F. Schumm (2025):

# Images of Lichens Vol. 19
# Mixture of various rare Lichens
## mainly Diploschistes & Cladia

ARCHIVE FOR LICHENOLOGY Vol. 60, ISSN 1868-4173
online VI. 2025

In this book I mainly depict species of the Genus *Diploschistes* and *Cladia* that are distributed from A. Vězda in his Exsiccati

The numbers in [..] are the numbers of the bags in my privtate lichen herbarium F. Schumm in Wangen out of which the images are taken.

For the descriptions I consulted and used mainly:

Awasthi, D. (2007): A Compendium of the Macrolichens from India, Nepal and Sri Lanka.- Bishen Singh, India.

Filson, R. B. (1981): A Revision of the Lichen Genus *Cladia* Nyl.- Journ. Hattori Bot. Lab. No. 49: 1-75.

Guderley, R, Lumbsch, H. Th (1996): The Lichen Genus *Diploschistes* in South Africa (Thelotremataceae).- Mycotaxon, 58, 269-292.

Lumbsch, H. Th. (1989): Die Holarktischen Vertreter der Flechtengattung *Diploschistes* (Thelotremataceae).- Journ. Hattori Bot. Lab. No. 66: 133-196.

Parnmen, S., Leavitt, A. D., Rangsiruji, A., Lumbsch, H. Th. (2013): Identification of species in te Cladia aggregata group usinh DNA barcoding.- Phytotaxa 115(1): 1-14.

Swinscow, T. D. V. & Krog, H. (1988): Macrolichens of East Africa. - British Museum (Natural History)

I used also the excellent descriptions that are provided in Prof. Nimis ITALIC 7.0 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**

***Cladia aggregata*** (Sw.) Nyl., Bull. Soc. linn. Normandie, sér. 2 4(2): 167 (1870)
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= *Stereocaulon aggregatum* (Sw.) Raeusch., Nomencl. bot., Edn 3: 328 (1797)

[9432], Malaysia: Pahang (state), Bentong (dist.) Genting Highlands, 3°25'15" N, 101°48'01" E, 5450 ft, elfin woodland, on ground. Leg. R.D. Worthington 11. JUl. 1999 (Nr. 28421), ex UTEP.

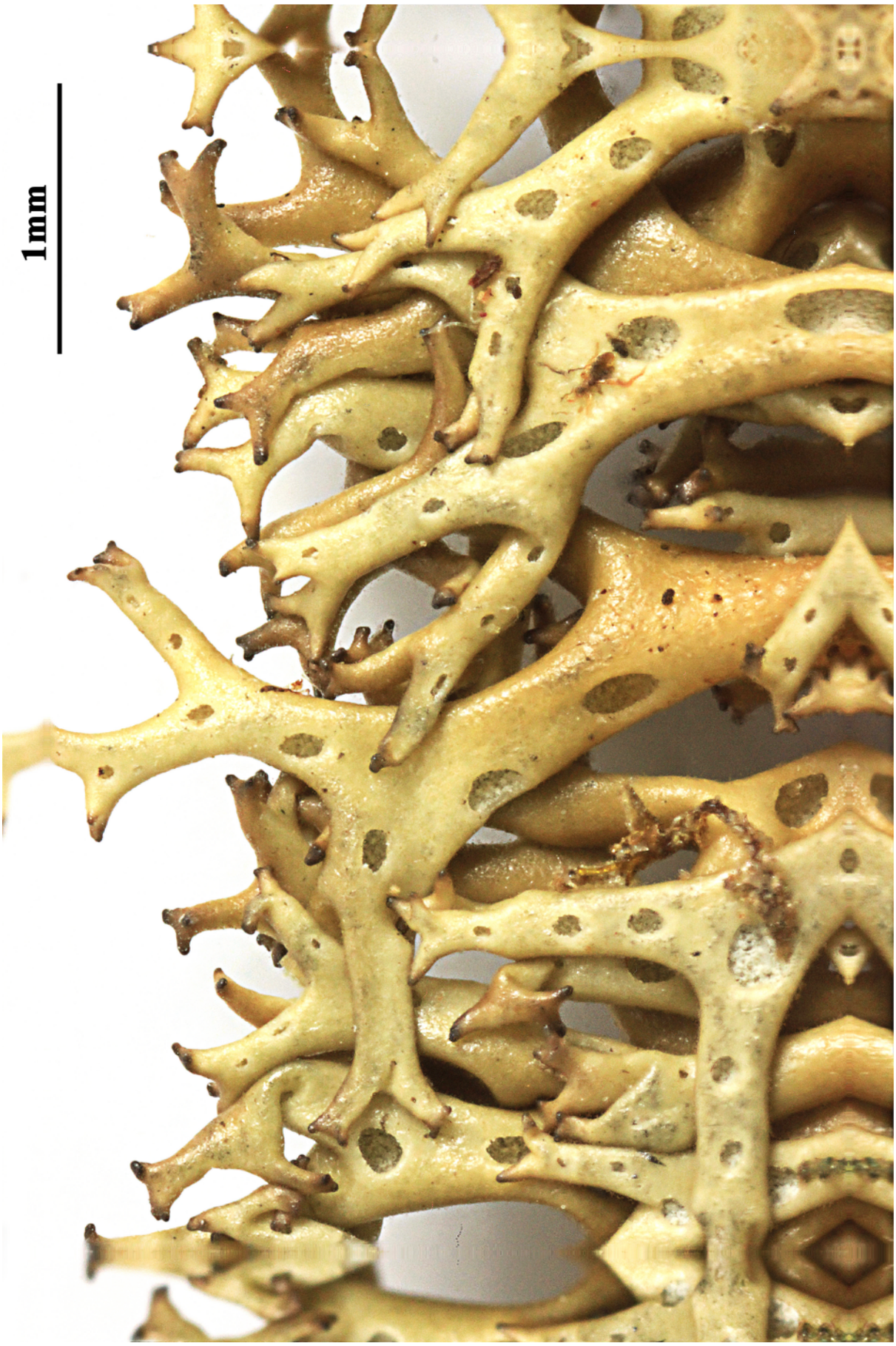
Pseudopodetia 1–8 cm tall, hollow, fragile when dry, green through shades of cream, straw, brown to almost black. Sterile pseudopodetia

horny, rigid when dry, extremely variable in size, from 0.5–8 mm wide, dichotomously or irregularly branched, flexuose, prostrate or ascending, sometimes smaller branches terminating in cilia-like spines. Fertile pseudopodetia much thicker and taller than sterile pseudopodetia, usually more perforate and more branched towards apex. Apothecia solitary or tiered, to 0.3 mm wide; disc slightly concave to flat, matt, brownish black to black. Ascospores 12–15 × 4–5 µm. Pycnidia ellipsoidal, 320 × 120 µm. Conidia 5 × 1 µm. CHEMISTRY: thallus K-, C-, KC-, P-. Barbatic, 4-O-demethylbarbatic, fumarprotocetraric, ursolic acids, unknown triterpenes and 13 unidentified products. Occurs in Hawaii, Asia, South America and South Africa. Tolerant of a wide range of habitats; often growing on rotten wood, and also often epiphytic.

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[6033], Philippines, Mindanao, Provinz Cotabato, Mt. Apo, tropischer Bergregenwald zwischen Marbel-River-Campsite und Lake Venado, ca. 07°00.165' N - 07°00.181' E, 1490 m - 2200 m. Leg. F. Schumm & U. Schwarz, 10.08.1999, det. A. Aptroot, 2009.

Pseudopodetia 1–8 cm tall, hollow, fragile when dry, green through shades of cream, straw, brown to almost black. Sterile pseudopodetia horny, rigid when dry, extremely variable in size, from 0.5–8 mm wide, dichotomously or irregularly branched, flexuose, prostrate or ascending, sometimes smaller branches terminating in cilia-like spines. Fertile pseudopodetia much thicker and taller than sterile pseudopodetia, usually more perforate and more branched towards apex. Apothecia solitary or tiered, to 0.3 mm wide; disc slightly concave to flat, matt, brownish black to black. Ascospores 12–15 × 4–5 µm. Pycnidia ellipsoidal, 320 × 120 µm. Conidia 5 × 1 µm. CHEMISTRY: thallus K-, C-, KC-, P-. Barbatic, 4-O-demethylbarbatic, fumarprotocetraric, ursolic acids, unknown triterpenes and 13 unidentified products. Occurs in Hawaii, Asia, South America and South Africa. Tolerant of a wide range of habitats; often growing on rotten wood, and also often epiphytic.

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[6488], Philippines, Mindanao, Prov. Misamis Oriental, südwestlich Gingoog City, Barangay Lunutan N 08°42.510 E 125°01.241 alt.1120 und am Weg auf den Mt. Lumot (Via Haruhay Trial) bis zum Zwischencamp im trop. Bergregenwald, 08°40.713 N, 125°01.649 E,168 m. Leg. O. L. Bernabe & F. Schumm & U. Schwarz, 24.08.1999, det. A. Aptroot, 2009.

Pseudopodetia 1–8 cm tall, hollow, fragile when dry, green through shades of cream, straw, brown to almost black. Sterile pseudopodetia horny, rigid when dry, extremely variable in size, from 0.5–8 mm wide, dichotomously or irregularly branched, flexuose, prostrate or ascending, sometimes smaller branches terminating in cilia-like spines. Fertile pseudopodetia much thicker and taller than sterile pseudopodetia, usually more perforate and more branched towards apex. Apothecia solitary or tiered, to 0.3 mm wide; disc slightly concave to flat, matt, brownish black to black. Ascospores 12–15 × 4–5 µm. Pycnidia ellipsoidal, 320 × 120 µm. Conidia 5 × 1 µm. CHEMISTRY: thallus K-, C-, KC-, P-. Barbatic, 4-O-demethylbarbatic, fumarprotocetraric, ursolic acids, unknown triterpenes and 13 unidentified products. Occurs in Hawaii, Asia, South America and South Africa. Tolerant of a wide range of habitats; often growing on rotten wood, and also often epiphytic.

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[7453], Philippines, Negros, Prov. Negros Oriental, Mt. Talinis (Cuernos de Negros), Lunga Nature Trail von Valencia Barangay Lunga (9°16.676' N, 123°13.839' E) bis zum Camp Vendiola (09°16.281' N, 123°11.410' E), zwischen 530-1100 m, bei 1070 m. Leg. F. Schumm & U. Schwarz, 09.08.2000 , det. A. Aptroot 2009.

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[VZ1911], Republica Dominicana. La Vega: 17 km ad meridiem et orientem versus a Constanza, 1650 m. In rupibus secus viam. Leg. W. L. Culberson & C. F. Cilberson, 17.6.1982. Ex A. VěZDA: Lichenes Selecti Exsiccati Nr. 1911.

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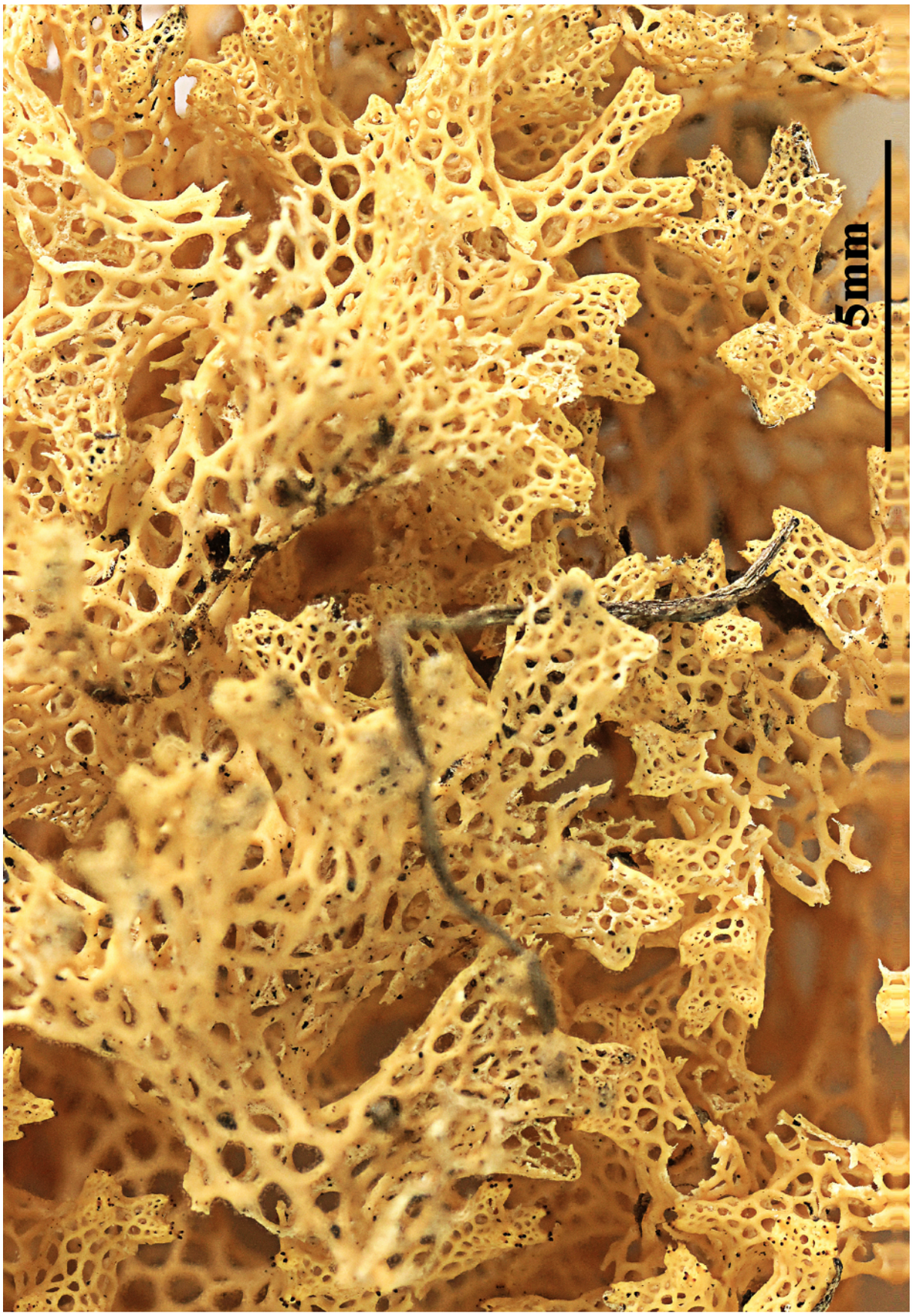



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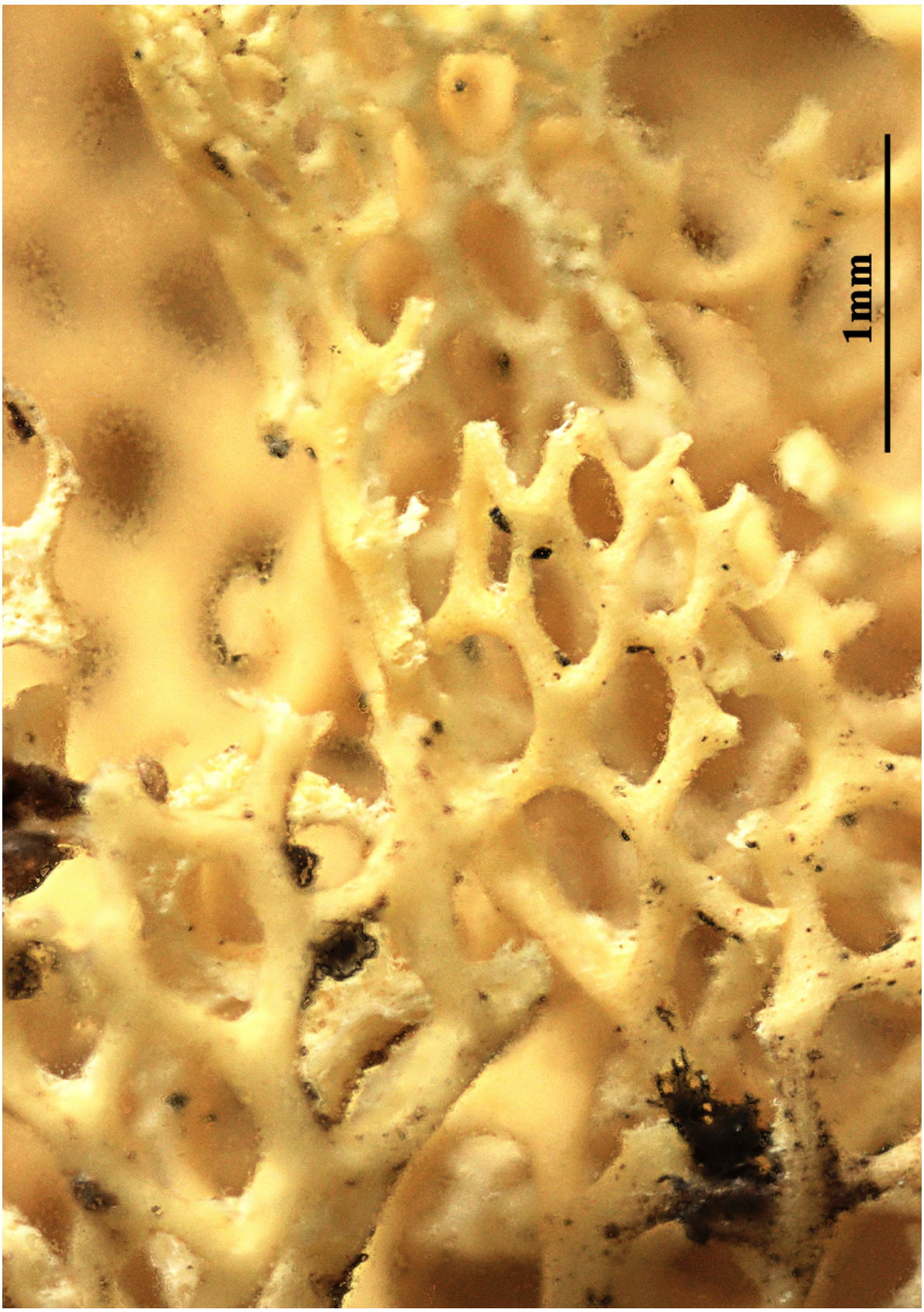
***Cladia ferdinandii*** (Müll. Arg.) Filson, Victorian Nat. 87: 325 (1970)
= *Pulchrocladia ferdinandii* (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 379 (2018)
= *Cladonia ferdinandii* Müll. Arg. [as 'ferdinandi'], Flora, Regensburg 65(19): 293 (1882)
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[9954], Australia, Western Australia, Sullivan Rock, Monadnocks Nature Reserve, 18 km ESE of Jarrahdall, 320 m. Large gently sloping rock outcrop surrounded by heath. 32°23' S, 116°15' E. On mosses over rocks. Leg. Th. Lumbsch & J. A. Elix & Streimann, 11.09.1994, det. Th. Lumbsch (Nr. 10756 b).

Thallus fruticose, in pulvinate clumps up to 75 cm diam., or in scattered clusters; composed of pseudopodetia, up to 15 cm tall; creamy white, yellowing at the tips. Sterile pseudopodetia rigid when dry, horny, up to 12 mm diam., irregularly branched; walls regularly perforate; perforations large, up to 4 mm diam., irregularly rounded. Cortex up to 40 µm thick; algal layer in scattered colonies throughout the medulla, cells up to 10 µm diam.; medulla loosely woven, hyphae hyaline, up to 12 µm diam. inner-medulla lacking. Fertile pseudopodetia and apothecia not known. Pycnidia globose, terminal or laminal, partly immersed or sessile on the upper branches, 50 µm diam. and up to 60 µm long; conidia 5 x 1 µm, hyaline, curved. Chemistry. Thallus K+ yellow, C-, KC-, P-. Contains usnic, ursolic acids and atranorin.




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[15840], Australia (West). North Boundary Rock ca. 20 km NNE of Manjimup off North Boundary Road. Granite outcrop Assoc. with *Allocasuarina huegeliana* und *Corymbia calophylla*. 34,07196° S, 116,32507° E, 320 m. Leg. F. Schumm & E. Stocker, 25.10.2009. Chemistry Hptlc p286/6: atranorin, usnic acid.

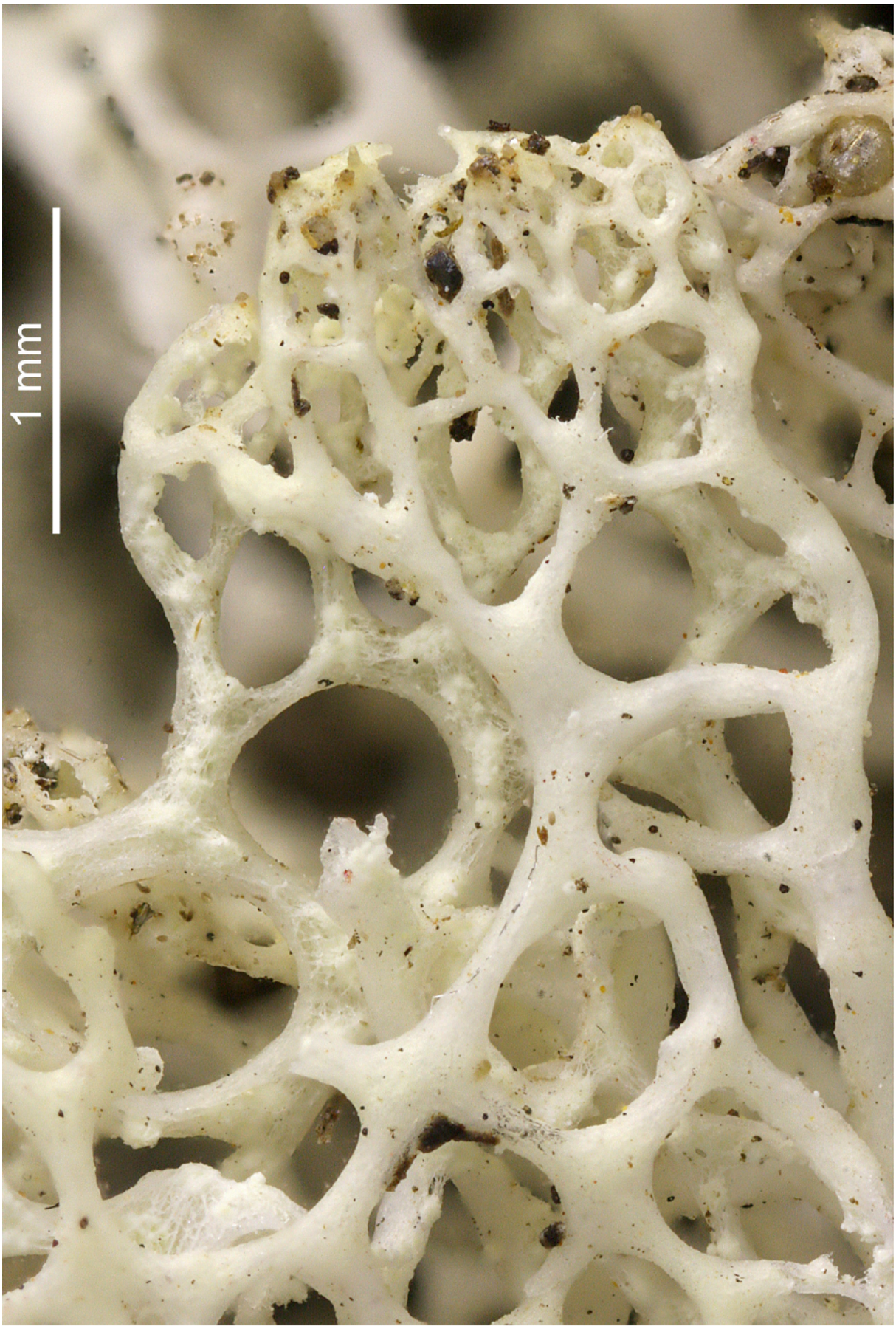
Thallus fruticose, in pulvinate clumps up to 75 cm diam., or in scattered clusters; composed of pseudopodetia, up to 15 cm tall; creamy white, yellowing at the tips. Sterile pseudopodetia rigid when dry, horny, up to 12 mm diam., irregularly branched; walls regularly perforate; perforations large, up to 4 mm diam., irregularly rounded. Cortex up to 40 µm thick; algal layer in scattered colonies throughout the medulla, cells up to 10 µm diam.; medulla loosely woven, hyphae hyaline, up to 12 µm diam. inner-medulla lacking. Fertile pseudopodetia and apothecia not known. Pycnidia globose, terminal or laminal, partly immersed or sessile on the upper branches, 50 µm diam. and up to 60 µm long; conidia 5 x 1 µm, hyaline, curved. Chemistry. Thallus K+ yellow, C-, KC-, P-. Contains usnic, ursolic acids and atranorin.



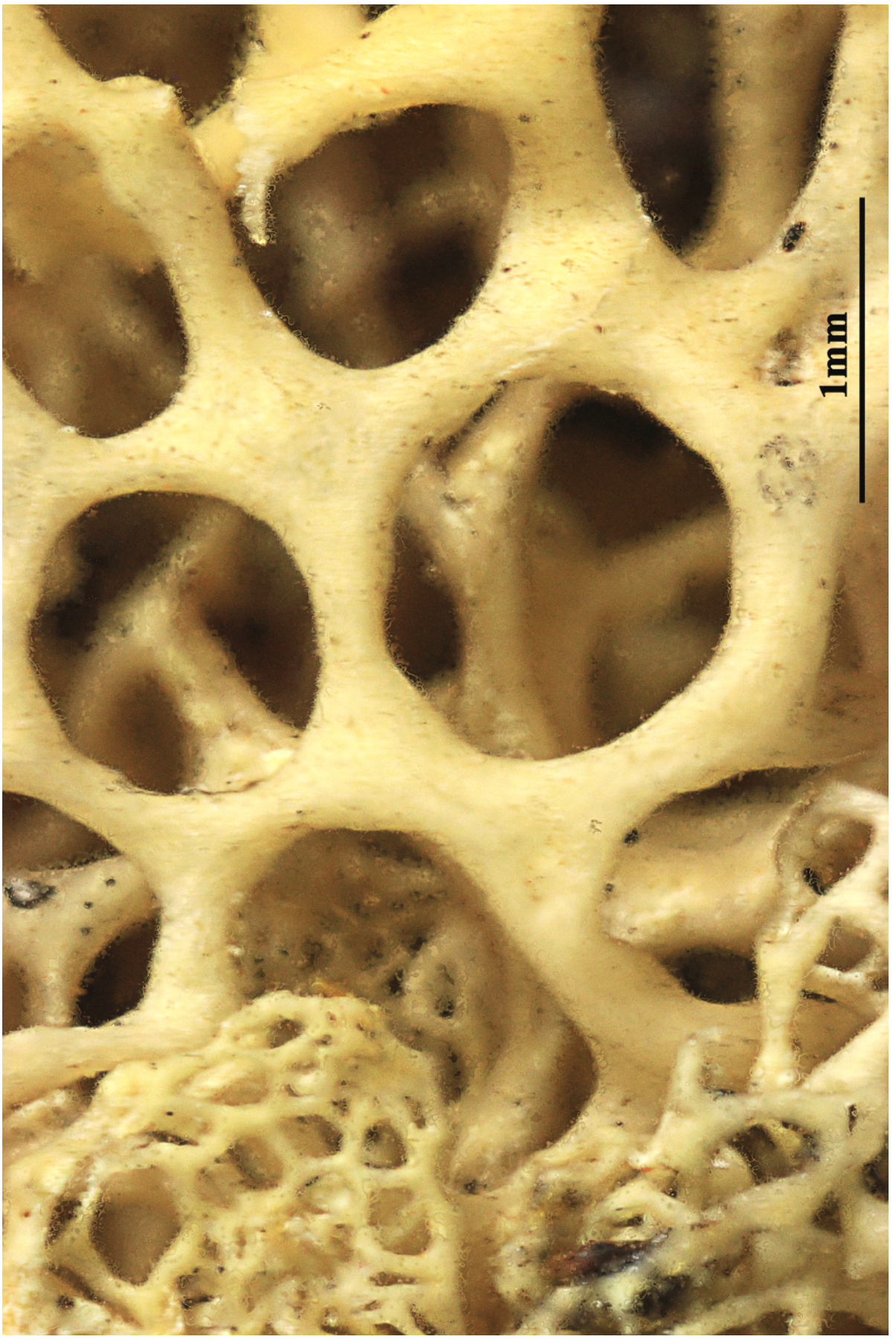

***Cladia ferdinandii***




***Cladia ferdinandii***




***Cladia ferdinandii***



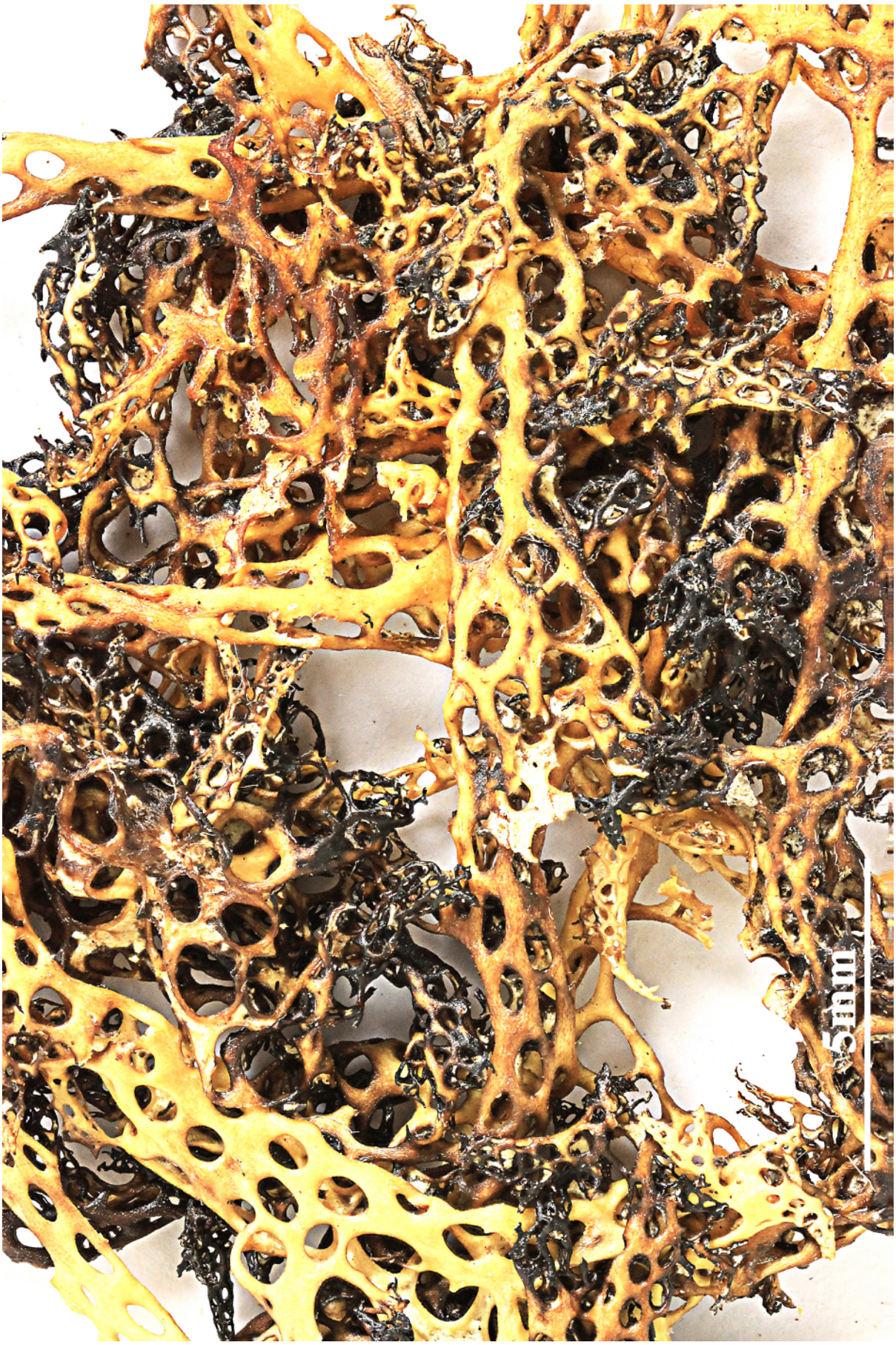

***Cladia ferdinandii***

***Cladia ferdinandii***

***Cladia fuliginosa*** Filson, Victorian Nat. 87: 325 (1970)
= *Rexiella fuliginosa* (Filson) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas & Ahti, Cladistics 35: [603] (2019)
= *Rexia fuliginosa* (Filson) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 379 (2018) [2019]

[VZ2064], Australia, Tasmania. Perambulator Ridge, ad septentriones a Lake Curly, 920 m. Ad furfam in regione alpina. Leg. G. Kantvilas (no. 80/85) et. J. Jarman, 6.II.1985. Ex A. VěZDA: LICHENES SELECTI EXSICCATI NR. 2064.

Pseudopodetia in scattered clumps or carpeting small areas, to 7 cm high, green when immature, becoming brown to black; smaller pseudopodetia within clump, green with orange-brown tips. Sterile pseudopodetia rigid, horny, to 2 mm wide, irregularly branched; perforations broadly elliptic to round, irregularly spaced. Fertile pseudopodetia similar. Inner-medulla filling most of pseudopodetium; hyphae 8–10 µm wide, pale brown to black, Apothecia to 0.5 mm wide; disc slightly concave to flat, reddish brown to dark brown; exciple slightly raised, persistent; lower cortex concolorous with pseudopodetia. Asci and ascospores not seen. Pycnidia c. 170 × 120 µm. Conidia not seen. CHEMISTRY: thallus K-, C-, KC-, P-. Divaricatic and ursolic acids, unknown triterpenes and one unidentified product. - Occurs Australia, New Zealand, and South America.




***Cladia fuliginosa***




***Cladia fuliginosa***

***Cladia inflata*** (F. Wilson) D.J. Galloway, Nova Hedwigia 28(2-3): 476 (1977)

= *Cladonia aggregata f. inflata* F. Wilson, Pap. Proc. R. Soc. Tasm.: 223 (1893) [1892]

[18958], Australia, New South Wales, Sassafras Tip, 1 km north-west of Sassafras along Turpentine Road, 35°07' S, 150°14' E, 740 m, growing on soil over sandstone rocks in heath. Leg. J.A. Elix (19272) & J. Johnston, 26.06.1985. Chemistry: fumarprotocetraric acid (major), physodalic acid (trace), protocetraric acid (trace) by TLC anal. J. Johnston. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 101.

Pseudopodetia loosely clustered, to 7 cm tall, hollow, fragile when dry; perforations elliptic, scattered, mostly on lower side, straw yellow, greenish brown to brownish black. Sterile pseudopodetia erect, ascending, or occasionally prostrate, stout, inflated, regularly tapered towards apex, sparsely dichotomously branched; branches often terminating in cilia-like spines. Fertile pseudopodetia similar to sterile pseudopodetia but more richly branched and perforated. Apothecia rare, solitary or sparingly aggregate, to 0.24 mm wide, slightly concave or flat, brownish black. Ascospores 10–12 × 5 µm, tapering at one end. Conidia 5 × 1 µm. CHEMISTRY: thallus K-, C-, KC-, P+ red. Fumarprotocetraric, barbatic and fatty acids. Occurs in Australia and also in New Zealand.




***Cladia inflata***




***Cladia inflata***

*Cladia inflata*

***Cladia inflata*** (F. Wilson) D.J. Galloway, Nova Hedwigia 28(2-3): 476 (1977)

= *Cladonia aggregata f. inflata* F. Wilson, Pap. Proc. R. Soc. Tasm.: 223 (1893) [1892]

[18959], Australia, New South Wales, Morton National Park, 8 km north-east of Nerriga, 35°07' S, 150°08' E, 760 m, growing on soil over sandstone rocks in heath. Leg. J. A. Elix (19281) & J. Johnston, 26.06.1985. Chemistry: fumarprotocetraric acid (major), physodalic acid (trace), protocetraric acid (trace), virensic acid (trace) by TLC, HPLC anal. J. Johnston. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 102

Pseudopodetia loosely clustered, to 7 cm tall, hollow, fragile when dry; perforations elliptic, scattered, mostly on lower side, straw yellow, greenish brown to brownish black. Sterile pseudopodetia erect, ascending, or occasionally prostrate, stout, inflated, regularly tapered towards apex, sparsely dichotomously branched; branches often terminating in cilia-like spines. Fertile pseudopodetia similar to sterile pseudopodetia but more richly branched and perforated. Apothecia rare, solitary or sparingly aggregate, to 0.24 mm wide, slightly concave or flat, brownish black. Ascospores 10–12 × 5 µm, tapering at one end. Conidia 5 × 1 µm. CHEMISTRY: thallus K-, C-, KC-, P+ red. Fumarprotocetraric, barbatic and fatty acids. Occurs in Australia and also in New Zealand.



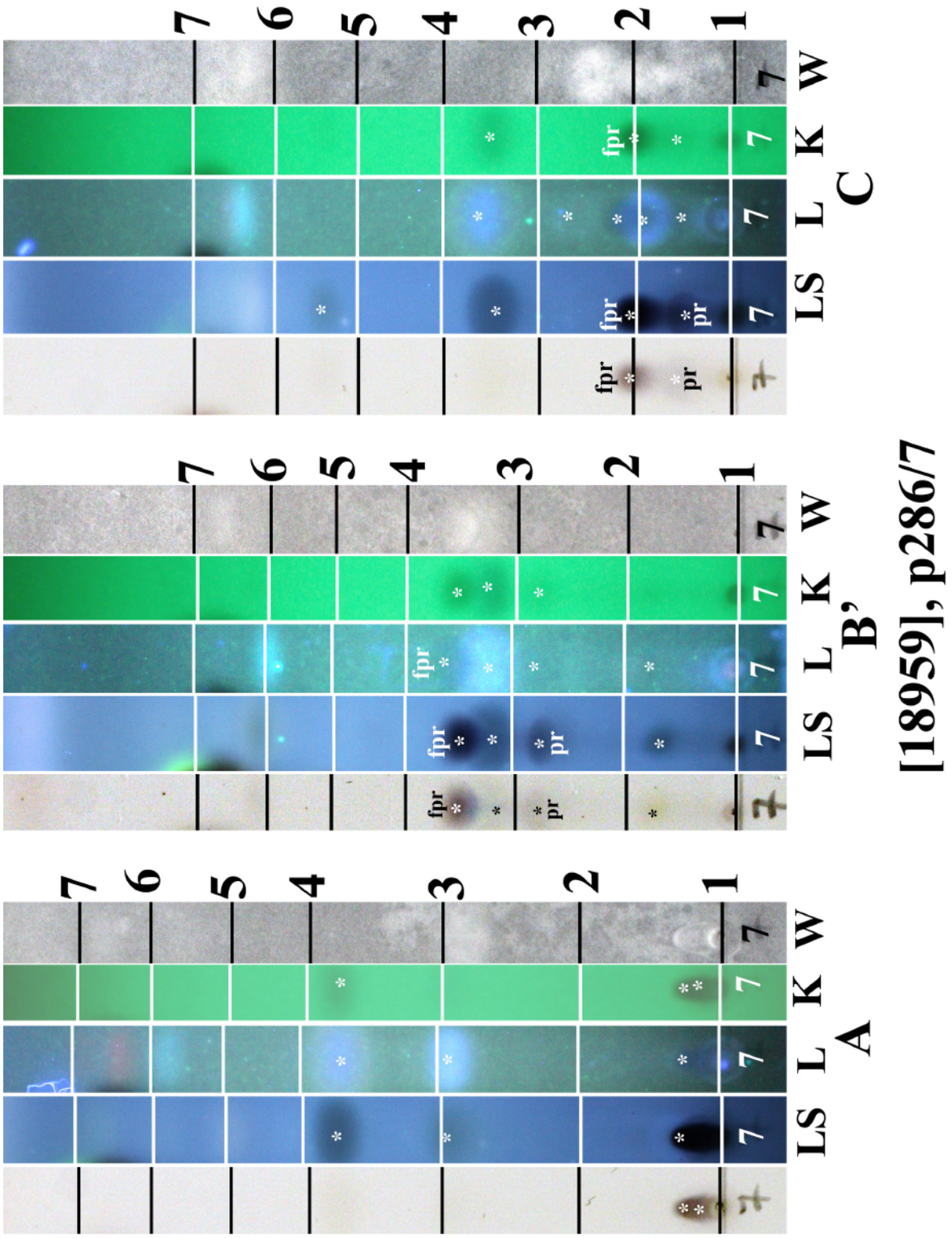

***Cladia inflata***




***Cladia inflata***




***Cladia inflata***




*Cladia inflata*

***Cladia moniliformis*** Kantvilas & Elix, Mycotaxon 29: 199 (1987)

[19179], Australia, Tasmania, Scotts Peak Road near airstrip, 43°02' S, 146°19' E, 340 m, growing on peaty soil in button grass moorland. Leg. G. Kantvilas & J. Jarman (86/91), 12.03.1991. Chemistry: homosekikaic acid (major), 4'-O-methylnorhomosekikaic acid (minor), sekikaic acid (trace) by HPLC, TLC, anal. J.A. Elix. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 227.

Pseudopodetia, very fragile when dry, yellow-brown to dark brown or becoming blackened. Sterile pseudopodetia very inflated, bulbous or cylindrical, irregularly constricted, to 80 mm long and 12 mm broad at the widest point. Medulla thin, white, tomentose, blackened in older pseudopodetia. Apothecia terminal, lecideine, black and shiny, 0.05-0.15 mm diam. Ascospores hyaline, simple, 8/ascus, 8-10 x 2.5-4 µm. Chemistry: homosekikaic acid (major), 4'-O-methylnorhomosekikaic acid, sekikaic acid.



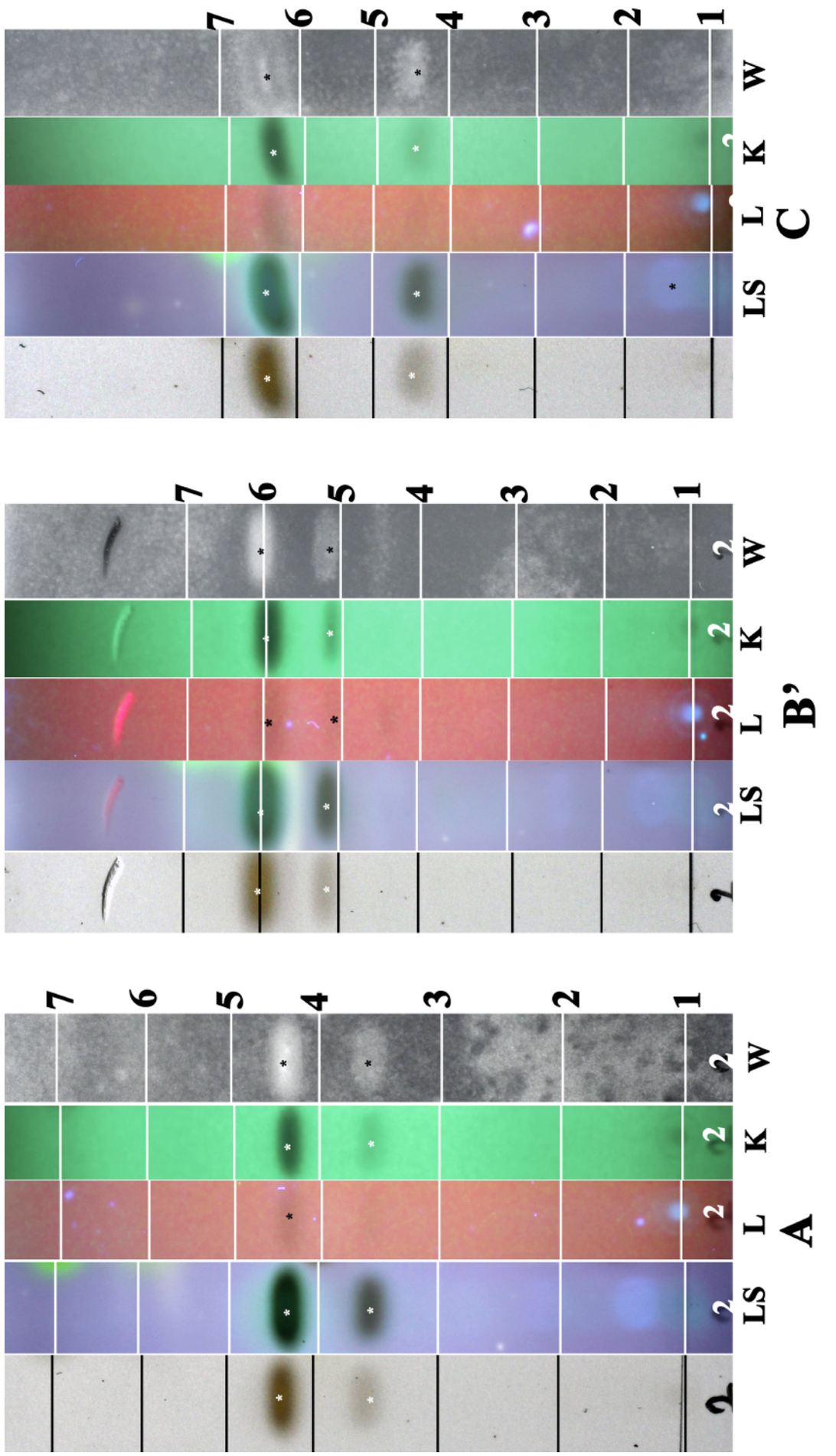

***Cladia moniliformis***




***Cladia moniliformis***




***Cladia moniliformis***




***Cladia moniliformis***

***Cladia retipora*** (Labill.) Nyl., Bull. Soc. linn. Normandie, sér. 2 4(2): 167 (1870)
= *Pulchrocladia retipora* (Labill.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 379 (2018)
= *Baeomyces retiporus* Labill. [as 'reteporus'], Nov. holland. pl. spec. 2: 110 (1806)
= *Cenomyce retipora* (Labill.) Ach., Syn. meth. lich. (Lund): 248 (1814)
= *Cladina retipora* (Labill.) Nyl., Bull. Soc. linn. Normandie, sér. 2 2: 50 (1868)
= *Cladonia retipora* (Labill.) Fr., Nov. Sched. Critic. Lich. (Lundae): 21 (1826)
= *Clathrina retipora* (Labill.) Müll. Arg., Flora, Regensburg 66(6): 80 (1883)
= *Lichen retiporus* (Labill.) DC., in Lamarck, Encycl. Méth. Bot., Suppl. (Paris) 3(1): 368 (1813)
= *Pycnothelia retipora* (Labill.) Fée, Essai Crypt. Exot. (Paris): xcviii (1825) [1824]

[19181], Australia, New South Wales, Morton National Park, 8 km north-east of Nerriga, 35°07' S, 150°08' E, 760 m, growing on soil over sandstone rocks in heath. Leg. J. A. Elix (19280) & J. Johnston, 26.06.1985. Chemistry: usnic acid, atranorin, rangiformic acid, norrangiformic acid by TLC, anal. J. Johnston. Ex J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 103.

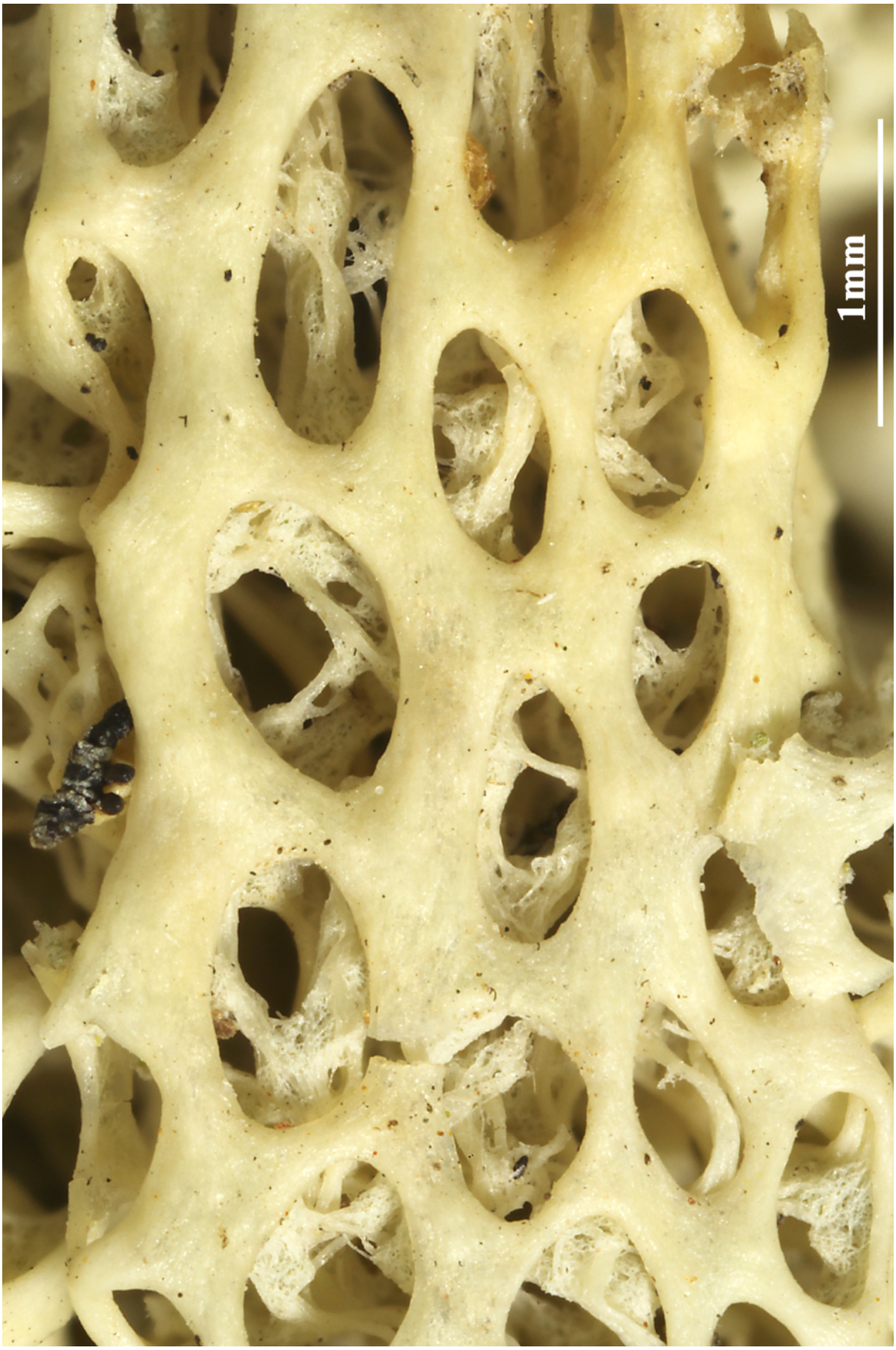
Pseudopodetia in pulvinate clumps to 0.5 m wide, to 5 cm high, white to pale grey, sometimes yellowing at tips of branches. Inner medulla stranded, sometimes becoming corticate. Apothecia to 0.14 mm wide, dark reddish brown to black; excipe thin, dissappearing at maturity. Ascospores 11-14 x 3-4.5 µm. Chemistry: K- or K+ yellow, C-, Kc- or KC+ orange, P-; usnic acid, protolichesterinic acid, ursolic acid, rangiformic acid, norrangiformic acid, atranorin, unknown triterpenes and four unidentified substances.




