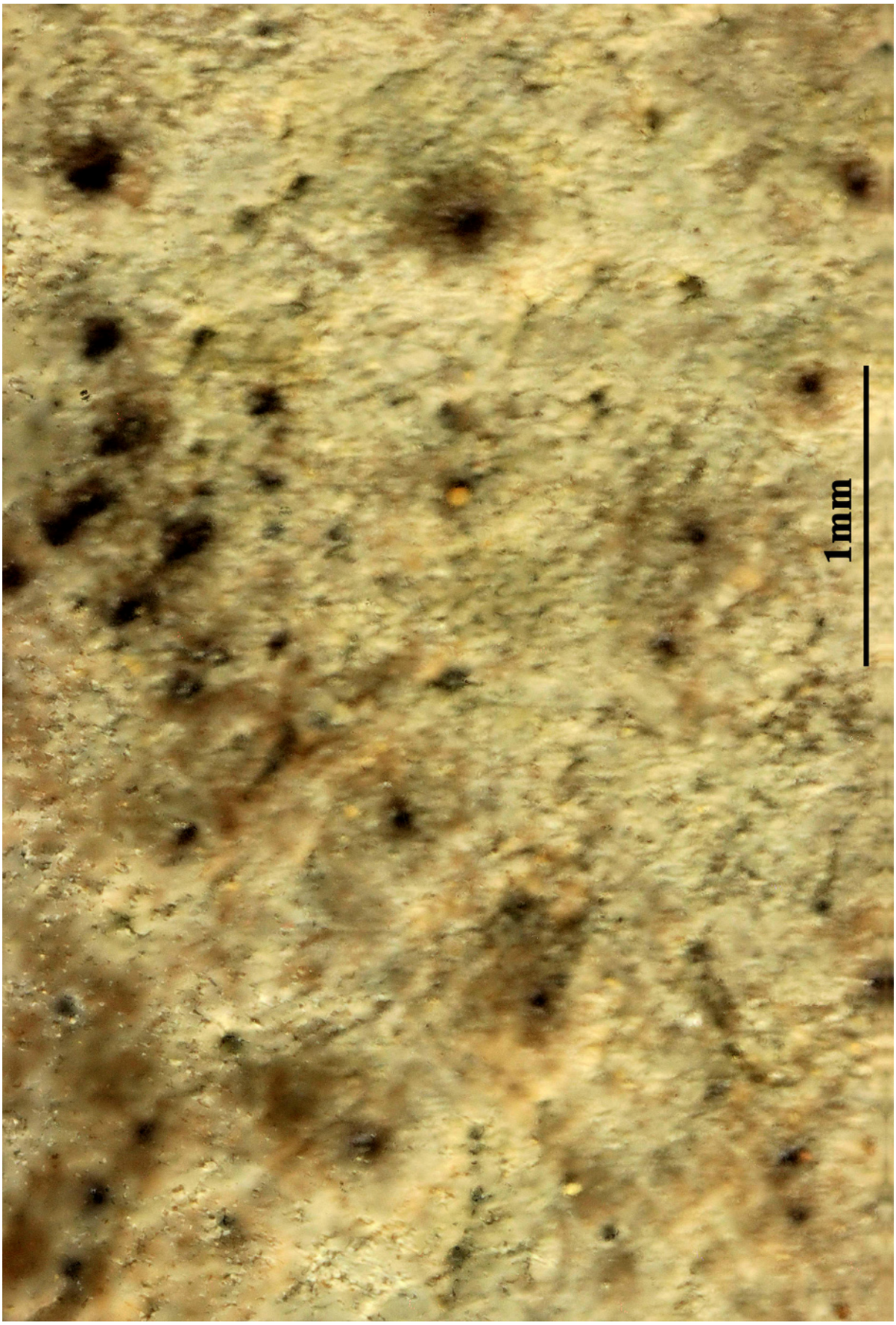
Ex Zschake, H. (1934): Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 9(1.1): 638 (1934) Lager lederig, 0.4-0.6 mm dick, eiblättrig, gelappt, 4-15 cm breit, grau bereift, später bräunlich und fast kahl, weiß punktiert, unterseits braunschwarz, dicht mit schwarzen, starren, korallinisch verzweigten, etw 1-1.2 mm langen Wurzelhaaren bedeckt. Früchte klein 0.1 mm breit, zahlreich, nur mit der schwarzen punktförmigen Mündung vorsehend. Kern fast kugelig-birnlich, rötlich, vom dünnen, wachsartigen Eigengehäuse umgeben, um die Mündung nach Art eine schwarzen Außengehäuses oder Deckelchens verstärkt. Schläuche dicklich, keulig verlängert, schief gfestielt, mit abgerundeter Spitze, 8-sporig, vergänglich. Sporen in 2-facher Reihe ohne Ordnung in den Schläuchen lieend, eilich, wasserhell, klein, 0.0085 bis 0.010 mm lang und 0.006 mm breit. Spaltsporenbehälter zielich häufig, nach Art der Gattung gebaut. Fundorte Kaukasua, Himalaja.