***Cladia retipora***




***Cladia retipora***




***Cladia retipora***

*Cladia retipora*

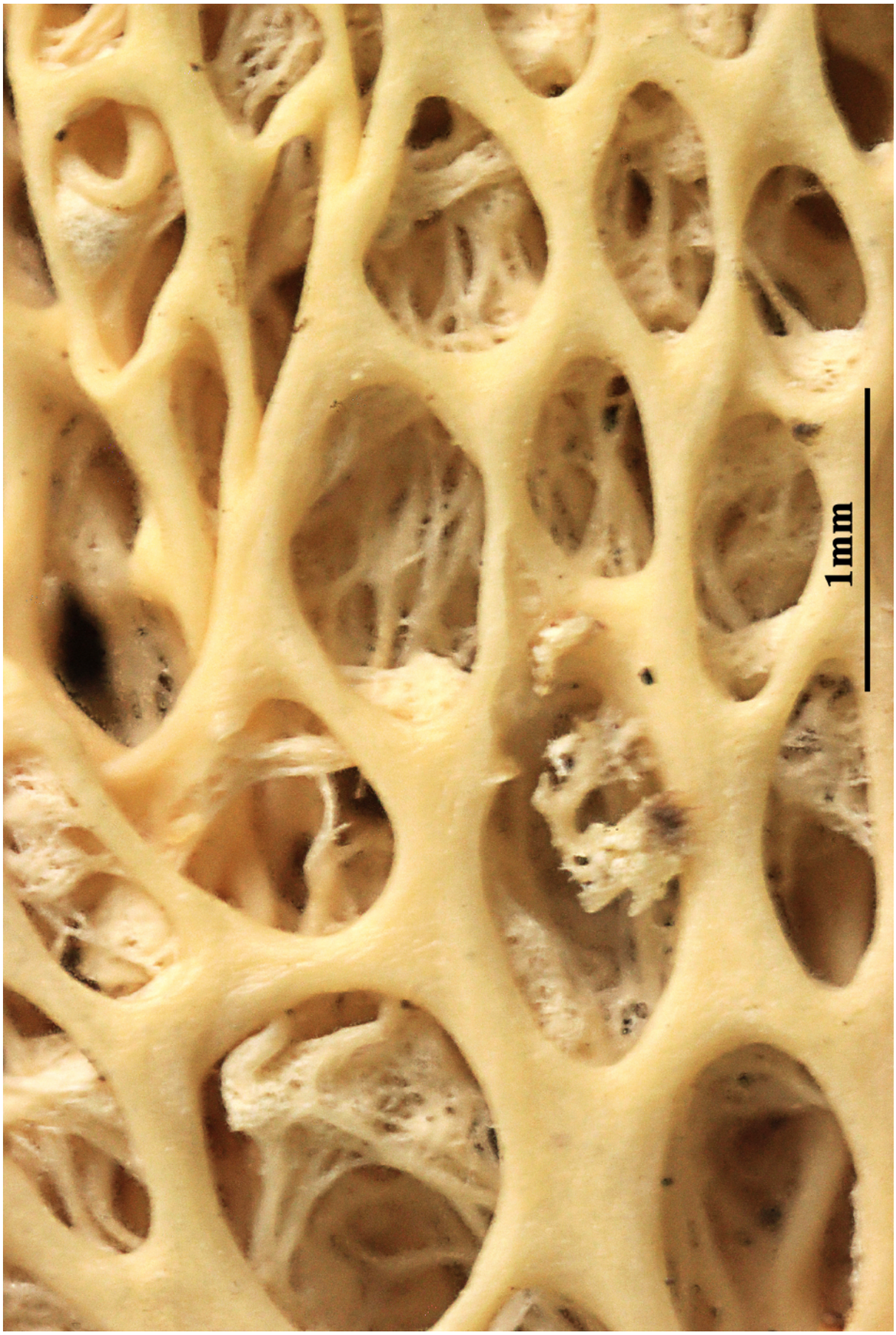
***Cladia retipora*** (Labill.) Nyl., Bull. Soc. linn. Normandie, sér. 2 4(2): 167 (1870)
= *Pulchrocladia retipora* (Labill.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 379 (2018)
= *Baeomyces retiporus* Labill. [as 'reteporus'], Nov. holland. pl. spec. 2: 110 (1806)
= *Cenomyce retipora* (Labill.) Ach., Syn. meth. lich. (Lund): 248 (1814)
= *Cladina retipora* (Labill.) Nyl., Bull. Soc. linn. Normandie, sér. 2 2: 50 (1868)
= *Cladonia retipora* (Labill.) Fr., Nov. Sched. Critic. Lich. (Lundae): 21 (1826)
= *Clathrina retipora* (Labill.) Müll. Arg., Flora, Regensburg 66(6): 80 (1883)
= *Lichen retiporus* (Labill.) DC., in Lamarck, Encycl. Méth. Bot., Suppl. (Paris) 3(1): 368 (1813)
= *Pycnothelia retipora* (Labill.) Fée, Essai Crypt. Exot. (Paris): xcviii (1825) [1824]

[VZ2065], Nova Zelandia. Southerb Lakes: Secus viam 9 km ad australem versus ad Te Anau, 210 m. Ad terram. Leg. M. E. Hale, 27.o1.1984. Ex A. VěZDA: Lichenes Selecti Exsiccati Nr. 2065.

Thallus fruticose, in pulvinate clumps up to 0.5 m diam., or in occasional scattered clusters 3-4 cm diam. ; composed of pseudopodetia up to 5 cm high, white to pale grey, sometimes yellowing at the tips of the branches, sometimes upper portions or just the tips blackening. Sterile pseudopodetia robust, up to 8 mm diam., dichotomous to irregularly branched, fenestrations variable in shape, round to ellipsoidal. Cortex 30-40 µm thick, pale brown; algal cells 6-12 µm diam., in scattered colonies up to 150 µm diam; medulla loosely woven of anastomosing hyphae 6-9 µm diam.; inner-medulla stranded throughout the central portion of the pseudopodetium, sometimes becoming corticate, sometimes containing scattered algal colonies. Fertile pseudopodetia similar. Apothecia terminal on the upper branches of the fertile pseudopodetia, up to 0.14 mm diam.; disk convex, dark reddish-brown to black; margin thin disappearing at maturity; hymenium 35-40 µm high, reddish-brown; paraphyses tightly set in mucilage; asci 8-spored, 27-30 x 11-16 µm; ascospores 11-14 x 3-4.5 µm, hyaline, unicellular, tapering towards each end, sometimes slightly curved. Pycnidia brownishblack to black, terminal on the apical and auxillary branchlets, sessile, ellipsoidal, 180 x 150 µm; conidia baccilliform, hyaline, 6 <1 µm, curved. Chemistry: Thallus K- or K+ yellow, C-, KC- or KC+ orange, P-. Contains usnic, protolichesterinic, ursolic acids, atranorin, unknown triterpenes and four unidentified substances.




***Cladia retipora***




***Cladia retipora***

***Cladia schizopora*** (Nyl.) Nyl., Bull. Soc. linn. Normandie, sér. 2 4(2): 167 (1870)
= *Cladina schizopora* (Nyl.) Nyl., Flora, Regensburg 49(12): 179 (1866)
= *Cladonia schizopora* Nyl., Syn. meth. lich. (Parisiis) 1(2): 217 (1860)
= *Clathrina aggregata var. pygmaea* Müll. Arg., Flora, Regensburg 66(6): 80 (1883)
= *Clathrina schizopora* (Nyl.) Müll. Arg., Flora, Regensburg 66(6): 80 (1883)

[VZR1835], Tasmania. Huonville, in monte Snug, ad cataracta Snug Falls dicta, 43°05' austr., 147°12' orient., 180 m. Ad truncum decorticatum *Eucalypti* sp.. in silva *Eucalyptus obliqua*. Leg. et det. L. Tibell (no. 11270), 8.03. 1981. Ex A. Vezda: Lichenes Selecti Exsiccati Nr. 1835.

Thallus fruticose, corticolous, composed of pseudopodetia up to 1.5 cm tall, green to yellow-green to brown. Sterile pseudopodetia up to 2 mm tall, sorediose on the tips or completely reduced to soredia. Fertile pseudopodetia horny when dry, up to 15 mm tall, perforated, branched towards the apex, sorediose on the inside. Cortex 50-80 µm thick; algal layer discontinuous, becoming disjointed as the soredia forms, cells up to 8 µm diam.; medulla compactly woven; inner-medulla lacking. Apothecia terminal on the branches of the fertile pseudopodetia, 0.3-0.5 mm diam.; disk slightly concave to flat, dull, brownish-black to black; margin slightly raised at first, disappearing at maturity; lower cortex black; hypothecium pale brown; Hymenium up to 40 µm tall, pale brown; paraphyses simple, 1.5 µm diam., apical cell expanded to 4 µm; asci 30-40 < 8-11 µm; ascospores 8-10 x 3 µm, simple, hyaline. Pycnidia terminal on the lobes of the sterile pseudopodetia, ellipsoidal, 120 um long and 60 ym diam.; conidia 5 x1 µm baccilliform, curved. Chemistry: Thallus K-, C-, KC-, CK- or CK+ yellow, P-. Contains gyrophoric, fumarprotocetraric, protolichesterinic, ursolic acids and unknown triterpenes.




***Cladia schizopora***

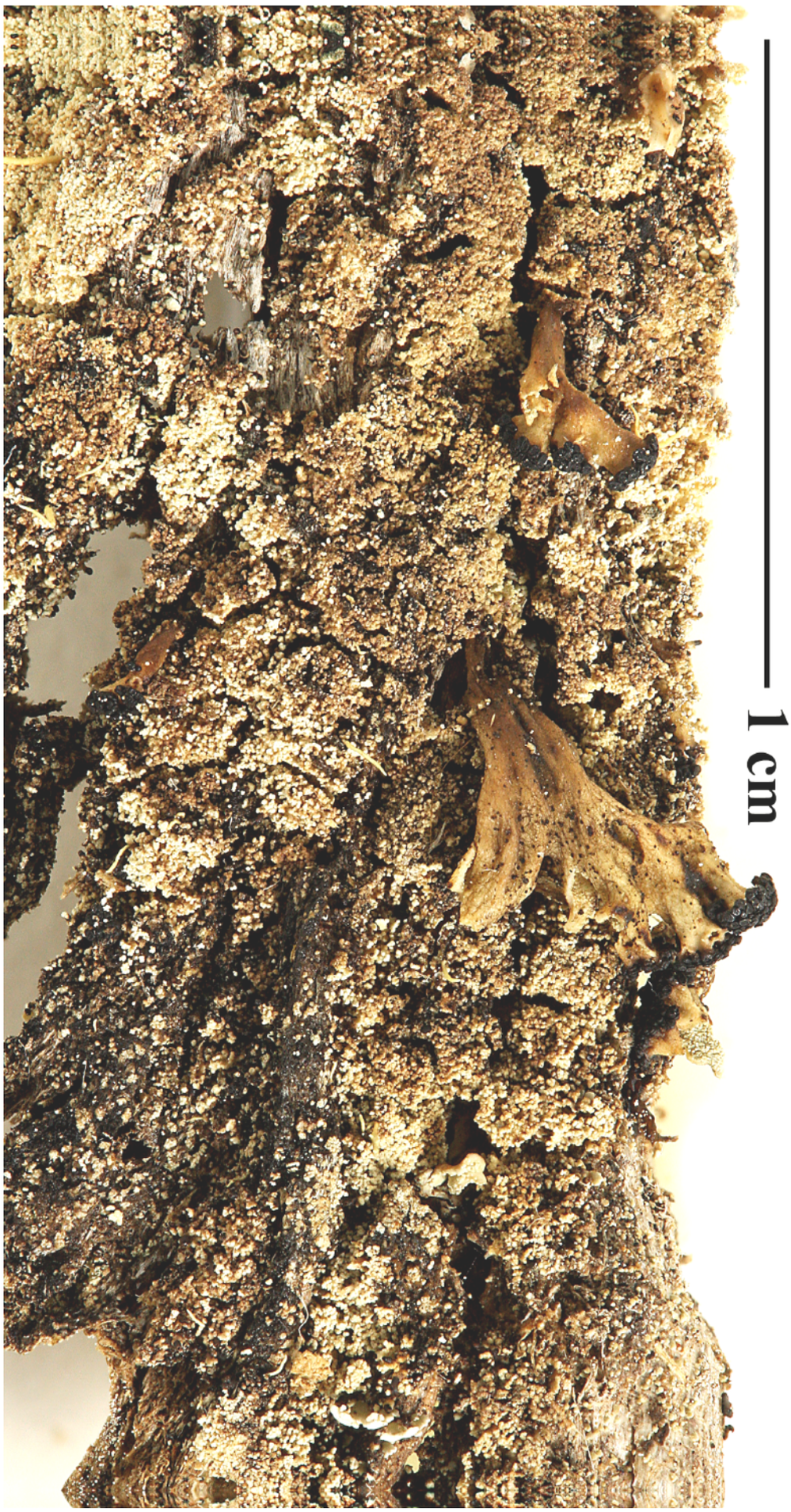



***Cladia schizopora***

***Cladia schizopora*** (Nyl.) Nyl., Bull. Soc. linn. Normandie, sér. 2 4(2): 167 (1870)
= *Cladina schizopora* (Nyl.) Nyl., Flora, Regensburg 49(12): 179 (1866)
= *Cladonia schizopora* Nyl., Syn. meth. lich. (Parisiis) 1(2): 217 (1860)
= *Clathrina aggregata var. pygmaea* Müll. Arg., Flora, Regensburg 66(6): 80 (1883)
= *Clathrina schizopora* (Nyl.) Müll. Arg., Flora, Regensburg 66(6): 80 (1883)

[18960], Australia, Australian Capital Territory, Nursery Creek, 42 km south-south-west of Canberra, 35°40' S, 148°59' E, 1150 m, growing on rotten *Eucalyptus* logs in *Eucalyptus* woodland, on moderate slope with granite boulders. Leg. H. Streimann (36343), 28.10.1985. Chemistry: fumarprotocetraric acid (major), protocetraric acid (trace) by HPLC anal. J. Johnston & G.A. Jenkins. Ex J. A. Elix: LICHENES AUSTRALASICI EXSICCATI NO. 104

Thallus fruticose, corticolous, composed of pseudopodetia up to 1.5 cm tall, green to yellow-green to brown. Sterile pseudopodetia up to 2 mm tall, sorediose on the tips or completely reduced to soredia. Fertile pseudopodetia horny when dry, up to 15 mm tall, perforated, branched towards the apex, sorediose on the inside. Cortex 50-80 µm thick; algal layer discontinuous, becoming disjointed as the soredia forms, cells up to 8 µm diam.; medulla compactly woven; inner-medulla lacking. Apothecia terminal on the branches of the fertile pseudopodetia, 0.3-0.5 mm diam.; disk slightly concave to flat, dull, brownish-black to black; margin slightly raised at first, disappearing at maturity; lower cortex black; hypothecium pale brown; Hymenium up to 40 µm tall, pale brown; paraphyses simple, 1.5 µm diam., apical cell expanded to 4 µm; asci 30-40 < 8-11 µm; ascospores 8-10 x 3 µm, simple, hyaline. Pycnidia terminal on the lobes of the sterile pseudopodetia, ellipsoidal, 120 um long and 60 ym diam.; conidia 5 x1 µm baccilliform, curved. Chemistry: Thallus K-, C-, KC-, CK- or CK+ yellow, P-. Contains gyrophoric, fumarprotocetraric, protolichesterinic, ursolic acids and unknown triterpenes.




***Cladia schizopora***




***Cladia schizopora***




***Cladia schizopora***

*Cladia schizopora*

***Cladia sullivanii*** (Müll. Arg.) W. Martin, Trans. Roy. Soc. N.Z., Bot. 2: 44 (1962)

= *Rexiella sullivanii* (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas & Ahti, Cladistics 35: [603] (2019)

= *Cladonia sullivanii* Müll. Arg. [as 'sullivani'], Flora, Regensburg 65(19): 294 (1882)

= *Clathrina sullivanii* (Müll. Arg.) Müll. Arg. [as 'sullivani'], Flora, Regensburg 66(6): 80 (1883)

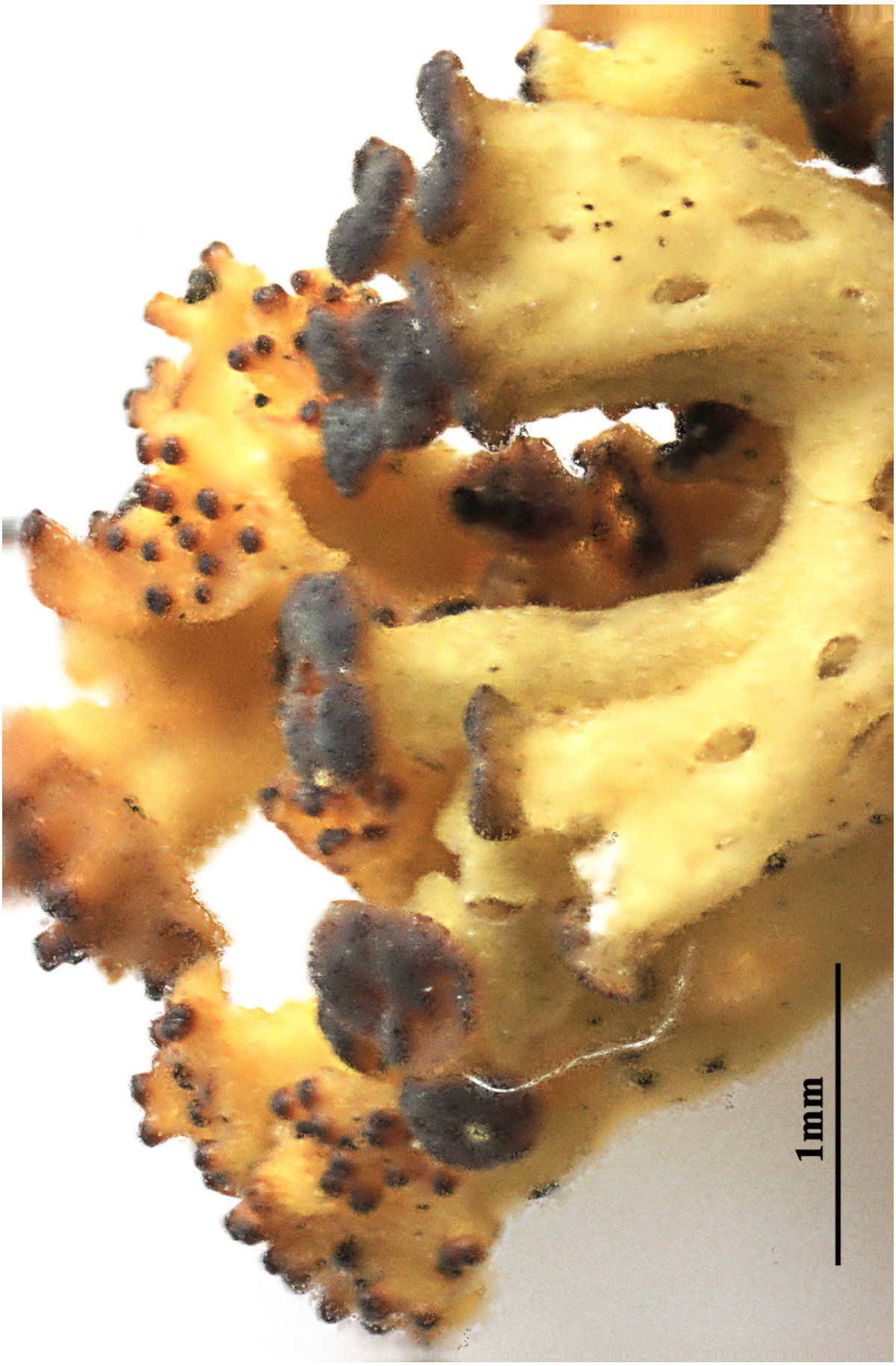
= *Rexia sullivanii* (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 378 (2018) [2019]

[VZ3036], Australia, Tasmania. Ramonea Plains, 80 m. Supra turfam. Leg. G. Kantvilas (586/84), 30.III.1084. EX A VěZDA: LICHENES SELECTI EXSICCATI NR. 2036.

Thallus fruticose, usually in clumps; composed of pseudopodetia up to 14 cm tall in wet habitats and as low as 1cm in dry; colour varies from greenish-yellow, straw-coloured, cinnamon-brown to black. Sterile pseudopodetia tigid when dry, coarsely farinose, up to 5 mm diam. in expanded specimens, unevenly branched, walls perforate; perforations irregularly rotund to elliptic. Cortex up to 40 µm thick, with a very thick, discontinuous outer amorphous layer, in places up to 60 µm thick, algal layer discontinuous 30-40 µm thick, cells up to 12 µm diam. ; medulla compactly woven below the algal layer; inner-medulla compact, filling the whole of the interior of the pseudopodetium, hyphae hyaline at the tips of the branches, becoming brown to black towards the base, 10 µm diam. Fertile pseudopodetia much taller than the sterile pseudopodetia, in other ways the same. Apothecia terminal on the upper branches of the fertile pseudopodetia, lecideine, 0.2-0.7 mm diam.; disk flat, becoming strongly convex at maturity, dull, reddish-brown to brownish-black; margin just discernible when young, disappearing; lower cortex reddish-black; hypothecium pale brown; hymenium 60-70 µm tall, pale brown; paraphyses 1.0-1.5 µm diam., apical cell expanded to 4 µm; asci 45 x 8 µm; ascospores 25-27 x 5 µm, simple, hyaline, slightly pointed at one end. Pycnidia terminal on the smaller branches of the sterile pseudopodetia, c. 320 µm long and 120 µm diam.; conidia 6 x 1 µm, hyaline, straight or curved. Chemistry: Thallus K-, C-, KC-, P-. Contains usnic, ursolic, protolichesterinic and divaricatic acids, unknown triterpenes and one unidentified substance.




***Cladia sullivanii***




***Cladia sullivanii***

***Cladia sullivanii*** (Müll. Arg.) W. Martin, Trans. Roy. Soc. N.Z., Bot. 2: 44 (1962)

= *Rexiella sullivanii* (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas & Ahti, Cladistics 35: [603] (2019)

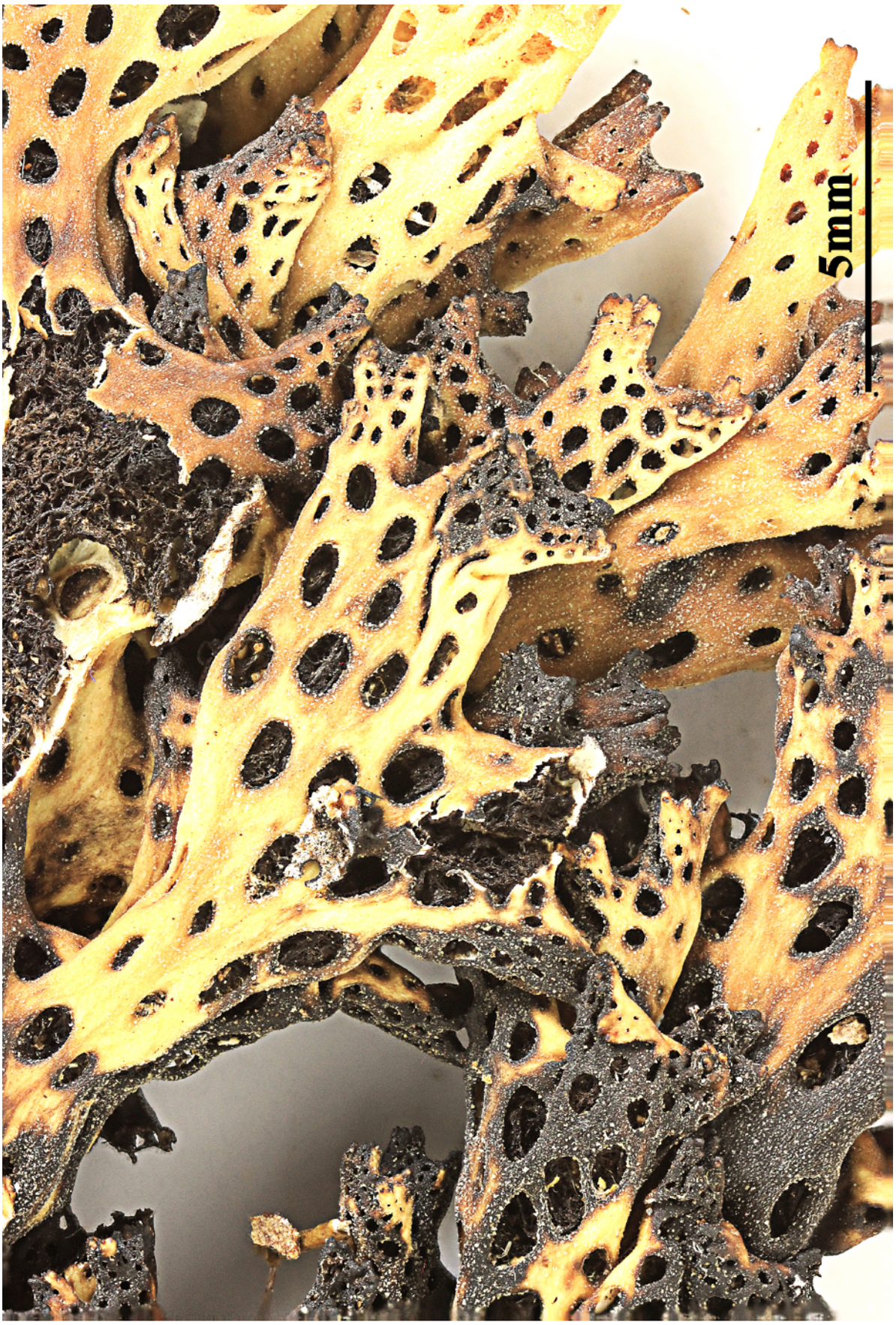
= *Cladonia sullivanii* Müll. Arg. [as 'sullivani'], Flora, Regensburg 65(19): 294 (1882)

= *Clathrina sullivanii* (Müll. Arg.) Müll. Arg. [as 'sullivani'], Flora, Regensburg 66(6): 80 (1883)

= *Rexia sullivanii* (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti, in Stenroos, Pino-Bodas, Hyvönen, Lumbsch & Ahti, Cladistics 35: 378 (2018) [2019]

[VZR272], Nova Telandia. South Island, distr. Nelson. Kahurangi National Park, regio montis Mt. Arthur, secus viam Flora Carpark. - casa alpina Mt. Arthur, 1250 m. Ad terram. Leg. W. Malcolm & A. Vězda, 25.4.1997. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 272.

Thallus fruticose, usually in clumps; composed of pseudopodetia up to 14 cm tall in wet habitats and as low as 1cm in dry; colour varies from greenish-yellow, straw-coloured, cinnamon-brown to black. Sterile pseudopodetia tigid when dry, coarsely farinose, up to 5 mm diam. in expanded specimens, unevenly branched, walls perforate; perforations irregularly rotund to elliptic. Cortex up to 40 µm thick, with a very thick, discontinuous outer amorphous layer, in places up to 60 µm thick, algal layer discontinuous 30-40 µm thick, cells up to 12 µm diam. ; medulla compactly woven below the algal layer; inner-medulla compact, filling the whole of the interior of the pseudopodetium, hyphae hyaline at the tips of the branches, becoming brown to black towards the base, 10 µm diam. Fertile pseudopodetia much taller than the sterile pseudopodetia, in other ways the same. Apothecia terminal on the upper branches of the fertile pseudopodetia, lecideine, 0.2-0.7 mm diam.; disk flat, becoming strongly convex at maturity, dull, reddish-brown to brownish-black; margin just discernible when young, disappearing; lower cortex reddish-black; hypothecium pale brown; hymenium 60-70 µm tall, pale brown; paraphyses 1.0-1.5 µm diam., apical cell expanded to 4 µm; asci 45 x 8 µm; ascospores 25-27 x 5 µm, simple, hyaline, slightly pointed at one end. Pycnidia terminal on the smaller branches of the sterile pseudopodetia, c. 320 µm long and 120 µm diam.; conidia 6 x 1 µm, hyaline, straight or curved. Chemistry: Thallus K-, C-, KC-, P-. Contains usnic, ursolic, protolichesterinic and divaricatic acids, unknown triterpenes and one unidentified substance.




***Cladia sullivanii***



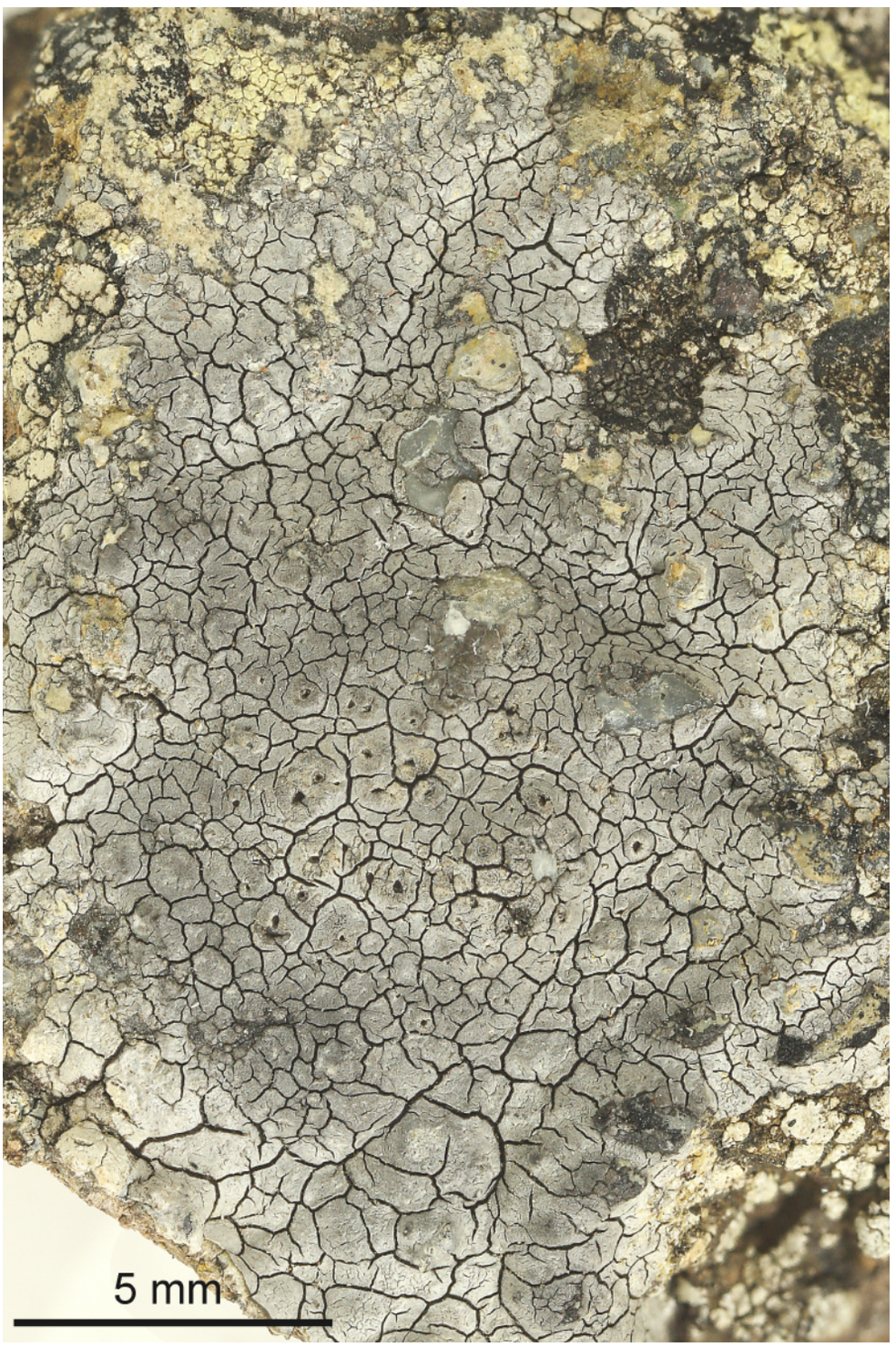

***Cladia sullivanii***

***Diploschistes actinostoma*** (Ach.) Zahlbr., Hedwigia 31: 34 (1892)
= *Acrorixis actinostoma* (Ach.) Trevis., Conspect. Verruc.: 15 (1860)
= *Aspicilia aperta* (Schaer.) Motyka, Porosty (Lichenes). 1, Rodzina Lecanoraceae. Hymenelia, Aspicilia, Lecanorella, Protoplacodium, Manzonia (Lublin): 277 (1995)
= *Diploschistes actinostomus* f. *apertus* (Schaer.) Zahlbr., Cat. Lich. Univers. 2: 653 (1924)
= *Lagerheimina actinostoma* (Ach.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lecanora actinostoma* (Ach.) Nyl., Bot. Notiser(10-11): 155 (1853)
= *Limboria actinostoma* (Ach.) A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria actinostoma* Pers. ex Schaer., Enum. critic. lich. europ. (Bern): 87 (1850)
= *Urceolaria actinostoma* Pers. ex Ach., Lich. Univ.: 288 (1810)
= *Urceolaria actinostoma* b *aperta* Schaer., Enum. critic. lich. europ. (Bern): 88 (1850)
= *Urceolaria scruposa* var. *actinostoma* (Ach.) Grognot, Pl. crypt.-cellul. Saône-et-Loire: 64 (1863)
= *Verrucaria actinostoma* Ach., Lich. Univ.: 288 (1810)

[19009], Australia, Queensland, Brisbane area, Esk Shire, 5 km south of Toogoolawah, growing on W-exposed granite outcrops in pasture. Leg. H. Th. Lumbsch (5669b), 22.09.1987, det. H. Th. Lumbsch. .Chemistry: lecanoric (major), diploschistesic (minor), orsellinic (trace) by HPLC, anal. G. A. Jenkins. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO.154. - Own Hptlc p289/7.

Thallus crustose, episubstratic, well-delimited and forming large patches, rimose-areolate, consisting of 0.5-1.5 mm wide and 0.2-1(-1.5) mm thick, irregularly angular, flat to slightly convex, whitish grey to grey, smooth, epruinose areoles developing on a black hypothallus. Medulla white, I+ blue. Apothecia common, perithecioid, immersed in the thallus, usually 1 per areole, up to 1 mm across (in section), with a blackish, urceolate to finally flat disc not visible from above, being concealed by a thick, radially sulcate proper margin. Proper exciple up to 70 µm thick, carbonized, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 120-160 µm high, non-amyloid; paraphyses flexuose, 1-1.5 µm thick, not swollen at apex; hypothecium colourless, 10-15 µm high. Asci 4-6(-8)-spored, cylindrical to subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, lacking an

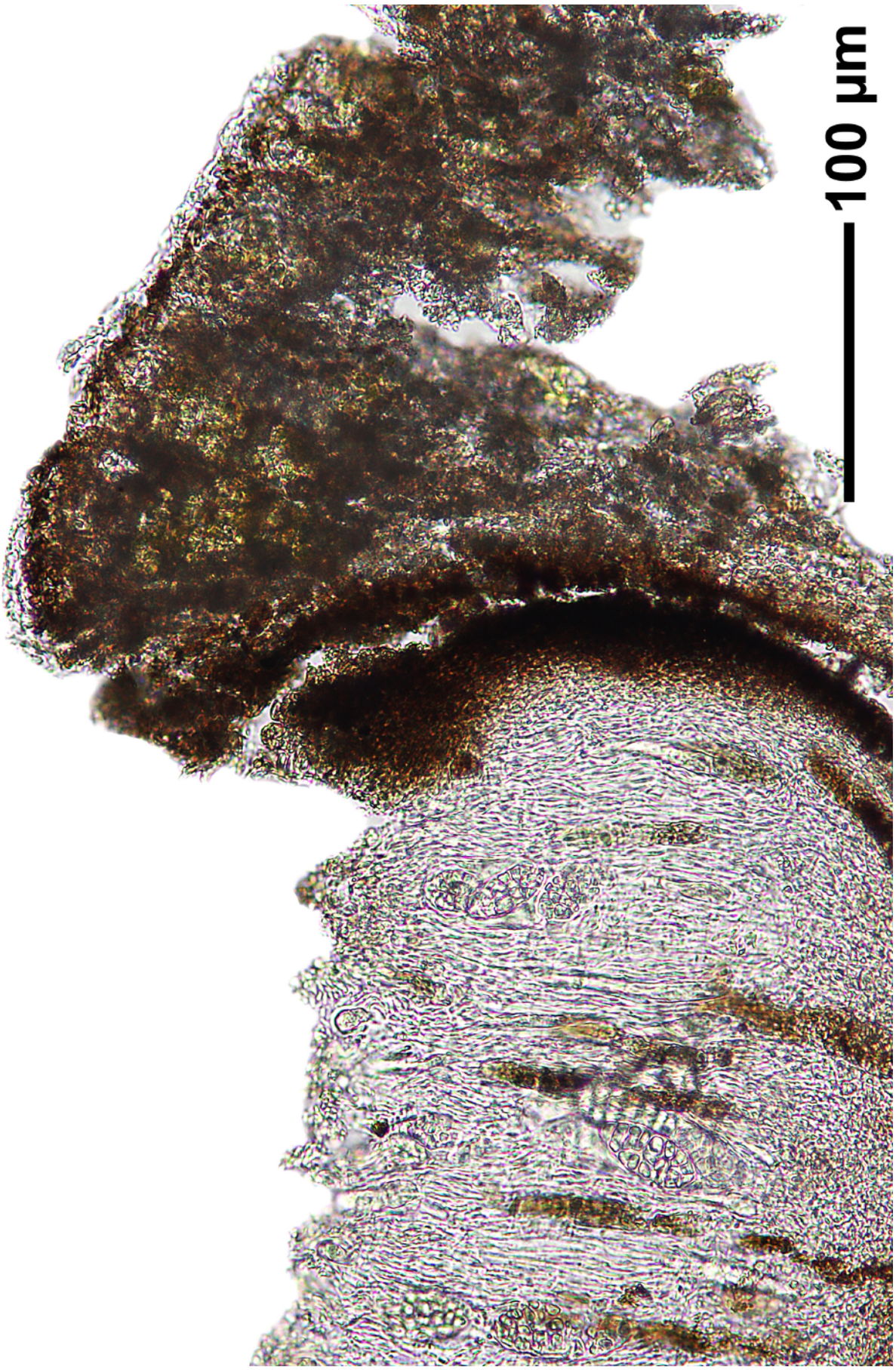
apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse and 1-3 longitudinal septa, at first hyaline but soon turning brown, ellipsoid, (16-)20-32(-40) x (10-)12-15(-20) µm. Pycnidia black, immersed. Conidia bacilliform, 4-7 x c. 1 µm. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid (major), diploschistesic and orsellinic acids (minor).
Note: a mild-temperate lichen found on basic siliceous substrata, incl. roofing tiles, more rarely on porous, weakly calciferous rocks.



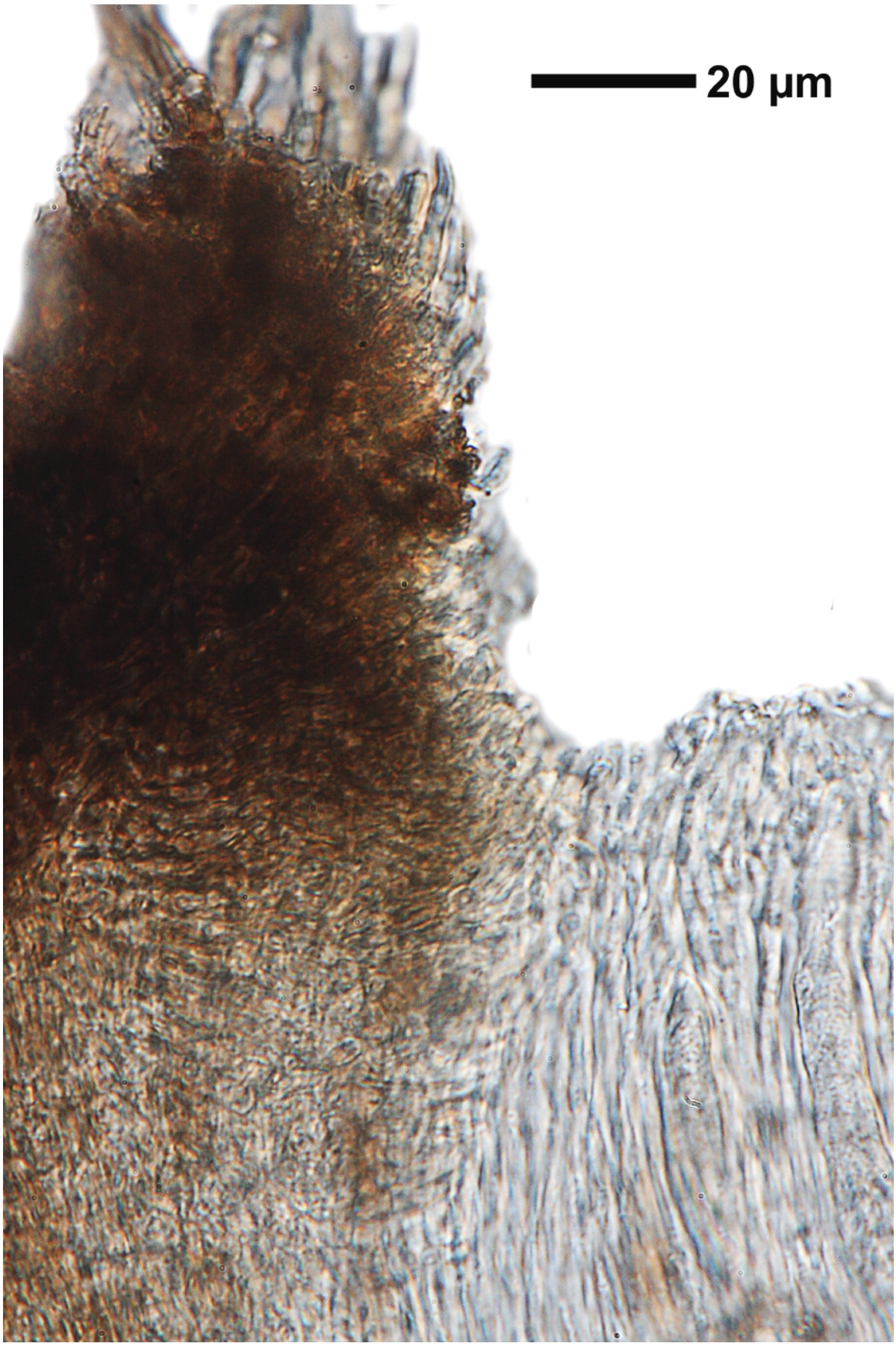

***Diploschistes actinostoma***



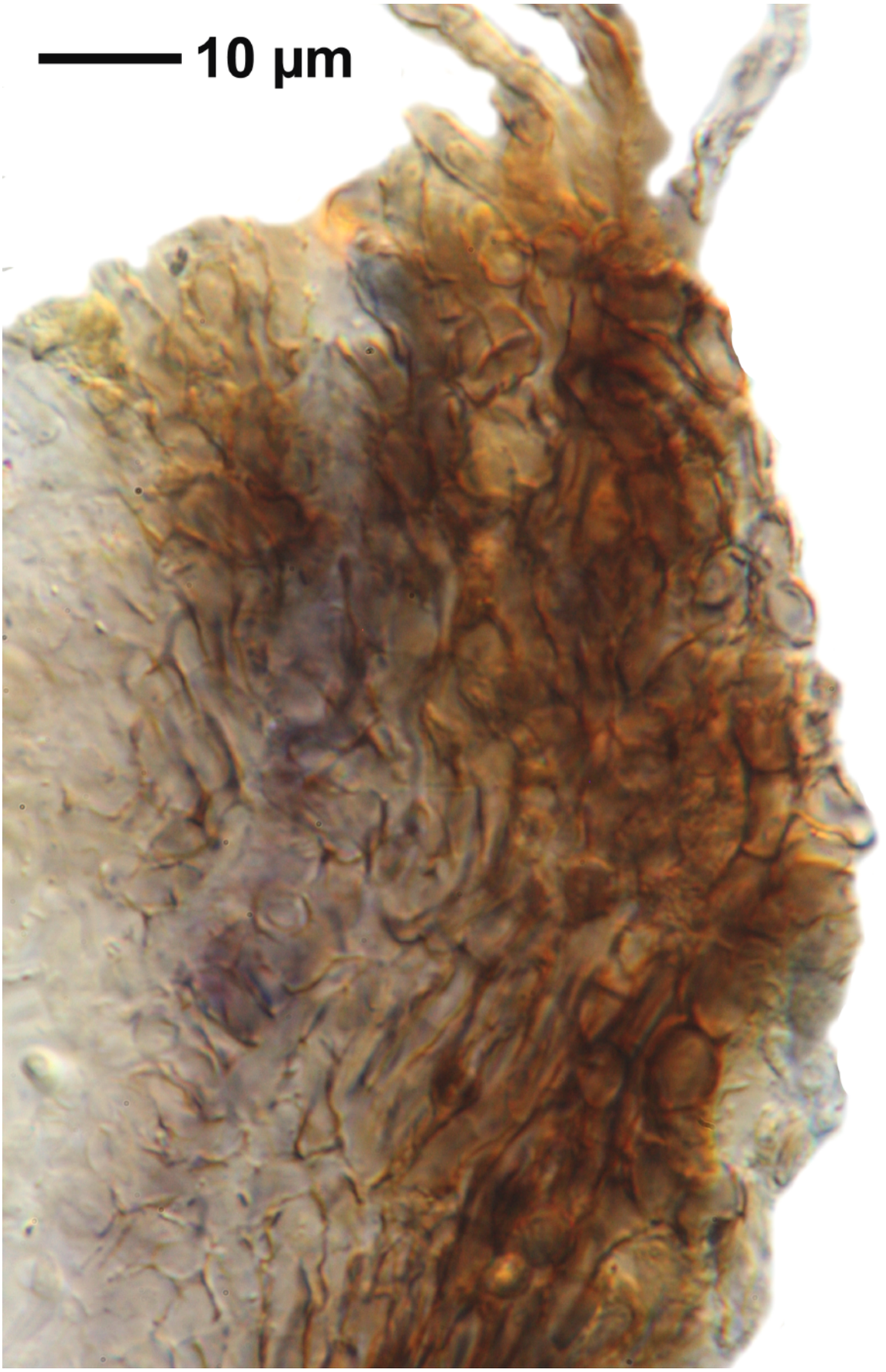

***Diploschistes actinostoma***



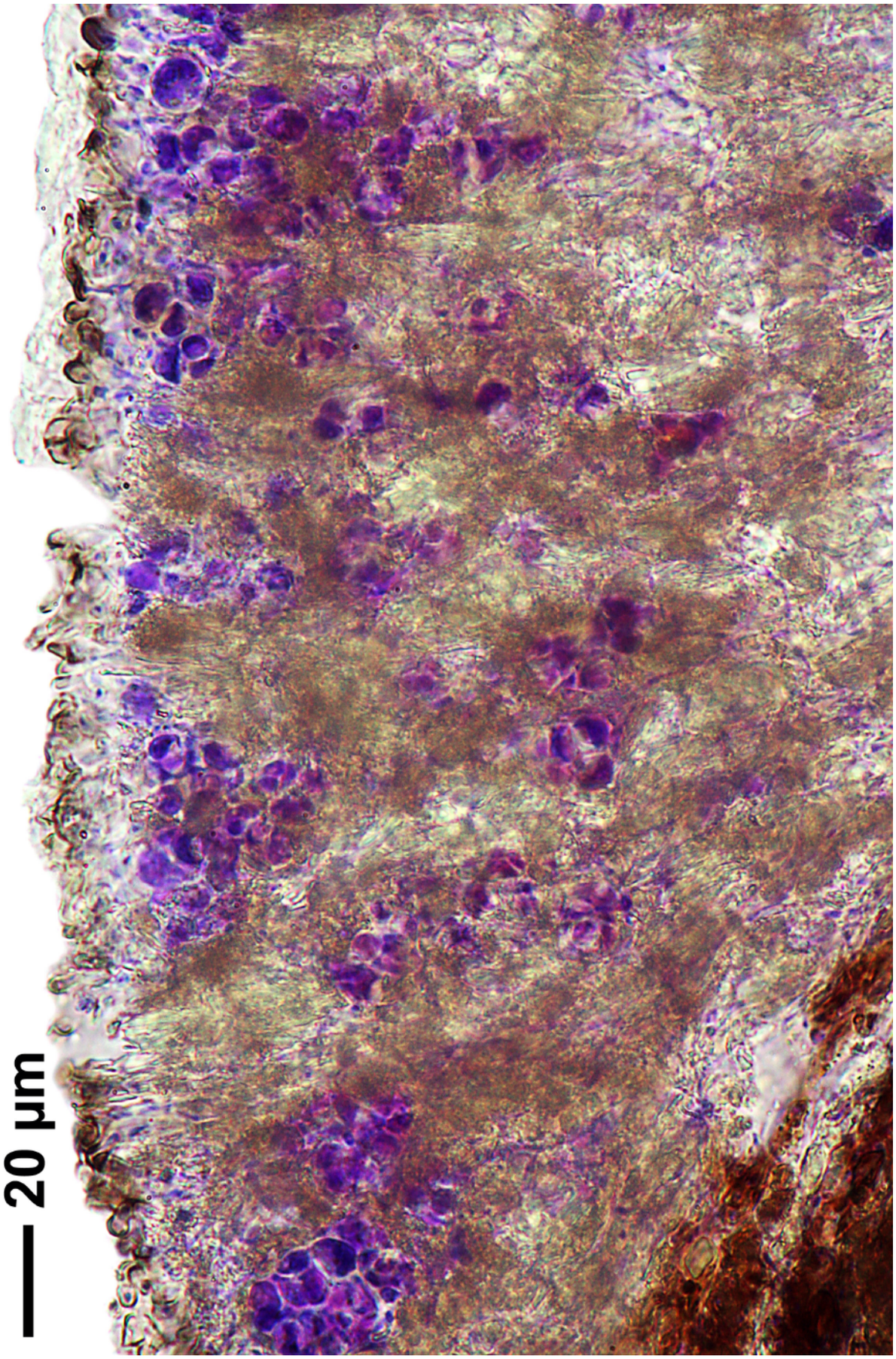

***Diploschistes actinostoma***




***Diploschistes actinostoma***



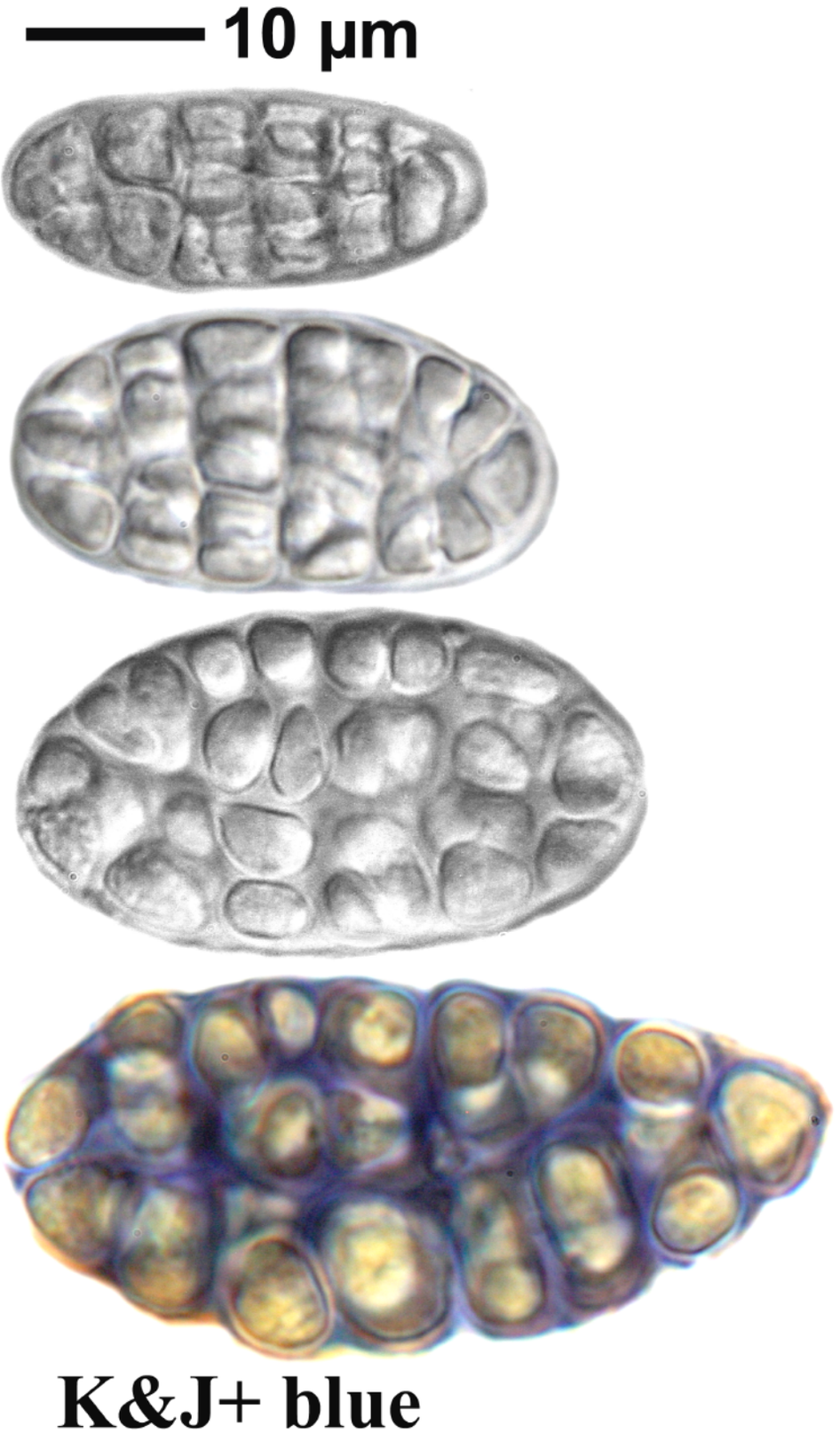

***Diploschistes actinostoma***




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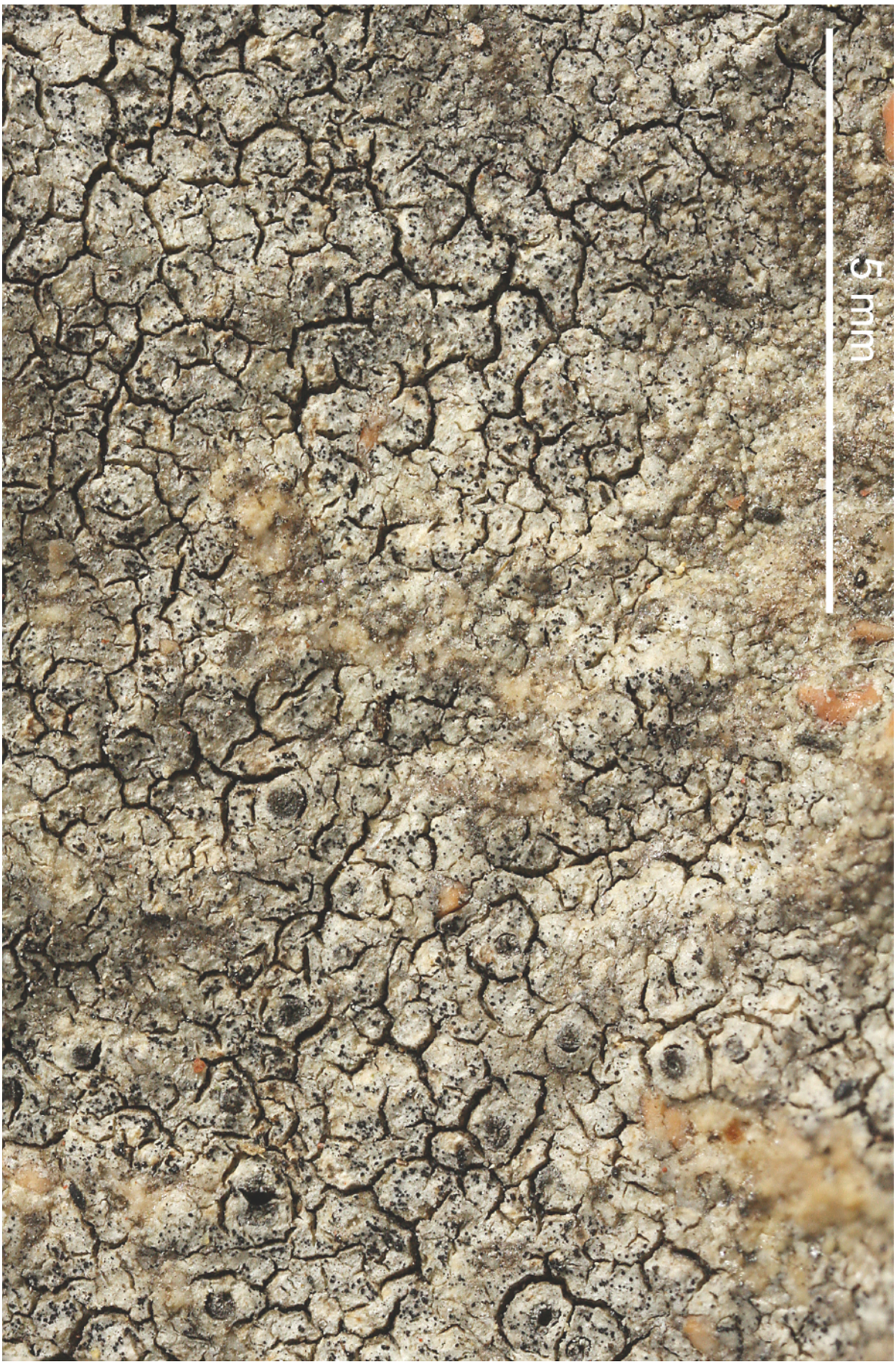
***Diploschistes actinostoma*** (Ach.) Zahlbr., Hedwigia 31: 34 (1892)
= *Acrorixis actinostoma* (Ach.) Trevis., Conspect. Verruc.: 15 (1860)
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= *Diploschistes actinostomus* f. *apertus* (Schaer.) Zahlbr., Cat. Lich. Univers. 2: 653 (1924)
= *Lagerheimina actinostoma* (Ach.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lecanora actinostoma* (Ach.) Nyl., Bot. Notiser(10-11): 155 (1853)
= *Limboria actinostoma* (Ach.) A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria actinostoma* Pers. ex Schaer., Enum. critic. lich. europ. (Bern): 87 (1850)
= *Urceolaria actinostoma* Pers. ex Ach., Lich. Univ.: 288 (1810)
= *Urceolaria actinostoma* b *aperta* Schaer., Enum. critic. lich. europ. (Bern): 88 (1850)
= *Urceolaria scruposa* var. *actinostoma* (Ach.) Grognot, Pl. crypt.-cellul. Saône-et-Loire: 64 (1863)
= *Verrucaria actinostoma* Ach., Lich. Univ.: 288 (1810)

[19010], Australia, New South Wales, Stroud-Gloucester Road, 37 km south of Gloucester, 32°20' S, 151°55' E, 80 m, growing on volcanic rocks in dry sclerophyll forest on steep rocky westerly slope. Leg. J. A. Elix (27480) & H. Streimann & H. Th. Lumbsch. Chemistry: lecanoric (major), diploschistesic (trace), orsellinic (trace), atranorin (trace), chloroatranorin (trace) by HPLC, TLC, anal. J. Johnston. EX J. A. ELIX; LICHENES AUSTRALASICI EXSICCATI NO. 228. - OWN HPTLC P289/8.

Thallus crustose, episubstratic, well-delimited and forming large patches, rimose-areolate, consisting of 0.5-1.5 mm wide and 0.2-1(-1.5) mm thick, irregularly angular, flat to slightly convex, whitish grey to grey, smooth, epruinose areoles developing on a black hypothallus. Medulla white, I+ blue. Apothecia common, perithecioid, immersed in the thallus, usually 1 per areole, up to 1 mm across (in section), with a blackish, urceolate to finally flat disc not visible from above, being concealed by a thick, radially sulcate proper margin. Proper exciple up to 70 µm thick, carbonized, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 120-160 µm high, non-amyloid; paraphyses flexuose, 1-1.5 µm thick, not swollen at apex; hypothecium colourless, 10-15 µm high. Asci 4-6(-8)-spored, cylindrical to subclavate, the wall evenly thickened, with an

abrupt apical thickening and a thin internal apical beak, lacking an apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse and 1-3 longitudinal septa, at first hyaline but soon turning brown, ellipsoid, (16-)20-32(-40) x (10-)12-15(-20) µm. Pycnidia black, immersed. Conidia bacilliform, 4-7 x c. 1 µm. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid (major), diploschistesic and orsellinic acids (minor).
Note: a mild-temperate lichen found on basic siliceous substrata, incl. roofing tiles, more rarely on porous, weakly calciferous rocks.

***Diploschistes actinostoma***




***Diploschistes actinostoma***




***Diploschistes actinostomua***

***Diploschistes actinostoma*** (Ach.) Zahlbr., Hedwigia 31: 34 (1892)
= *Acrorixis actinostoma* (Ach.) Trevis., Conspect. Verruc.: 15 (1860)
= *Aspicilia aperta* (Schaer.) Motyka, Porosty (Lichenes). 1, Rodzina Lecanoraceae. Hymenelia, Aspicilia, Lecanorella, Protoplacodium, Manzonia (Lublin): 277 (1995)
= *Diploschistes actinostomus* f. *apertus* (Schaer.) Zahlbr., Cat. Lich. Univers. 2: 653 (1924)
= *Lagerheimina actinostoma* (Ach.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lecanora actinostoma* (Ach.) Nyl., Bot. Notiser(10-11): 155 (1853)
= *Limboria actinostoma* (Ach.) A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria actinostoma* Pers. ex Schaer., Enum. critic. lich. europ. (Bern): 87 (1850)
= *Urceolaria actinostoma* Pers. ex Ach., Lich. Univ.: 288 (1810)
= *Urceolaria actinostoma* b *aperta* Schaer., Enum. critic. lich. europ. (Bern): 88 (1850)
= *Urceolaria scruposa* var. *actinostoma* (Ach.) Grognot, Pl. crypt.-cellul. Saône-et-Loire: 64 (1863)
= *Verrucaria actinostoma* Ach., Lich. Univ.: 288 (1810)

[ABL51004], Brazil, Alagoas, Quebrangulo, Pedra Talhada rock. On exposed siliceous rock in Atlantic rain forest. 9°15’ S, 36°25’35’’ W, 700 m. Leg. M. Cáceres & A. Aptroot (no 51004) & J.G. Cavalcante, 26.07.2019. Det. A. Aptroot, 2019.

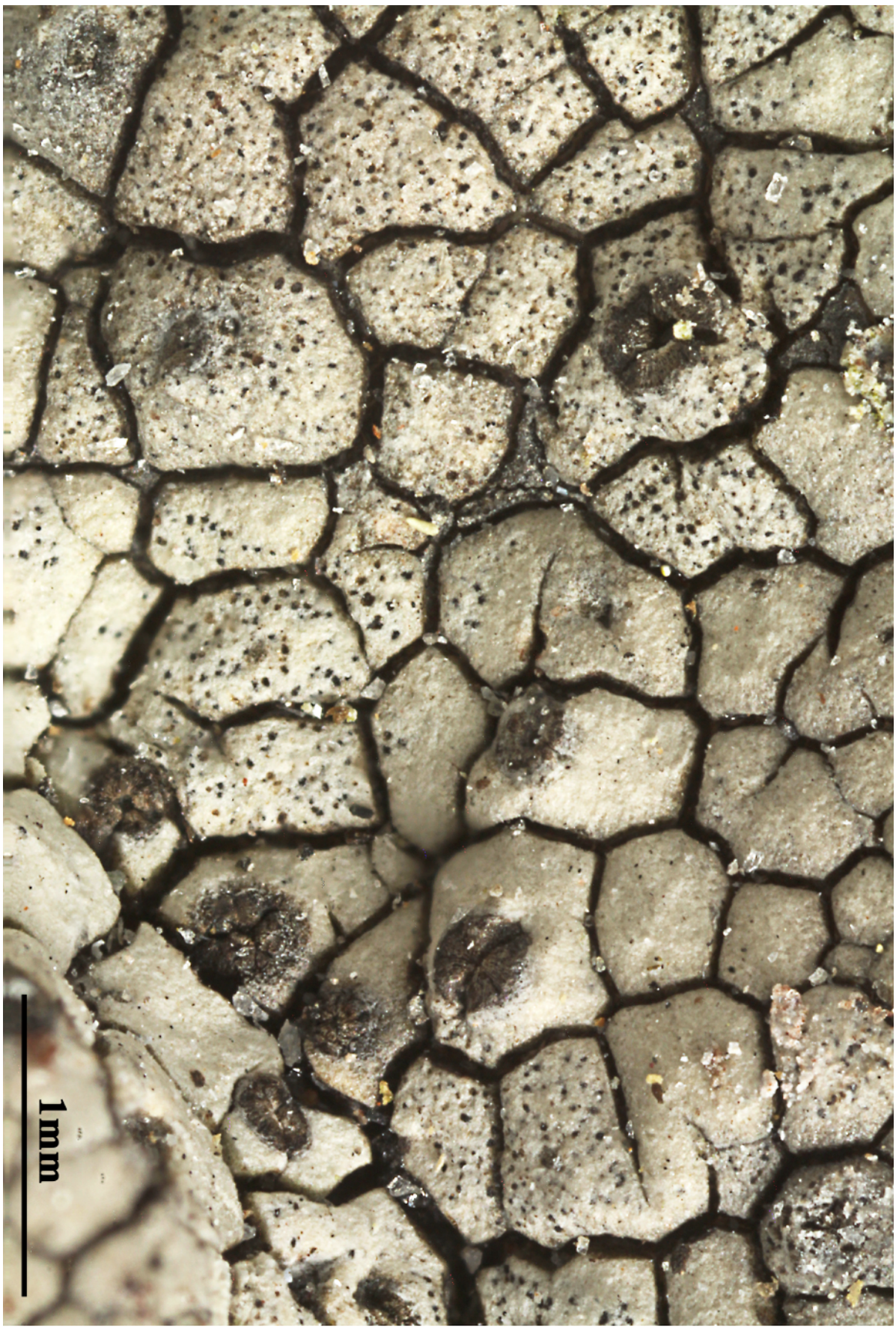
Thallus crustose, episubstratic, well-delimited and forming large patches, rimose-areolate, consisting of 0.5-1.5 mm wide and 0.2-1(-1.5) mm thick, irregularly angular, flat to slightly convex, whitish grey to grey, smooth, epruinose areoles developing on a black hypothallus. Medulla white, I+ blue. Apothecia common, perithecioid, immersed in the thallus, usually 1 per areole, up to 1 mm across (in section), with a blackish, urceolate to finally flat disc not visible from above, being concealed by a thick, radially sulcate proper margin. Proper exciple up to 70 µm thick, carbonized, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 120-160 µm high, non-amyloid; paraphyses flexuose, 1-1.5 µm thick, not swollen at apex; hypothecium colourless, 10-15 µm high. Asci 4-6(-8)-spored, cylindrical to subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, lacking an apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse and 1-3 longitudinal

septa, at first hyaline but soon turning brown, ellipsoid, (16-)20-32(-40) x (10-)12-15(-20) µm. Pycnidia black, immersed. Conidia bacilliform, 4-7 x c. 1 µm. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid (major), diploschistesic and orsellinic acids (minor).
Note: a mild-temperate lichen found on basic siliceous substrata, incl. roofing tiles, more rarely on porous, weakly calciferous rocks.

***Diploschistes actinostoma***




***Diploschistes actinostoma***




***Diploschistes actinostoma***

***Diploschistes actinostoma*** (Ach.) Zahlbr., Hedwigia 31: 34 (1892)
= *Acrorixis actinostoma* (Ach.) Trevis., Conspect. Verruc.: 15 (1860)
= *Aspicilia aperta* (Schaer.) Motyka, Porosty (Lichenes). 1, Rodzina Lecanoraceae. Hymenelia, Aspicilia, Lecanorella, Protoplacodium, Manzonia (Lublin): 277 (1995)
= *Diploschistes actinostomus* f. *apertus* (Schaer.) Zahlbr., Cat. Lich. Univers. 2: 653 (1924)
= *Lagerheimina actinostoma* (Ach.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
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= *Limboria actinostoma* (Ach.) A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria actinostoma* Pers. ex Schaer., Enum. critic. lich. europ. (Bern): 87 (1850)
= *Urceolaria actinostoma* Pers. ex Ach., Lich. Univ.: 288 (1810)
= *Urceolaria actinostoma* b *aperta* Schaer., Enum. critic. lich. europ. (Bern): 88 (1850)
= *Urceolaria scruposa* var. *actinostoma* (Ach.) Grognot, Pl. crypt.-cellul. Saône-et-Loire: 64 (1863)
= *Verrucaria actinostoma* Ach., Lich. Univ.: 288 (1810)

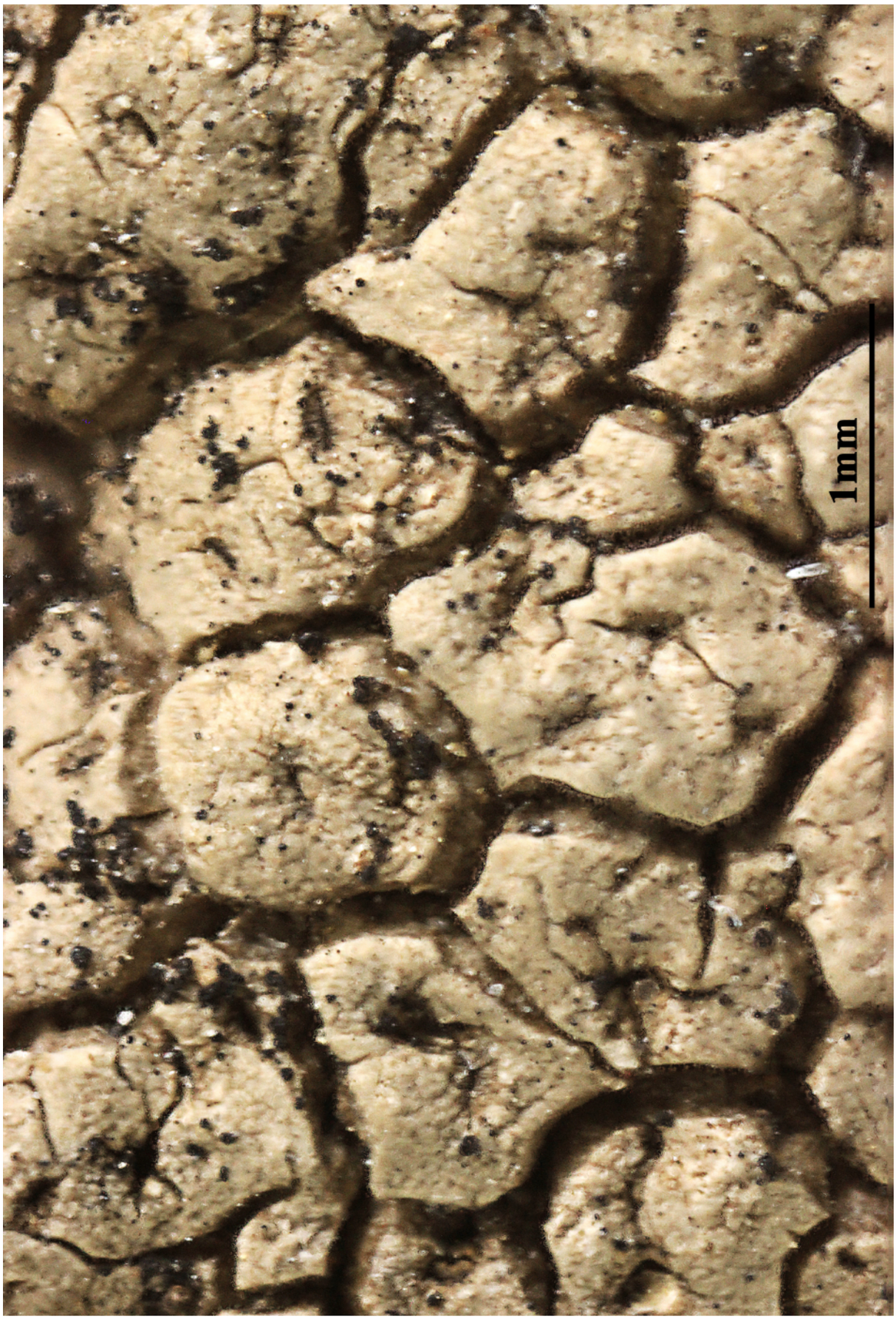
[VZ1203], Romania. Dobrogea, distr. Tulcea. In vallis fluminis Casimcea inter pagos Gura Dobrogei et Tigușor, 50 m. Ad strata silicea in rupibus calcareis. Leg. A. Vězda. EX A. VĚZDA: LICHENES SELECTI EXSICCATI NR. 1203.

Thallus crustose, episubstratic, well-delimited and forming large patches, rimose-areolate, consisting of 0.5-1.5 mm wide and 0.2-1(-1.5) mm thick, irregularly angular, flat to slightly convex, whitish grey to grey, smooth, epruinose areoles developing on a black hypothallus. Medulla white, I+ blue. Apothecia common, perithecioid, immersed in the thallus, usually 1 per areole, up to 1 mm across (in section), with a blackish, urceolate to finally flat disc not visible from above, being concealed by a thick, radially sulcate proper margin. Proper exciple up to 70 µm thick, carbonized, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 120-160 µm high, non-amyloid; paraphyses flexuose, 1-1.5 µm thick, not swollen at apex; hypothecium colourless, 10-15 µm high. Asci 4-6(-8)-spored, cylindrical to subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, lacking an apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse and 1-3 longitudinal

septa, at first hyaline but soon turning brown, ellipsoid, (16-)20-32(-40) x (10-)12-15(-20) µm. Pycnidia black, immersed. Conidia bacilliform, 4-7 x c. 1 µm. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid (major), diploschistesic and orsellinic acids (minor).
Note: a mild-temperate lichen found on basic siliceous substrata, incl. roofing tiles, more rarely on porous, weakly calciferous rocks.




***Diploschistes actinostoma***

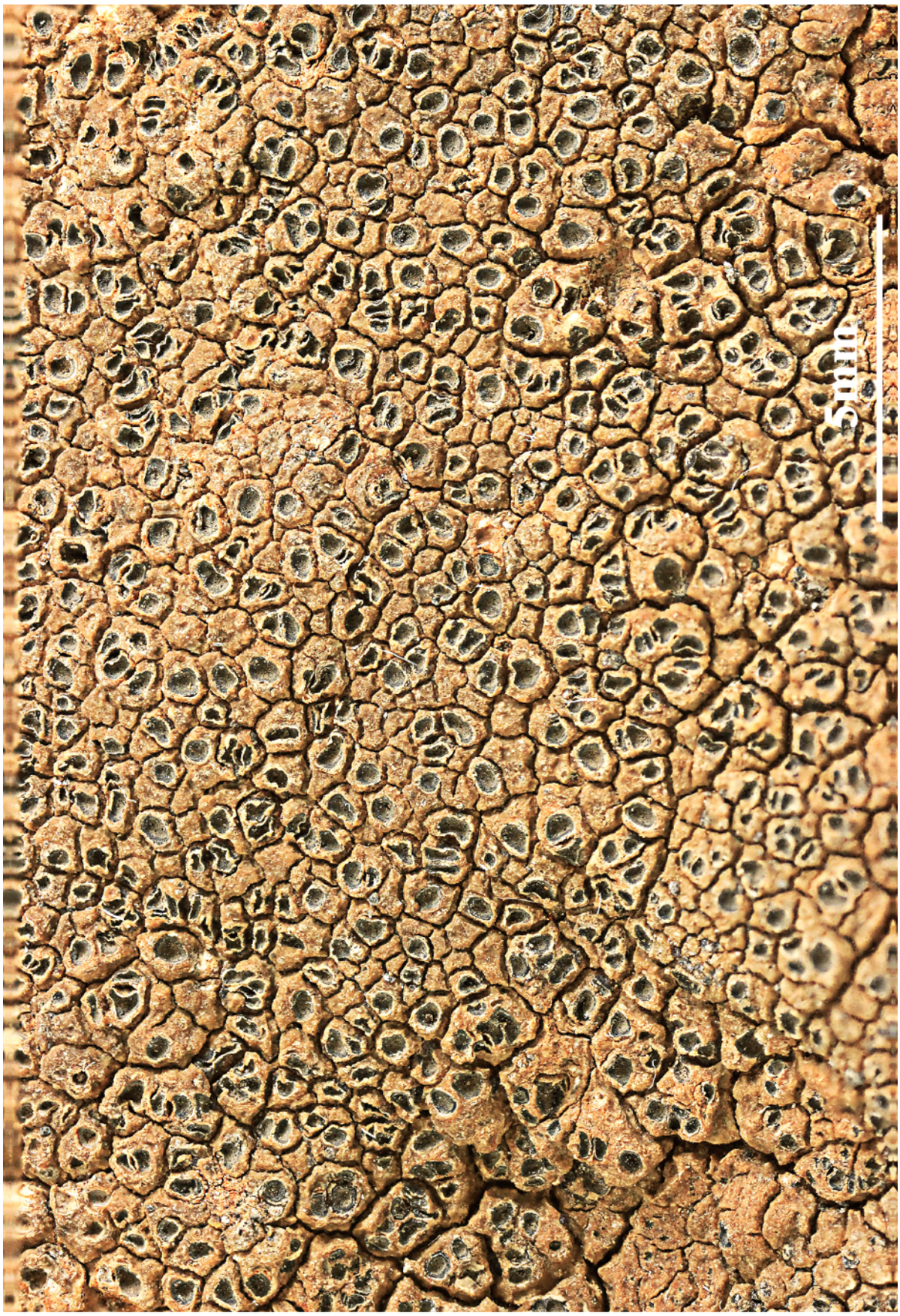



***Diploschistes actinostoma***

***Diploschistes bisporus*** (Bagl.) J. Steiner, Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 102: 155 (1893)
= *Ingvariella bispora* (Bagl.) Guderley & Lumbsch, in Guderley, Lumbsch & Feige, Nova Hedwigia 64(1-2): 152 (1997)
= *Diploschistes ochraceus var. bisporus* (Bagl.) Lettau, Feddes Repert., Beih. 69(no. 2): 102 (1937)
= *Ingvariella bispora var. multispora* Guderley & Lumbsch, in Guderley, Lumbsch & Feige, Nova Hedwigia 64(1-2): 153 (1997)
= *Urceolaria bispora* Bagl., Nuovo G. bot. ital. 3: 246 (1871)

[VZ2206], Italia.Sardinia. Prov. Cagliari: Giara di Gesturi, supra vicum Gesturi, 550 m. Ad saxa basaltica. Leg. P. L. Nimis, M. Tretiach & A. Vězda, 14.07.1987. EX. A. VĚZDA: LICHENES SELECTI EXSICCATI NR. 2206.

Thallus crustose, episubstratic, rimose-areolate, grey-brown to brown, sometimes with a waxy appearance, epruinose, without a distinct prothallus, consisting of irregularly angular, 0.2-1.6 mm wide and up to 1 mm thick, smooth, contiguous areoles. Apothecia at first almost perithecioid, but soon becoming apothecioid, urceolate, semi-immersed in the areoles, up to 1.3 mm across, with a concave, black but often slightly pruinose disc, and a raised, black margin. Proper exciple substituted by a 70-100 µm thick, pseudoparenchymatous pseudoexciple of degenerating, black hymenial elements; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 90-120 µm high; paraphyses simple, flaccid, 1-1.5 µm thick, the apical cells not swollen; hypothecium colourless, 10-15 µm thick. Asci (1-)2-spored, cylindrical, 80-110 x 15-30 µm, with an amyloid wall. Ascospores muriform, with 5-12 transverse and 2-5 longitudinal septa, at first almost colourless then turning brown, broadly ellipsoid, (26-)28-38(-42) x (12.5-)14-20(-23) µm, with a distinct halo at least when young. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: on base-rich siliceous substrata, mostly on horizontal surfaces.




***Diploschistes bisporus***




***Diploschistes bisporus***

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

[12011], Costa Rica: Provincia de San José, northwestern branch of Sierra de Talamanca, Buena Vista close to the summit of Cerro de la Muerte, on black earth rich in organic matter covering larger niches of páramo brushwood, sometimes marginally accompanied by *Cladina confusa* (Sant.) Follm. et Ahti (or) *Siphula pteruloides* Nyl., 3200-3300 m. leg. et det. G. Follmann 12.1978. Ex G. Follmann et B. C. Werner: Lichenes Esciccati Selecti Ab Instituto Botanico Universitatis Coloniensis Editi, No. 545.

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




***Diploschistes cinereocaesius***




***Diploschistes cinereocaesius***

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

[VZ1795], Costa Rica. Cartago Provincia, Villa Mills, mons Asunción, 3300-3400 m. Ad terram in regione subalpina. Leg. E. Sérusiaux (no. 2392), 29.12.1978. Ex A. VěZDA: Lichenes Selecti Exsiccati Nr. 1795.

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




***Diploschistes cinereocaesius***




***Diploschistes cinereocaesius***

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

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

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




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

[16327], Mallorca (Süd): Zwischen San Marina und La Lova des Llatres, lichtoffener Straßenrand; 39,39117° N, 2,76329° E, 100 m. Leg. F. Schumm & J.-P. Frahm & M. Lüth, 12.03.2010, det. F. Schumm, 2010. - Sporen 4-8/Ascus, grau bis braun, muriform. Thallus K-, C+ rot, P-, UV-.

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

ellipsoid, 20-38(-40) x 9-17 µm; Pycnidia black, immersed in thallus, hyaline to brownish, cerebriform. Conidia bacilliform, 4-6 x 1-1.5 µm. Photobiont chlorococcoid. Spot tests: K- or K+ yellow to red, C+ red, KC- or KC+ red, P-, UV-. Chemistry: diploschistesic and lecanoric acids (both major) and orsellinic acid (minor). - Note: a widespread species of arid grasslands, found on calciferous or base-rich soil, especially on gypsum, in open, dry situations.




***Diploschistes diacapsis***



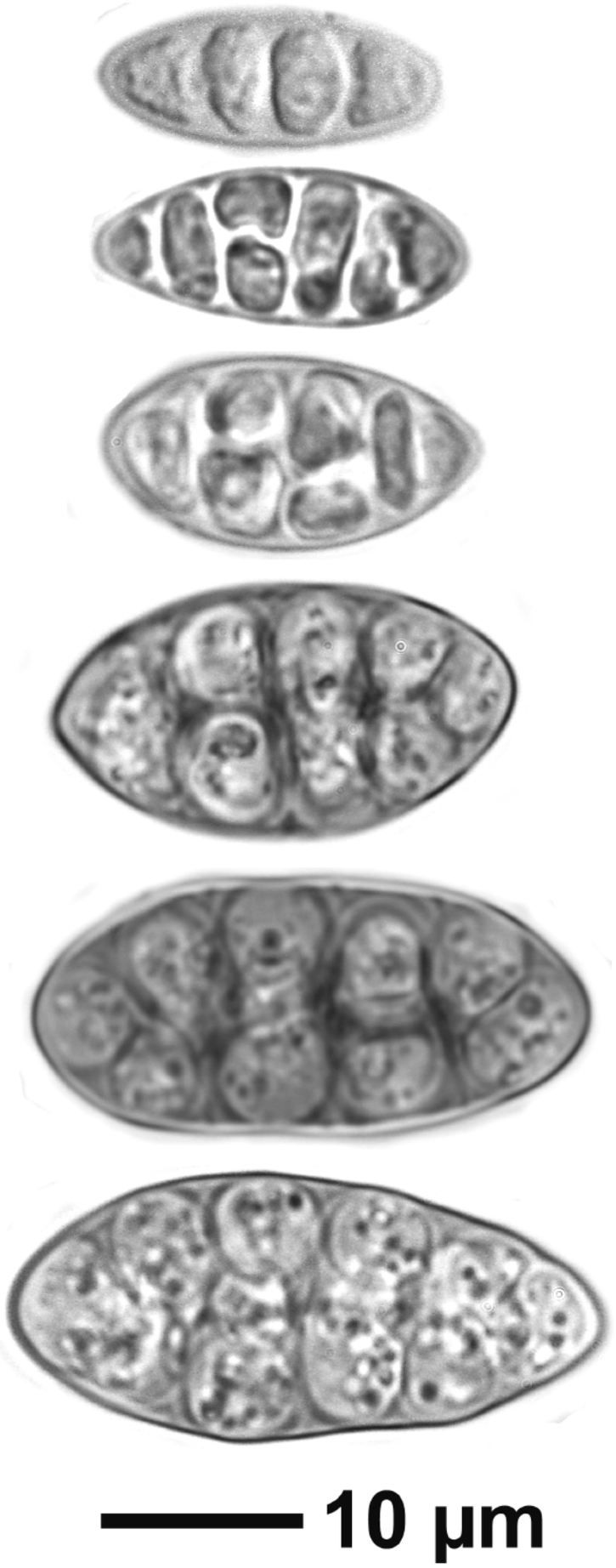

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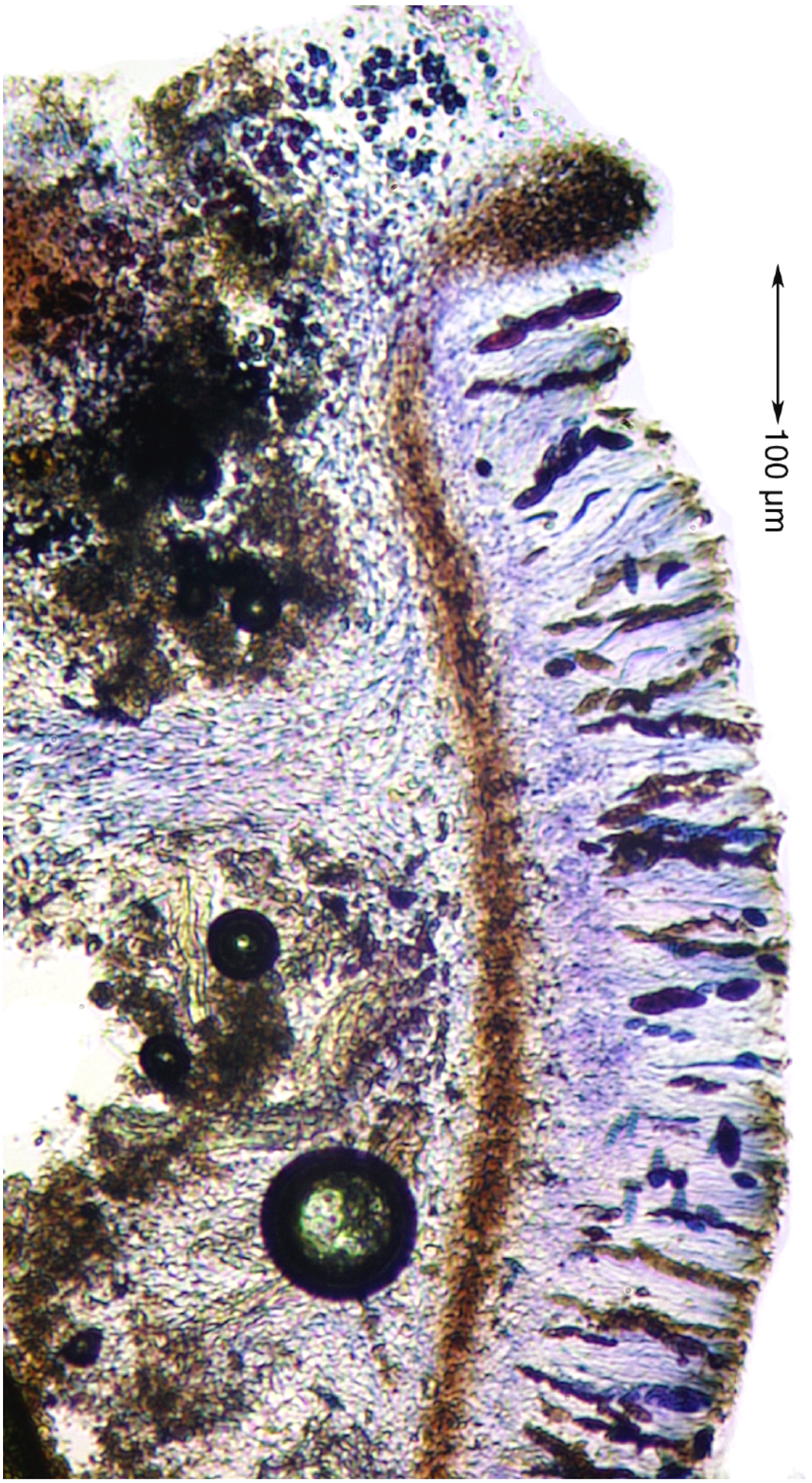
[5402], Kanarische Inseln, Gran Canaria, Nordhänge am Stausee Embalse del Mulato; lückige Gebüschvegetation mit offenerdigen Stellen und vereinzelten Pinus-canariensis-Gruppen; 27°54.905' N, 15°41.596' W, e 760 m. Leg. F. Schumm & U. Schwarz. 31.12.1998. det. F. Schumm, 17.02.1999. - Thallus K+ gelb, C+ rot, P-; Sporen 8/ascus, dunkel, muriform, ca. 14 zellig, (29,4-33) x (13-14) µm.