Dermatocarpon vellereum

Dermatocarpon vellereum



Dermatocarpon vellereum



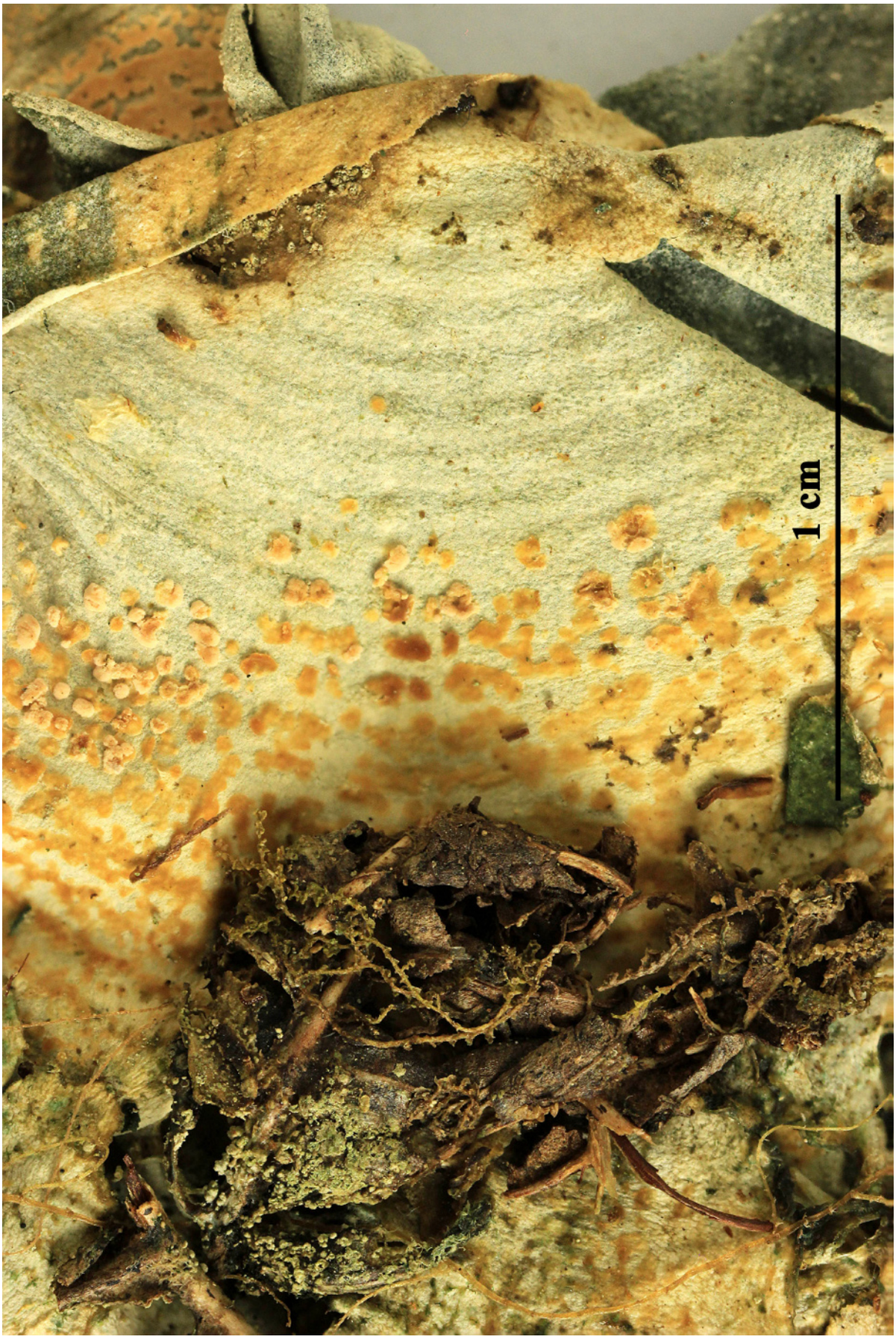
Dermatocarpon vellereum

Dictyonema montanum Parmasto ex Follmann & Redón, Willdenowia 6(3): 456 (1972)
= *Cora pavonia* (Weber & D. Mohr) Mont., Annls Sci. Nat., Bot., sér. 2 4: 94 (1835)
= *Byssomerulius pavonius* (Weber & D. Mohr) Zmitr. & Malysheva, in Zmitrovich, Malysheva & Spirin, Mycena 6: 31 (2006)
= *Cora montana* Sant., Symb. bot. upsal. 12(no. 1): 12 (1952)
= *Coraemyces pavoniae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 293 (1954)
= *Dictyonema pavonium* (Weber & D. Mohr) Parmasto, Nova Hedwigia 29(1-2): 103 (1977)
= *Thelephora pavonia* Weber & D. Mohr, Beitr. Naturk. 1: 326 (1805)
= *Ulva montana* Sw., Prodr.: 148 (1788)

[VZ2445], Insulae Antillarum, Guadeloupe, Insula Basse-Terre: Montes "l'Echelle", prope Mattlys, 1200 m. Ad terram. Leg. J. Vivant, 20.3.1990. Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 2445.

Basidiocarps sessile, solitary or imbricate and united in rosettes up to 20 cm and over in diam. Pilei flabelliuform, subcircular or reniform, dimidiate, rarely almost substipate, frequently laterally concrescent,lobate, 1-1(-8) x 1-6(-8) cm, thin, 0.18-1.2(-1.4) mm thci, membranaceous or almost paper-like, brittle when dry. Upper surface distinctly and densely, but lowly sulcate, ander a lens slightly villose, in live state glossy blue-green or greenish blue, in herbarium specimens pale grayish green, grayish yellowish, gray blue-green, blue green or whitish gray, sometimes bluish gray, in central part, usually darker. Margin usually lobate, acute, ochraceo-crea-coloured, greenish or ink-green, rarely concolorous with the rest of the upper surface, when dry narrowly but strong involute. Lower surface densely concentrically zonate, under a lens granulose, gray or greenish, hymenophore resembling scattered cupules at first 0.2-0.4 mm, the up to 1 mm in diam, and 0.3-0.6(-1) mm in hight, apothecium like which later unite to form interrupted concentrical ridges 1-2 mm distant from each other, or rarely concrescent to form spots up to 2 cm in diam., finally polygonally or almost reticulately cracked. Exceptionally hymenium continuous, even, covering nearly the entire lower surface of the basidiocarp. Hymenium initially deep cream colour, the pale ochraceous or isabellous. In old specimens the hymenial spots fall away beginning from the margin and thus the lower surface becomes sterile again. Algal component Chroococcus.