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

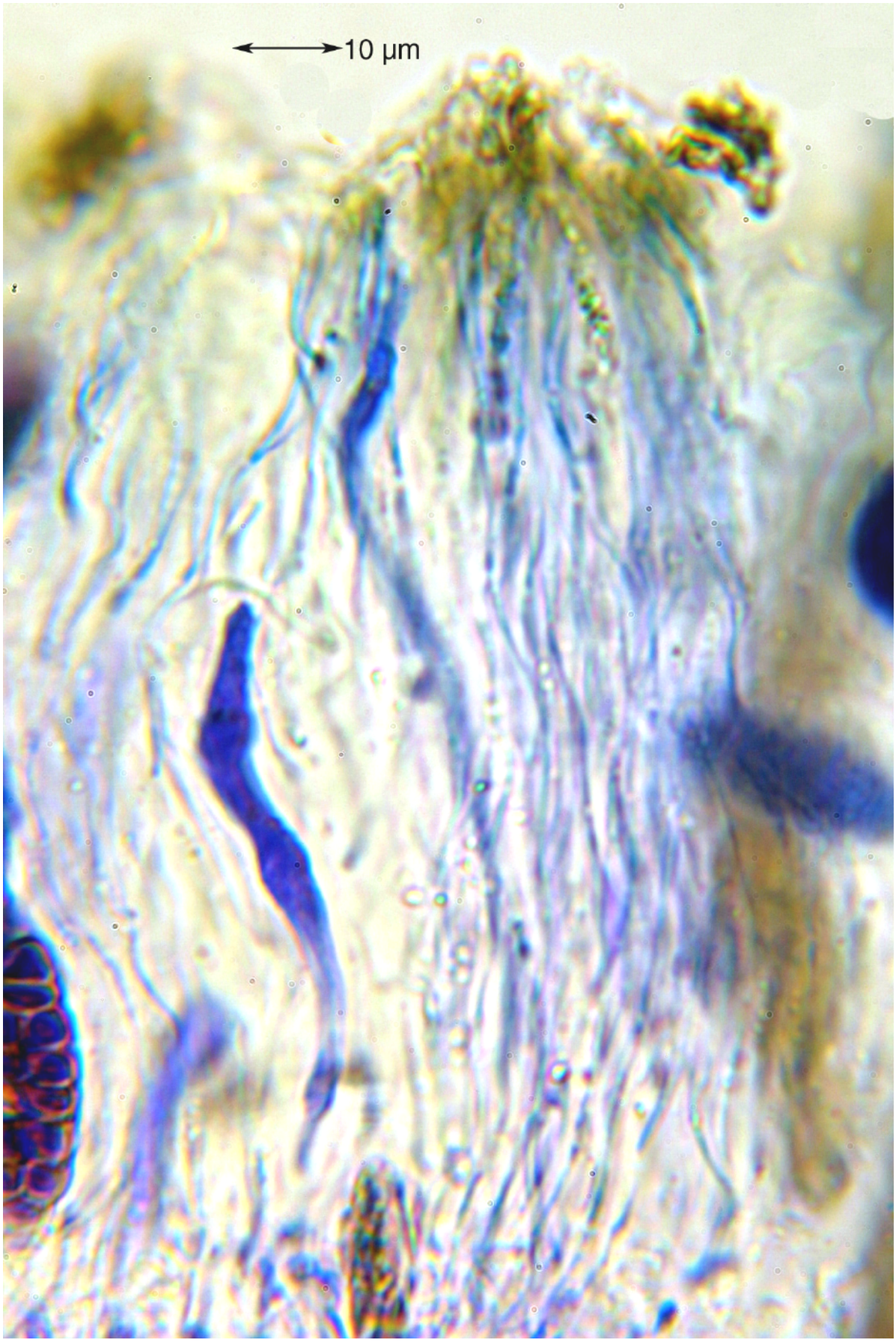
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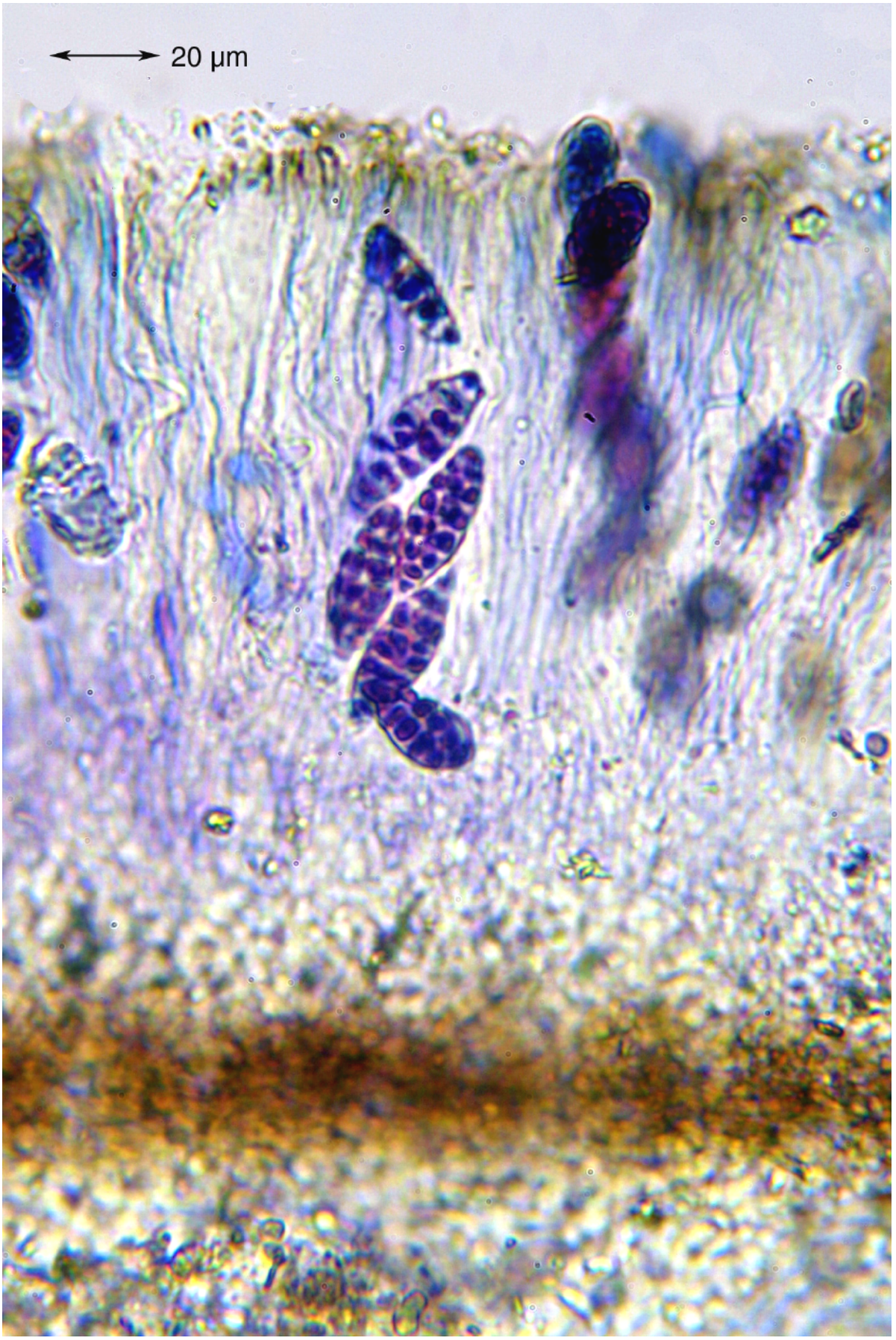

***Diploschistes diacapsis***



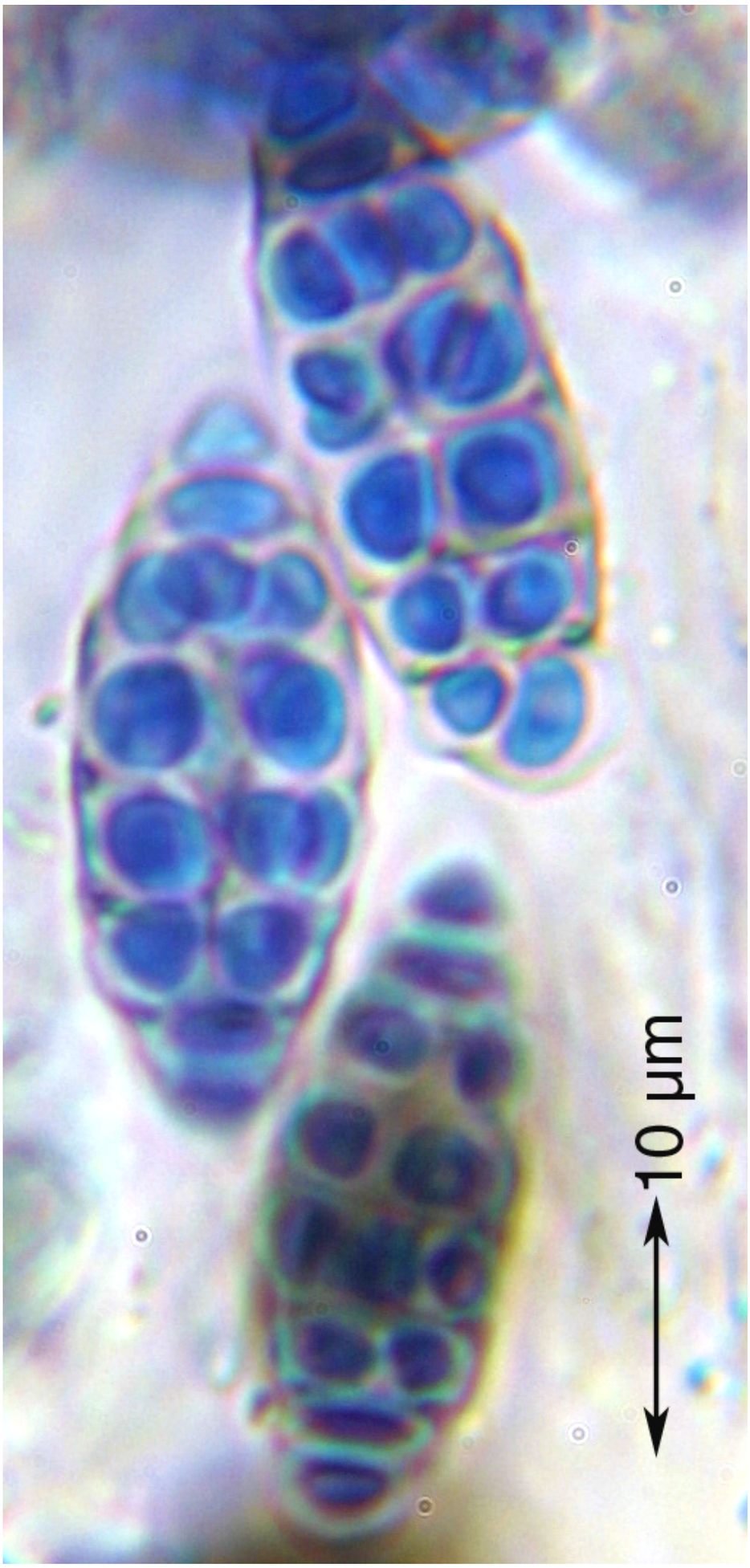

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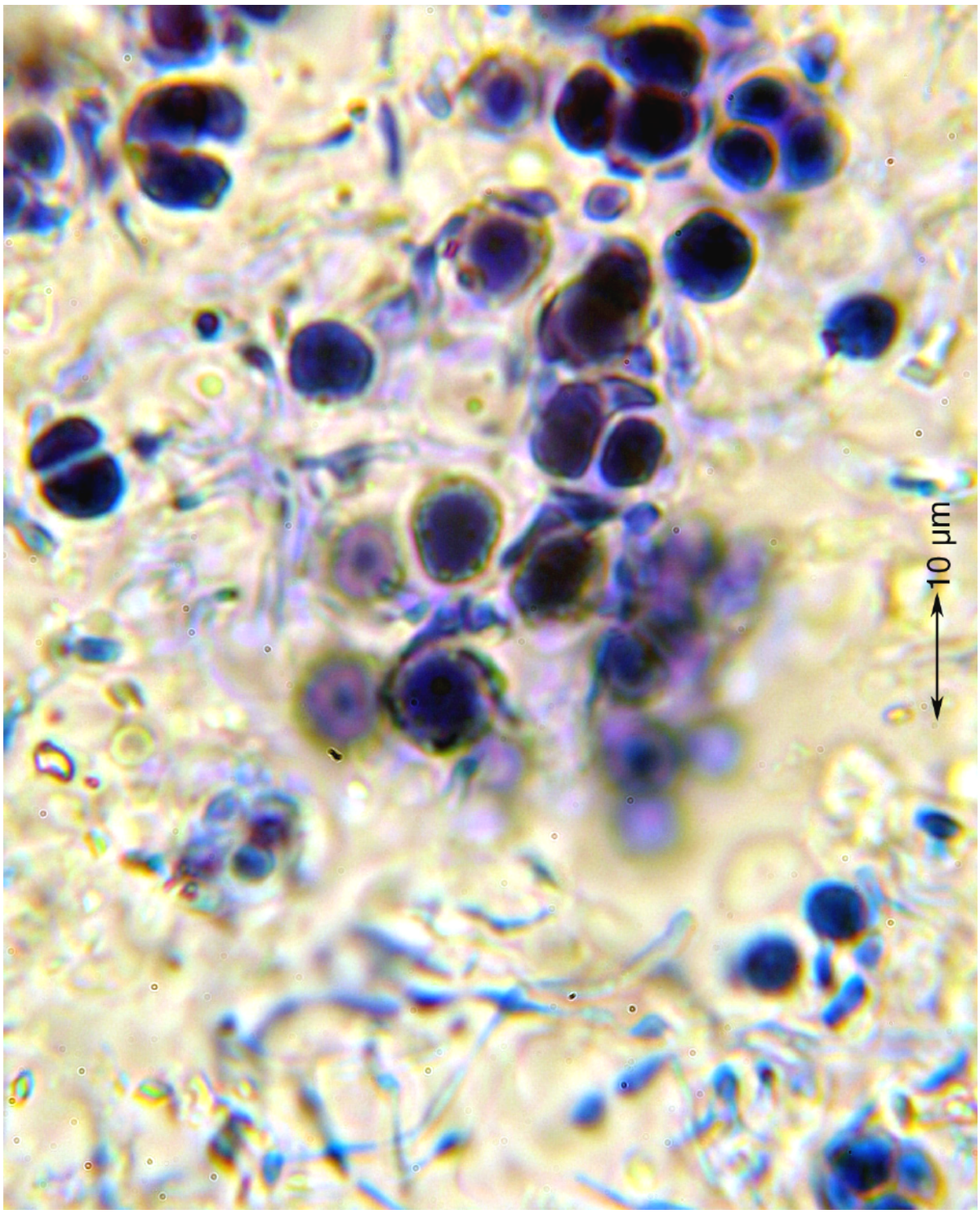

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[ABL18114], Brazil, Sergipe, Parque National Serra de Itabaiana, 10°44'35" S, 37°20'25" W, 400 m. On soil in caatinga. Leg. M. Cáceres & A. Aptroot, (no. 18114), 27. July 2013, det. A. Aptroot 2013. - Thallus terricolous, thick whitish pruinose, discs urceolate. Spores 2-4/ascus, brownish, muriforme, 3-6 transverally and 1-2 longitudinally septate, 20-38 x 9-20 µm. Chemistry: K+ yellow, C+ red, P-, UV-; diploschistesic acid (major), lecanoric acid, orsellinic acid (minor).

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

the walls I-, not fissitunicate. Ascospores muriform, with 3-6 transverse and 1-2 longitudinal septa, at first hyaline then turning brown, broadly ellipsoid, 20-38(-40) x 9-17 µm; Pycnidia black, immersed in thallus, hyaline to brownish, cerebriform. Conidia bacilliform, 4-6 x 1-1.5 µm. Photobiont chlorococcoid. Spot tests: K- or K+ yellow to red, C+ red, KC- or KC+ red, P-, UV-. Chemistry: diploschistesic and lecanoric acids (both major) and orsellinic acid (minor). - Note: a widespread species of arid grasslands, found on calciferous or base-rich soil, especially on gypsum, in open, dry situations.

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[VZR376], Italia. Calabria. Montalto Uffogo, loco "Mavigliano dicto", 210 m. Ad terram siliceam. Leg. D. Puntillo, 28.01.1998, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 376.

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

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




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[VZ2466], Hispania. Insula Formentera. Es Torrent, lat. 04°03' sept., long. 82°42' orient. Ad terram argillosam. Leg. G. B. Feige (no. 4736). Ex A. Vězda; Lichenes Selecti Exsiccati Nr. 2466.

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

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

***Diploschistes diacapsis***




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***Diploschistes diacapsis***

***Diploschistes diploschistoides*** (Vain.) G. Salisb., Lichenologist 5(3-4): 273 (1972)

= *Thelotrema diploschistoides* Vain., Ann. Univ., fenn. Aboënsis, Ser. A 2(no. 3): 31 (1926)

[19013]. Australia, Western Australia, Gibb River Range, Gibb River Road, 38 km north-east of Gibb River Station, 16°06'S, 126°36'E, 480 m, growing on sandstone rocks in Eucalyptus dominated grasslands on gently sloping rocky ridge side.. Leg. J. A. Elix (27941) & , H. Th. Lumbsch & H. Streimann, 13.07.1991, det. H. Th. Lumbsch. Chemistry: lecanoric (major), diploschistesic (minor) gyrophoric (trace) by HPLC, TLC, anal. J. A. Elix & C. E. Barclay. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 253. - OWN HPTLC 290/2 und p289/9:

Thallus blueish grey. In this taxon the spores are persistently colourless, 30-52 x 15-26 µm (amyloid halonate, I + purple). However, the apothecial structure is the same as that of *Diploschistes. scruposus* (Schreb.) Norm.; both have 'periphyses' or perpendicular hyphae on the inner face of the dark excipulum.




***Diploschistes diploschistoides***




***Diploschistes diploschistoides***



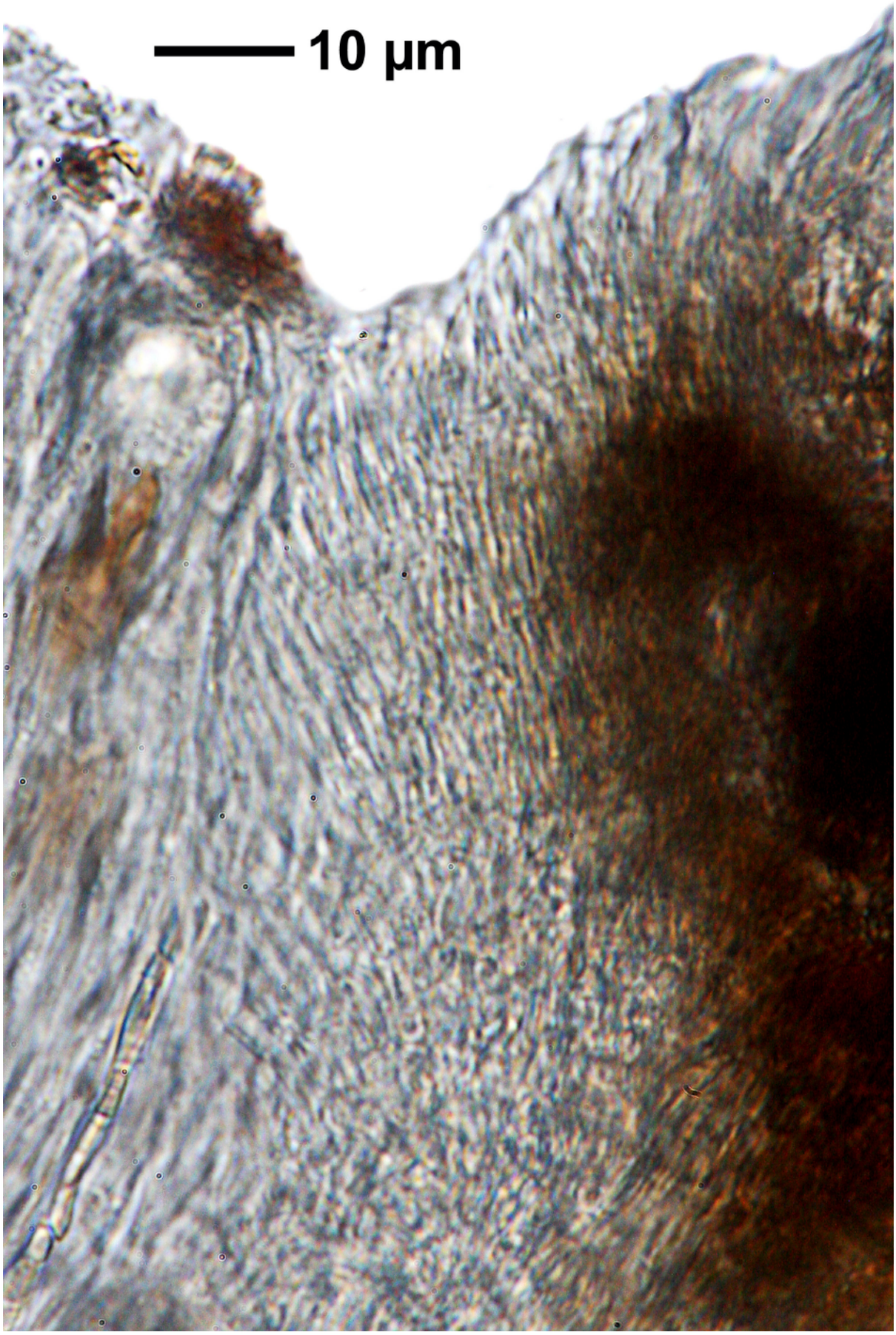

***Diploschistes diploschistoides***




***Diploschistes diploschistoides***



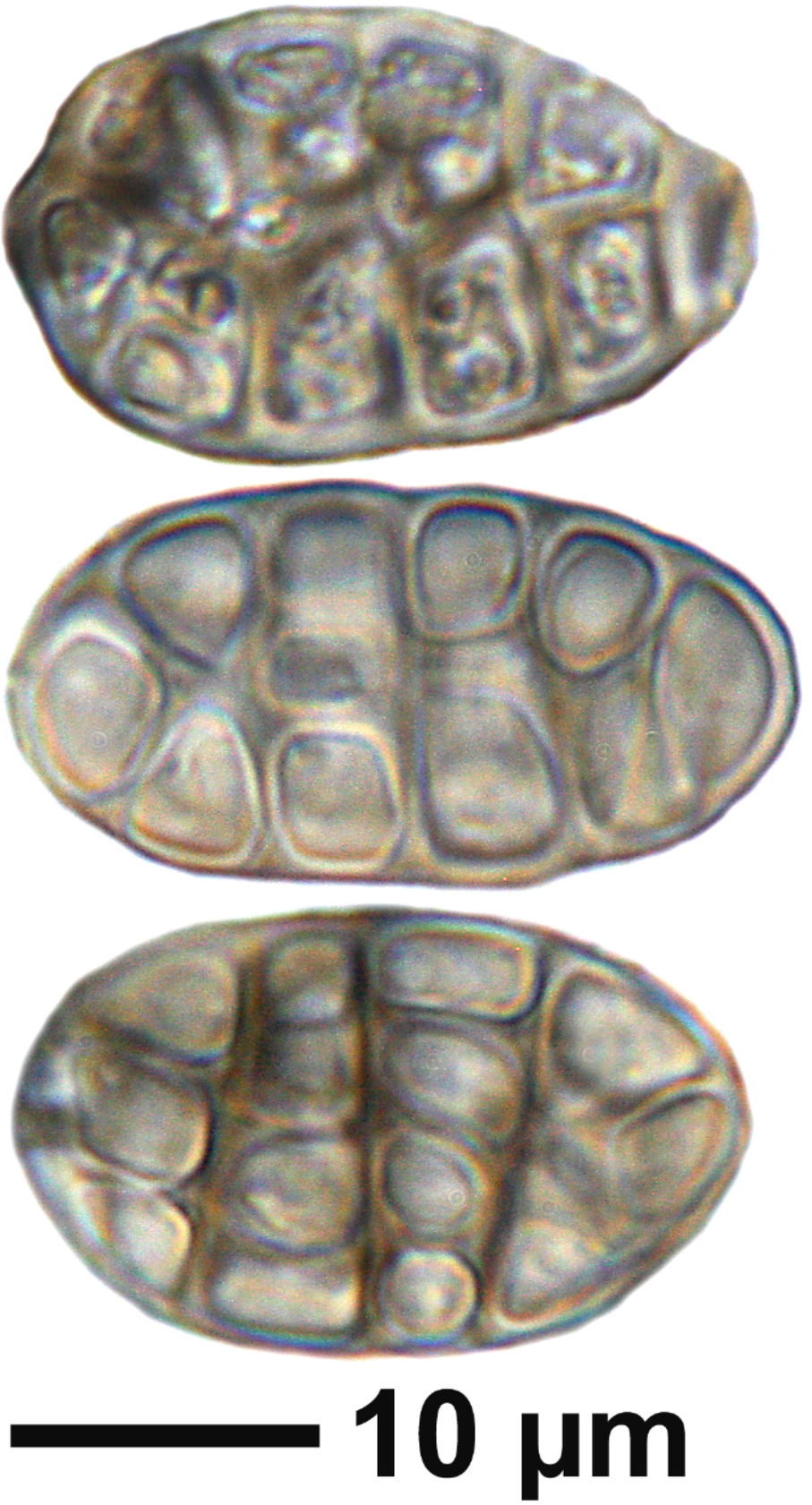

***Diploschistes diploschistoides***



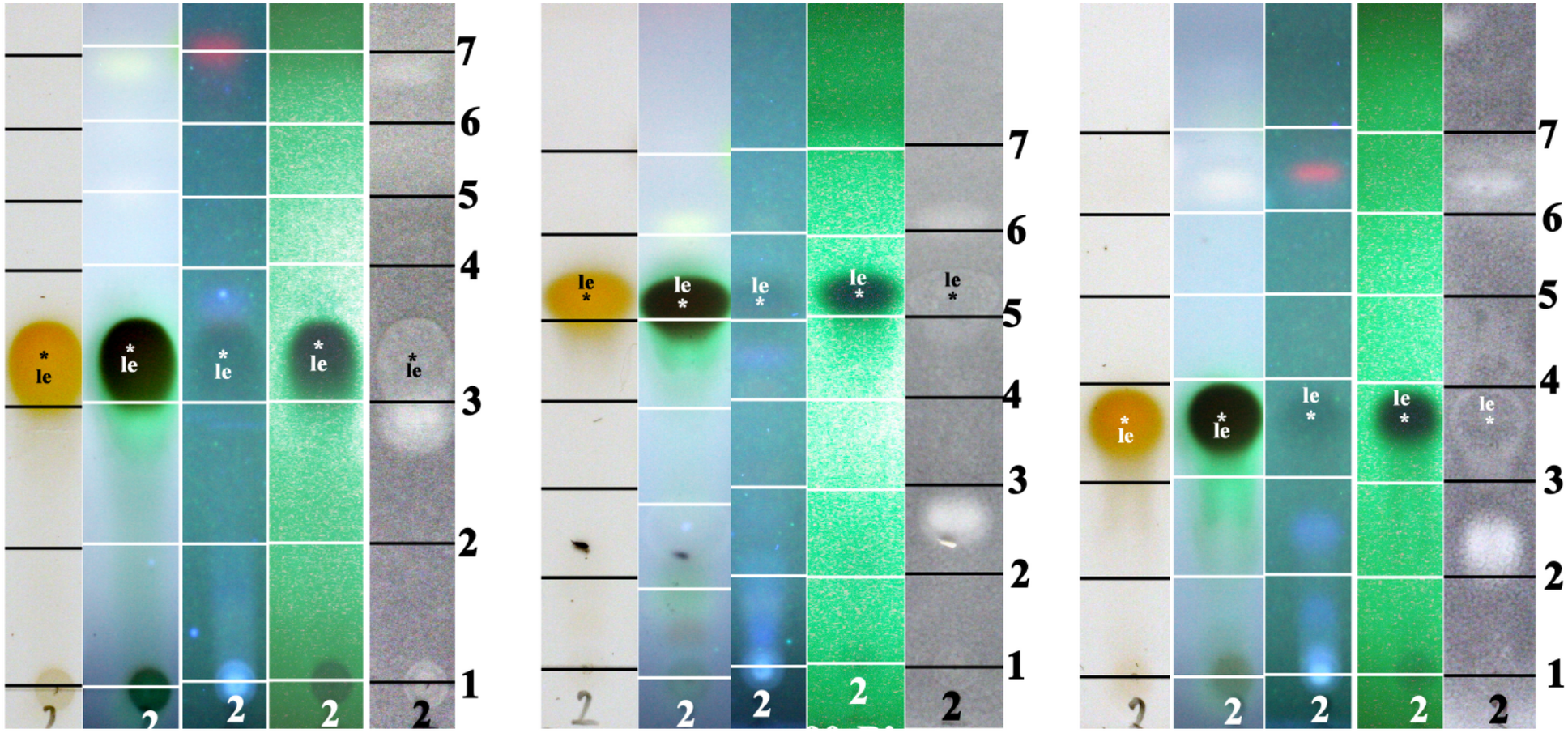

***Diploschistes diploschistoides***




***Diploschistes diploschistoides***




***Diploschistes diploschistoides***




**[19013], p290/2**

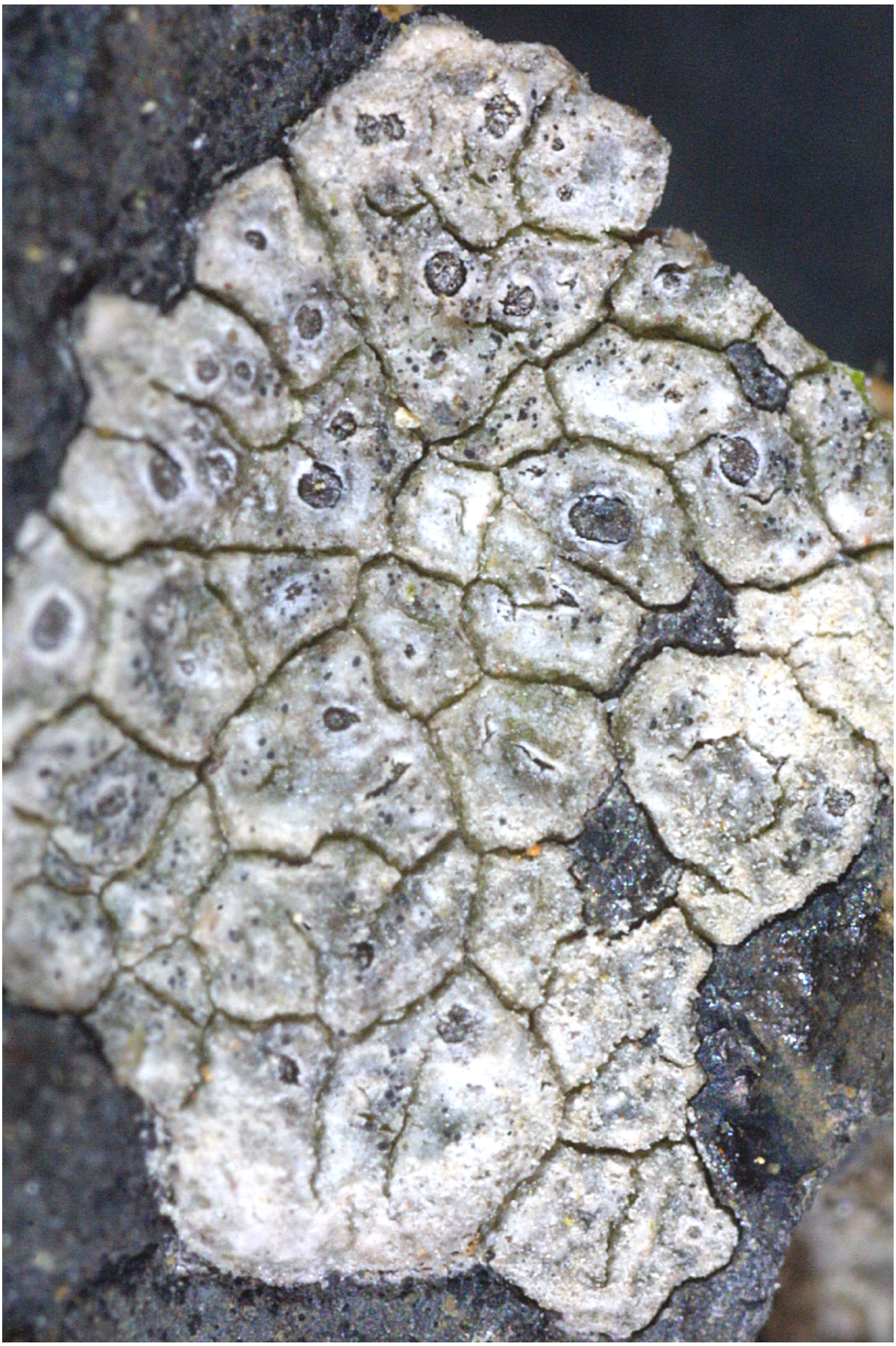
***Diploschistes euganeus*** (A. Massal.) J. Steiner, Verh. zool.-bot. Ges. Wien 69: 96 (1919)
= *Acrorixis euganea* (A. Massal.) Trevis., Conspect. Verruc.: 15 (1860)
= *Limboria actinostoma var. euganea* (A. Massal.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 19: 612 (1869)
= *Limboria euganea* A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria euganea* (A. Massal.) Jatta, Syll. Lich. Ital. (Trano): 289 (1900)

[11217], Portugal, Azoren, Sao Miguel: An schwarzen Lavafelsen bei der Küste von Mosteiros bei Beira - Mar de Baixo; 37°53.320' N, 25°49.426' W, 0 m. Leg. F. Schumm, 06.06.2003, det. F. Schumm, 11.2003. - Thallus K-, C-, KC-, P-; Sporen dunkel, muriform, 4-6 je Ascus, 28,3 x 16,4 µm.

Thallus crustose, episubstratic, continuous to usually rimose-areolate, grey to brownish grey, smooth, dull or slightly shiny, epruinose, consisting of irregularly angular, 0.3-1.5 mm wide and 0.15-0.9(-1.3) mm thick areoles. Medulla white, I-. Apothecia perithecioid, immersed to semi-immersed in the areoles, up to 1.8 mm across (in section), with a blackish but sometimes white-pruinose, at first urceolate then flat disc which is not always visible from above, being concealed by a thick, entire or usually radially sulcate proper margin; thalline margin thin, poorly visible. Proper exciple carbonized, 70-90 µm thick, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 100-140 µm high, non-amyloid; paraphyses simple, flexuose, 1-1.5 µm thick, not swollen at apex. Asci (6-)8-spored, subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, lacking an apical apparatus. Ascospores muriform, with 3-6 transverse and 1-4 longitudinal septa, at first hyaline, then turning brown, broadly ellipsoid to subglobose, (16-)20-30(-32) x (10-)12-18(-20) µm. Photobiont chlorococcoid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mild-temperate lichen found on basic siliceous rocks, more rarely on brick and roofing tiles, in warm-humid areas,



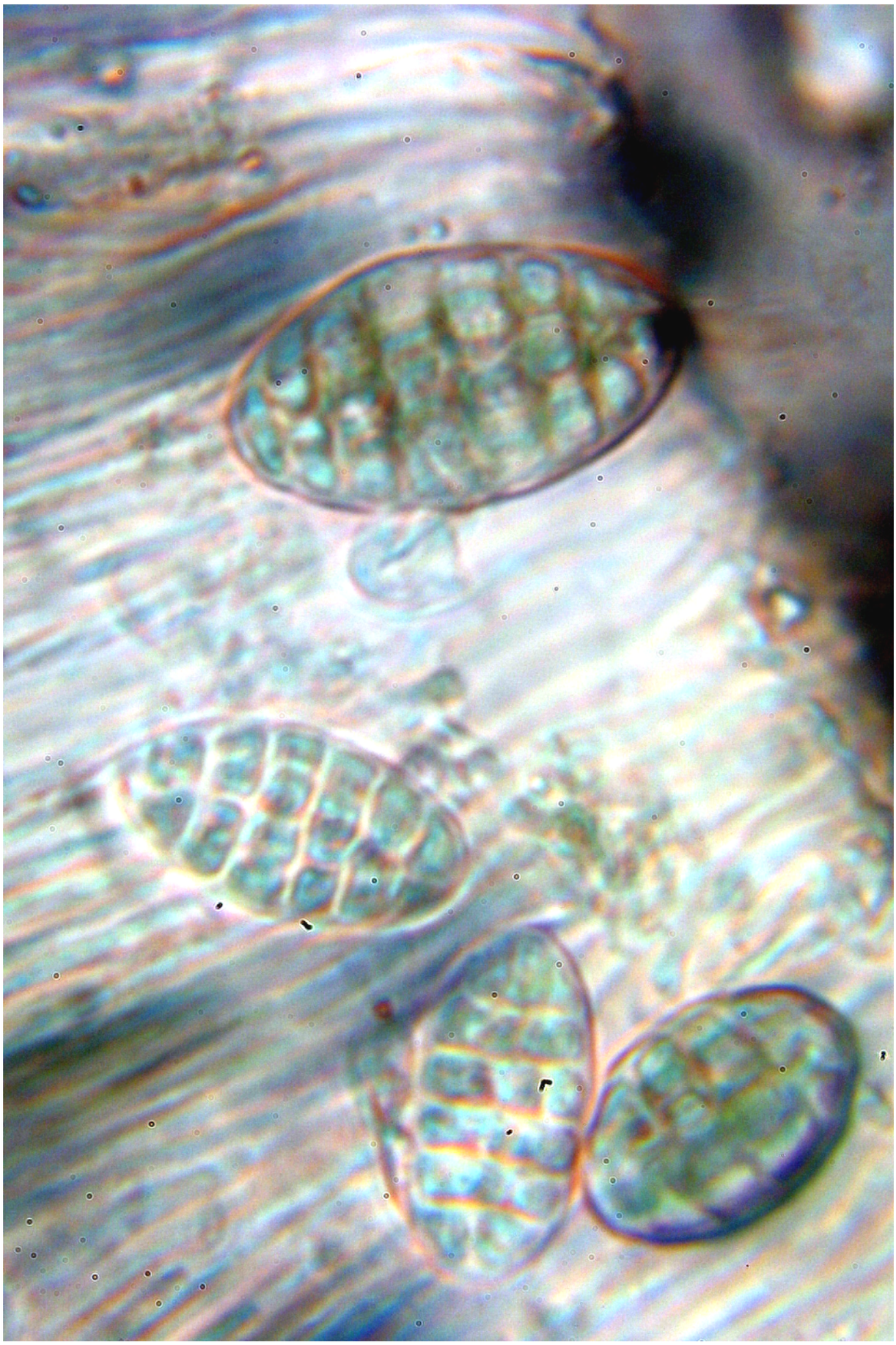
***Diploschistes euganeus***



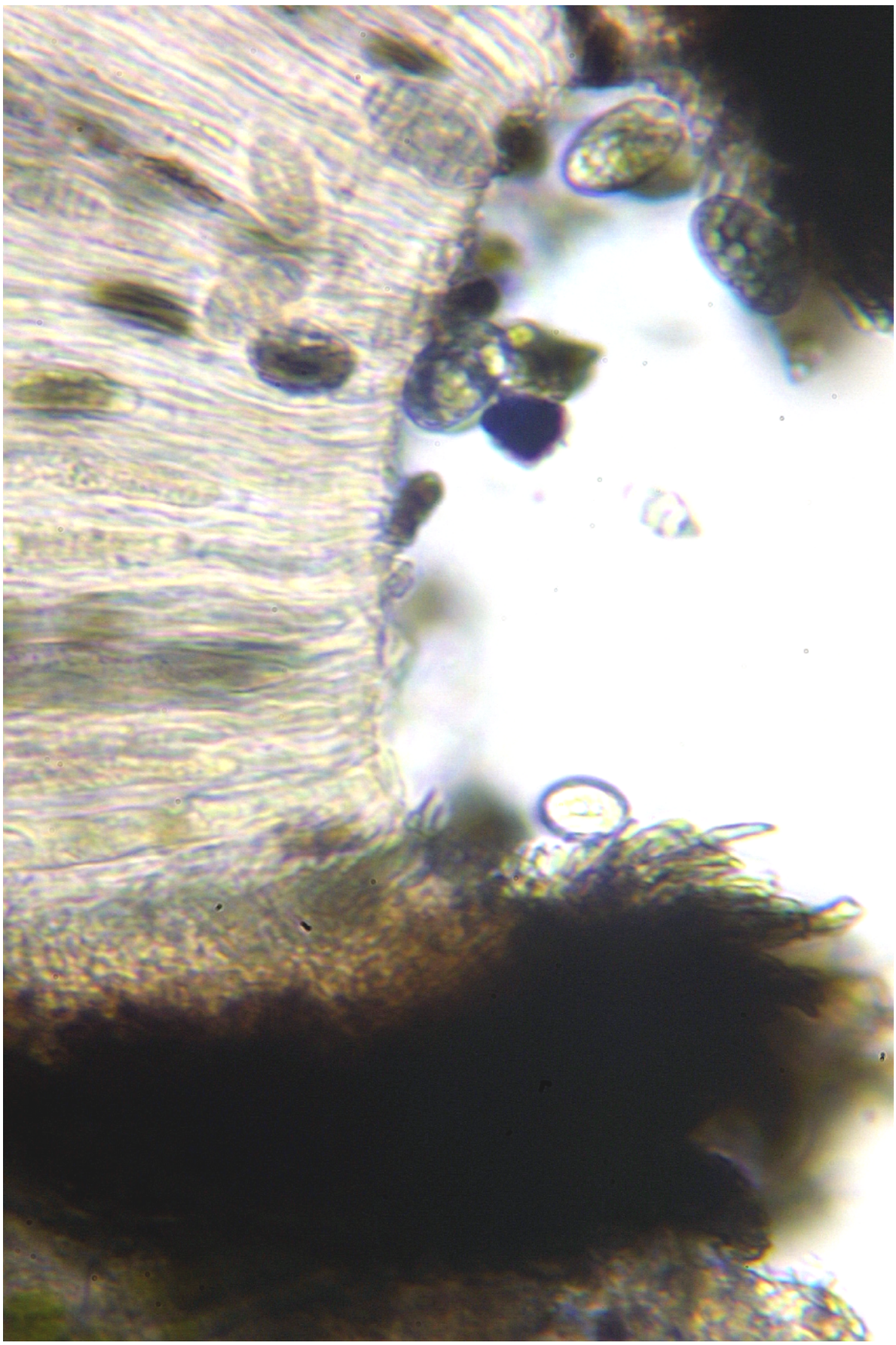
***Diploschistes euganeus***



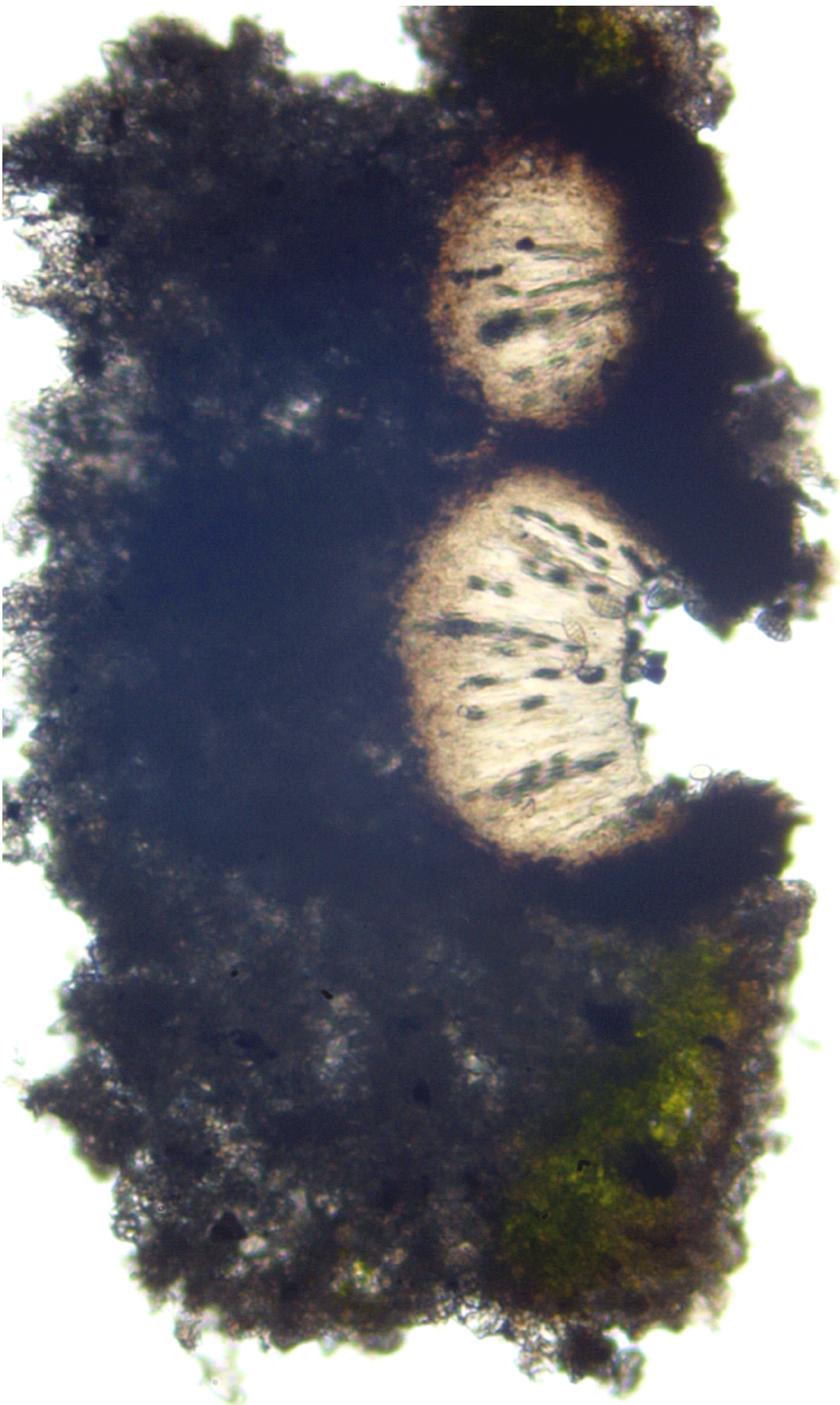
***Diploschistes euganeus***



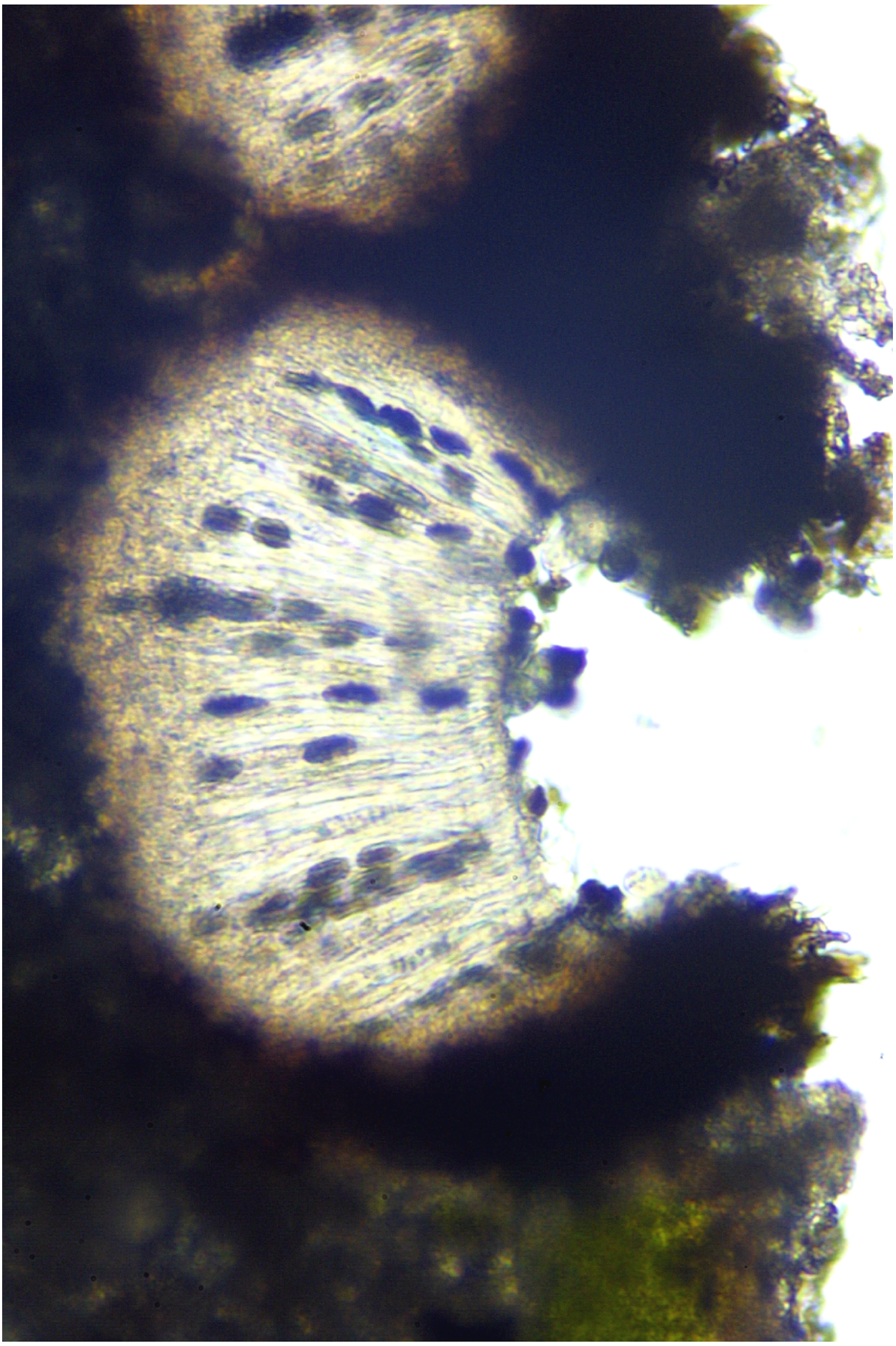
***Diploschistes euganeus***



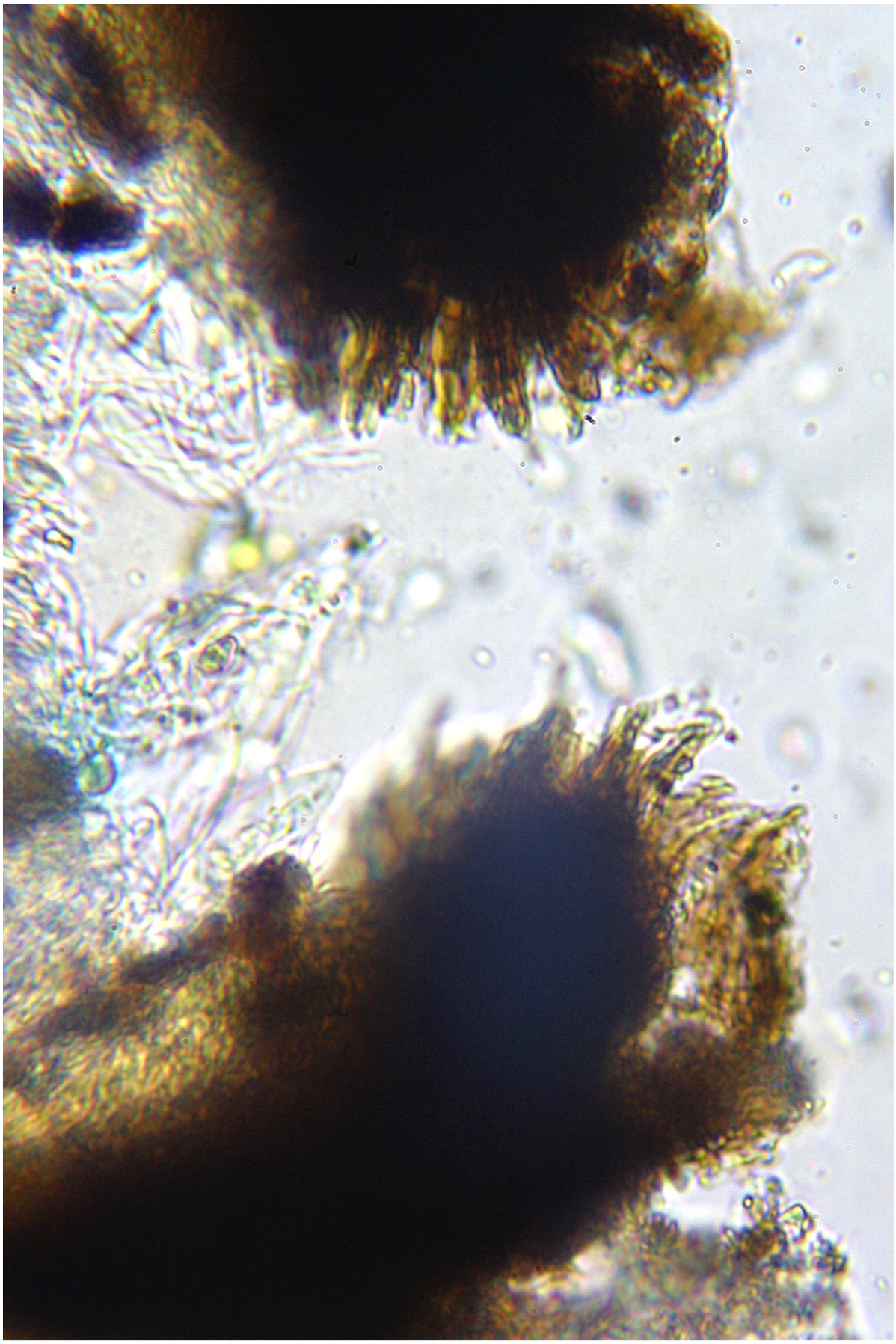
***Diploschistes euganeus***



***Diploschistes euganeus***



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***Diploschistes euganeus*** (A. Massal.) J. Steiner, Verh. zool.-bot. Ges. Wien 69: 96 (1919)
= *Acrorixis euganea* (A. Massal.) Trevis., Conspect. Verruc.: 15 (1860)
= *Limboria actinostoma var. euganea* (A. Massal.) Arnold, Verh. Kaiserl.-Königl. zool.-bot. Ges. Wien 19: 612 (1869)
= *Limboria euganea* A. Massal., Ric. auton. lich. crost. (Verona): 155 (1852)
= *Urceolaria euganea* (A. Massal.) Jatta, Syll. Lich. Ital. (Trano): 289 (1900)

[ABL79329], Brazil, Rio Grande do Sul, Cangaçu, Florida , on exposed siliceous rock. 31°04'38" S, 52°37'28" W, 245 m. Leg. A. Aptroot (no 79329), 16 July 2019, det. A. Aptroot 2019. - Apothecia immersed. Spores muriform, 3-6 transveral and 1-4 longitudinal septa, 16-32 x 10-20 µm. Chemistry: K-, C-, P-, UV-; no lichen substances detected by TLC.

Thallus crustose, episubstratic, continuous to usually rimose-areolate, grey to brownish grey, smooth, dull or slightly shiny, epruinose, consisting of irregularly angular, 0.3-1.5 mm wide and 0.15-0.9(-1.3) mm thick areoles. Medulla white, I-. Apothecia perithecioid, immersed to semi-immersed in the areoles, up to 1.8 mm across (in section), with a blackish but sometimes white-pruinose, at first urceolate then flat disc which is not always visible from above, being concealed by a thick, entire or usually radially sulcate proper margin; thalline margin thin, poorly visible. Proper exciple carbonized, 70-90 µm thick, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 100-140 µm high, non-amyloid; paraphyses simple, flexuose, 1-1.5 µm thick, not swollen at apex. Asci (6-)8-spored, subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, lacking an apical apparatus. Ascospores muriform, with 3-6 transverse and 1-4 longitudinal septa, at first hyaline, then turning brown, broadly ellipsoid to subglobose, (16-)20-30(-32) x (10-)12-18(-20) µm. Photobiont chlorococcoid. Spot tests: K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mild-temperate lichen found on basic siliceous rocks, more rarely on brick and roofing tiles, in warm-humid areas,




***Diploschistes euganeus***




***Diploschistes euganeus***

***Diploschistes farinosus*** (Anzi) Vězda, Lichenes Selecti Exsiccati, Fasc. (Průhonice) 49: 6 (no. 1204 (1974)

= *Diploschistes actinostomus var. farinosus* (Anzi) Zahlbr., Cat. Lich. Univers. 2: 654 (1924)

= *Urceolaria actinostoma var. farinosa* Anzi, Comm. Soc. crittog. Ital. 1(fasc. 3): 163 (1862)

= *Diploschistes candidissimus* (Kremp.) Zahlbr.

[VZ1204], Romania. Dobrogea, distr. Tulcea. In valle fluminis Casimecea inter pagos Dubrogei et Tirguşor, 30 m. Ad saxa calcarea. Leg. A. Vězda, 12.07.1973. EX A. VĚZDA: LICHENES SELECTI EXSICCATI NR. 1204.

Thallus crustose, episubstratic, well-delimited and forming large patches, rimose-areolate, consisting of 0.5-4 mm wide and (0.3-)06-1.8 mm thick, irregularly angular, flat to slightly convex, chalky white, heavily pruinose areoles. Epinecral layer up to c. 30 µm thick; algal layer continuous, well developed; medulla white, with abundant calcium oxalate crystals, I+ blue. Apothecia common, perithecioid, immersed in the areoles, up to 1.5 mm across (in section), with a blackish, urceolate to finally flat disc not visible from above, being concealed by a thick, radially sulcate proper margin. Proper exciple up to 70 µm thick, carbonized, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 120-160 µm high, non-amyloid; paraphyses simple, flexuose, 1-1.5 µm thick, not swollen at apex; hypothecium colourless 10-15 µm high. Asci 4-8-spored, cylindrical to subclavate, the wall evenly thickened, with an abrupt apical thickening and a thin internal apical beak, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse and 1-3 longitudinal septa, at first hyaline then brown, broadly ellipsoid, 20-34 x (10-)14-20 µm. Pycnidia black, immersed. Conidia bacilliform. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid (major), orsellinic acid (accessory). - Note: a mainly Mediterranean species growing on compact calciferous rocks.




***Diploschistes farinosus***

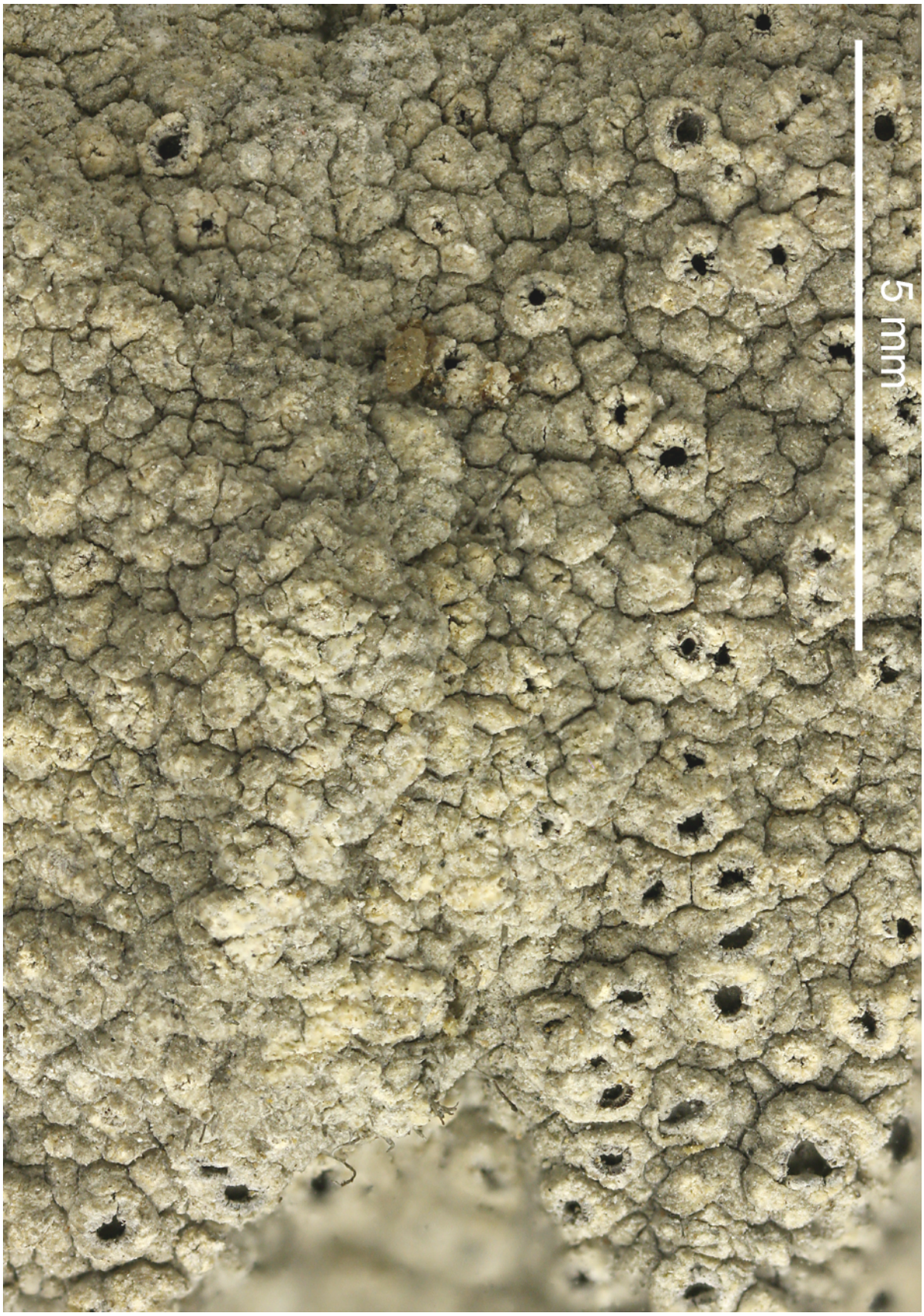



***Diploschistes farinosus***

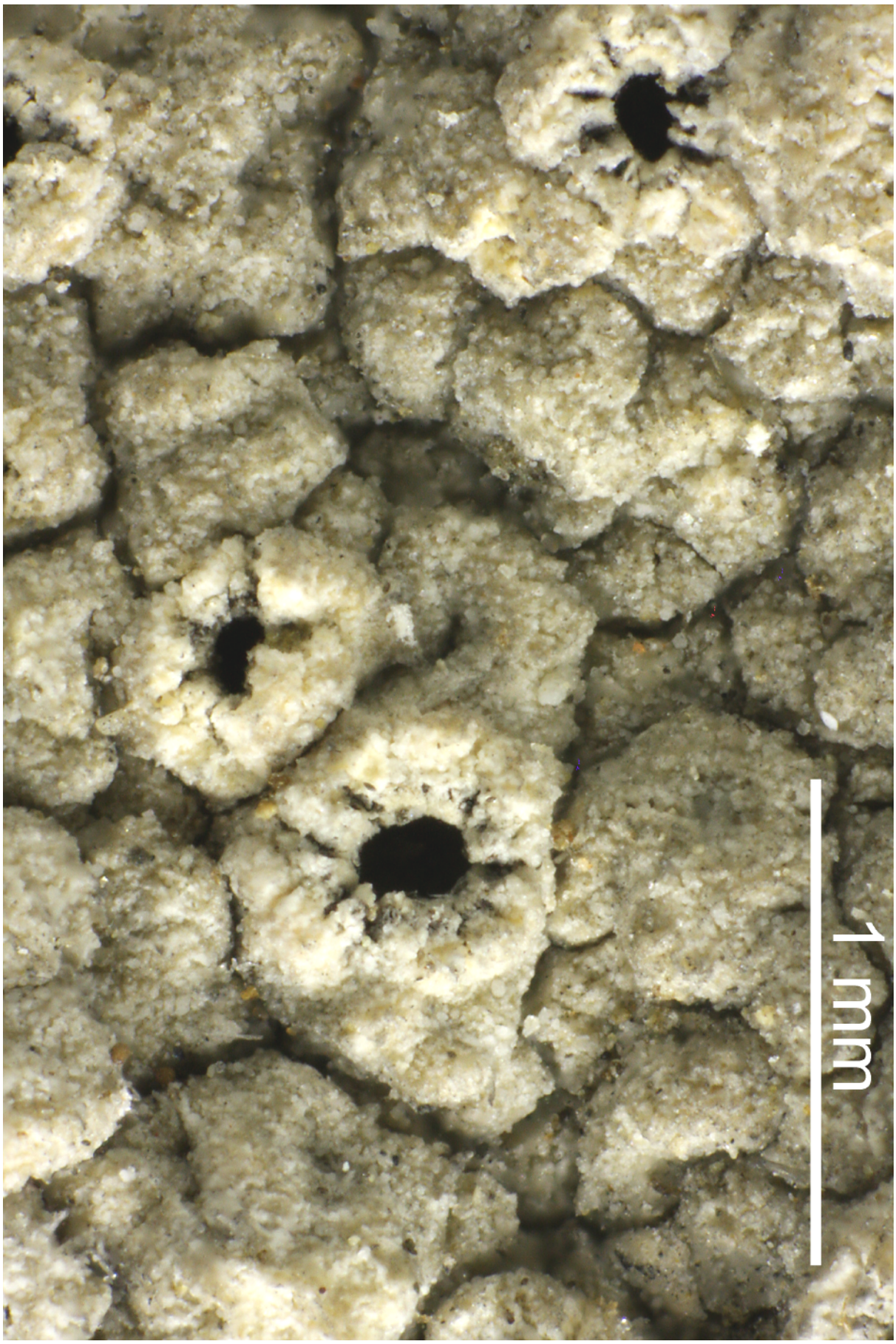
***Diploschistes gypsaceus*** (Ach.) Zahlbr., Hedwigia 31: 35 (1892)
= *Diploschistes scruposus subsp. gypsaceus* (Ach.) Clauzade & Cl. Roux, Bull. Soc. linn. Provence 40: 110 (1989)
= *Lecanora scruposa* var. *gypsacea* (Ach.) Sommerf., Suppl. Fl. lapp. (Oslo): 100 (1826)
= *Lichen opegraphus* * *gypsacea* (Ach.) Lam., Encycl. Méth. Bot., Suppl. (Paris) 3(2): 407 (1813)
= *Parmelia scruposa* var. *gypsacea* (Ach.) Flot., Flora, Regensburg 11(46): 734 (1828)
= *Urceolaria albissima* var. *gypsacea* (Ach.) Arnold, Flora, Regensburg 67(22): 417 (1884)
= *Urceolaria gypsacea* Ach., Lich. Univ.: 338 (1810)
= *Urceolaria scruposa* f. *gypsacea* (Ach.) Leight., Lich.-Fl. Great Brit.: 234 (1871)
= *Urceolaria scruposa* var. *gypsacea* (Ach.) Körb., Syst. lich. germ. (Breslau): 168 (1855)

[1913], Germany, Baden-Württemberg, Kreis Göppingen, an der Klostermauer des Klosters Adelberg, Sonnenseite, 10 cm über Boden, 450 m. TK: 7223. Leg. F. Schumm, 25.09.1971, det. F. Schumm, 1971. - Thallus C+ rot, K-, P-; Sporen braun, muriform, zu 4, 30-35 x 13-16 µm.

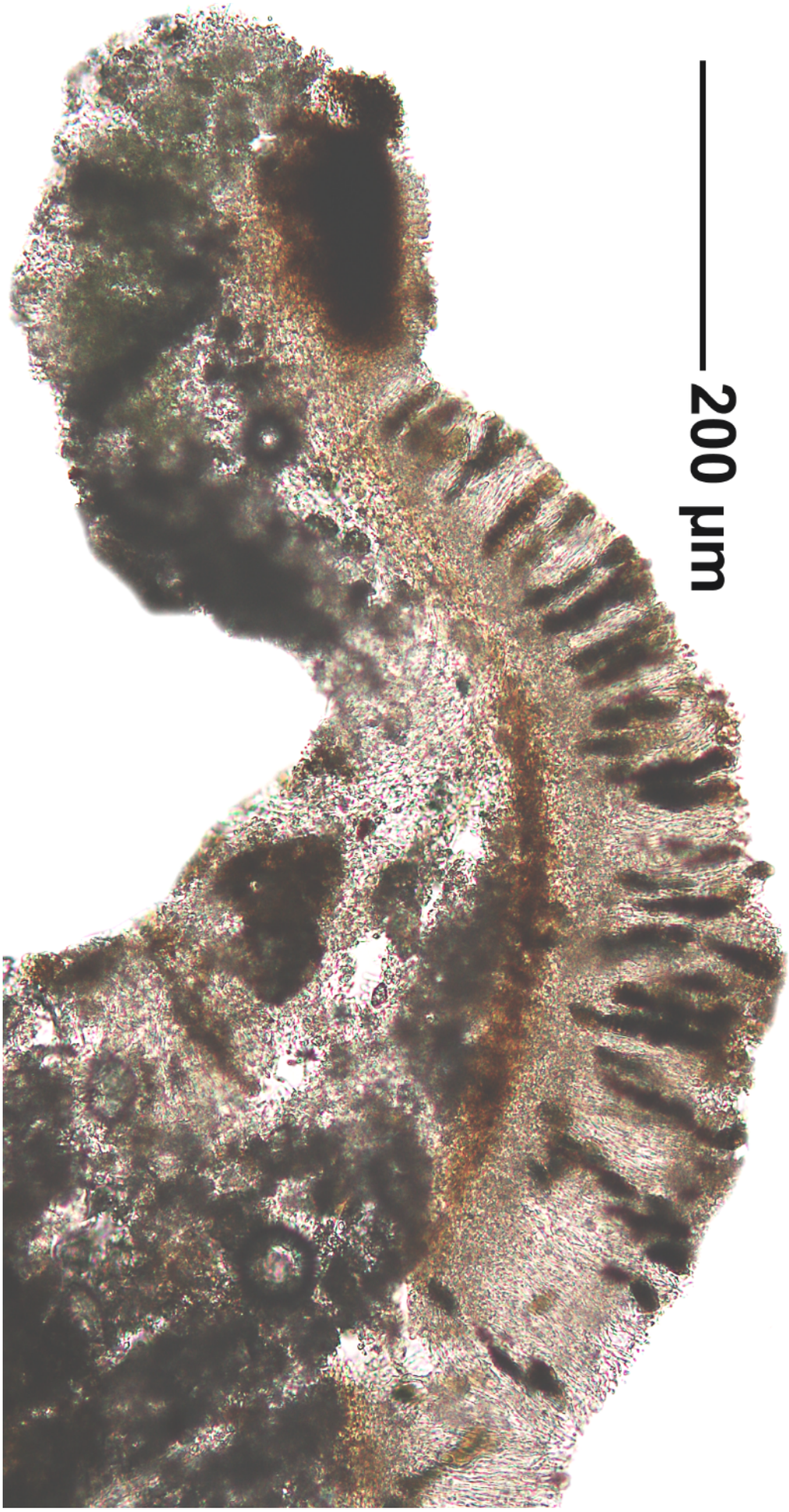
Thallus crustose, episubstratic, rimose-areolate, covered in a chalk-white to white-grey pruina giving the thallus a farinose appearance, consisting of 0.8-2 mm wide and 1-3 mm thick, flat to convex, irregularly angular areoles. Apothecia lecanorine, semi-immersed in the thallus, 2-5 mm across, with an initially concave and urceolate, then flat, usually pruinose disc, and a thick thalline margin. Proper exciple blackish brown, up to 65 µm wide laterally, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless to pale brown, 120-190 µm tall, non amyloid; paraphyses simple, flexuose, 1-2 µm thick, the apical cells not swollen; hypothecium colourless, c. 15 µm thick. Asci 4-spored, narrowly clavate to subcylindrical, the wall evenly thickened when mature, the somewhat abrupt apical thickening with a thin, internal apical beak, lacking any apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-7 transverse and 1-2 longitudinal septa, at first hyaline then turning brown, broadly ellipsoid, 25-40 x 10-17 µm,. Photobiont chlorococcoid. Spot tests: thallus K-, C+ red, P-, UV-. Chemistry: lecanoric acid. - Note: a widespread temperate to southern boreal-montane lichen found in rock fissures, on vertical or rain-sheltered surfaces of calcareous rocks.



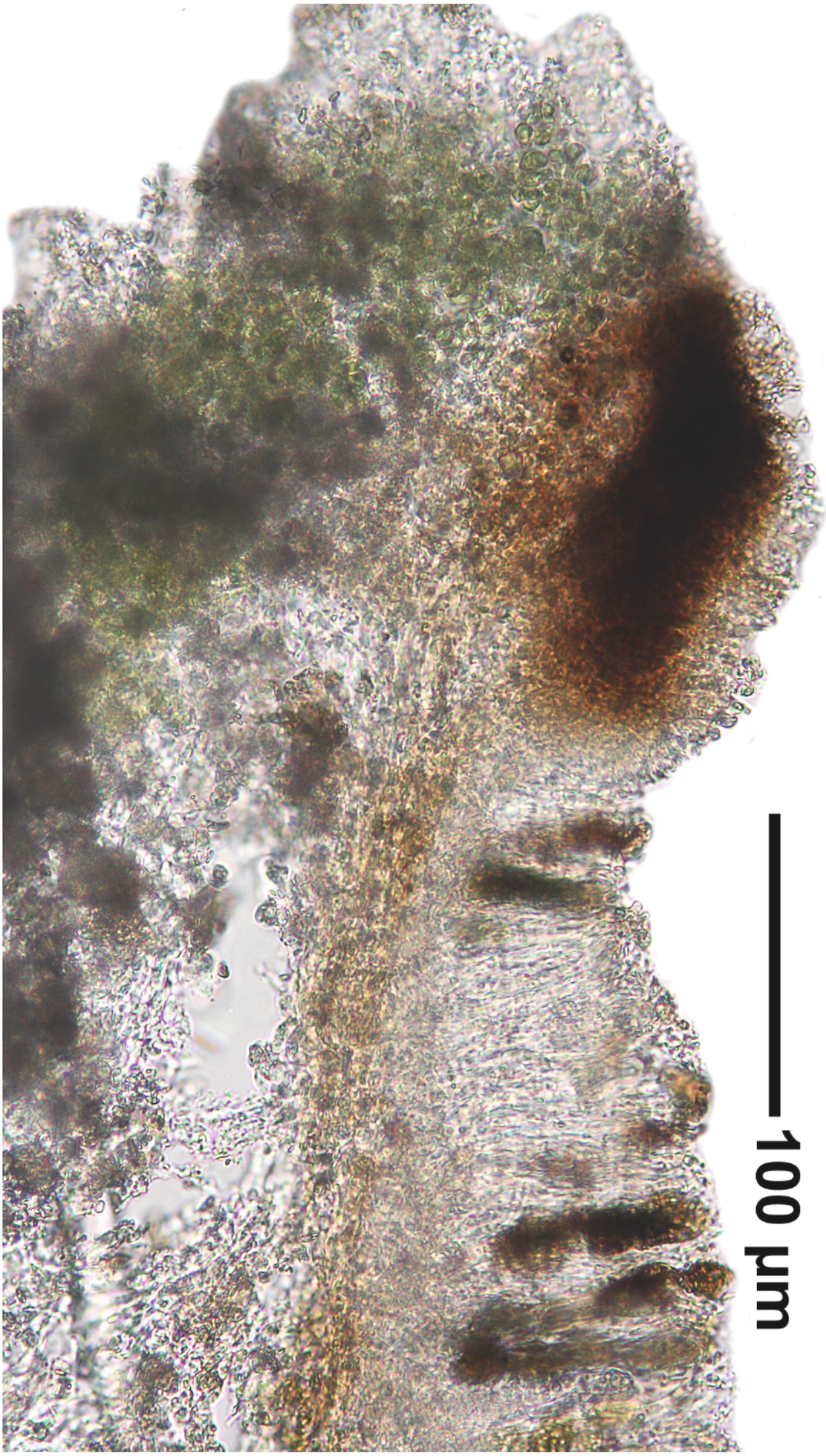

***Diploschistes gypsaceus***



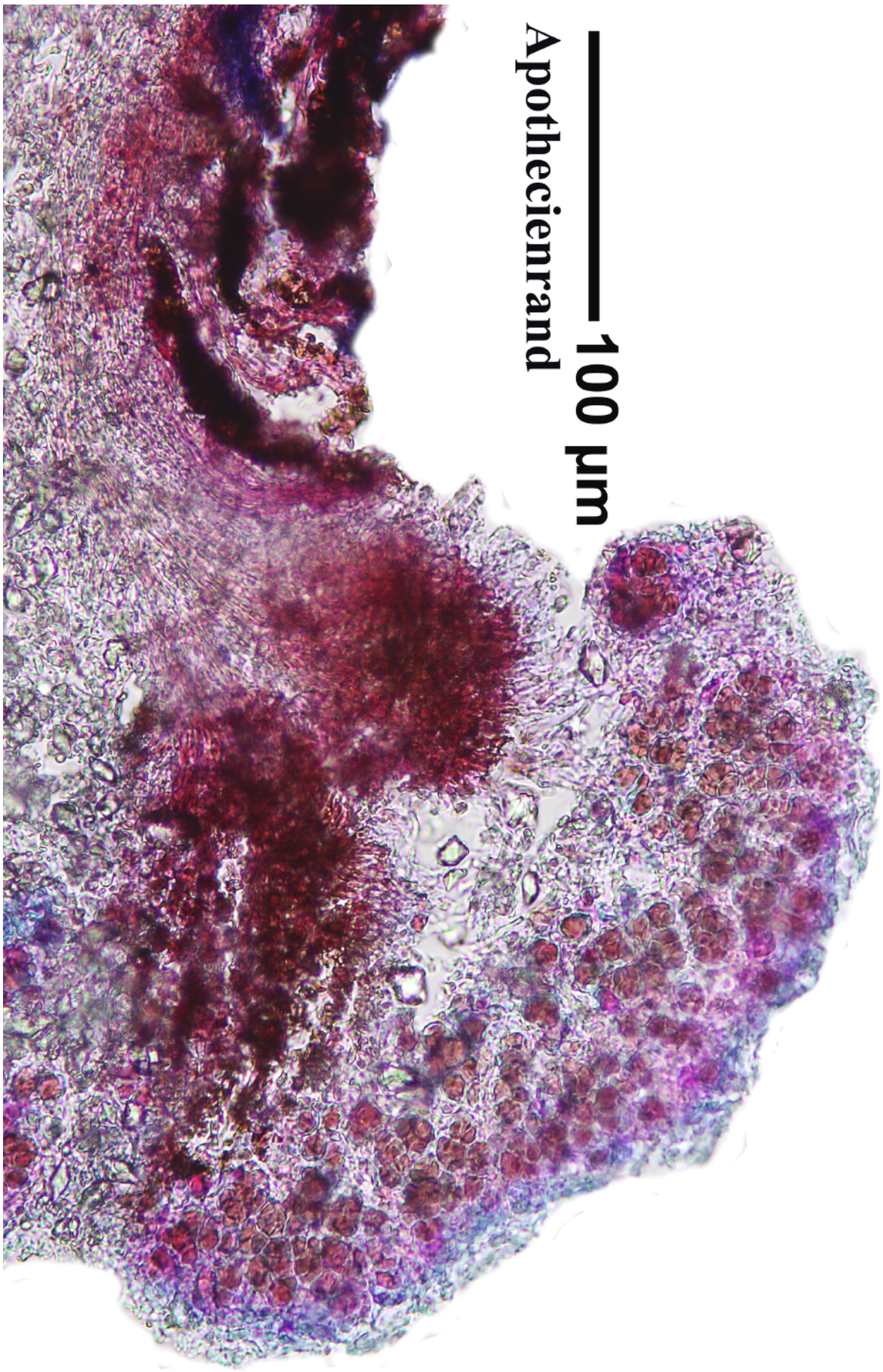

***Diploschistes gypsaceus***



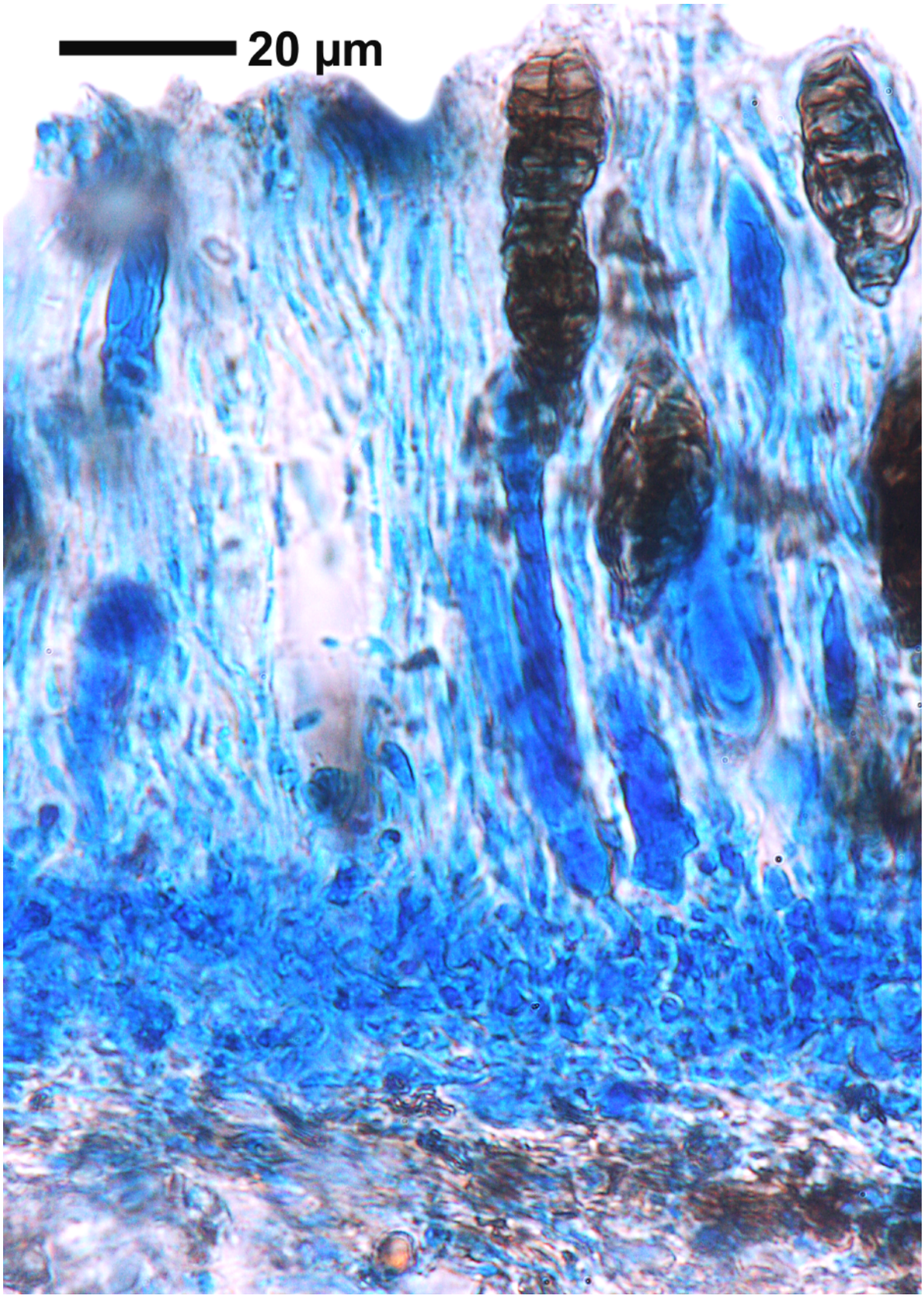

***Diploschistes gypsaceus***




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***Diploschistes gypsaceus***



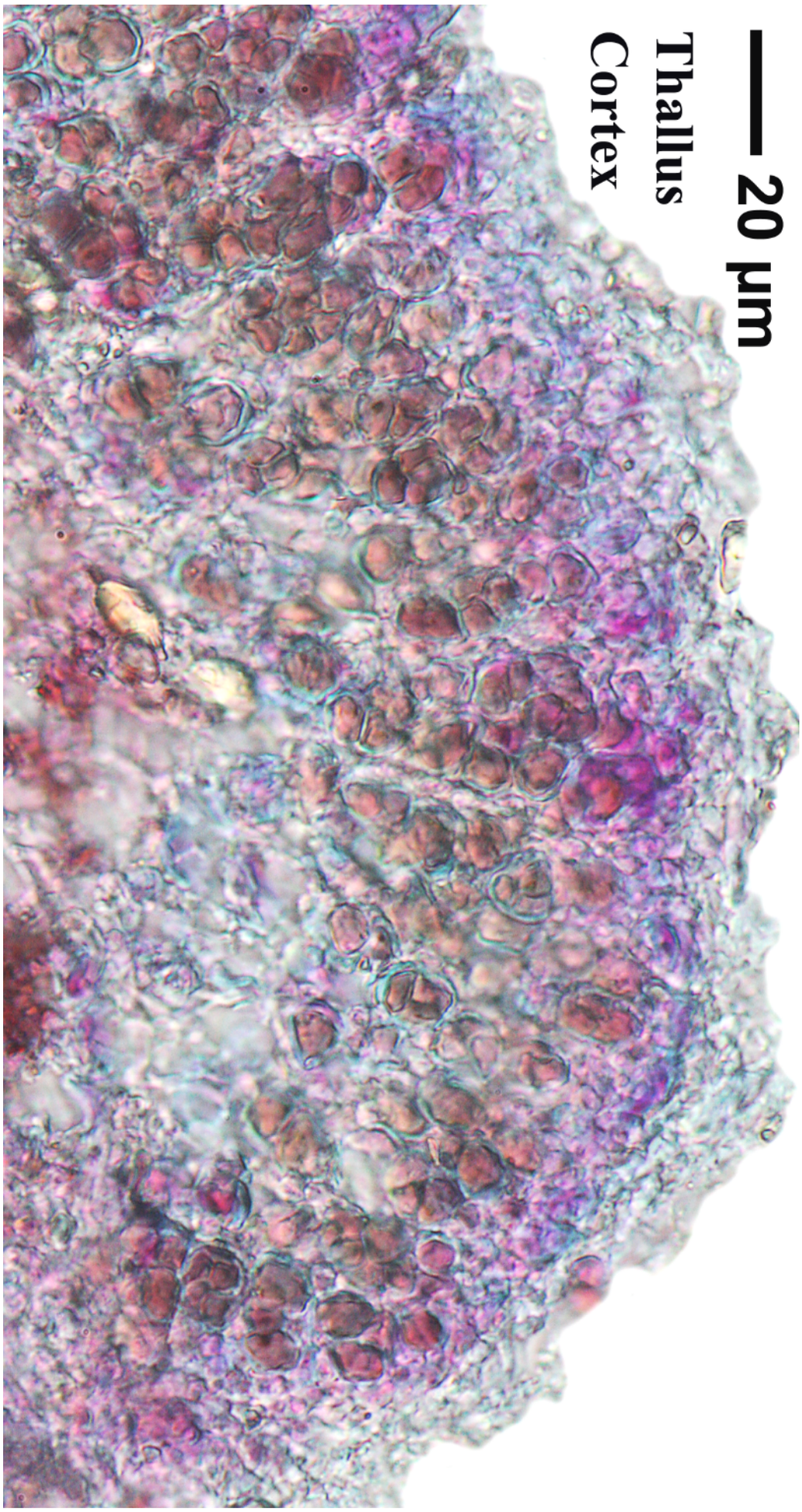

***Diploschistes gypsaceus***



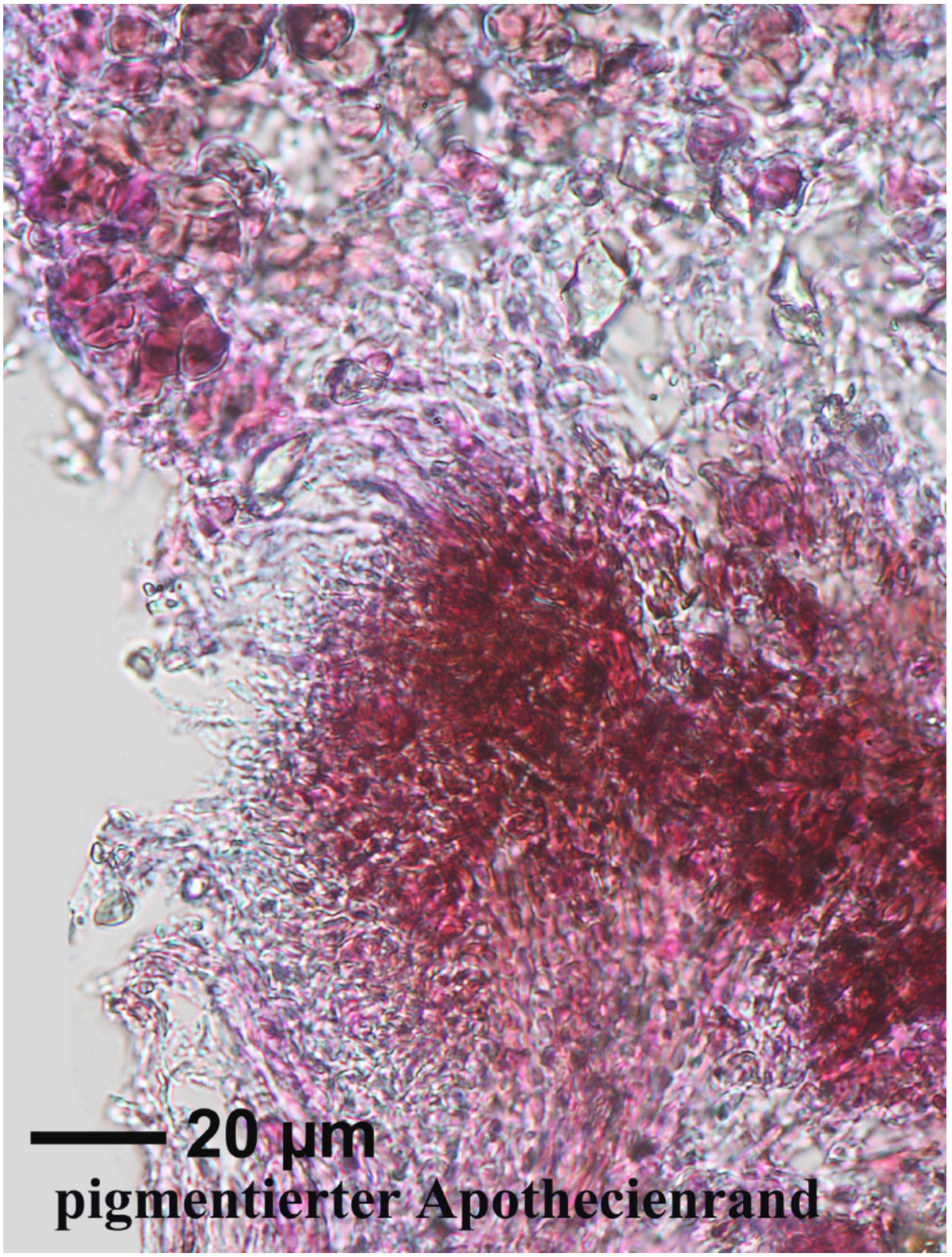

***Diploschistes gypsaceus***




***Diploschistes gypsaceus***




***Diploschistes gypsaceus***




***Diploschistes gypsaceus***

***Diploschistes hypoleucus*** Zahlbr., Hedwigia 31: 35 (1892)
= *Urceolaria hypoleuca* Vain. 1890

[ABL48686], Brazil, Bahia, Itamarajú, km 6 on BR 498, on soil of roadbank. 16°53'18" S, 39°26'21" W, 130 m. Leg. M. Cáceres & A. Aptroot (no 48686), 15.02.2019, det. A. Aptroot 2019.

Thallus yellowish green to yelloish brown; spores 6-8/ascus, brown, muriform, 4-6 transversaly, 1-2 longitudinaly septate, 20-28 x 8-14 µm. Chemistry: K-, C+ red, P-, UV-; gyrophoric acid (major), lecanoric acid (minor).




***Diploschistes hypoleucus***




***Diploschistes hypoleucus***

***Diploschistes interpediens*** (Nyl.) Zahlbr., Hedwigia 31: 35 (1892)
= *Urceolaria interpediens* Nyl. 1880
= *Diploschistes gypsaceus subsp. interpediens* (Nyl.) Clauzade & Cl. Roux
= *Diploschistes ptychochrous* Lettau
= *Diploschistes scruposus f. centrosus* Werner
= *Diploschistes scruposus f. flavescens* Zahlbr.
= *Diploschistes scruposus subsp. ptychochrous* (Lettau) Clauzade & Cl. Roux
= *Diploschistes scruposus subsp. violarius* (Nyl.) Clauzade & Cl. Roux
= *Diploschistes scruposus var. clauzadei* B. de Lesd.
= *Diploschistes violarius* (Nyl.) Zahlbr.

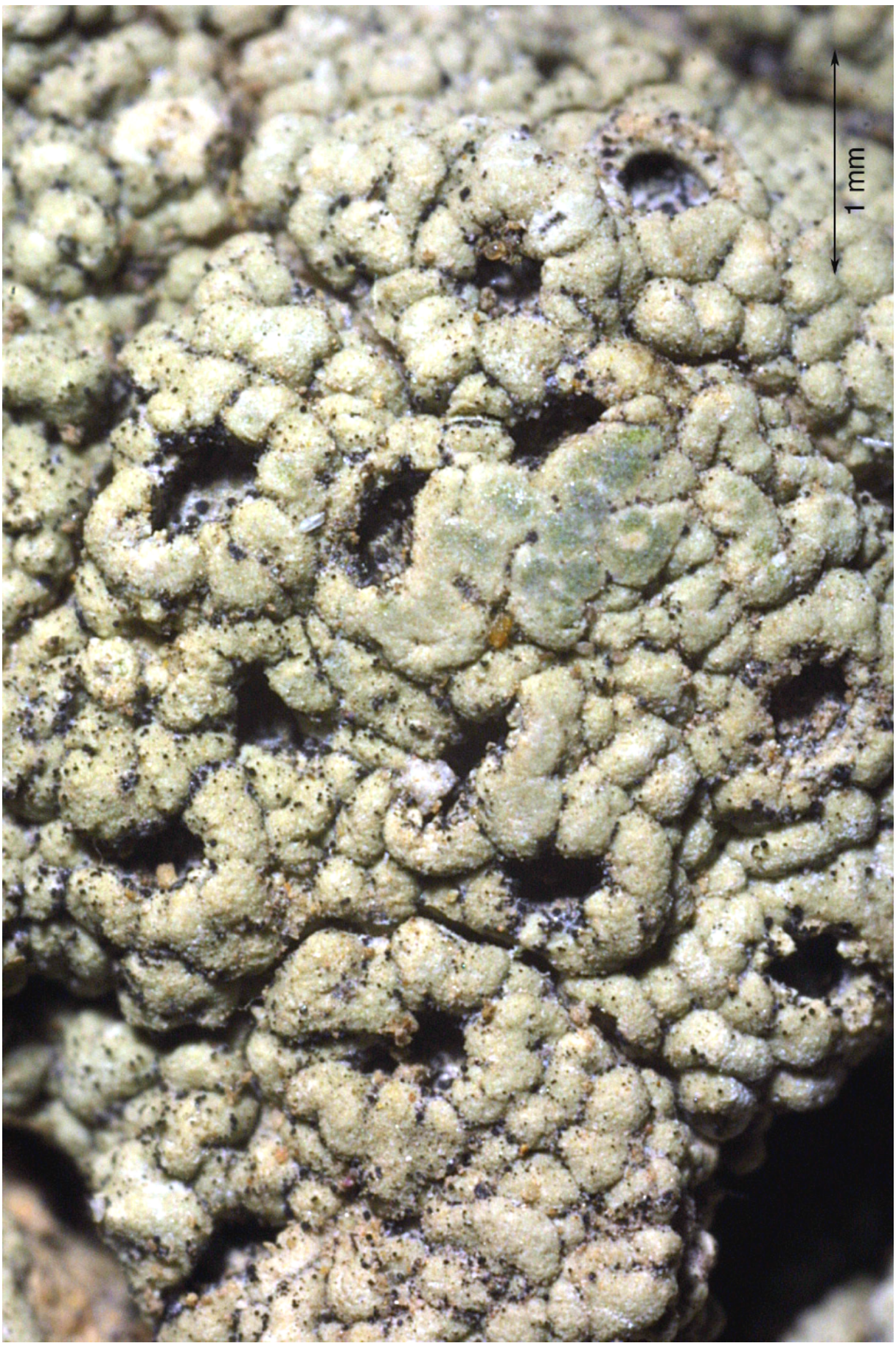
[5121], Spanien, Gran Canaria, ca 3 km nordwestlich von Artenara am Südarm des Stausees Embalse de Lugarejos, felsiger Südhang; 28°02.448' N, 15°40.488' W, 840 m. Leg. F. Schumm & U. Schwarz, 04.01.1999, det. F. Schumm, 17.02.1999. - Sporen zu 7-8, (21.8-30.5) x (10.9-11.9) µm; thallus K+ gelb> rot, C+ rot, P-.

Thallus crustose, episubstratic, continuous, rimose- to verrucose-areolate, grey or greenish to brownish grey, scabrid, dull, epruinose, sometimes with a white prothallus, the areoles, when present, irregularly angular, 0.4-1.5 mm wide and up to 3.5 mm thick, contiguous, flat to convex, often forming large patches. Medulla white, I- or I+ blue. Apothecia urceolate, semi-immersed to sessile, up to 3.5 mm across, with a black, usually slightly white-pruinose, concave disc, and a thick, raised proper margin. Proper exciple blackish, up to 75 µm thick laterally, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, (90-)100-125(-140) µm high, non-amyloid; paraphyses simple, 1-2 µm thick, the apical cells not swollen; hypothecium dark brown, 10-15 µm high. Asci (4-)8-spored, narrowly clavate to subcylindrical, the wall evenly thickened when mature, the somewhat abrupt apical thickening with a thin, internal apical beak, lacking any apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, 5-7 transverse and 2-3 longitudinal septa, at first hyaline then turning brown, broadly ellipsoid, (20-)25-35(-40) x 10-18(-21) µm. Pycnidia immersed, crateriform. Conidia bacilliform, 4-6 x 1 µm. Photobiont chlorococcoid. Spot tests: thallus K-, K+ yellow, or K+ yellow turning violet red-brown, C+ red, P-, UV-. Chemistry: lecanoric acid (major),

diploschistesic acid (major or absent), orsellinic acid (minor). Note: a widespread holarctic lichen found on siliceous rocks, more rarely on soil, with a wide altitudinal range.




***Diploschistes interpediens***




***Diploschistes interpediens***

***Diploschistes muscorum*** (Scop.) R. Sant., in Hawksworth, James & Coppins, Lichenologist 12(1): 106 (1980)
= *Alysphaeria muscorum* (Scop.) Turpin, Mém. Mus. Hist. Nat. 14: 64 (1827)
= *Diploschistes bryophilus* (Ach.) Zahlbr., Hedwigia 31: 34 (1892)
= *Diploschistes bryophilus* f. *parasitica* Lettau, Hedwigia 52(3-4): 124 (1912)
= *Diploschistes lichenicola* (Mont. & Fr.) Vain., in Almquist, Kolemann. tutkim. Länsi-Siperiassa 4: 105 (1928)
= *Diploschistes scruposus* f. *bryophilus* (Ach.) Oxner, Viznachnilk Lishainikiv: 101 (1937)
= *Diploschistes scruposus* f. *parasitica* Anders, Hedwigia 63: 277 (1922)
= *Diploschistes scruposus* subsp. *muscorum* (Scop.) Clauzade & Cl. Roux, Bull. Soc. bot. Centre-Ouest, Nouv. sér., num. spec. 7: 825 (1985)
= *Diploschistes scruposus* var. *bryophilus* (Ach.) Müll. Arg., Bull. Herb. Boissier 1(2): 41 (1893)
= *Diploschistes scruposus* var. *parasiticus* Zahlbr., Cat. Lich. Univers. 2: 672 (1924)
= *Gyalecta bryophila* (Ach.) Ach., Syn. meth. lich. (Lund): 10 (1814)
= *Lecanora scruposa* var. *bryophila* (Ach.) Nyl., in Norrlin, Not. Sällsk. Fauna et Fl. Fenn. Förh., Ny Ser. 13: 333 (1873) [1871-1874]
= *Lecanora scruposa* var. *parasitica* Sommer., Suppl. Fl. lapp. (Oslo): 100 (1826)
= *Lichen bryophilus* Ehrh., Pl. crypt. exsicc.: no. 236 (1793)
= *Lichen muscorum* Scop., Fl. carniol., Edn 2 (Wien) 2: 365 (1772)
= *Lichen tartareus* var. *muscorum* (Scop.) Latourr., Chloris Lugdunensis (Lugduni): 34 (1785)
= *Mellitiosporium lichenicola* (Mont. & Fr.) Massee [as 'Melittosporium'], Brit. Fung.-Fl. (London) 4: 88 (1895)
= *Parmelia bryophila* (Ach.) L. Colla, Mém. R. Accad. Sci. Torino, Ser. 2 12: 18 (1852)
= *Parmelia scruposa* var. *bryophila* (Ach.) Hepp, Flecht.-Fl. Würzburg: 43 (1824)
= *Patellaria muscorum* (Scop.) Hoffm., Descr. Adumb. Plant. Lich. 1(4): 93 (1790)
= *Stictis lichenicola* Mont. & Fr., in Montagne, Annls Sci. Nat., Bot., sér. 2 5: 281 (1836)
= *Urceolaria bryophila* (Ach.) Funck, Cryptog. Gewächse 5: 1 (1805)
= *Urceolaria lichenicola* (Mont. & Fr.) O.J. Rich., Catal. Lich. Deux-Sèvres: 32 (1877)
= *Urceolaria scruposa* b *parasitica* Arnold, Flora, Regensburg 67(22): 417 (1884)
= *Urceolaria scruposa* f. *bryophila* (Ach.) Leight., Lich.-Fl. Great Brit.: 235 (1871)

= *Urceolaria scruposa* f. *lichenicola* (Mont. & Fr.) Arnold, Flora, Regensburg 53(30–31): 471 (1871) [1870]
= *Urceolaria scruposa* subsp. *bryophila* (Ach.) Nyl., in Norrlin, Meddn Soc. Fauna Flora fenn. 1: 27 (1876)
= *Urceolaria scruposa* var. *bryophila* Ach., Methodus, Sectio prior (Stockholmiæ): 148 (1803)
= *Urceolaria scruposa* var. *lichenicola* (Mont. & Fr.) H. Olivier, Expos. Lich. Ouest France 1: 318 (1897)
= *Urceolaria scruposa* var. *parasitica* Tuck., Lichens of California (Berkeley): 22 (1866)
= *Urceolaria scruposa* ? *muscorum* (Scop.) Lam. & DC., Fl. franç., Edn 3 (Paris) 2: 372 (1805)

[508], Germany, Baden-Württemberg, Schwäbische Alb, Kreis Heidenheim, nördlich von Böhmenkirch im "Haspelteich", ca. 650 m, Kalkblöcke in Steppenheide , TK: 7225. Leg. F. Schumm, 23.03.1969, det. F. Schumm, 1969. - Sporen braun, muriform, 20-37(-44) x 14-18 µm, 4/Ascus. Thallus C+ rot; parasitisch auf *Cladonia pocillum*.

Thallus crustose, episubstratic, often starting the development on squamules of *Cladonia*, continuous to verrucose-areolate, 0.8-3 mm thick, whitish grey to greenish grey, rough, scarcely to abundantly pruinose, sometimes with a white prothallus, consisting of rather indistinct, 0.2-0.6 mm wide, irregularly angular, flat to slightly convex, contiguous areoles, forming up to 5 cm wide patches. Apothecia lecanorine, semi-immersed in the thallus, 1-2 mm across, with a blackish but usually pruinose, concave disc, and a thick, raised thalline margin. Proper exciple black-brown, c. 70 µm wide laterally, pseudoparenchymatous; epithecium poorly differentiated, colourless to brownish; hymenium colourless, 80-125 µm high, non-amyloid; paraphyses simple, 1-2 µm thick, the apical cells not swollen; hypothecium dark brown, 10-15 µm high. Asci 4-spored, narrowly clavate to subcylindrical, the wall evenly thickened when mature, the somewhat abrupt apical thickening with a thin, internal apical beak, lacking any apical apparatus, the contents I+ orange-red, the walls I-, not fissitunicate. Ascospores muriform, with 4-6 transverse septa and 1-2 longitudinal septa per transverse segment, at first hyaline then turning brown, broadly ellipsoid, (18-)20-35(-40) x (6-)10-15(-18) µm. Photobiont chlorococcoid. Spot tests: thallus K- or K+ yellow to red, C+ red, P-, UV-. Chemistry: diploschistesic and lecanoric acids (both major), orsellinic acid (minor). - Note: a holarctic lichen, often - but apparently not always - parasitic

on Cladonia-squamules (especially *C. pyxidata* f. *pocillum* and *C. symphycarpa*, sometimes also on the podetia of *C. rangiformis*), more rarely on species of *Squamarina*, especially *S. cartilaginea*, generally on mosses and plant debris in dry grasslands on limestone, with a wide altitudinal range.