Dictyonema montanum



Dictyonema montanum

Dictyonema montanum Parmasto ex Follmann & Redón, Willdenowia 6(3): 456 (1972)
= *Cora pavonia* (Weber & D. Mohr) Mont., Annls Sci. Nat., Bot., sér. 2 4: 94 (1835)
= *Byssomerulius pavonius* (Weber & D. Mohr) Zmitr. & Malysheva, in Zmitrovich, Malysheva & Spirin, Mycena 6: 31 (2006)
= *Cora montana* Sant., Symb. bot. upsal. 12(no. 1): 12 (1952)
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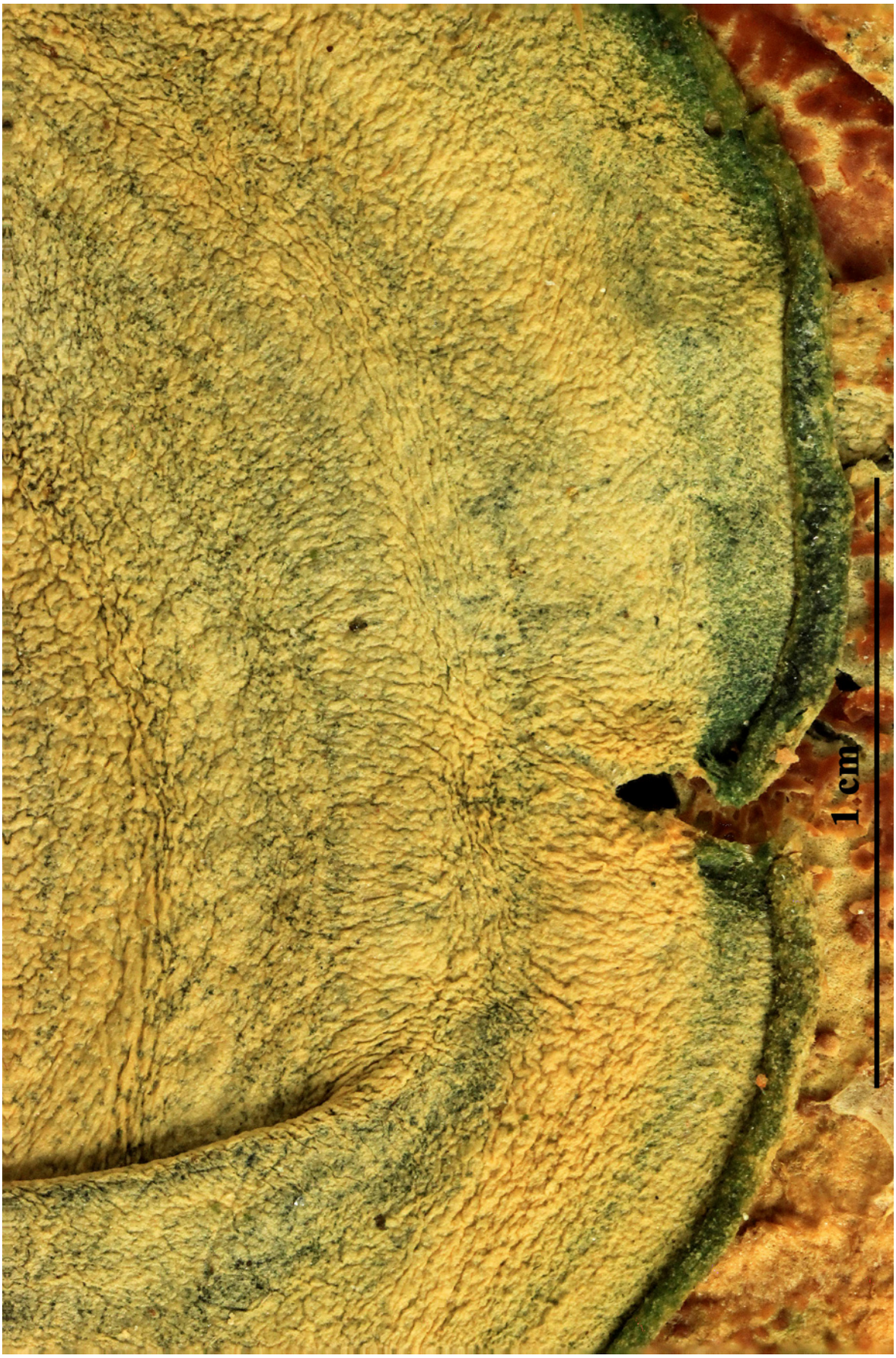
= *Thelephora pavonia* Weber & D. Mohr, Beitr. Naturk. 1: 326 (1805)
= *Ulva montana* Sw., Prodr.: 148 (1788)