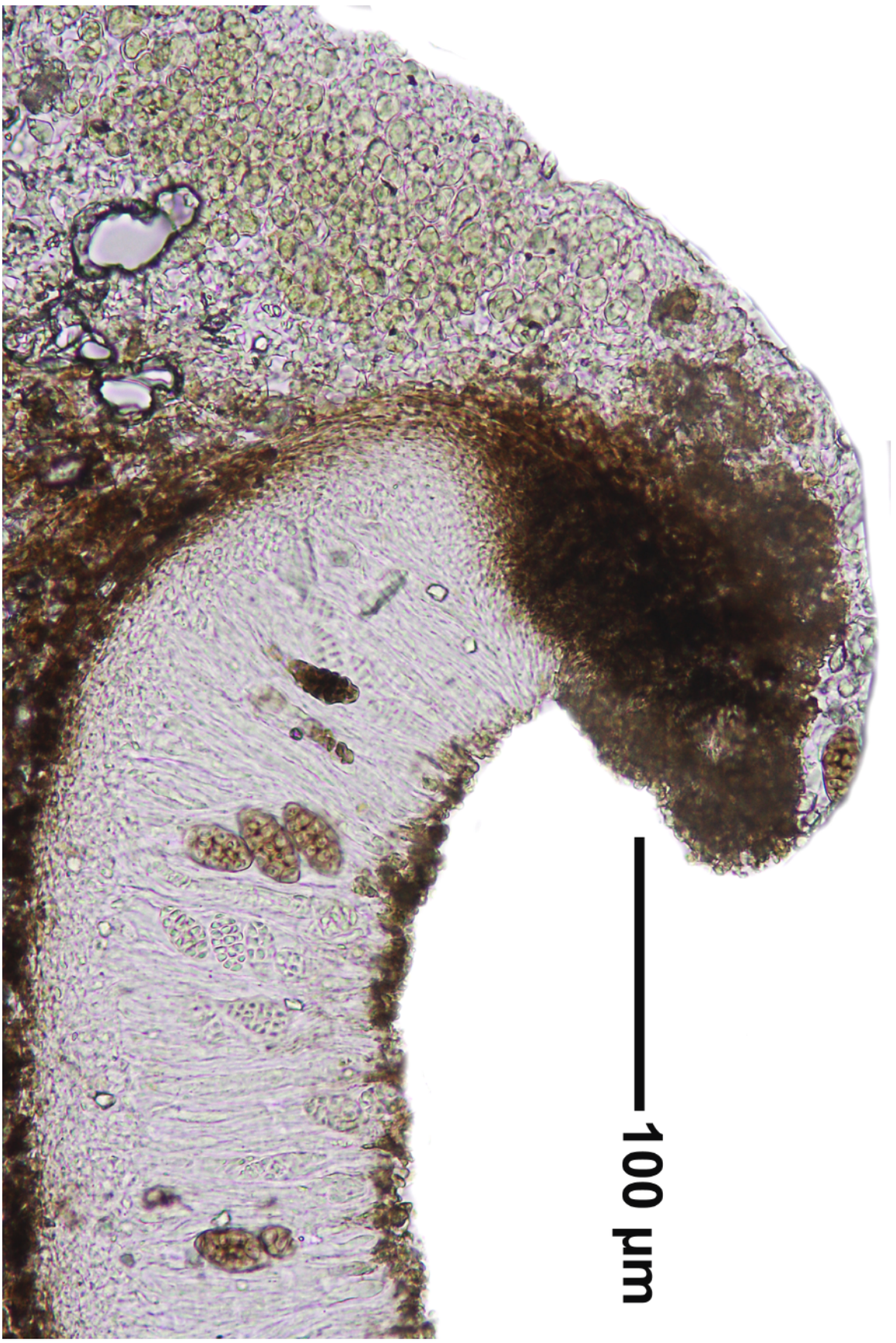

***Diploschistes muscorum***



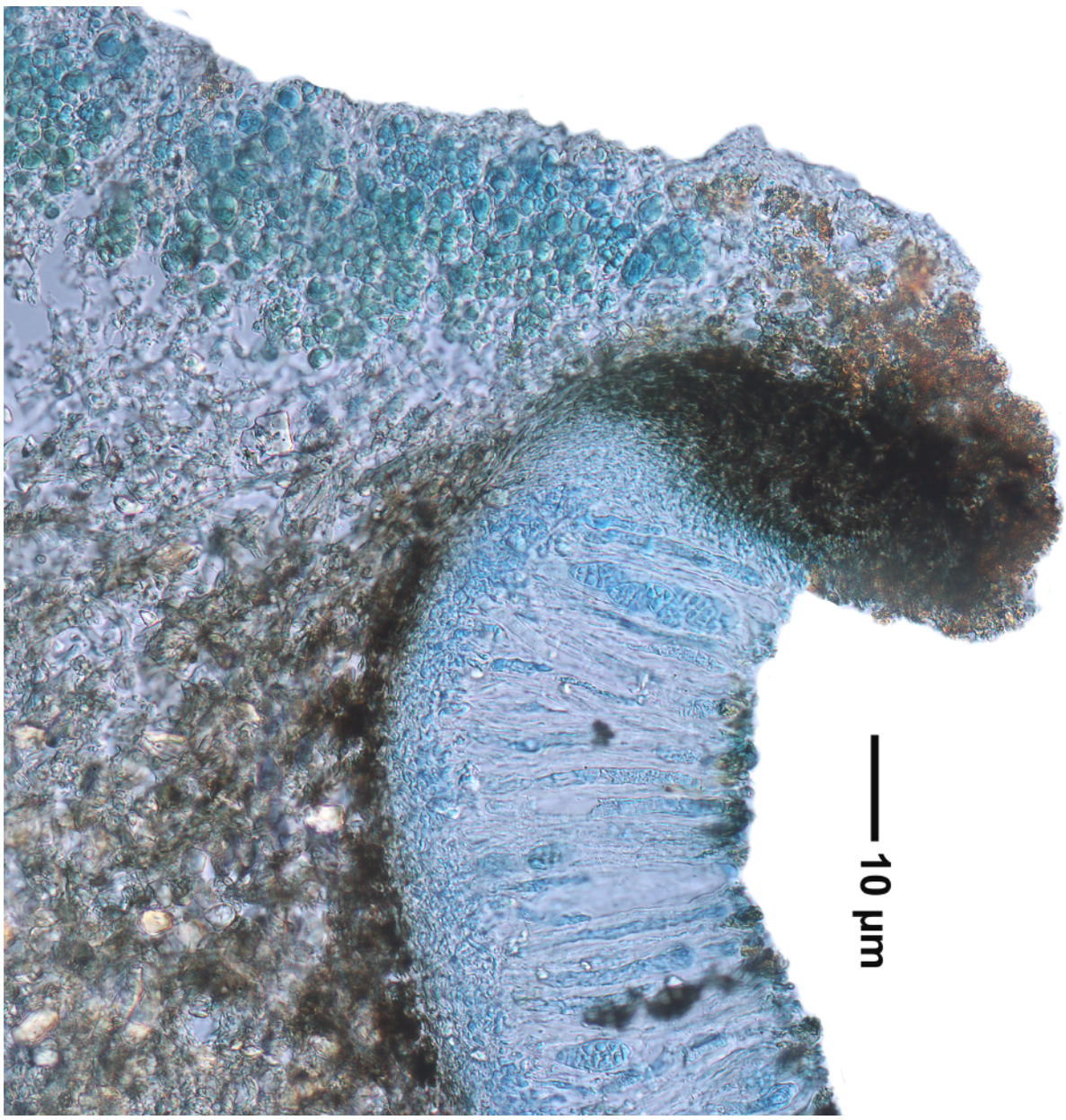

***Diploschistes muscorum***




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***Diploschistes muscorum***

***Diploschistes muscorum subsp. bartlettii*** Lumbsch, Herzogia 7(3-4): 602 (1987)

= *Diploschistes bartlettii* (Lumbsch) Lücking, in Lücking, Moncada, Soto-Medina, Simijaca & Sipman, Revta Acad. colomb. cienc. exact. fís. nat. 45(no. 174): 152 (2021)

[19014], Australia, Queensland, Atherton Tableland, Palmerston Highway near Millaa Millaa, 17°31' S, 145°37' E, growing on soil near the road. Leg. H.Th. Lumbsch (4534a) & A. Titze 16.08.1987, det. H.Th. Lumbsch. Chemistry: lecanoric (major), diploschistesic (trace), orsellinic (trace) acids by HPLC, anal. G. A. Jenkins. Ex J.A. Elix: Lichenes Australasici Exsiccati No. 155. Own HPTLC: p290/4.

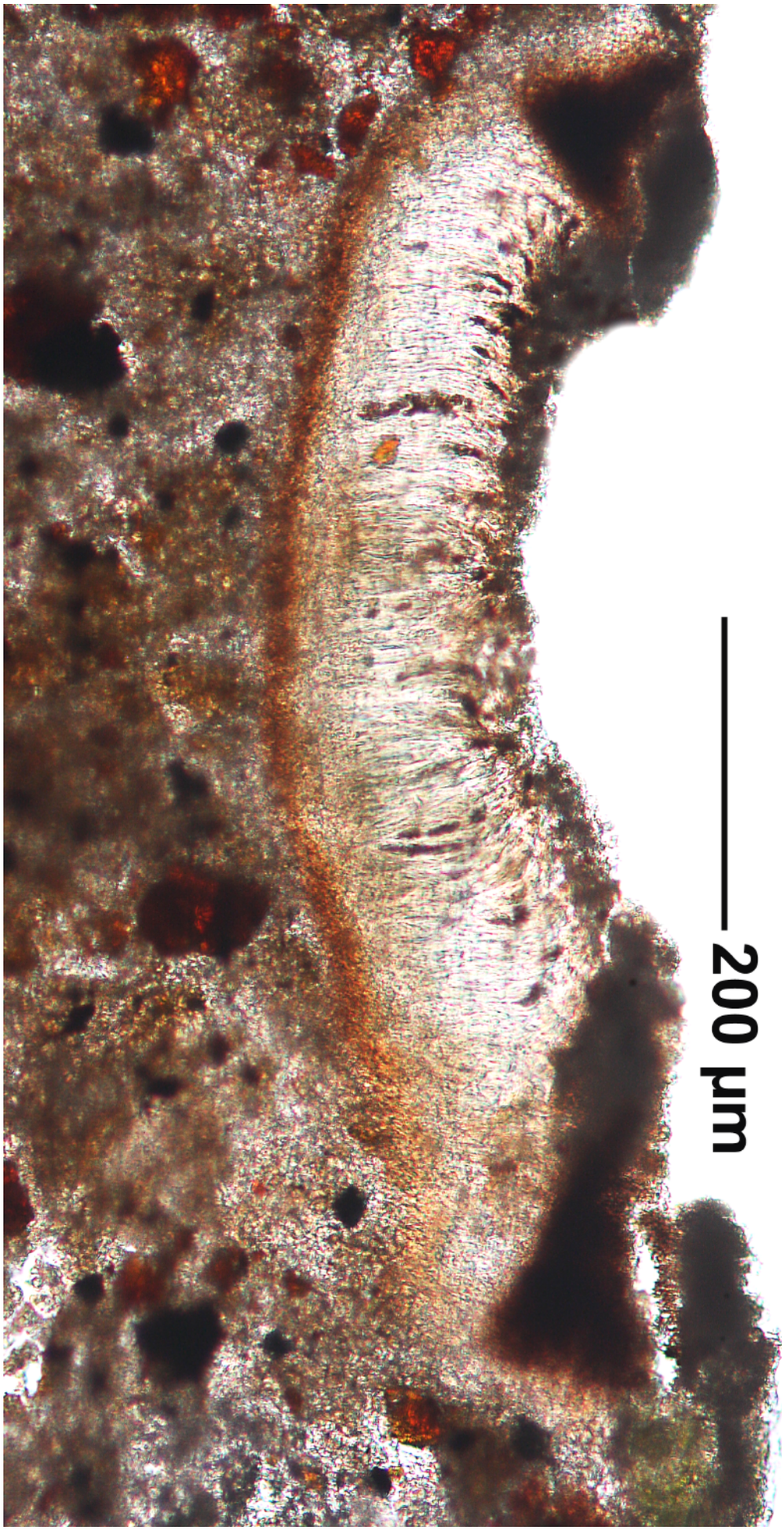
Thallus superficial, to c. 2 mm thick, grey to whitish grey, dull or glossy, rimose-areolate, epruinose or whitish-pruinose. Epinecral layer to c. 30 µm thick. Algal layer continuous, well developed; calcium oxalate crystals sparse, scattered, small. Vegetative propagules not seen. Ascomata conspicuous, blackish, to c. 1.6 mm diam., ±rounded, urceolate, solitary, immersed. Disc visible from above, blackish brown, epruinose to greyish-pruinose; inner and apical proper exciple visible from above, free, black, epruinose to slightly greyish-pruinose. Thalline rim margin thin, ±rounded, concolorous with and having the same surface features as the thallus, immersed to slightly erect. Proper exciple free, thick, blackish brown, non-amyloid. Hymenium 120–140 µm thick, not inspersed, moderately conglutinated; lateral paraphyses conspicuous, to c. 30 µm long. Epihymenium hyaline to pale brown, granulose. Asci 8-spored. Ascospores ellipsoidal to broadly ellipsoidal, with ±rounded to subacute ends, brown, non-amyloid, 19–30 × 5–14 µm, with 4–6 × 1–2 locules; locules ±rounded to angular; septa thick, regular; ascospore wall thin to thick; endospore thick. Pycnidia not seen. CHEMISTRY: Thallus K+ yellowish to red, C+ red, P–; containing diploschistesic acid (major), lecanoric acid (major), orsellinic acid (minor). Common and widespread in southern and eastern Australia.. This lichen is a juvenile parasite on Cladonia spp., and fragments of the host can often be found at the margins of mature specimens; restricted to the Southern Hemisphere, occurring in South America, southern and eastern Africa and Australasia.




***Diploschistes muscorum subsp. bartlettii***




***Diploschistes muscorum subsp. bartlettii***



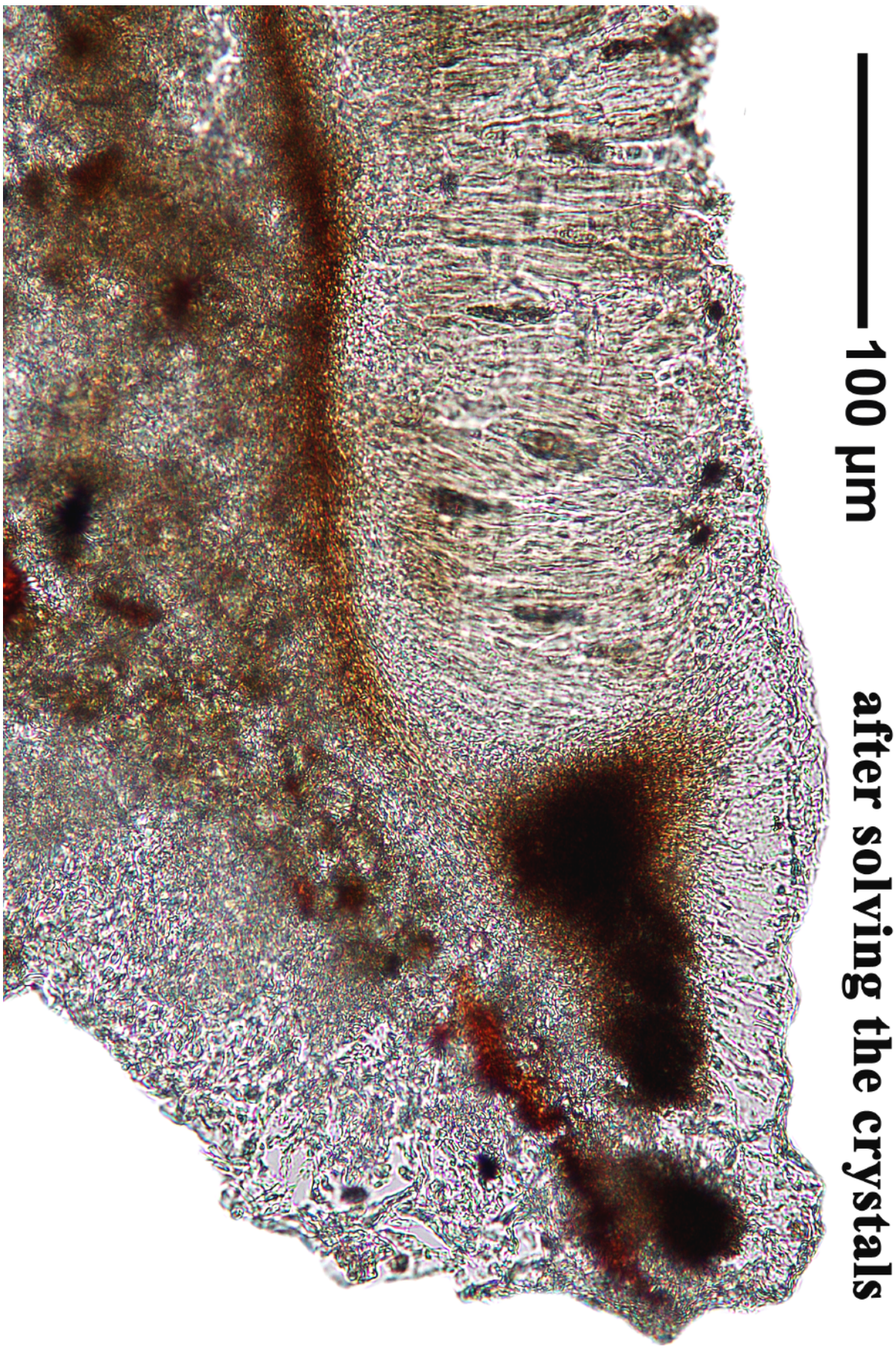

***Diploschistes muscorum subsp. bartlettii***



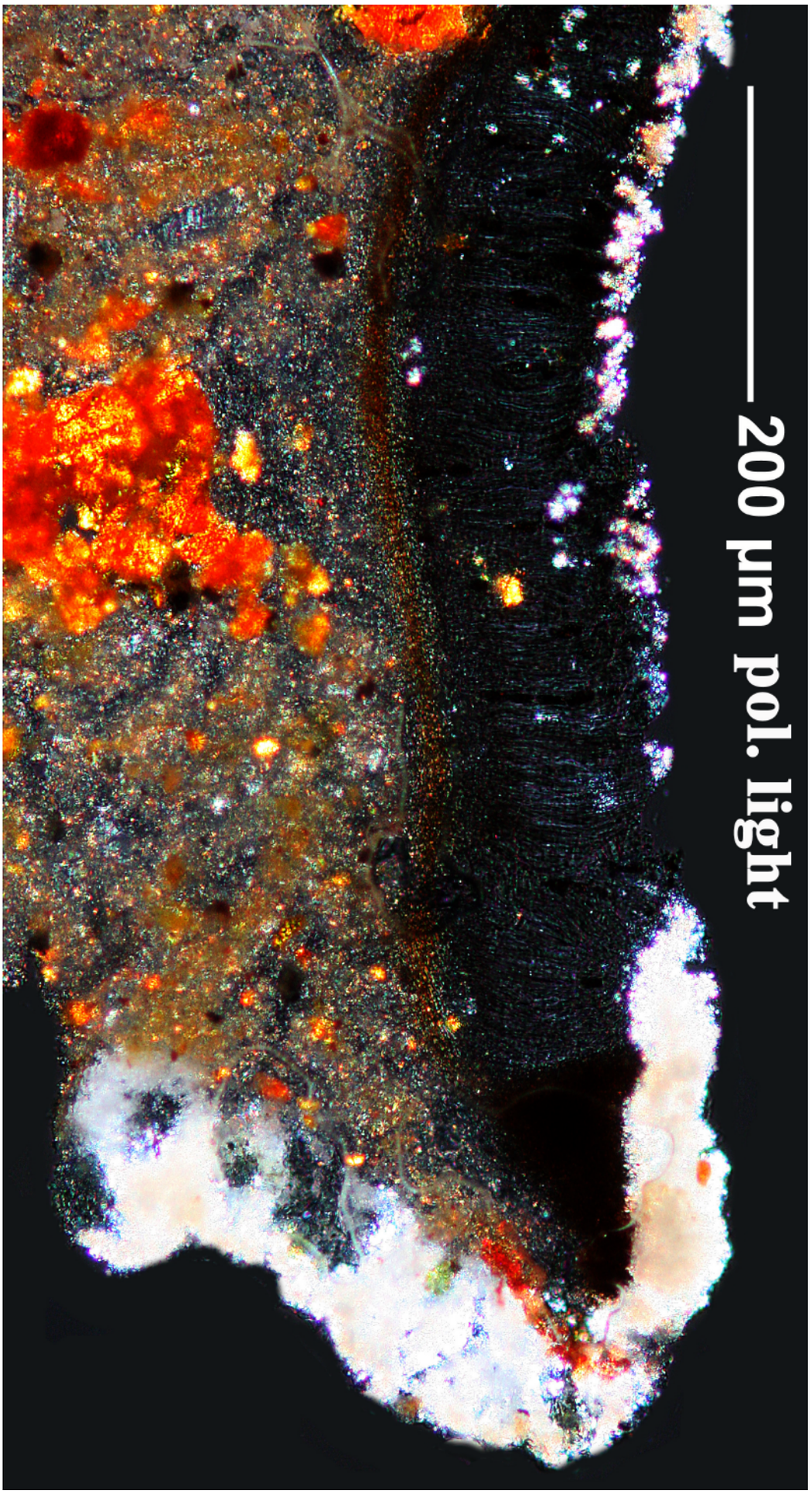

***Diploschistes muscorum subsp. bartlettii***



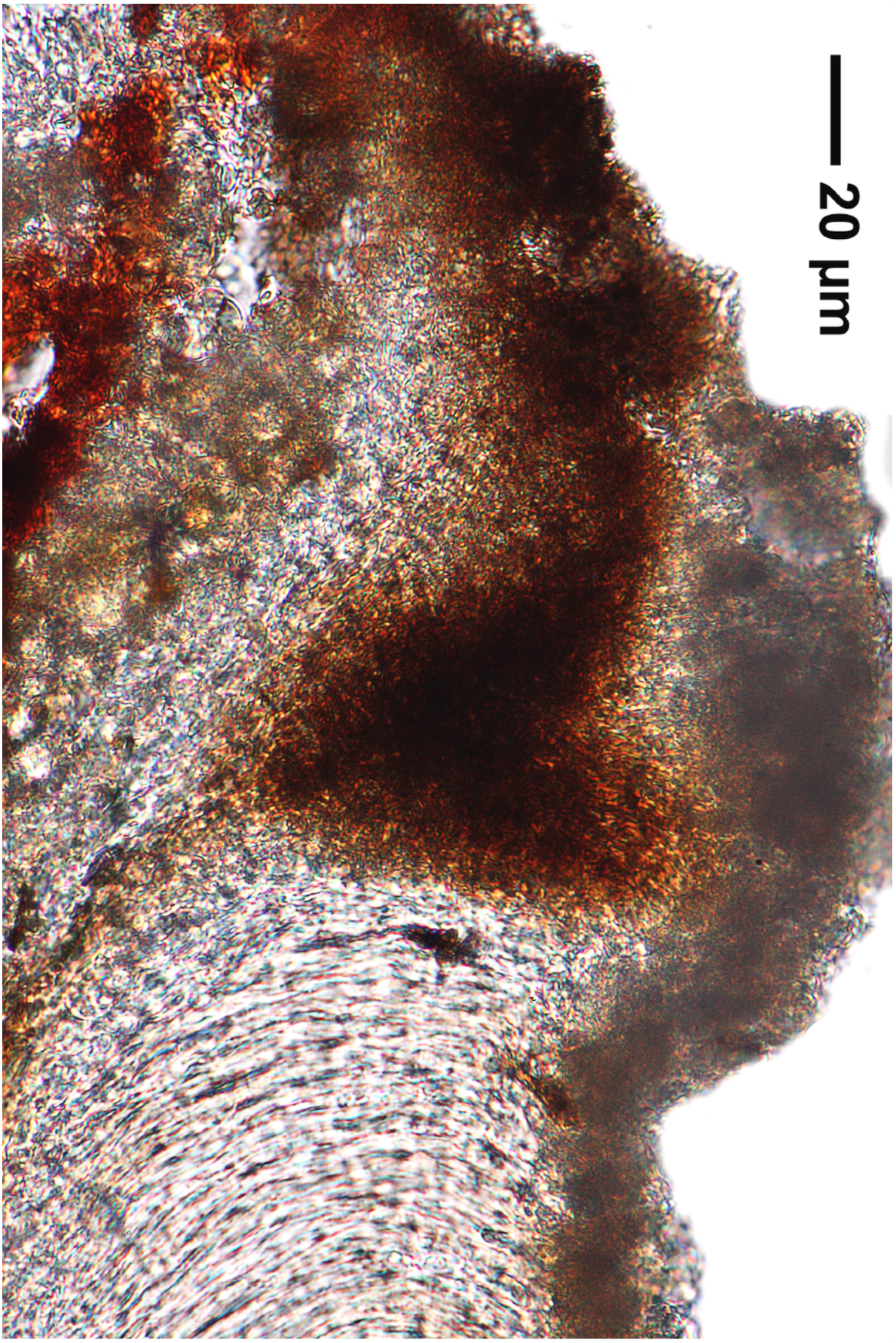

***Diploschistes muscorum subsp. bartlettii***



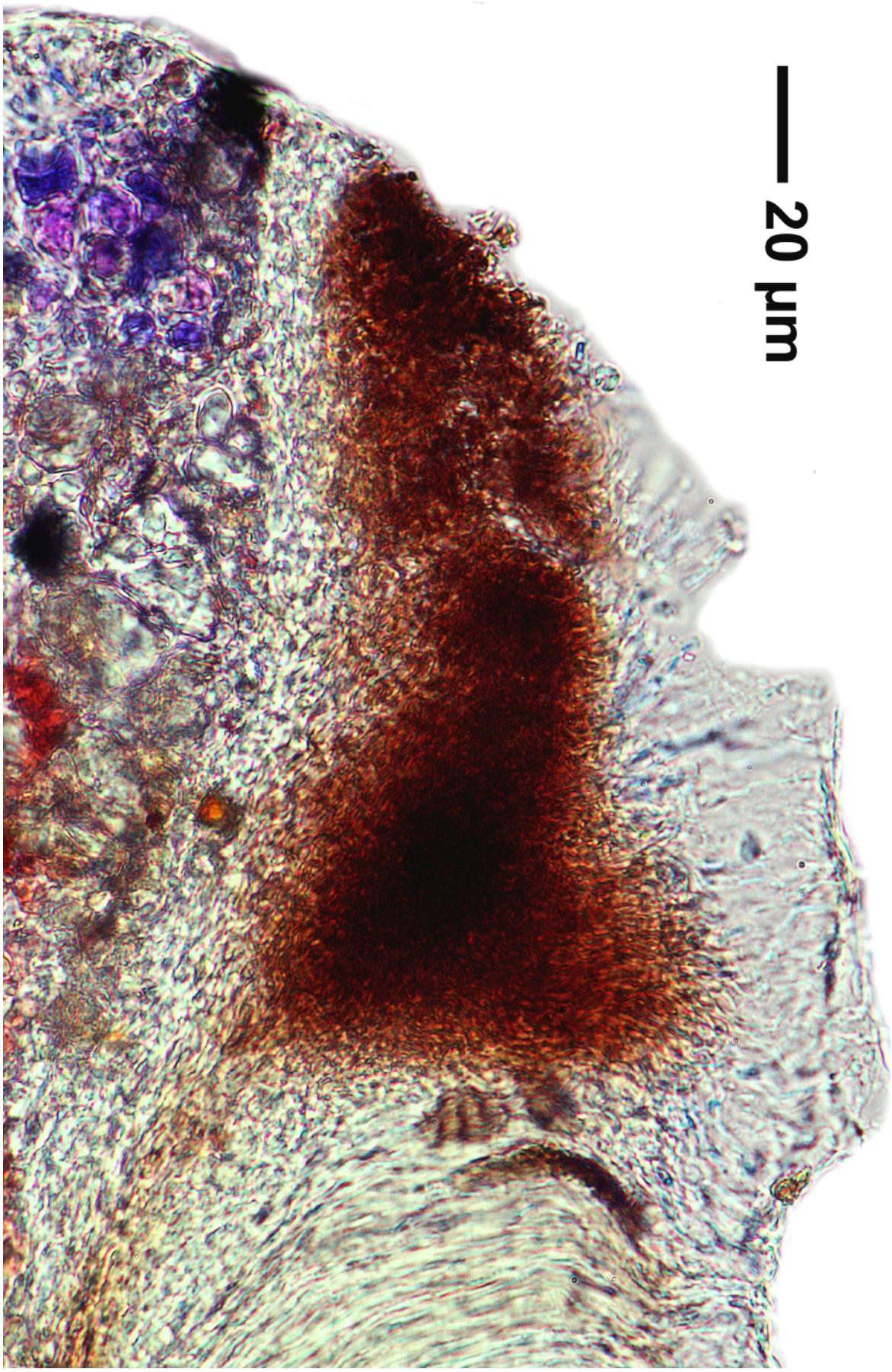

***Diploschistes muscorum subsp. bartlettii***



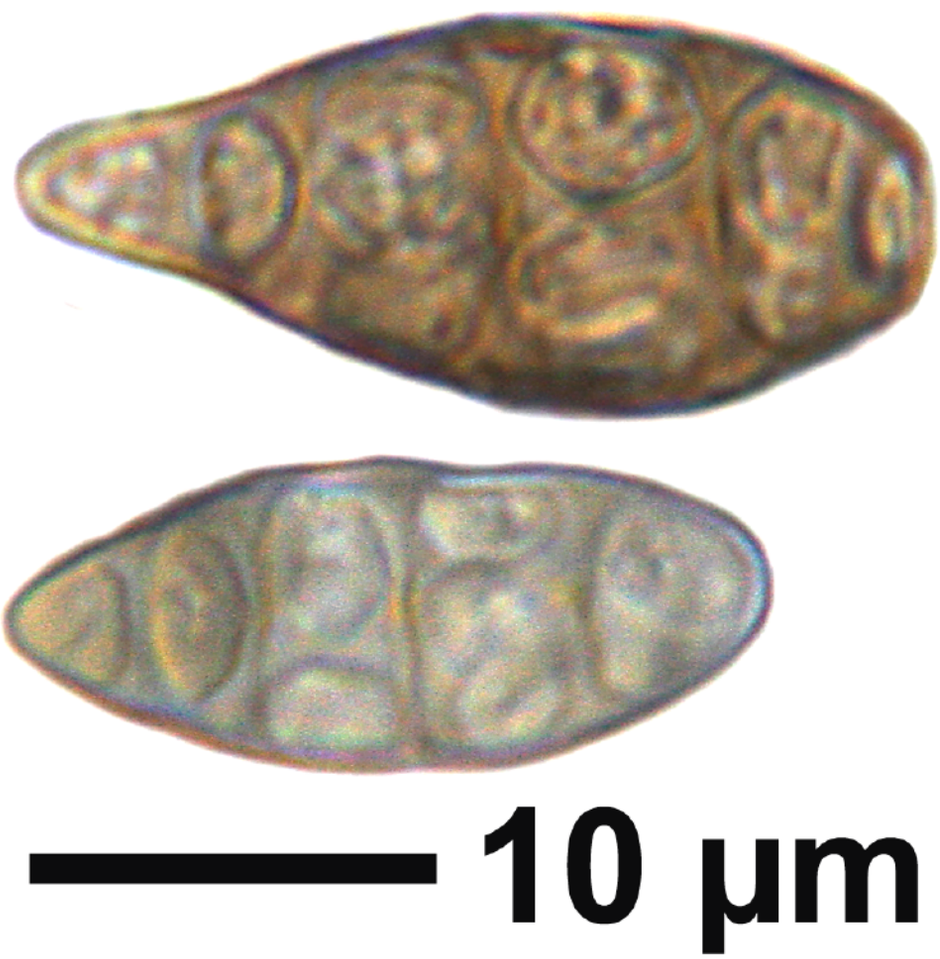

***Diploschistes muscorum subsp. bartlettii***




***Diploschistes muscorum subsp. bartlettii***




***Diploschistes muscorum subsp. bartlettii***




***Diploschistes muscorum subsp. bartlettii***

*Diploschistes muscorum subsp. bartlettii*

***Diploschistes ocellatus*** (Fr.) Norman, Conat. Praem. Gen. Lich.: 20 (1852)
= *Xalocoa ocellata* (Fr.) Kraichak, Lücking & Lumbsch, Aust. Syst. Bot. 26(6): 472 (2014) [2013]
= *Diploschistes ocellatus* var. *tenuis* Fern.-Brime & Llimona, in Fernández-Brime, Llimona, Lutzoni & Gaya, Taxon 62(2): 277 (2013)
= *Diploschistes subocellatus* (Nyl.) Zahlbr., Cat. Lich. Univers. 2: 674 (1924)
= *Lagerheimina ocellata* (Fr.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lecanora ocellata* Nyl., Bot. Notiser(10-11): 157 (1853)
= *Lecanora villarsii* Ach., Lich. Univ.: 360 (1810)
= *Lichen ocellatus* Vill., Hist. pl. Dauphiné 3(2): 988 (1789)
= *Lichen opegraphus* * *ocellata* Lam., Encycl. Méth. Bot., Suppl. (Paris) 3(2): 408 (1813)
= *Parmelia ocellata* Fr., Lich. eur. reform. (Lund): 190 (1831)
= *Parmelia villarsii* (Ach.) Spreng., Syst. veg., Edn 16 4(1): 299 (1827)
= *Placodium ocellatum* (Fr.) Link, Grundr. Krauterk. 3: 189 (1833)
= *Urceolaria ocellata* DC., in Lamarck & de Candolle, Fl. franç., Edn 3 (Paris) 2: 372 (1805)
= *Urceolaria scruposa* var. *ocellata* (Lam.) Schaer., Lich. helv. spicil. 2: 76 (1826)
= *Urceolaria subocellata* Nyl., in Crombie, J. Linn. Soc., Bot. 17: 399 (1879)
= *Urceolaria villarsii* (Ach.) Flot., Linnaea 17: 19 (1903)

[19015], Australia, South Australia, Eyre Peninsula, 19 km west of Iron Knob, 32°50' S, 137°01' E, 250 m, growing on soil in savannah with *Casuarina*, *Myoporum* and *Santalum* with an understorey of *Chenopodium* and *Maireana*. Leg. H. Th. Lumbsch (10734c) & J. Curnow, 05.09.1994, det. H.T . Lumbsch. Chemistry: norstictic acid (major), connorstictic acid (minor), unknown (minor) by TLC, anal. J. A. Elix. Ex J. A. Elix: Lichenes Australasicic Exsiccati No. 279. - Own HPTLC p290/5.

Thallus crustose, episubstratic, very thick, tightly attached when young, but older thalli often very loosely attached and tending to fall-off, verrucose-areolate, chalky white to pale grey, heavily pruinose. Areoles 0.4-3 mm wide and up to 4 mm thick, contiguous, usually irregularly convex to bullate. Cortex pseudoparenchymatous, covered by a distinct epinecral layer; medulla white, thick, I-. Apothecia lecanoroid, to 3.5 mm across, broadly attached, with a blackish, but often slightly grey-pruinose disc, and a thick, smooth, prominent, often sinuous thalline margin. Proper exciple thin, dark but not carbonized, , pseudoparenchy-

matous, without lateral paraphyses; epithecium poorly differentiated from the hymenium, colourless to dark grey; hymenium colourless, 100-150 µm high; paraphyses mostly simple, 1-1.5 mm thick, the apical cells not swollen; hypothecium colourless, 10-15 µm high. Asci 8-spored, cylindrical, the wall evenly thickened, lacking any apical apparatus, the contents K/I+ orange-red, the walls K/I-. Ascospores muriform with 3-6 transverse septa and 1-3 longitudinal septa, hyaline to finally brown, broadly ellipsoid, uniseriately arranged in the asci, (20-)24-27(-32) x (7-)10-12(-15) µm, non-amyloid. Pycnidia immersed, cerebriform. Conidia bacilliform, 4-7 x 1.1.5 µm. Photobiont chlorococcoid. Spot tests: thallus K+ yellow rapidly turning blood-red, C-, KC-, P+ orange, UV-. Chemistry: norstictic acid (major), connorstictic cryptostictic and stictic acids (minor). - Note: a mild-temperate to Mediterranean lichen found on limestone, dolomite and calciferous sandstone, more rarely on soil.

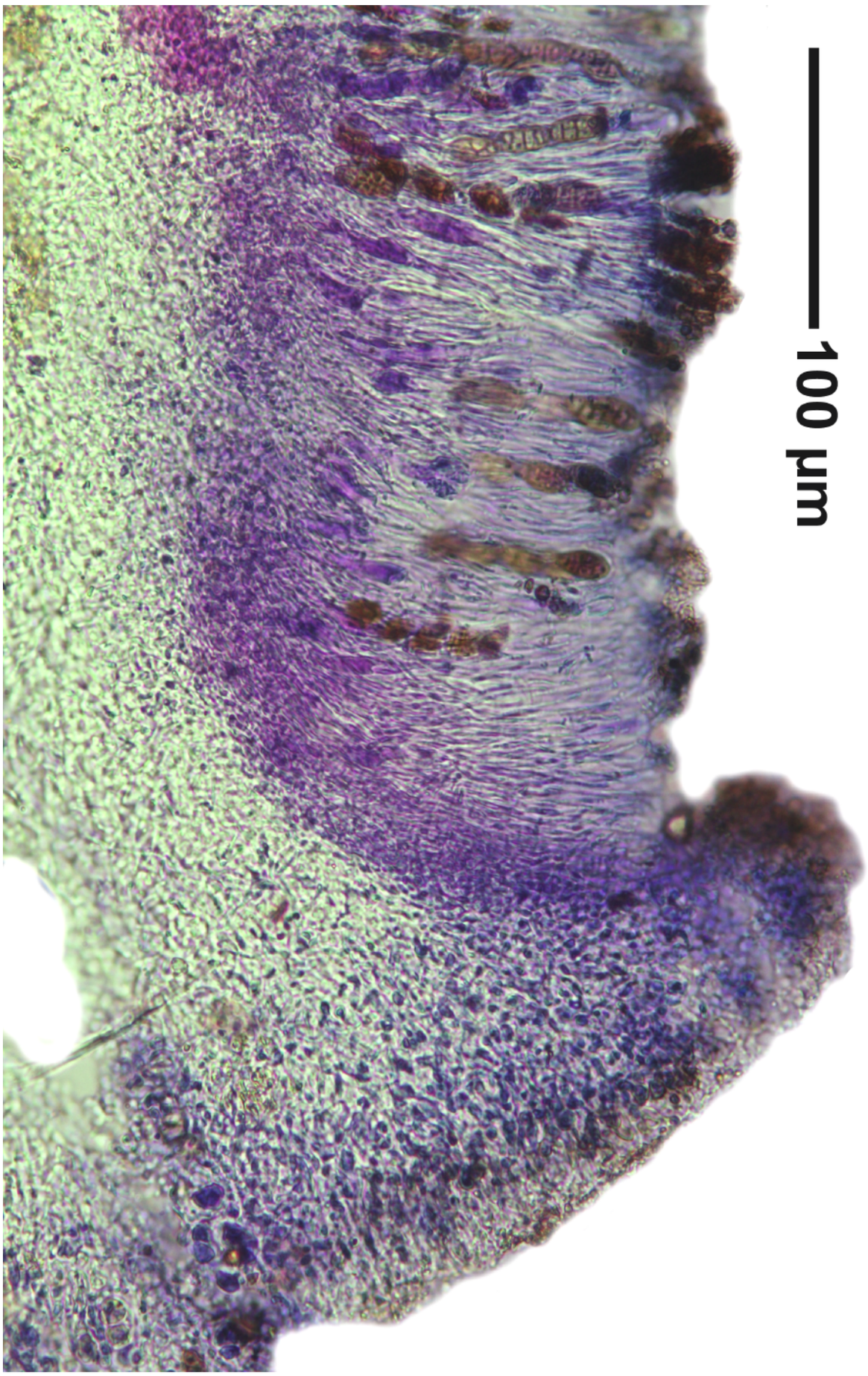
***Diploschistes ocellatus***



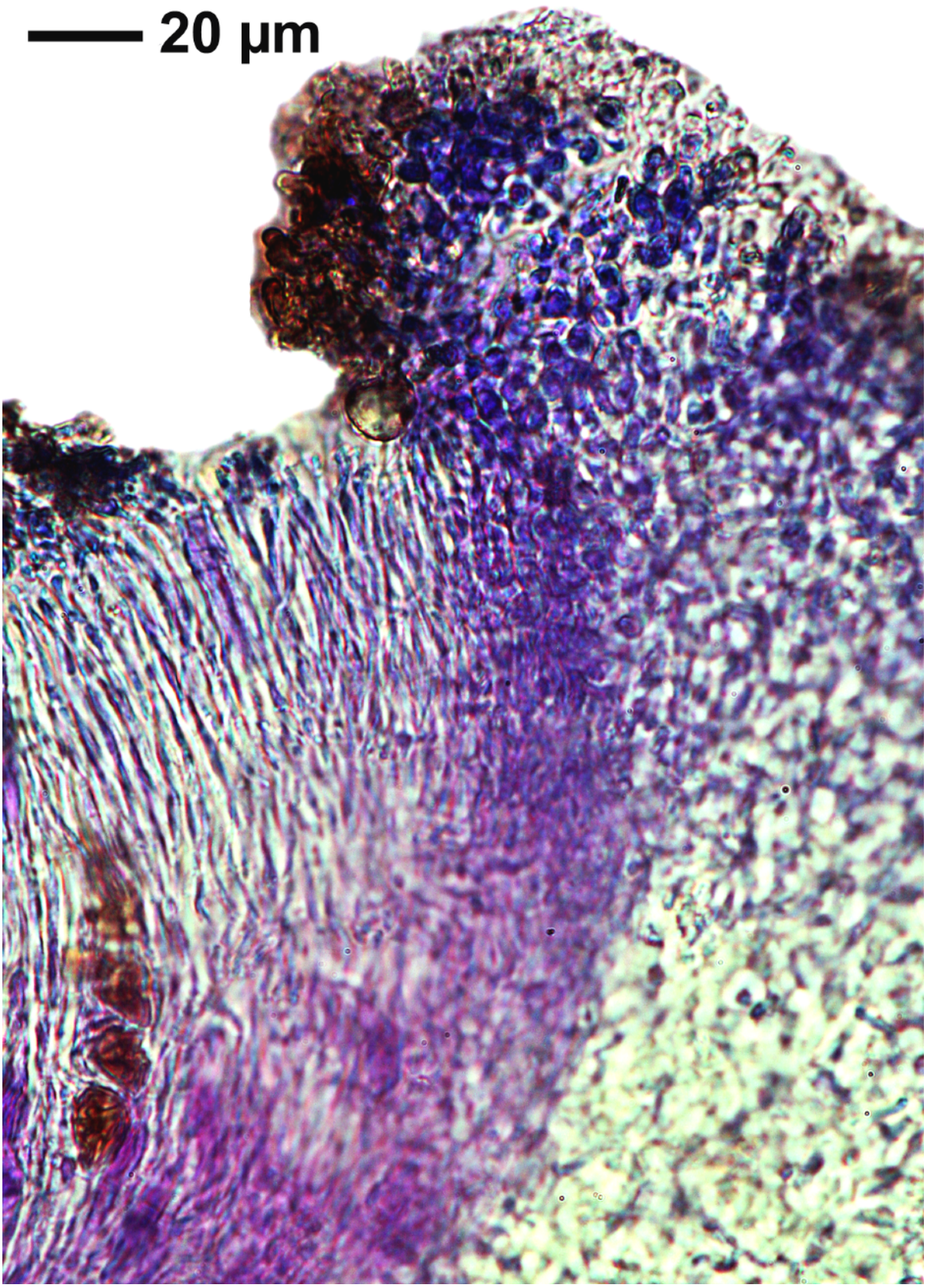

***Diploschistes ocellatus***



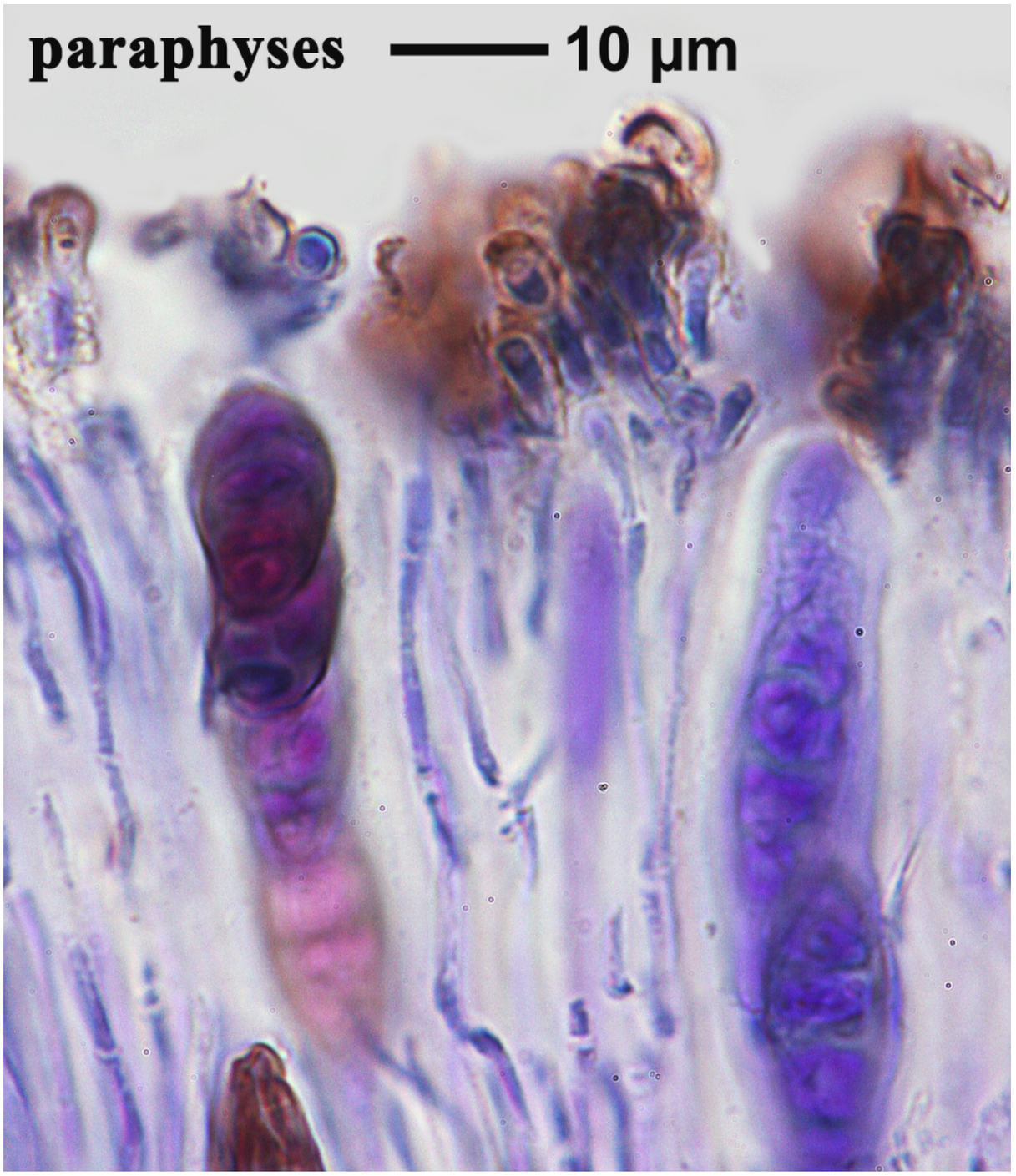

***Diploschistes ocellatus***




***Diploschistes ocellatus***




***Diploschistes ocellatus***



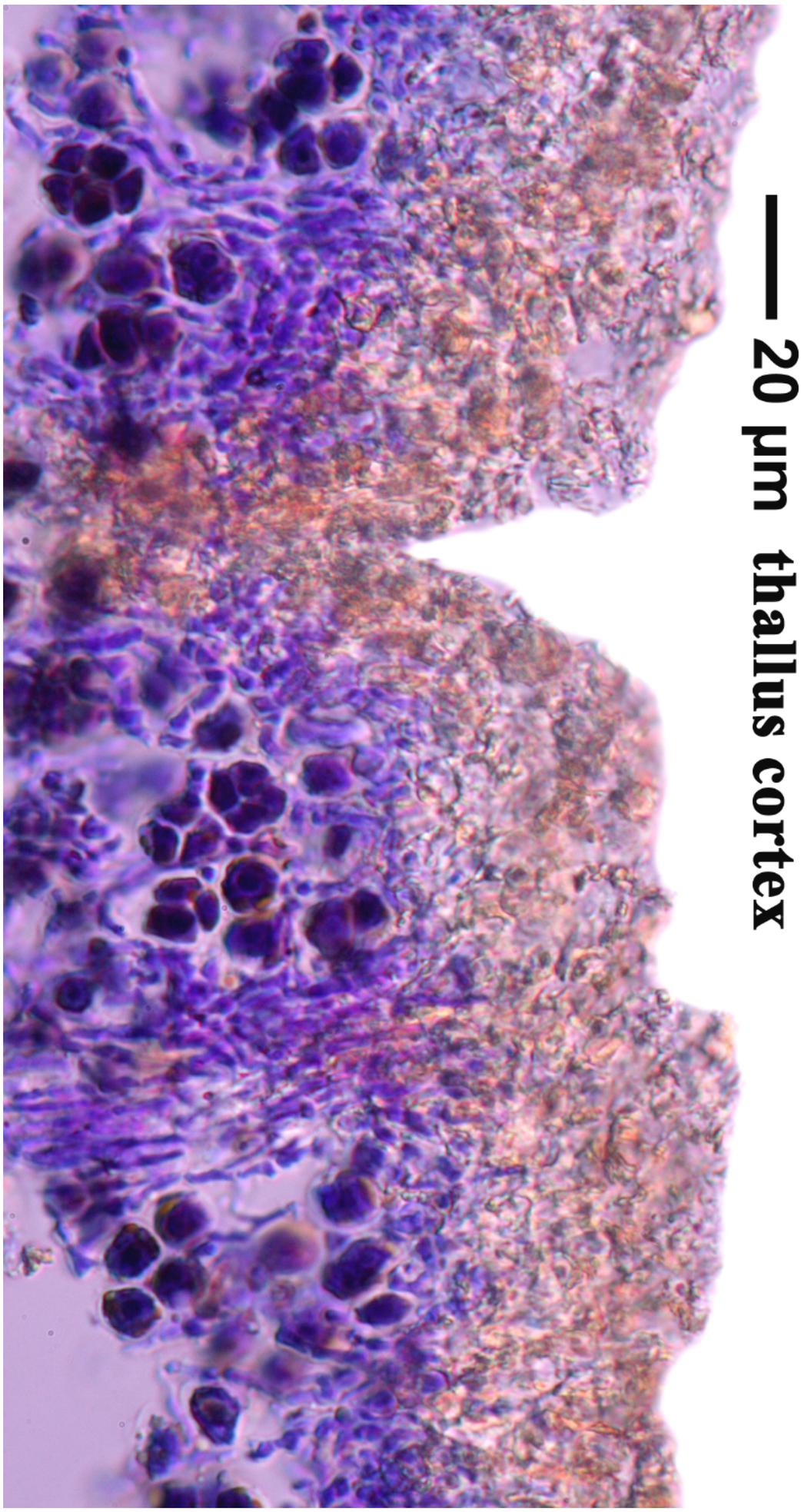

***Diploschistes ocellatus***




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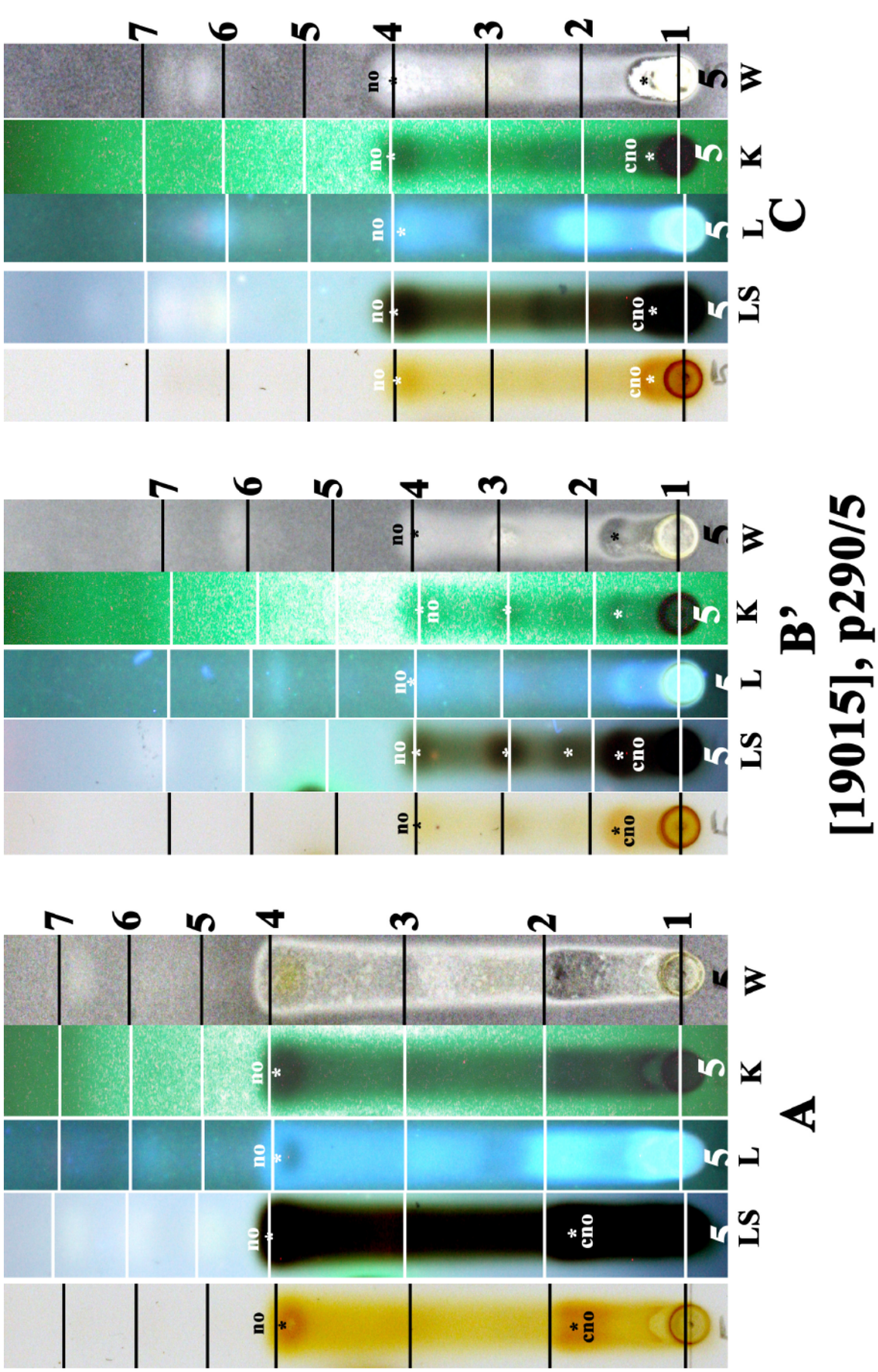



***Diploschistes ocellatus***




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***Diploschistes ocellatus***




*Diploschistes ocellatus*

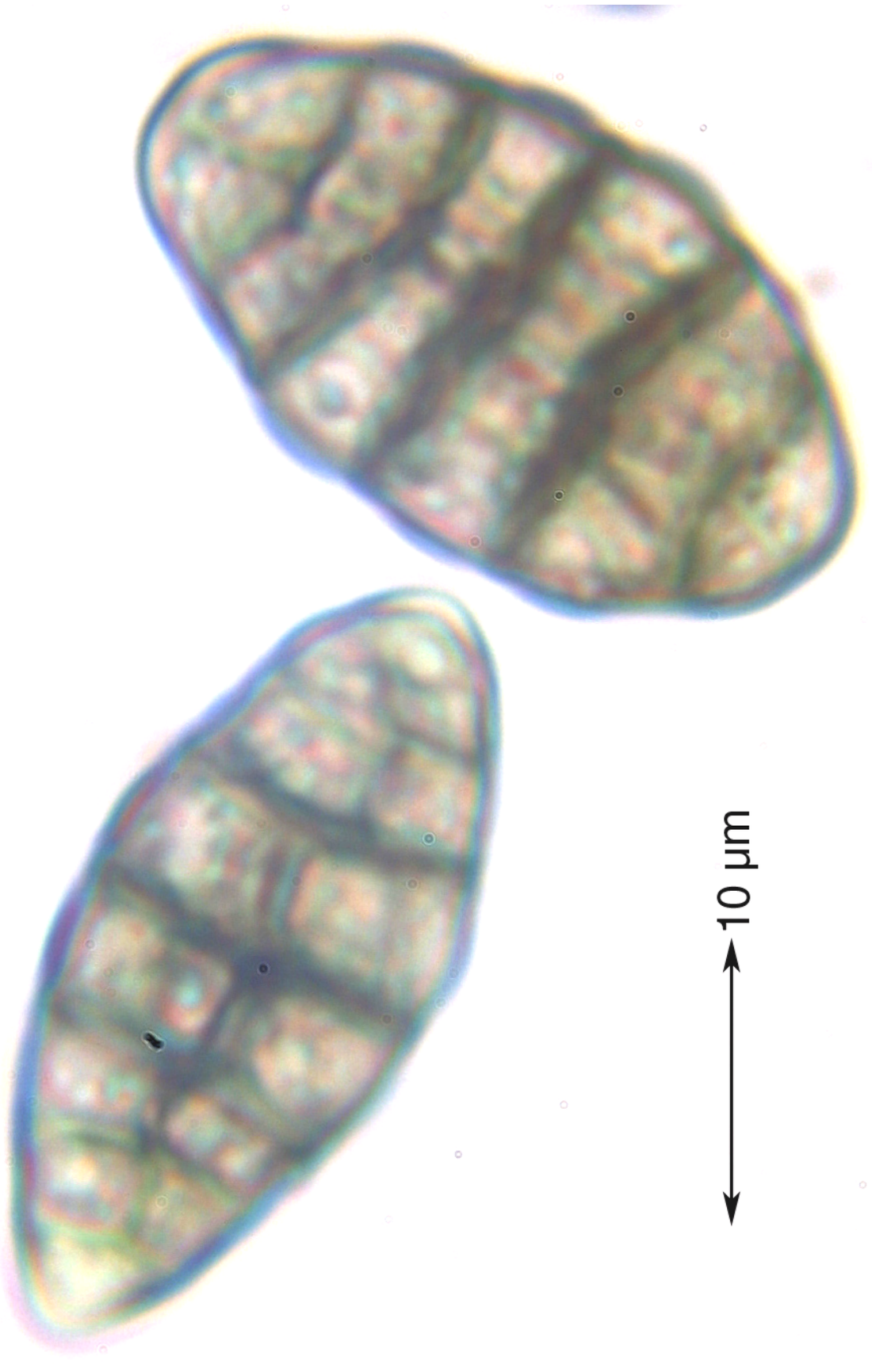
***Diploschistes scruposus*** (Schreb.) Norman, Conat. Praem. Gen. Lich.: 20 (1852)
= *Lagerheimina scruposa* (Schreb.) Kuntze, Revis. gen. pl. (Leipzig) 2: 478 (1891)
= *Lecanora scruposa* (Schreb.) Sommerf., Suppl. Fl. lapp. (Oslo): 100 (1826)
= *Lichen scruposus* Schreb., Spic. fl. lips. (Lipsiae): 133 (1771)
= Parmelia scruposa (Schreb.) Hepp, Flecht.-Fl. Würzburg: 43 (1824)
= *Patellaria scruposa* (Schreb.) Hoffm., Descr. Adumb. Plant. Lich. 1(2): 54 (1789) [1790]
= *Psora scruposa* (Schreb.) Fürnr., Naturhist. Topogr. Regensburg (Regensburg) 2: 251 (1839)
= *Scutellaria scruposa* (Schreb.) Baumg., Fl. Lips.: 583 (1790)
= *Urceolaria scruposa* (Schreb.) Ach., Methodus, Sectio prior (Stockholmiæ): 147 (1803)
= *Verrucaria scruposa* (Schreb.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 186 (1796) [1795]

[12321], Griechenland, N-Samos, südlich Avlakia an der Straße oberhalb Vourliotes beim Kloster M. Vronda, 37°48' N, 26°51' E, 490 m; Glimmerschiefergebiet. Leg. R. Düll & Maier & F. Schumm, 03.05.2006., det. F. Schumm, 06.2006. - Thallus K+ gelb dann rasch rot, C+ rot, P-; Sporen braungrau, muriform, 27,3-28,3 x 13-14,7 µm, zu 4-6 im Ascus.

Thallus krustig, einférmig, rissig bis warzig areoliert, matt bis leicht glinzend, grünlich grau bis grau, nicht pruinös. Areolen 0.4-1.5 mm groß, im Schnitt bis zu 3.5 mm hoch, unregelmäßig vieleckig. Algen zur Gattung *Trebouxia* lat. gehörend. Apothecien eingesenkt bis sitzend, schwärzlich, leicht pruinös, rundlich, bis zu 2 mm im Durchmesser, Scheiben urceolat. Excipulum propium schwärzlich, bis zu 75 µm dick, pseudoparenchymatisch. Hymenium 100-140 µm hoch, hyalin. Hypothecium 10-15 µm hoch, hyalin. Paraphysen 1-1.5 µm hoch, einfach, schlaff. Asci subclavat bis zylindrisch, 90-130 x 15-30 µm, 4-8-sporig. Ascosporen breit ellipsoid, hyalin bis braun, mauerförmig, 4-7 transversale Septen, 1-3 longitudinale Septen, 254 x 10-20 µm. Pyknidien eingesenkt, cerebriform. Conidien bacilliform, 4-6 x 1 µm. Chemie: (a) Chemorasse 1: K-, C + rot, P-, UV-. Lecanorsäure mit DC nachweisbar. Lecanorsäure mit HPLC nachweisbar (Elix in litt.). (b) Chemorasse 2: K- bis gelb, C + rot, P-, UV-. Lecanor und Diploschistessäure mit DC nachweisbar.




***Diploschistes scruposus***




***Diploschistes scruposus***

***Diploschistes scruposus*** (Schreb.) Norman, Conat. Praem. Gen. Lich.: 20 (1852)
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= *Lecanora scruposa* (Schreb.) Sommerf., Suppl. Fl. lapp. (Oslo): 100 (1826)
= *Lichen scruposus* Schreb., Spic. fl. lips. (Lipsiae): 133 (1771)
= Parmelia scruposa (Schreb.) Hepp, Flecht.-Fl. Würzburg: 43 (1824)
= *Patellaria scruposa* (Schreb.) Hoffm., Descr. Adumb. Plant. Lich. 1(2): 54 (1789) [1790]
= *Psora scruposa* (Schreb.) Fürnr., Naturhist. Topogr. Regensburg (Regensburg) 2: 251 (1839)
= *Scutellaria scruposa* (Schreb.) Baumg., Fl. Lips.: 583 (1790)
= *Urceolaria scruposa* (Schreb.) Ach., Methodus, Sectio prior (Stockholmiæ): 147 (1803)
= *Verrucaria scruposa* (Schreb.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 186 (1796) [1795]

[19461], Germany, Hessen, Amöneburg bei Marburg, sonnige Basaltblöcke in einer Hangwiese kurz vor dem Ortseingang, 50.7896° N, 8.91995° E, 324 m. Leg. F. Schumm, 01.08.2016, det. F. Schumm. - Chemistry p393/7: lecanoric acid, atranorin (trace).Sporen 8/Ascus, braun muriform.

Thallus krustig, einfermig, rissig bis warzig areoliert, matt bis leicht glinzend, grünlich grau bis grau, nicht pruinös. Areolen 0.4-1.5 mm groß, im Schnitt bis zu 3.5 mm hoch, unregelmäßig vieleckig. Algen zur Gattung *Trebouxia* lat. gehörend. Apothecien eingesenkt bis sitzend, schwärzlich, leicht pruinös, rundlich, bis zu 2 mm im Durchmesser, Scheiben urceolat. Excipulum propium schwärzlich, bis zu 75 µm dick, pseudoparenchymatisch. Hymenium 100-140 µm hoch, hyalin. Hypothecium 10-15 µm hoch, hyalin. Paraphysen 1-1.5 µm hoch, einfach, schlaff. Asci subclavat bis zylindrisch, 90-130 x 15-30 µm, 4-8-sporig. Ascosporen breit ellipsoid, hyalin bis braun, mauerförmig, 4-7 transversale Septen, 1-3 longitudinale Septen, 254 x 10-20 µm. Pyknidien eingesenkt, cerebriform. Conidien bacilliform, 4-6 x 1 µm. Chemie: (a) Chemorasse 1: K-, C + rot, P-, UV-. Lecanorsäure mit DC nachweisbar. Lecanorsäure mit HPLC nachweisbar (Elix in litt.). (b) Chemorasse 2: K- bis gelb, C + rot, P-, UV-. Lecanor und Diploschistessäure mit DC nachweisbar.




***Diploschistes scruposus***




***Diploschistes scruposus***

***Diploschistes steppicus*** Reichert, Palest. J. Bot., Rehovot Ser. 111: 173 (1940) = *Diploschistes diacapsis* (Ach.) Lumbsch

[VZ1560], Persia austro-occidentalis. Bushir, 60 km austro-merid. versus a vico Khormuj. Ad terram gypsaceam. Leg. J. Soják, 20.04.1977, det. A. Vězda. EX A. VĚZDA: LICHENES SELECTI EXSICCATI NR. 1560.

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




***Diploschistes steppicus***




***Diploschistes steppicus***

***Diploschistes steppicus*** Reichert, Palest. J. Bot., Rehovot Ser. 111: 173 (1940) = *Diploschistes diacapsis* (Ach.) Lumbsch

[VZ1378], Hispania. Prov. Zaragoza: Los Monegros, Bujaraloz, loco dicto Retuerta dePina, 300 m. Ad terram gypsaceam. Leg. J. Lambinon (no. 72/1110), 23.5.1972. EX A. VěZDA: LICHENES SELECTI EXSICCATI NR. 1378

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




***Diploschistes steppicus***




***Diploschistes steppicus***

***Diploschistes sticticus*** (Körb.) Müll. Arg., Bull. Herb. Boissier 2(app. 1): 52 (1894)

= *Aspicilia stictica* Körb., Parerga lichenol. (Breslau) 2: 103 (1860) [1865]

= *Hymenelia stictica* (Körb.) Motyka, Porosty (Lichenes). 1, Rodzina Lecanoraceae. Hymenelia, Aspicilia, Lecanorella, Protoplacodium, Manzonia (Lublin): 129 (1995)

= *Urceolaria stictica* Körb., Abh. Schles. Ges. Vaterl. Kult., Abth. Naturw. Med. 2: 32 (1862)

[19045], Australia, Western Australia, along the Gibb River Road, 74 km south-west of Wyndham, 15°44' S, 127°31' E, 300 m, growing on sandstone rocks in Eucalyptus dominated grasslands with Xanthostemum, Gordenia and Glochidion on rocky slope. Leg. J. A. Elix (27877) & H.Th. Lumbsch & H. Streimann, 11.07.1991, det. H.Th. Lumbsch. Gyrophoric acid by HPLC, TLC, anal. J.´A. Elix & C.E. Barclay. Ex J. A. Elix: Lichenes Australasici Exsiccati No. 254.

Thallus epilithic, to c. 1.4 mm thick, dark bluish grey to bluish brown or bronze-coloured, dull to glossy, smooth, rimose-areolate. Epinecral layer to c. 40 µm thick. Algal layer continuous, well developed; calcium oxalate crystals sparse, scattered, small. Vegetative propagules not seen. Ascomata conspicuous, blackish, to c. 0.75 mm diam., ±rounded, perithecioid, solitary, immersed. Disc not visible from above. Pores minute, to c. 0.1 mm diam., ±rounded; inner and apical proper exciple visible from above, free, black, epruinose. Thalline rim margin thin, ±rounded, concolorous with and having the same surface features as the thallus, immersed. Proper exciple free, thick, blackish brown, non-amyloid. Hymenium 120–160 µm thick, not inspersed, moderately conglutinated; lateral paraphyses conspicuous, to c. 30 µm long. Epihymenium hyaline to pale brown, egranulose. Asci 6–8-spored. Ascospores ellipsoidal, with subacute ends, brown, non-amyloid, 19–29 × 10–15 µm, with 4–6 × 1–2 locules; locules ±rounded to angular; septa thick, regular; ascospore wall thin to thick; endospore thick. Pycnidia not seen. CHEMISTRY: Thallus K–, C+ red, P–; containing gyrophoric acid (major), orsellinic acid (minor), lecanoric acid (minor). Occurs on exposed, siliceous rocks.




***Diploschistes sticticus***




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= *Urceolaria stictica* Körb., Abh. Schles. Ges. Vaterl. Kult., Abth. Naturw. Med. 2: 32 (1862)

[19017], Australia, Queensland, Mount Mistake, near Doggs Falls, 28°20' S, 152°20' E, growing in rocks in pasture. Leg. H. Th. Lumbsch (5699a) & R. W. Rogers, 29.09.1987, det. H.Th. Lumbsch. - Chemistry: gyrophoric acid, unknown (traces) by HPLC, TLC, anal. anal. J. Johnston & G .A. Jenkins. Ex J. A. Elix: Lichenes Australasici Exsiccati No. 156.

Thallus epilithic, to c. 1.4 mm thick, dark bluish grey to bluish brown or bronze-coloured, dull to glossy, smooth, rimose-areolate. Epinecral layer to c. 40 µm thick. Algal layer continuous, well developed; calcium oxalate crystals sparse, scattered, small. Vegetative propagules not seen. Ascomata conspicuous, blackish, to c. 0.75 mm diam., ±rounded, perithecioid, solitary, immersed. Disc not visible from above. Pores minute, to c. 0.1 mm diam., ±rounded; inner and apical proper exciple visible from above, free, black, epruinose. Thalline rim margin thin, ±rounded, concolorous with and having the same surface features as the thallus, immersed. Proper exciple free, thick, blackish brown, non-amyloid. Hymenium 120–160 µm thick, not inspersed, moderately conglutinated; lateral paraphyses conspicuous, to c. 30 µm long. Epihymenium hyaline to pale brown, egranulose. Asci 6–8-spored. Ascospores ellipsoidal, with subacute ends, brown, non-amyloid, 19–29 × 10–15 µm, with 4–6 × 1–2 locules; locules ±rounded to angular; septa thick, regular; ascospore wall thin to thick; endospore thick. Pycnidia not seen. CHEMISTRY: Thallus K–, C+ red, P–; containing gyrophoric acid (major), orsellinic acid (minor), lecanoric acid (minor). Occurs on exposed, siliceous rocks.



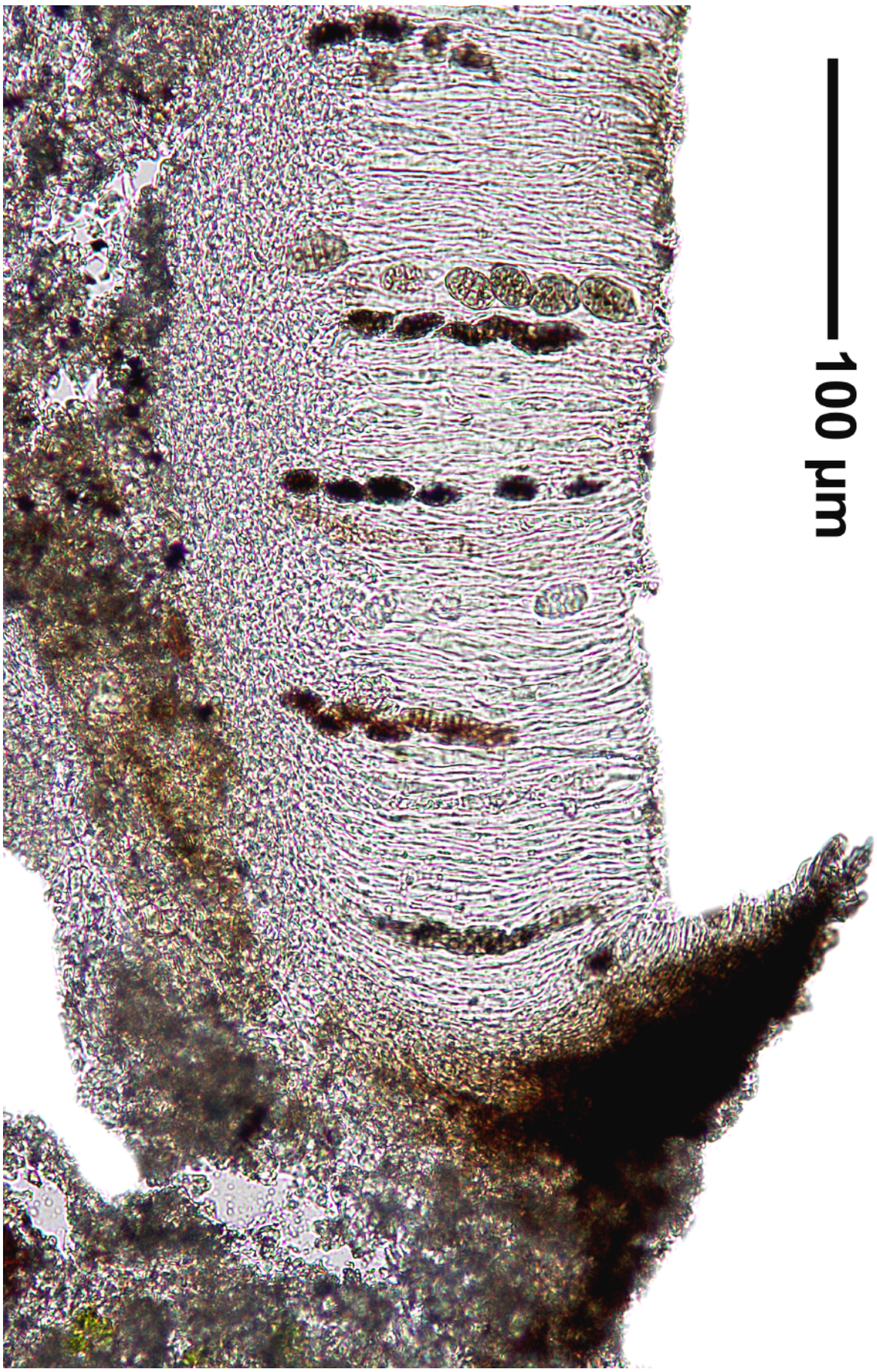

***Diploschistes sticticus***




***Diploschistes sticticus***



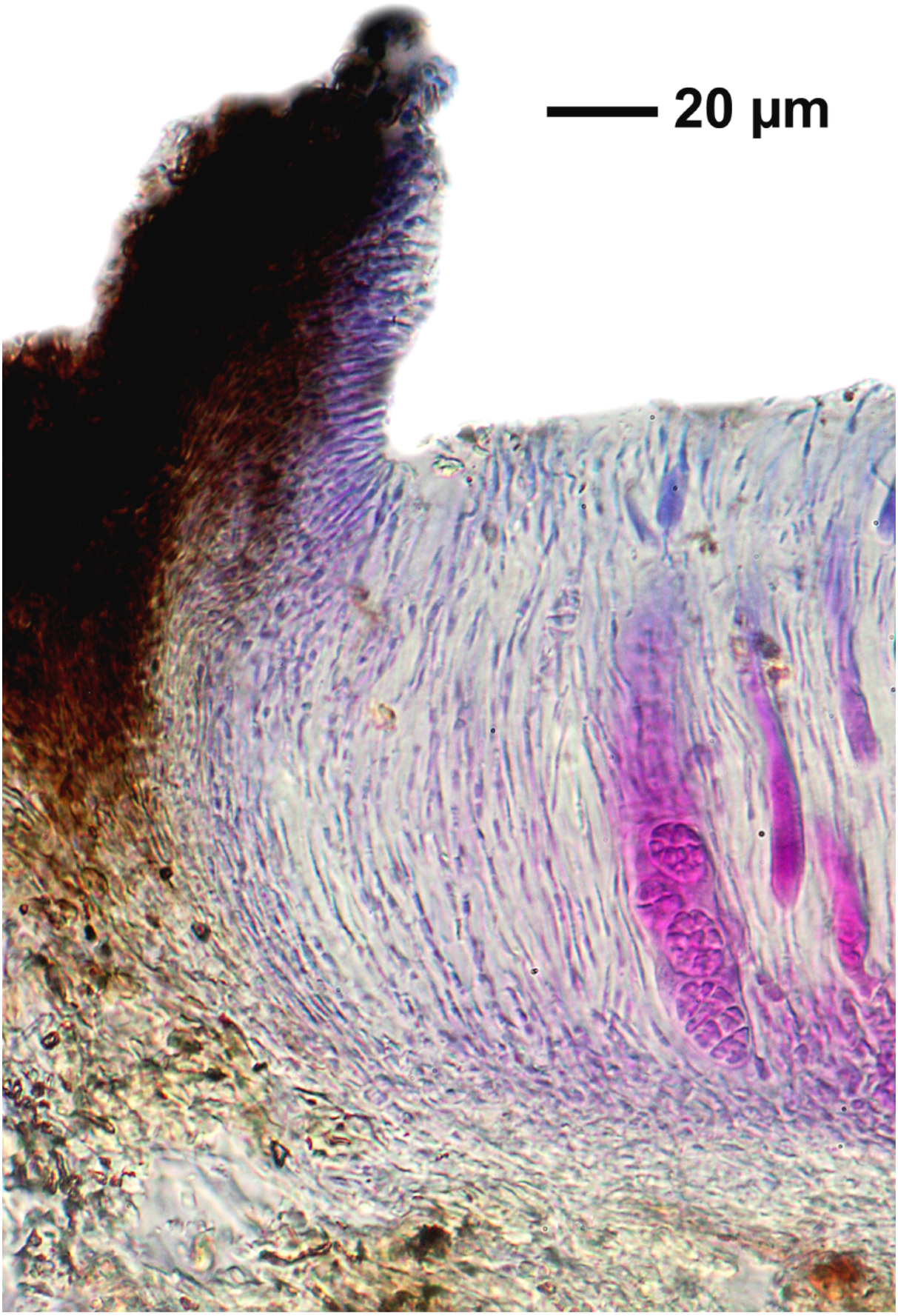

***Diploschistes sticticus***



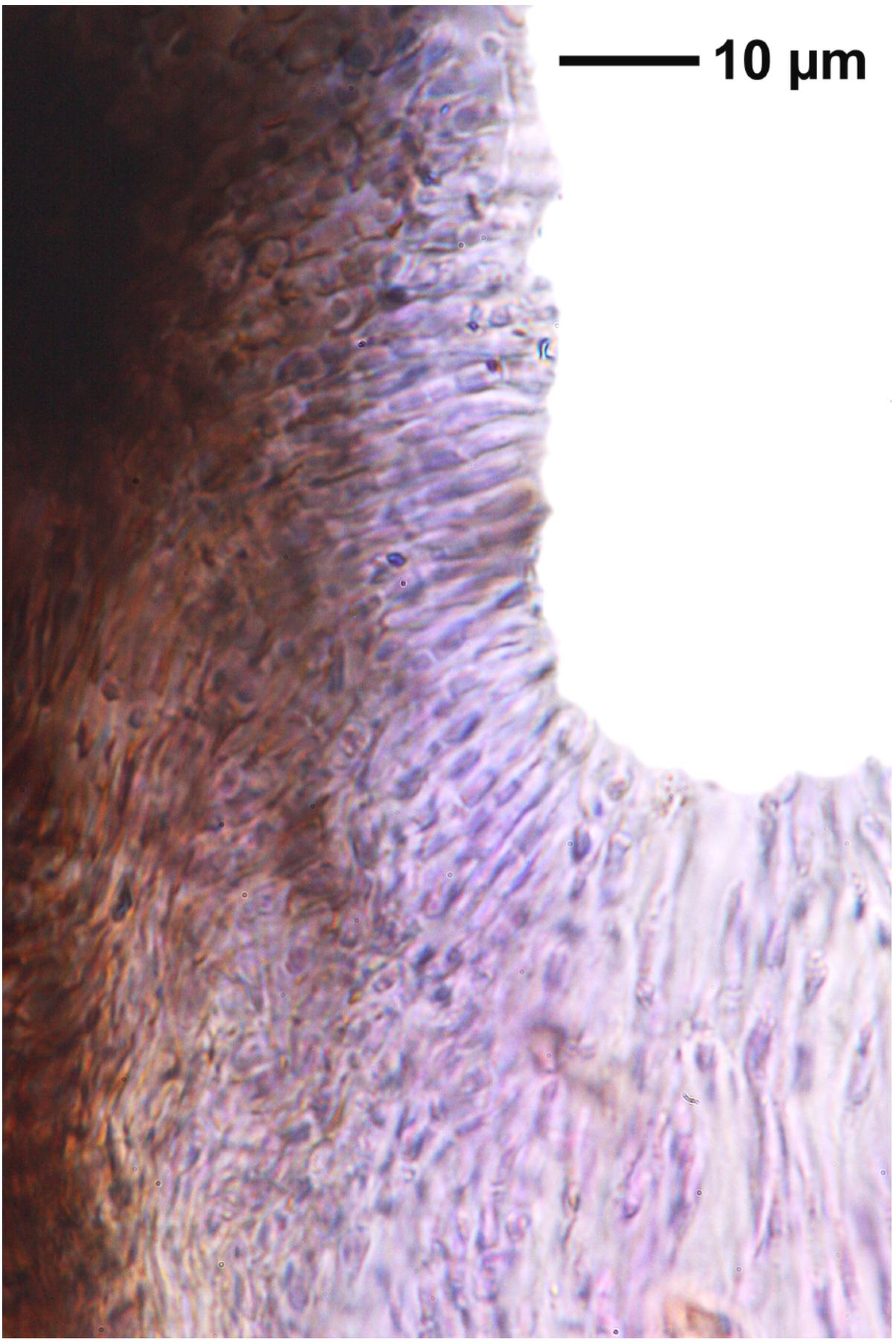

***Diploschistes sticticus***




***Diploschistes sticticus***




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***Diploschistes sticticus***

***Diploschistes thunbergianus*** (Ach.) Lumbsch & Vězda, Nova Hedwigia 56(1-2): 234 (1993)
= *Diploschistes australasicus* Lumbsch & Elix, in Lumbsch, J. Hattori bot. Lab. 66: 186 (1989)=
= *Diploschistes scruposus* var. *australica* Räsänen, Arch. Soc. Zool. Bot. fenn. Vanamo 3: 184 (1949)
= *Gyalecta thunbergiana* Ach., Lich. Univ.: 152 (1810)
= *Lichen opegraphus* * *thunbergiana* (Ach.) Lam., Encycl. Méth. Bot., Suppl. (Paris) 3(2): 409 (1813)

[19018], Australia, Western Australia, "Box Gorge", between Northhampton and Port Gregory, growing on soil with an easterly aspect. Leg. H.Thj. Lumbsch (5558d), 01.09.1987, det. H. Th. Lumbsch. Chemistry: lecanoric acid (minor), diploschistesic acid (major), gyrophoric acid (trace) by HPLC, anal. G. A. Jenkins. EX J. A. ELIX: LICHENES AUSTRALASICI EXSICCATI NO. 255. - Own HPTLC p290/6.

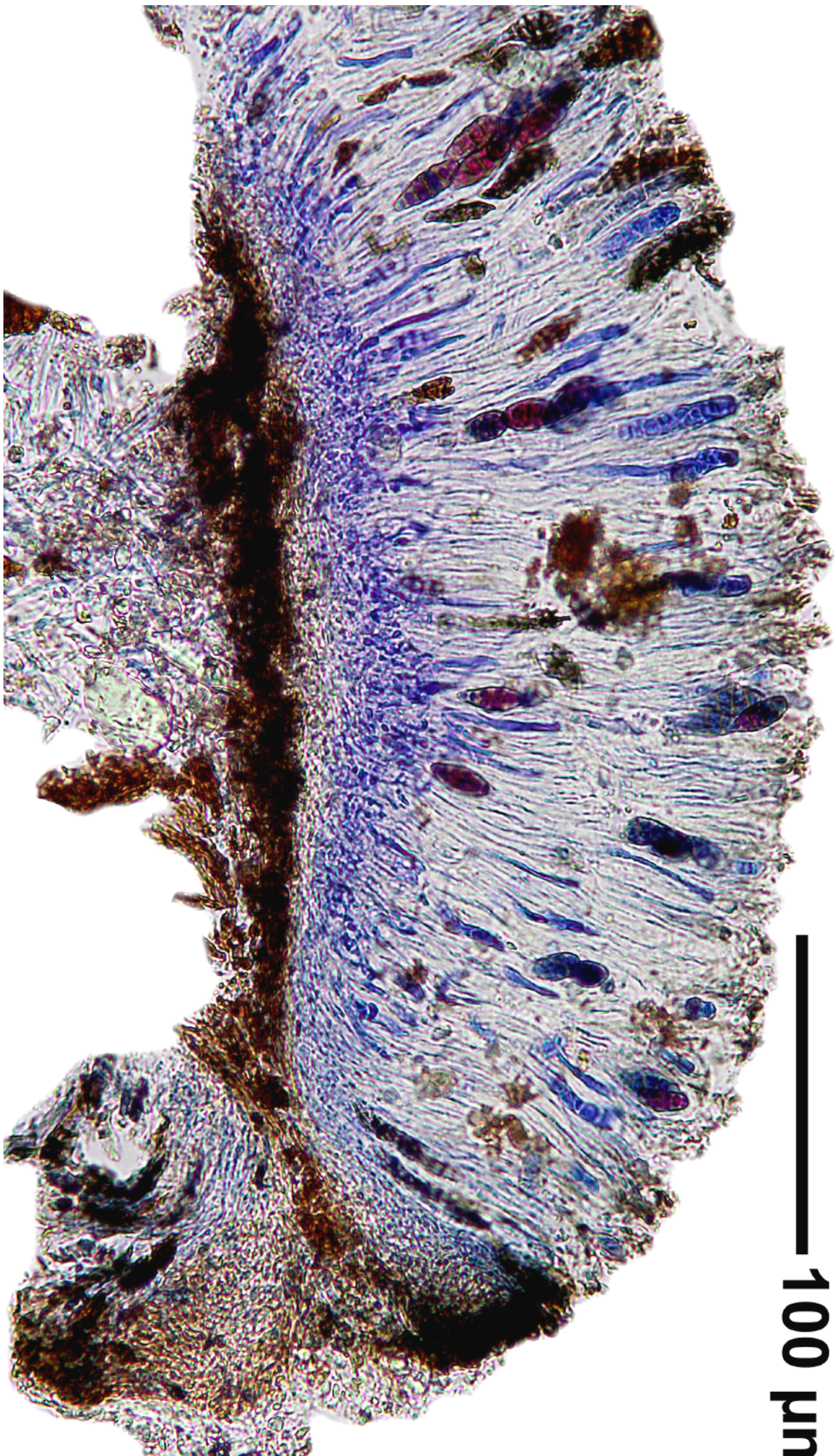
Thallus superficial, to c. 2 mm thick, whitish grey to pale grey, dull, rough, rimose-areolate to verrucose-areolate, whitish-pruinose; areolae plane. Epinecral layer to c. 40 µm thick. Algal layer continuous, well developed; calcium oxalate crystals sparse, scattered, small. Vegetative propagules not seen. Ascomata conspicuous, blackish, to c. 1.5 mm diam., ±rounded, urceolate, solitary, immersed. Disc visible from above, blackish brown, slightly whitish-pruinose, to c. 1.2 mm diam., ±rounded; inner and apical proper exciple visible from above, free, black, epruinose to slightly greyish-pruinose. Thalline rim margin thick, ±rounded, concolorous with and having the same surface features as the thallus, emergent. Proper exciple free, thick, blackish brown, non-amyloid. Hymenium 100–160 µm thick, not inspersed, moderately conglutinated; lateral paraphyses conspicuous, to c. 20 µm long. Epihymenium pale brown, granulose. Asci 4–8-spored. Ascospores broadly ellipsoidal, with subacute ends, hyaline to brown, non-amyloid, 16–28 × 6–16 µm, with 3–5 × 1–2 locules; locules ±rounded to angular; septa thick, regular; ascospore wall thin; endospore thick. Pycnidia immersed in the thallus; pores blackish brown. Conidia 4–6 × 1.0–1.5 µm.
CHEMISTRY: Thallus K+ yellowish to red, C+ red, P–; containing lecanoric acid (major), diploschistesic acid (major), orsellinic acid (minor). Widely distributed and locally abundant on soil in most semi-arid regions of Australia, southern Africa and New Zealand.




***Diploschistes thunbergianus***



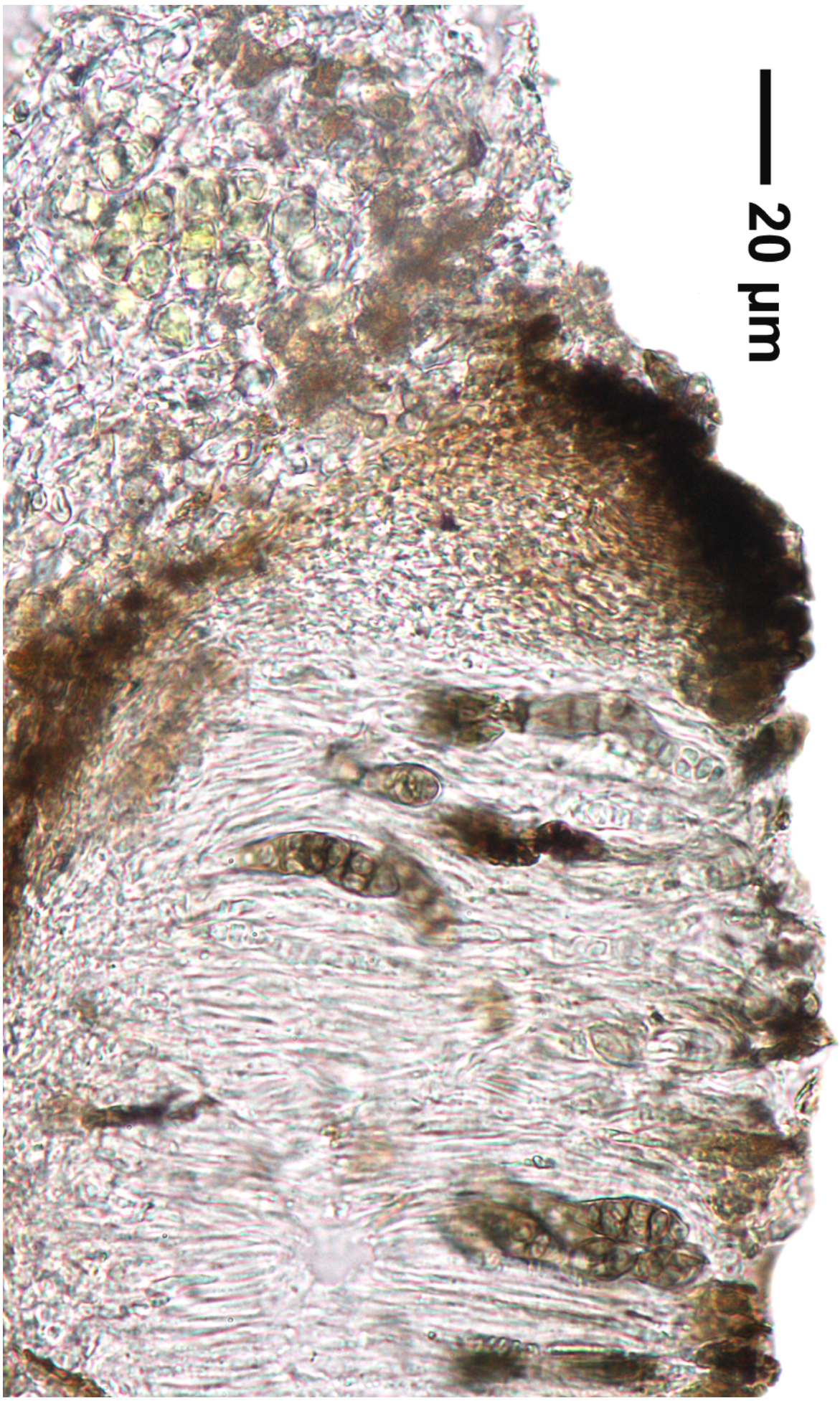

***Diploschistes thunbergianus***



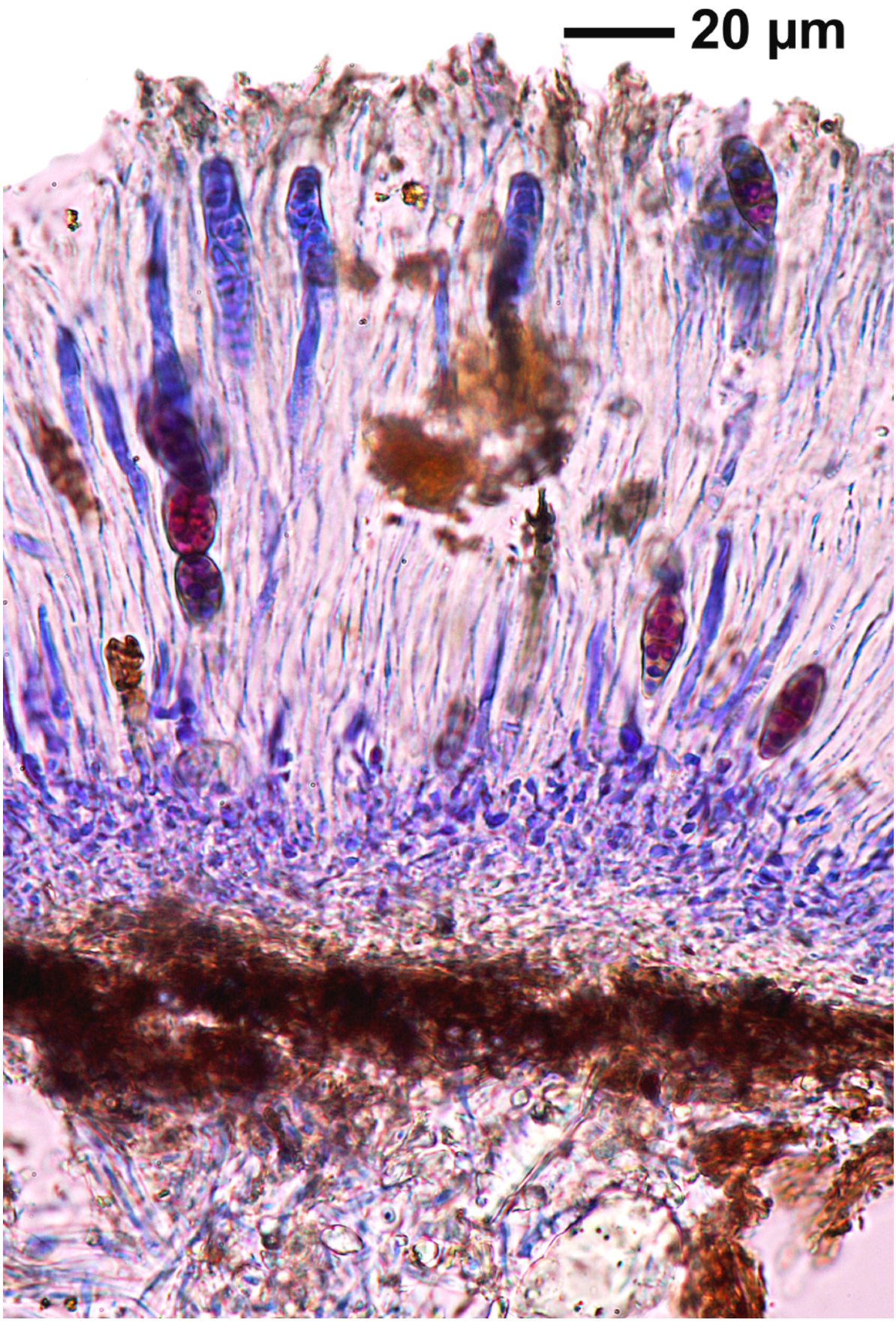

***Diploschistes thunbergianus***



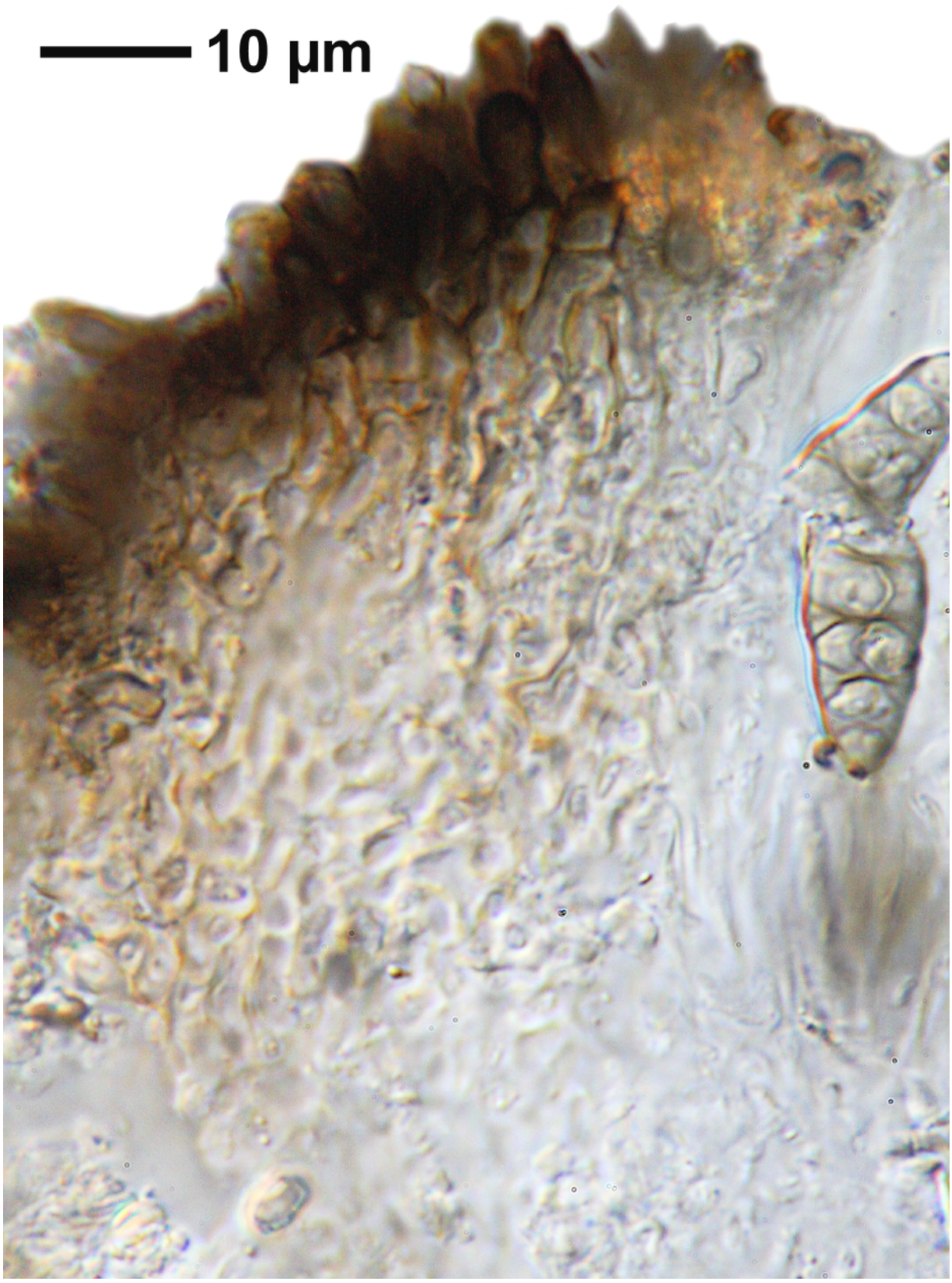

***Diploschistes thunbergianus***




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***Diploschistes thunbergianus***

*Diploschistes thunbergianus*

**Auf den folgenden Seiten**
**leider noch unbestimmtes Material**

***Malmidea sp.*** Nr. 15108

[15108], La Reunion, an der Straße von La Peti te France zum Piton Maido, bartflechtenreiche Nebelwaldzone mit Tamarinen; 21,05638° S, 55,36065° E, 1600 m. Leg. F. Schumm & J,-P. Frahm, 07.09.2009.