[VZ1568], Mexico, Oaxaca, 60 km ad septentrionem versus a Guelatao, 2820 m. Ad terram secus via. Leg. W. L. Culberson (no. 17219) et C. F. Culberson, 25.7.1976. - Annot.: No lichen compounds detected by TLC; anal. C. F. Culberson and A. Johnson. - Ex A. VěZDA LICHENES SELECTI EXSICCATI NR. 1568.

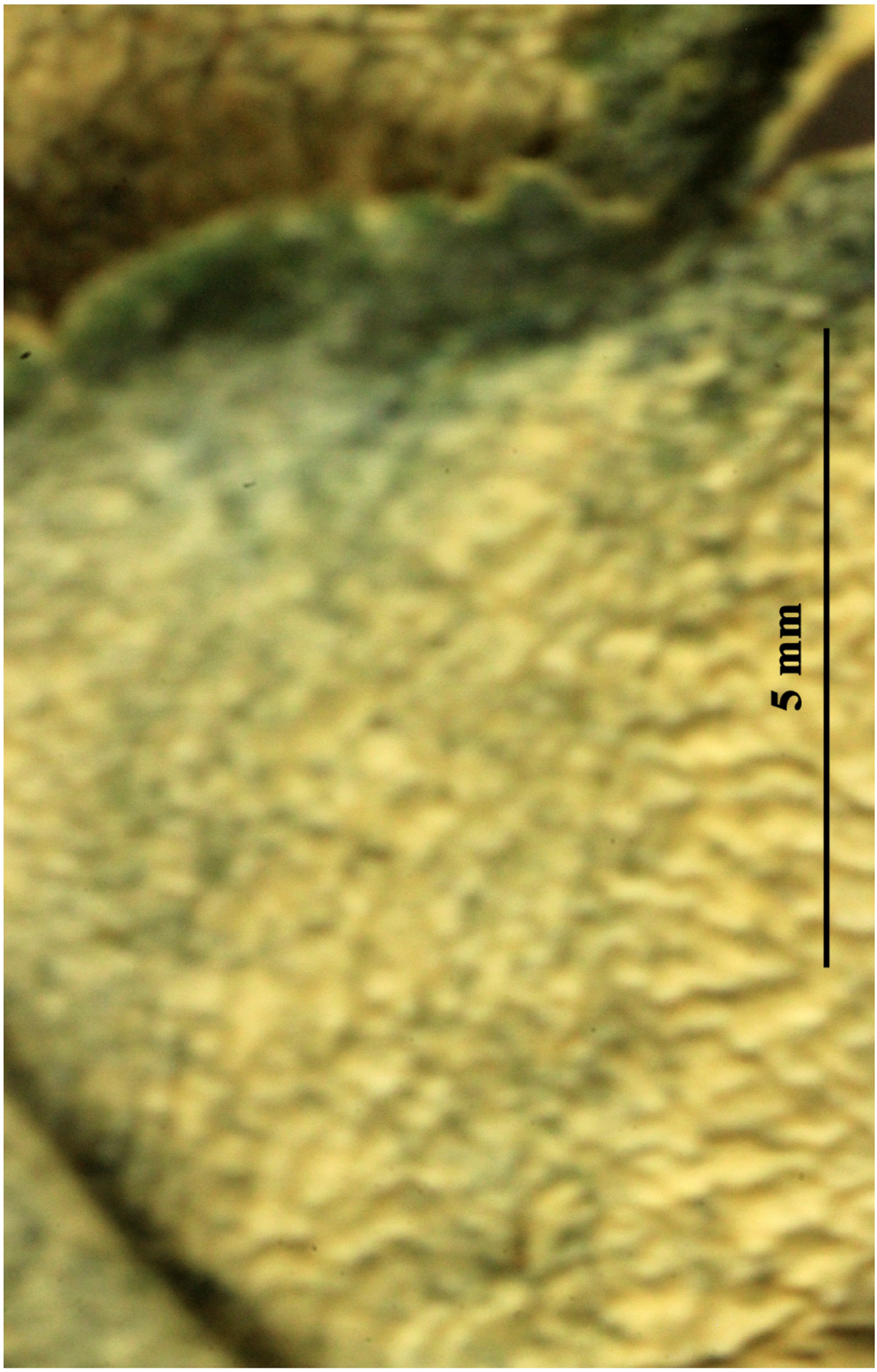
Basidiocarps sessile, solitary or imbricate and united in rosettes up to 20 cm and over in diam. Pilei flabelliuform, subcircular or reniform, dimidiate, rarely almost substipate, frequently laterally concrescent,lobate, 1-1(-8) x 1-6(-8) cm, thin, 0.18-1.2(-1.4) mm thci, membranaceous or almost paper-like, brittle when dry. Upper surface distinctly and densely, but lowly sulcate, ander a lens slightly villose, in live state glossy blue-green or greenish blue, in herbarium specimens pale grayish green, grayish yellowish, gray blue-green, blue green or whitish gray, sometimes bluish gray, in central part, usually darker. Margin usually lobate, acute, ochraceo-crea-coloured, greenish or ink-green, rarely concolorous with the rest of the upper surface, when dry narrowly but strong involute. Lower surface densely concentrically zonate, under a lens granulose, gray or greenish, hymenophore resembling scattered cupules at first 0.2-0.4 mm, the up to 1 mm in diam, and 0.3-0.6(-1) mm in hight, apothecium like which later unite to form interrupted concentrical ridges 1-2 mm distant from each other, or rarely concrescent to form spots up to 2 cm in diam., finally polygonally or almost reticulately cracked. Exceptionally hymenium continuous, even, covering nearly the entire lower surface of the basidiocarp. Hymenium initially deep cream colour, the pale ochraceous or isabellous. In old specimens the hymenial spots fall away beginning from the

margin and thus the lower surface becomes sterile again. Algal component Chroococcus.

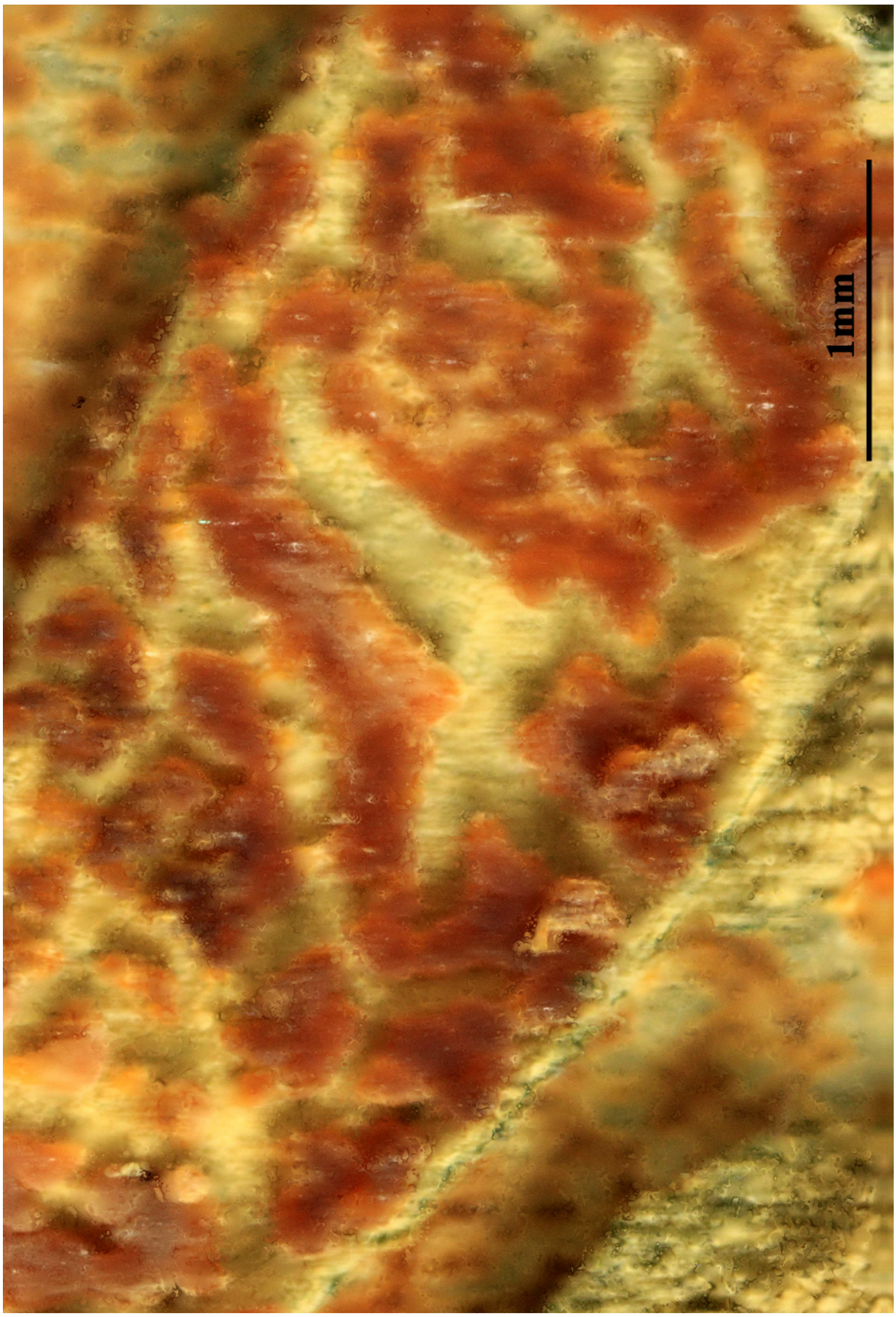
Dictyonema montanum



Dictyonema montanum



Dictyonema montanum



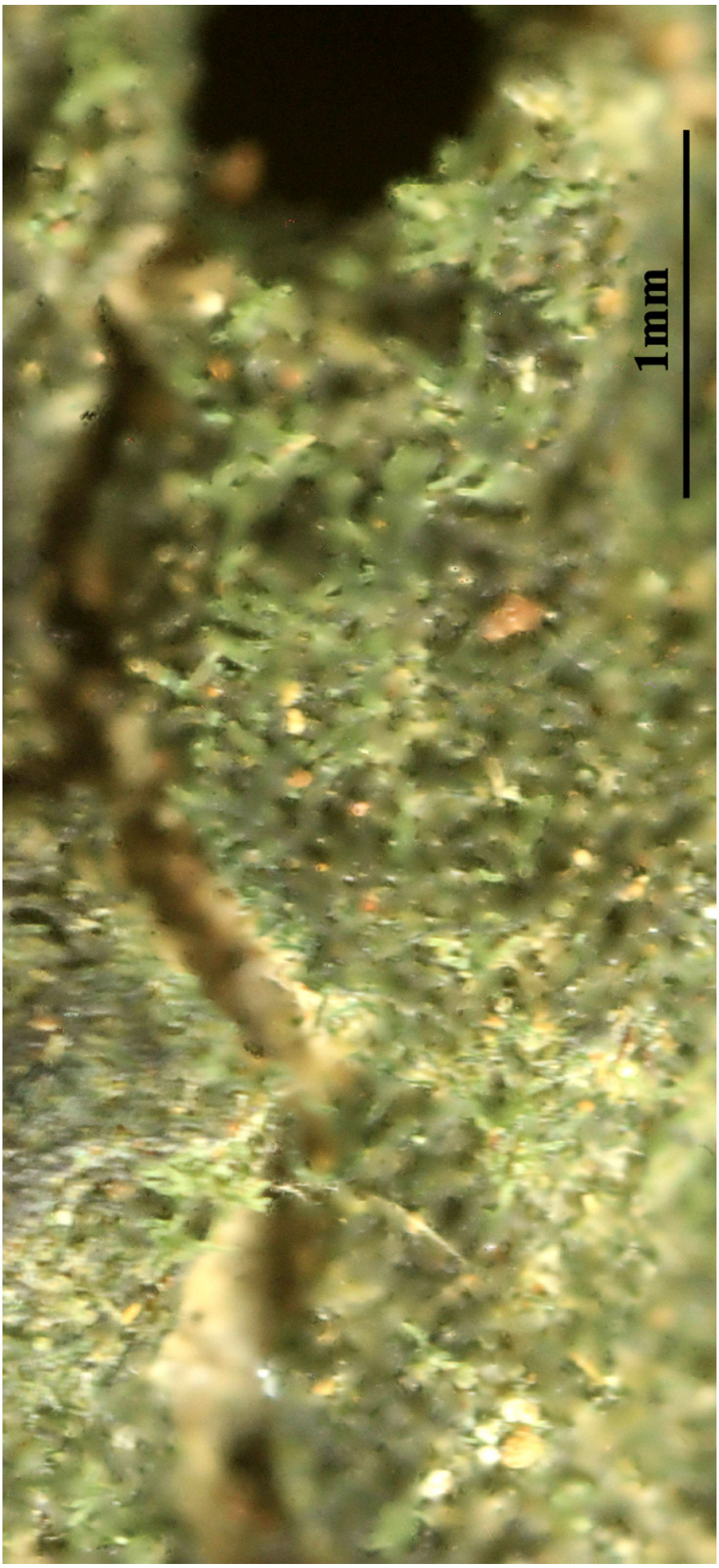
Dictyonema montanum

Dictyonema moorei (Nyl.) Henssen, Symb. bot. upsal. 18(no. 1): 109 (1963)
= *Byssomerulius moorei* (Nyl.) Zmitr. & Malysheva, in Zmitrovich, Malysheva & Spirin, Mycena 6: 31 (2006)
= *Leptogidium moorei* Nyl., Lich. Japon.: 14 (1890)

[VZ2025], Insular Haeaii, Insula Molokau: Palaau, ad occidentem versus a Kalamkaka, 480 m. Ad truncum arboris (Casuarina). Leg. O. et I. Degener (no. 36584), 14,5,1984, det. A. Vězda. EX A. VěZDA LICHENES SELECTI EXSICCATI NR. . 2025.

Lichen crustose, resembling a cover of appressed or erect branched fibrills. Hyphae withot clamps. Algal trichomata biseriate.
Algal component Scytonema.

Dictyonema moorei



Dictyonema moorei

Dictyonema sericeum (Sw.) Berk., London J. Bot. 2: 639 (1843)
= *Hydnum sericeum* Sw. 1788

[VZ2446], Insulae Antillarum. Guadeloupe: Insula Basse-Terre, supra piscinam dictam"l'As de Pique", 700-750 m. Ad corticem fruticis (*Schlegelia axilaris*). Leg. J. Vivant, 13.3.1990. EX A. VěZDA LKICHENES SELECTI EXSICCATI NR. 2446.

Thallus a basidiocarp, sessile, imbricate and united in rosettes or spreading ± irregularly and unevenly, to 25 cm diam., semicircular or reniform, soft membranous-spongy when wet, brittle when dry. Upper surface indistinctly zonate or azonate, dull green, dark green, greyish-green, malachite green to dark, bluish-green, fibrillose, fibrils appressed or ascendent, margins rounded, loosely radially fibrillose, dark cream to pale yellowish. Lower surface sparsely radially reticulate. Fruiting bodies developing at the tips of fibrils, at first scattered cupules 0.3-1 mm diam., coalescing to form scattered spots to 1 cm diam., or more frequently forming a ± continuous whitish or creamish hymenium containing basidia and basidiospores. Algal trichomata (Scytonema) uniseriate Hypha without clamps

Dictyonema sericeum

Dictyonema sericeum

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