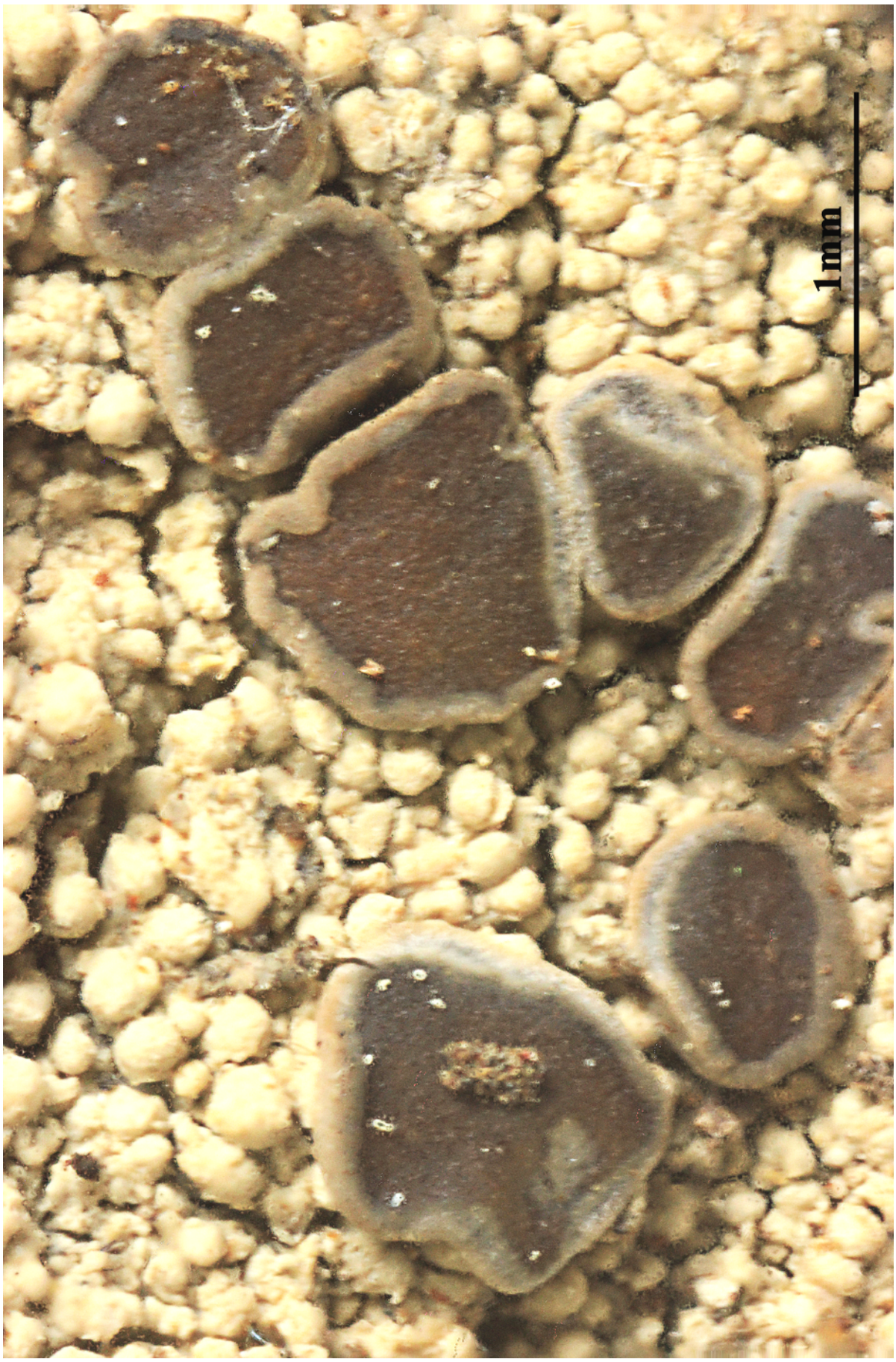
Thallus UV+ gelblich. Apothecien. ohne Algen im Excipulum. Epithecium. bräunlich, 5 µm. Hymenium nicht inspers, 100 µm. Hypothecium braunschwarz, ca. 100 µm. Excipulum unter dem Hypothecium mit K+ intensiv gelb, Außenrand des Exipulums auf 10 µm Saum mit feinen Kriställchen, die in pol. Licht weiß aufleuchten und sich farblich vom Rest absetzen. Paraphysen sehr spärlich verzweigt. Sporen 1-zellig, hyalin, 8/Ascus, 12-19 x 8-9 µm.



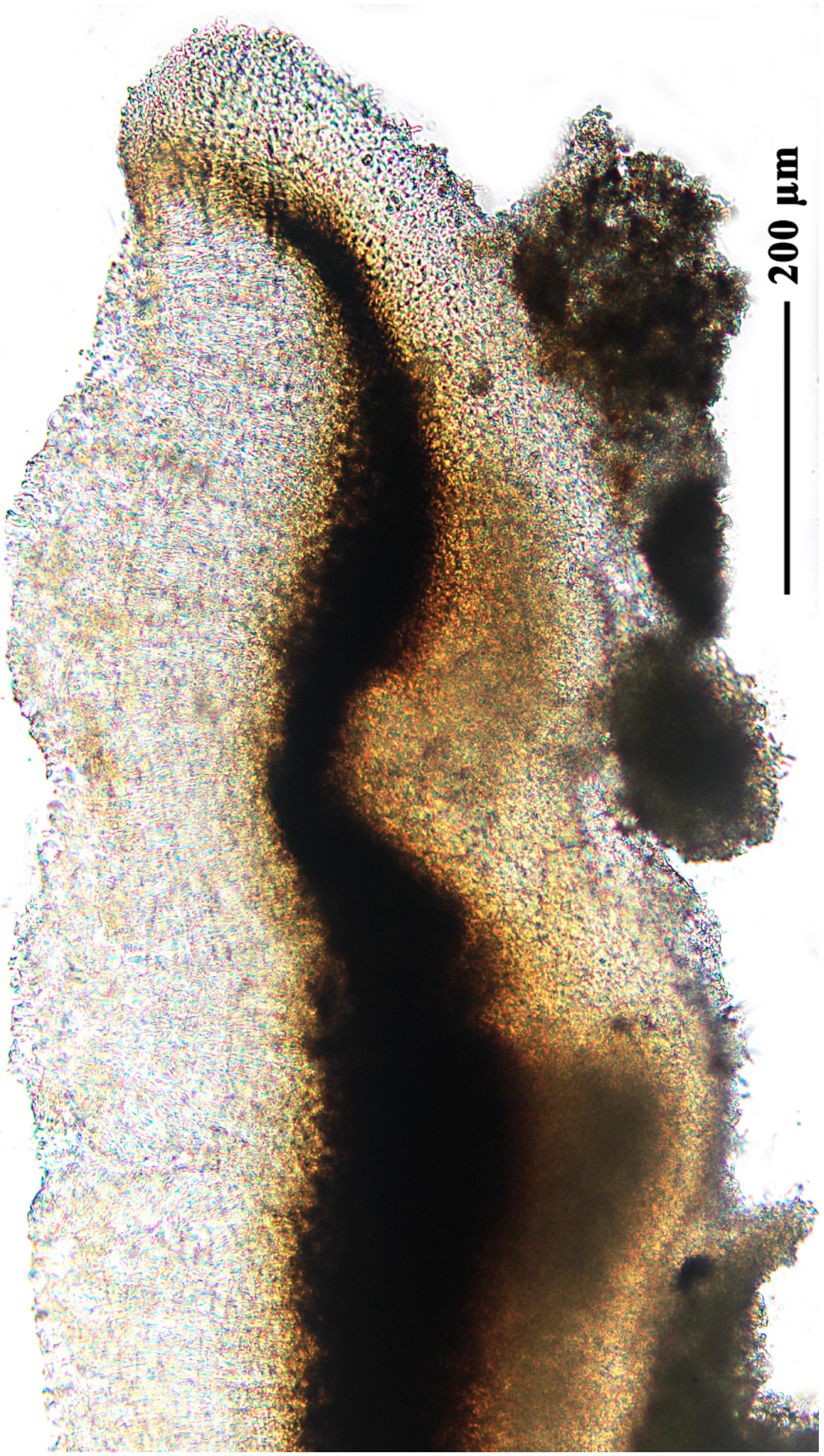

***Malmidea sp.***



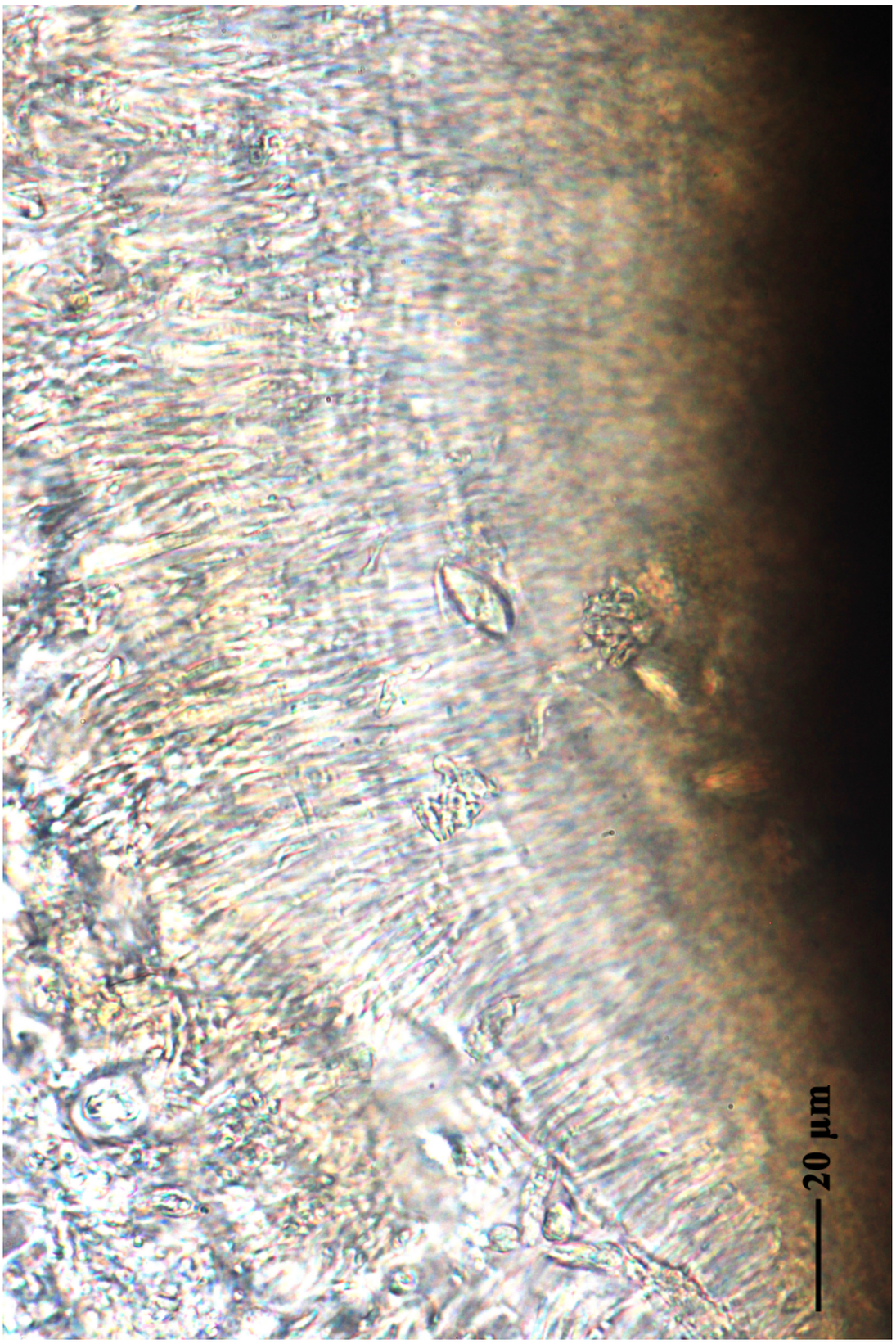

***Malmidea sp.***

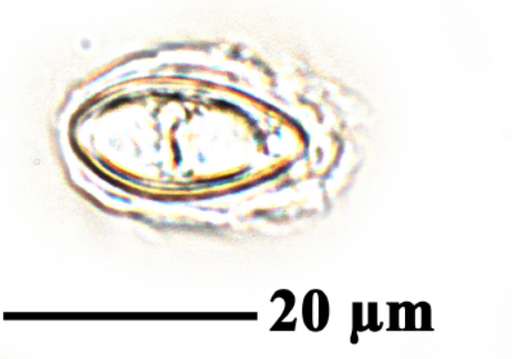



***Malmidea sp.***

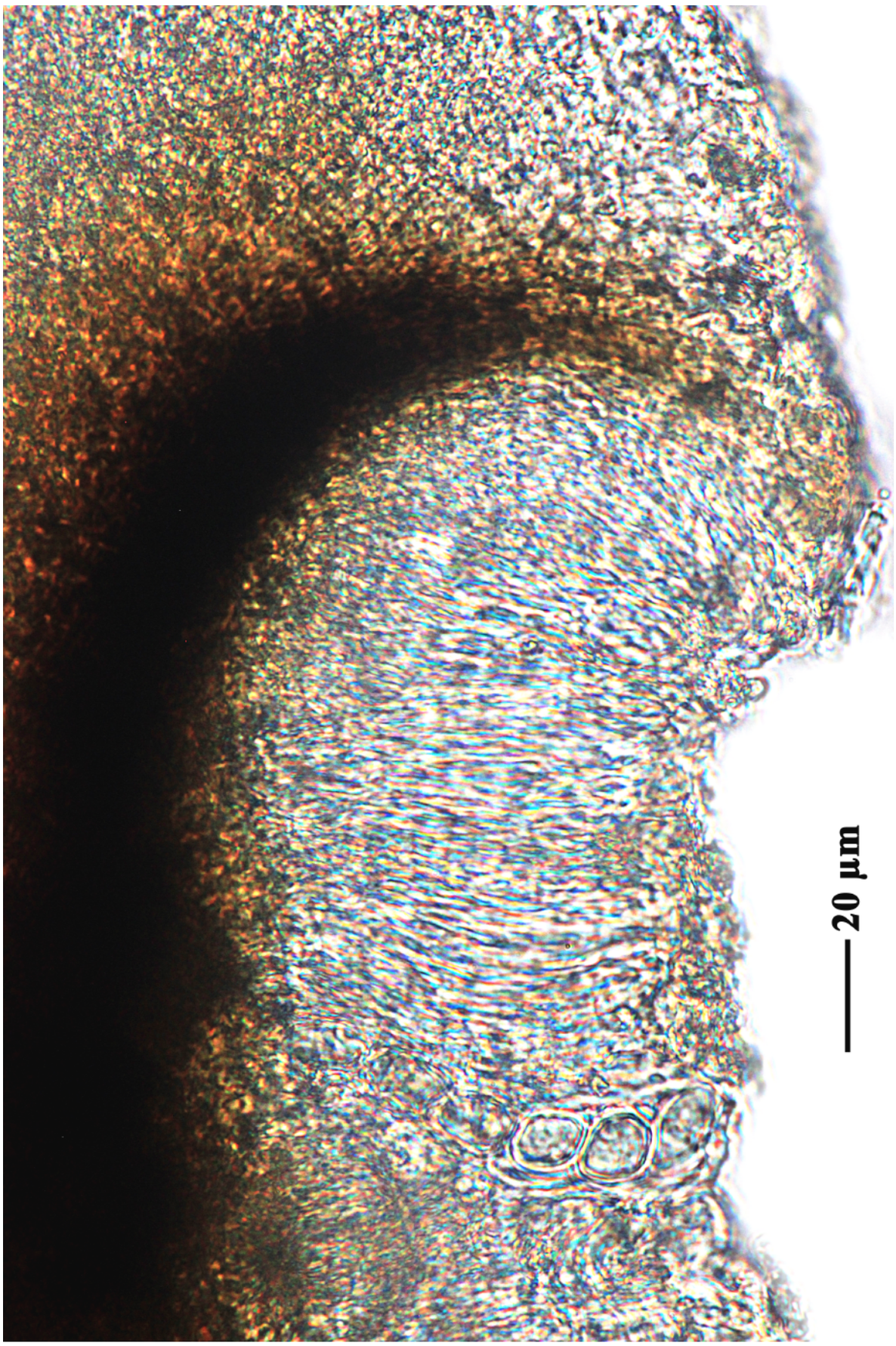



***Malmidea sp.***

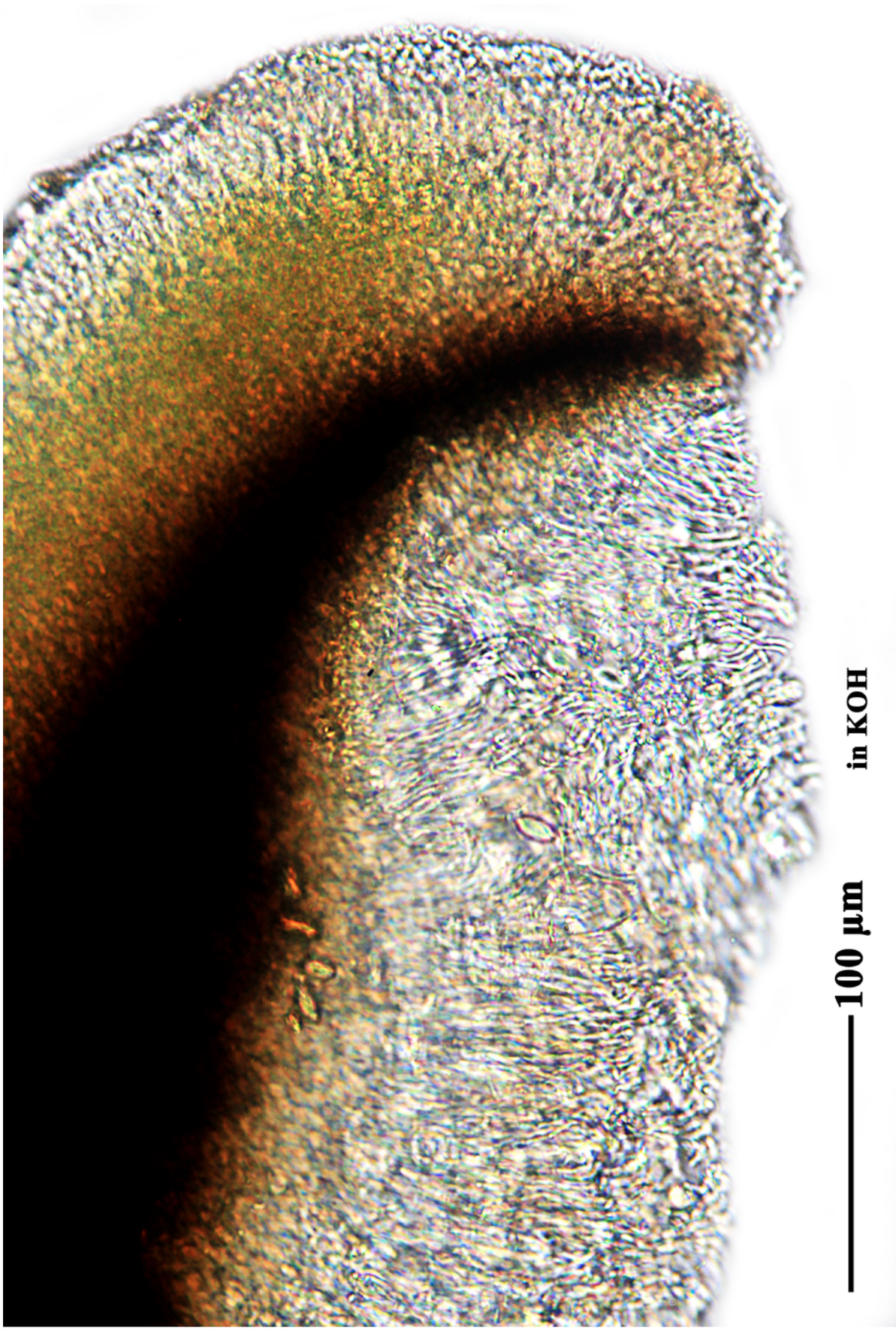


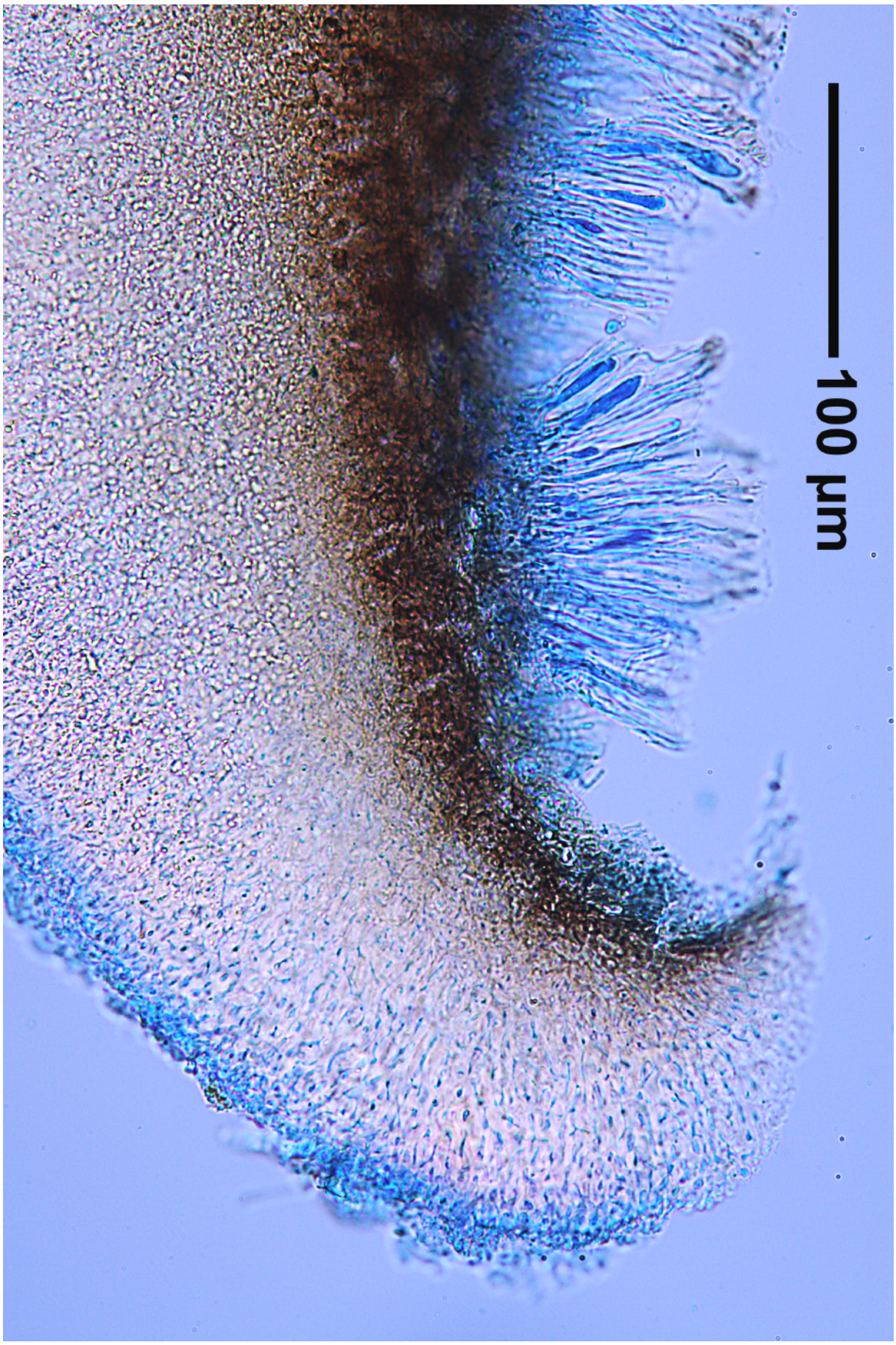

***Malmidea sp.***



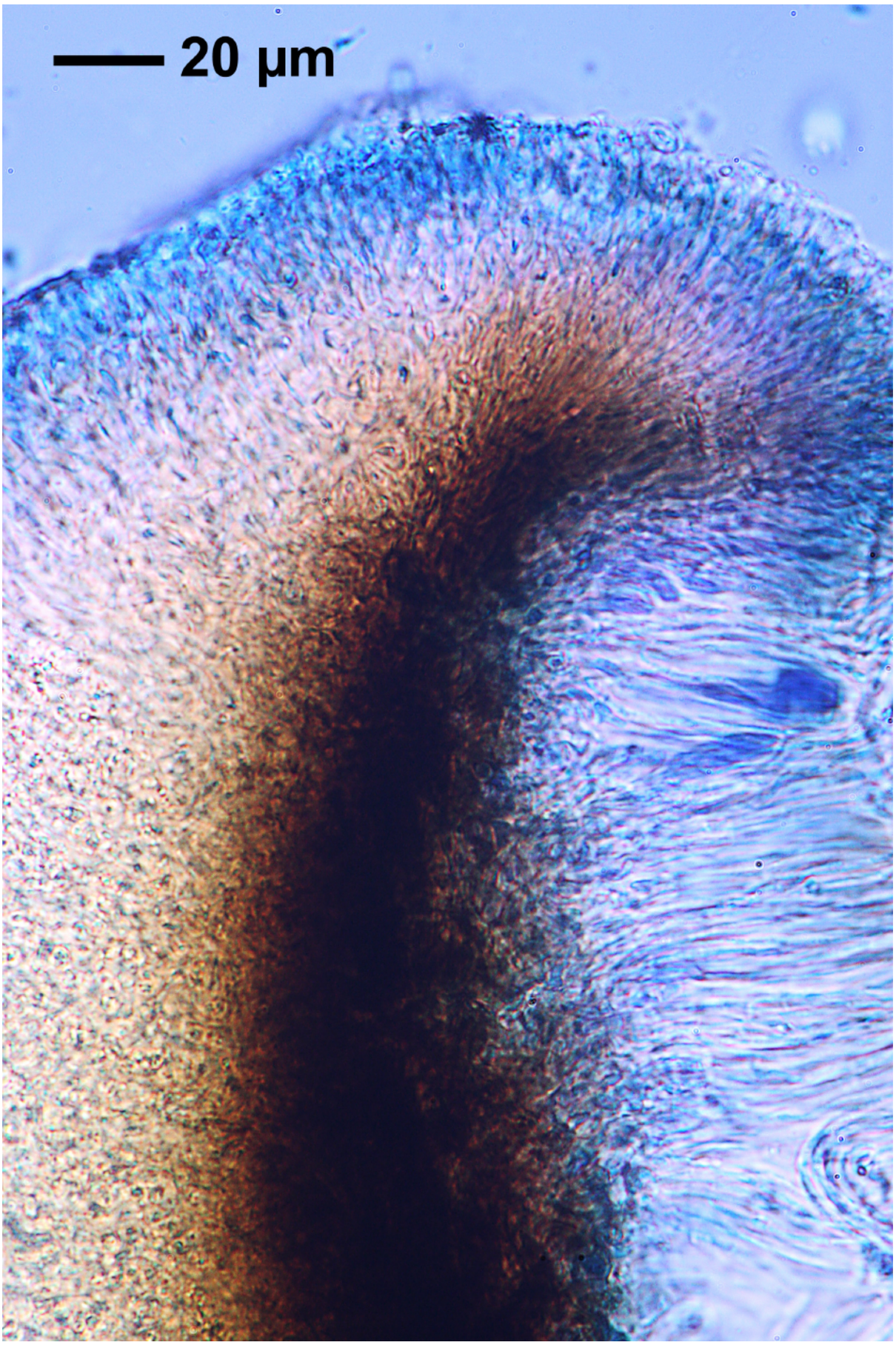

***Malmidea sp.***



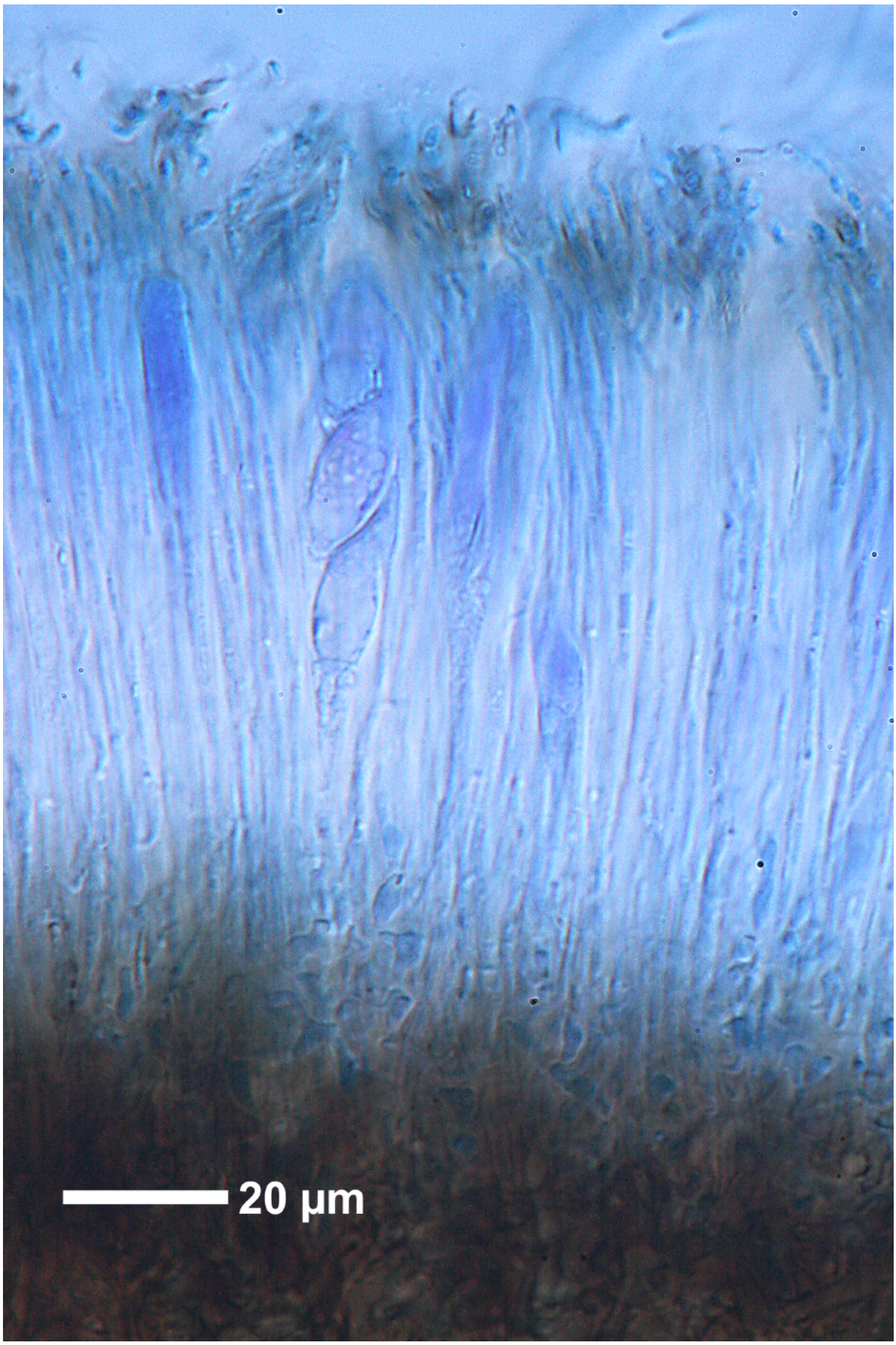

***Malmidea sp.***




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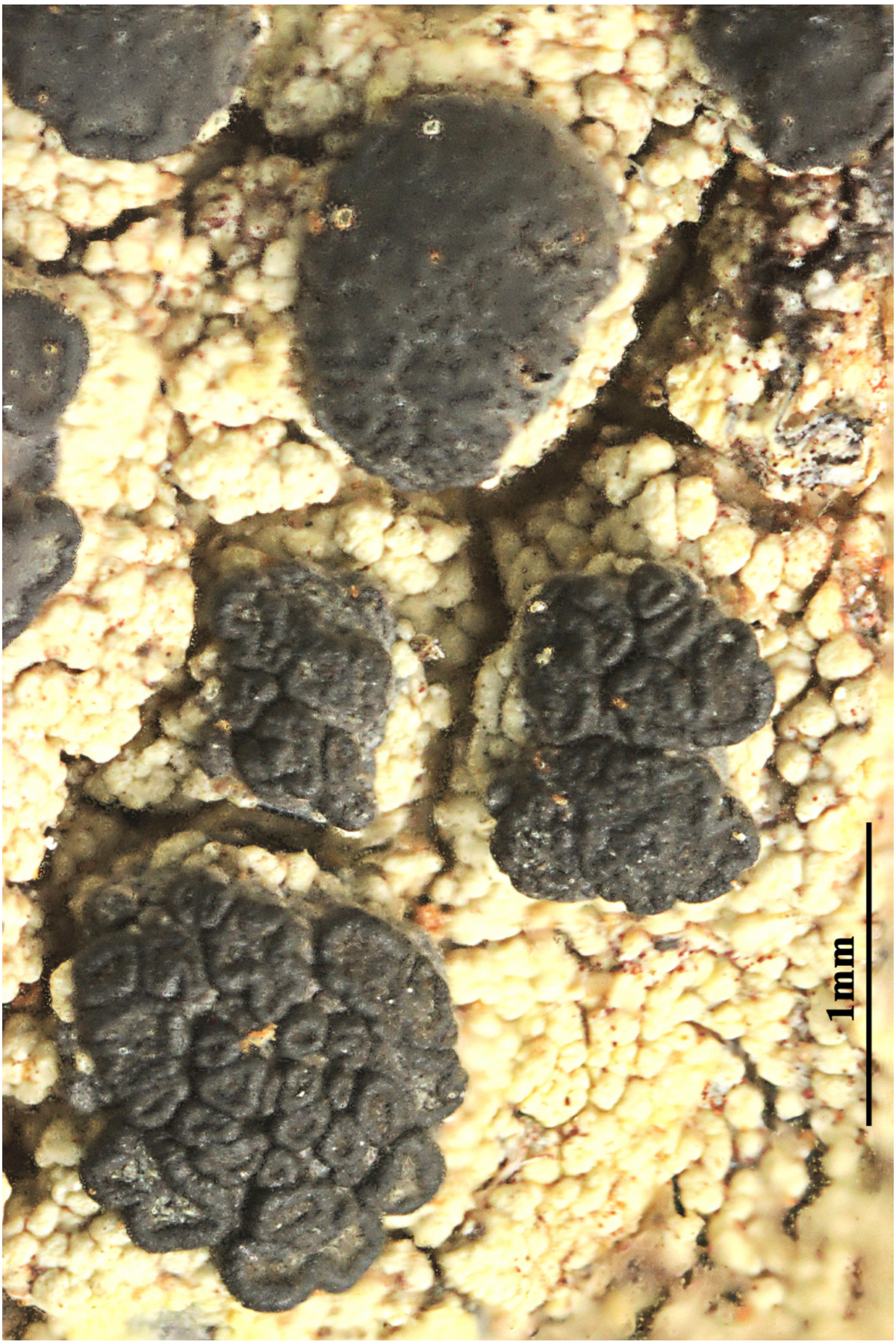
***Buellia sp. 15430***

[15430], La Reunion, Foret de Bébour, Gite de Belouve; 21,06082°S, 55,53667°E, 1475 m. Leg. F. Schumm & J.-P. Frahm 12.09.2009.

Thallus UVL+ rosa-orange, Apothecien, schwarz, mit dickem schwarzem Rand ohne Algen. Scheibe grau bereift. Ap. UV+ orange. Spores, 8/ascus, brown, 1-septate, 26.7 x 13.3 µm. Epithecium schwärzlich. Hymenium hell, Hypothecium braunschwarz



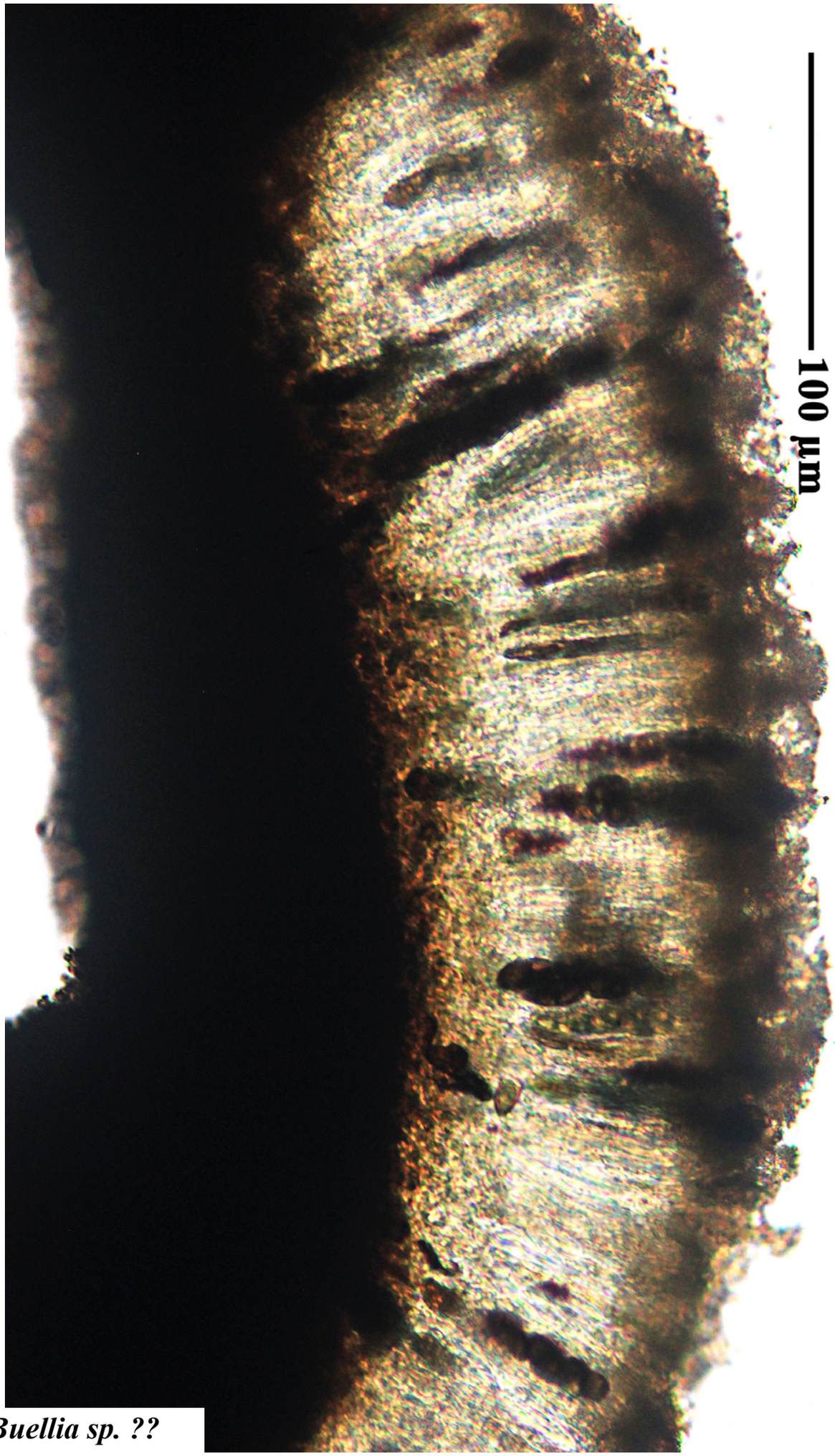

***Buellia sp. ??***



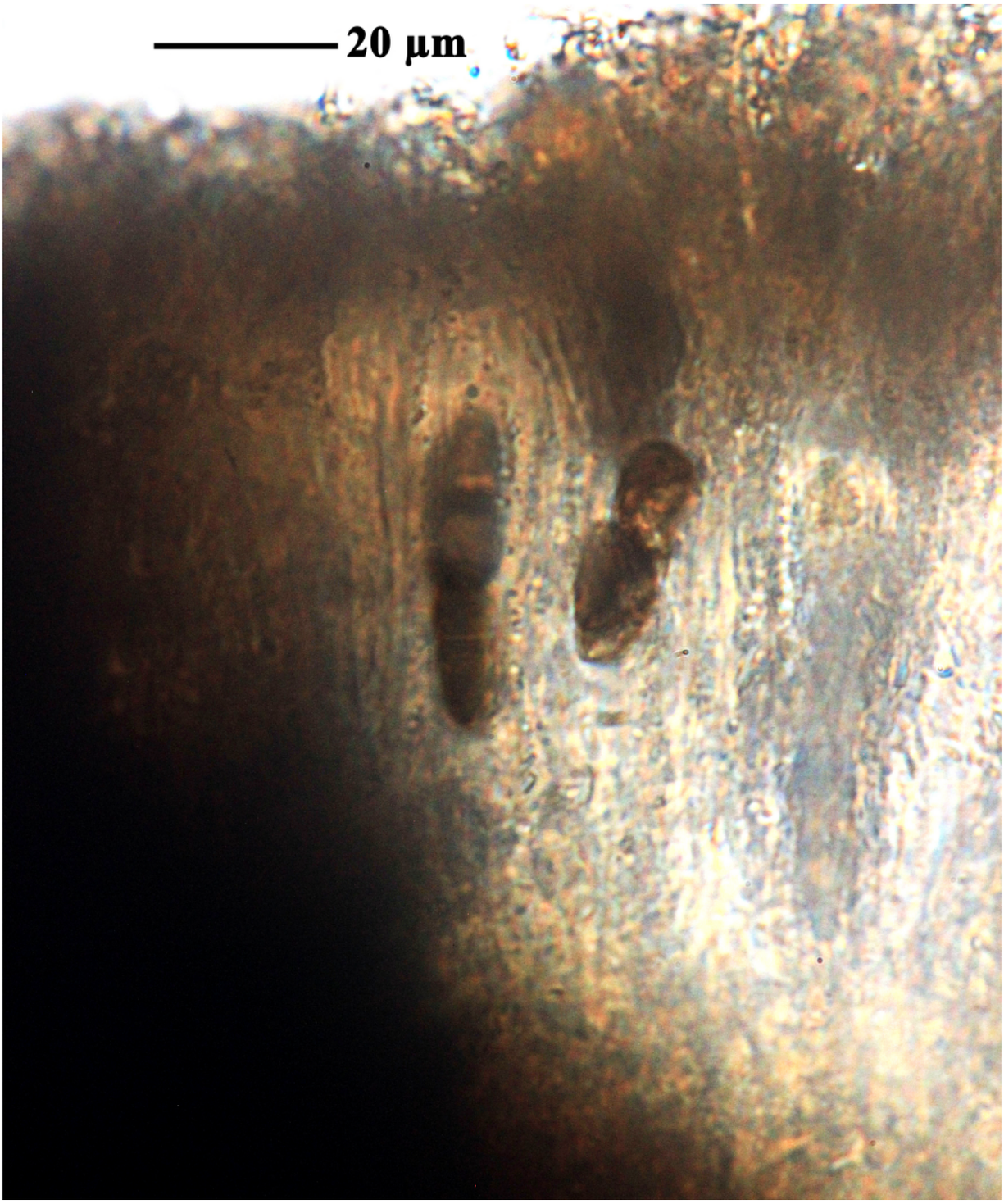

***Buellia sp. ??***




***Buellia sp. ??***




***Buellia sp. ??***




***Buellia sp. ??***




***Buellia sp. ??***




***Buellia sp. ??***

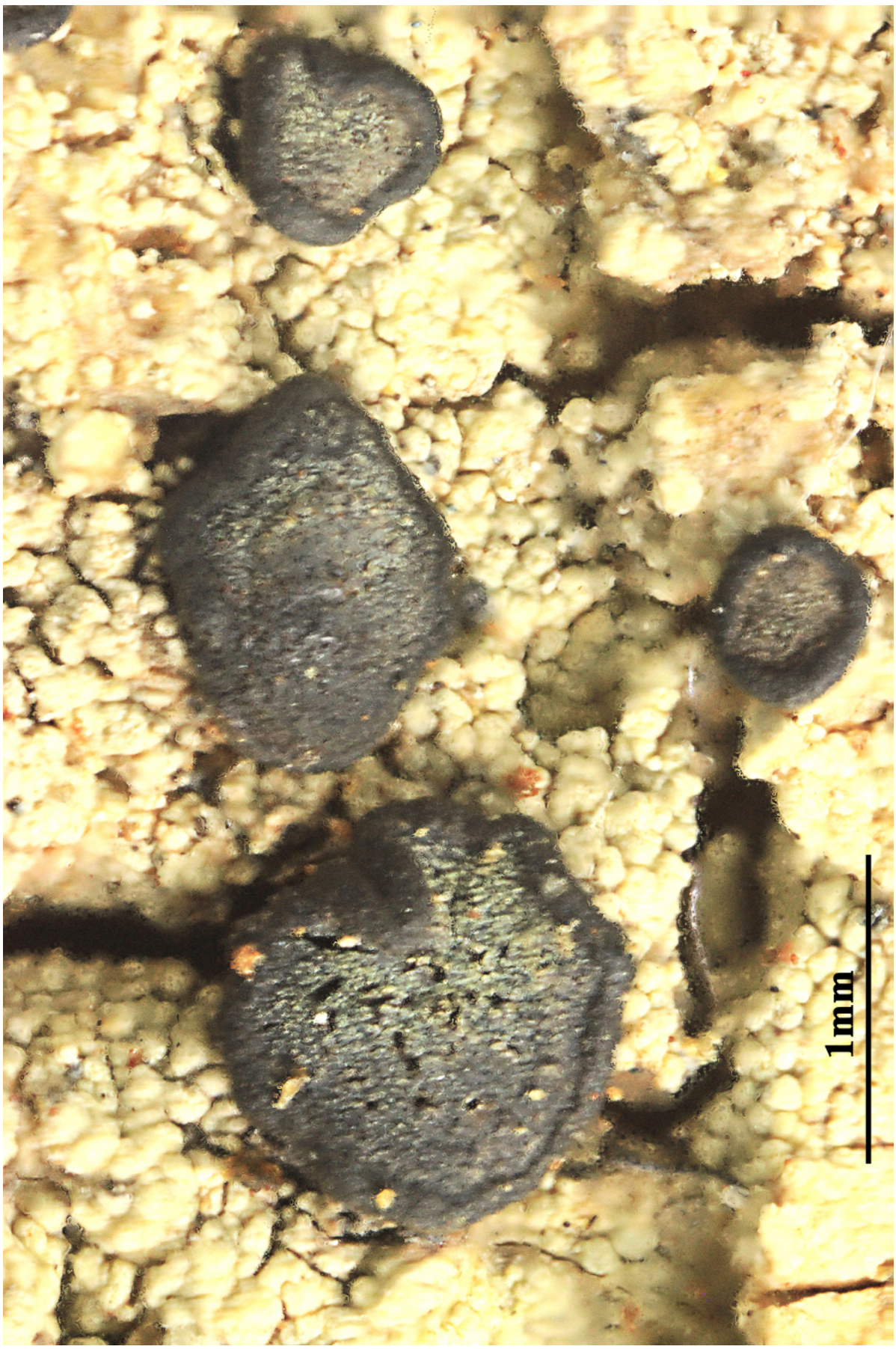
***Buellia sp. 15422 ??***

[15422], La Reunion, Foret de Bébour, Gite de Belouve; 21,06082°S, 55,53667°E, 1475 m. Leg. F. Schumm & J.-P. Frahm, 12.09.2009.

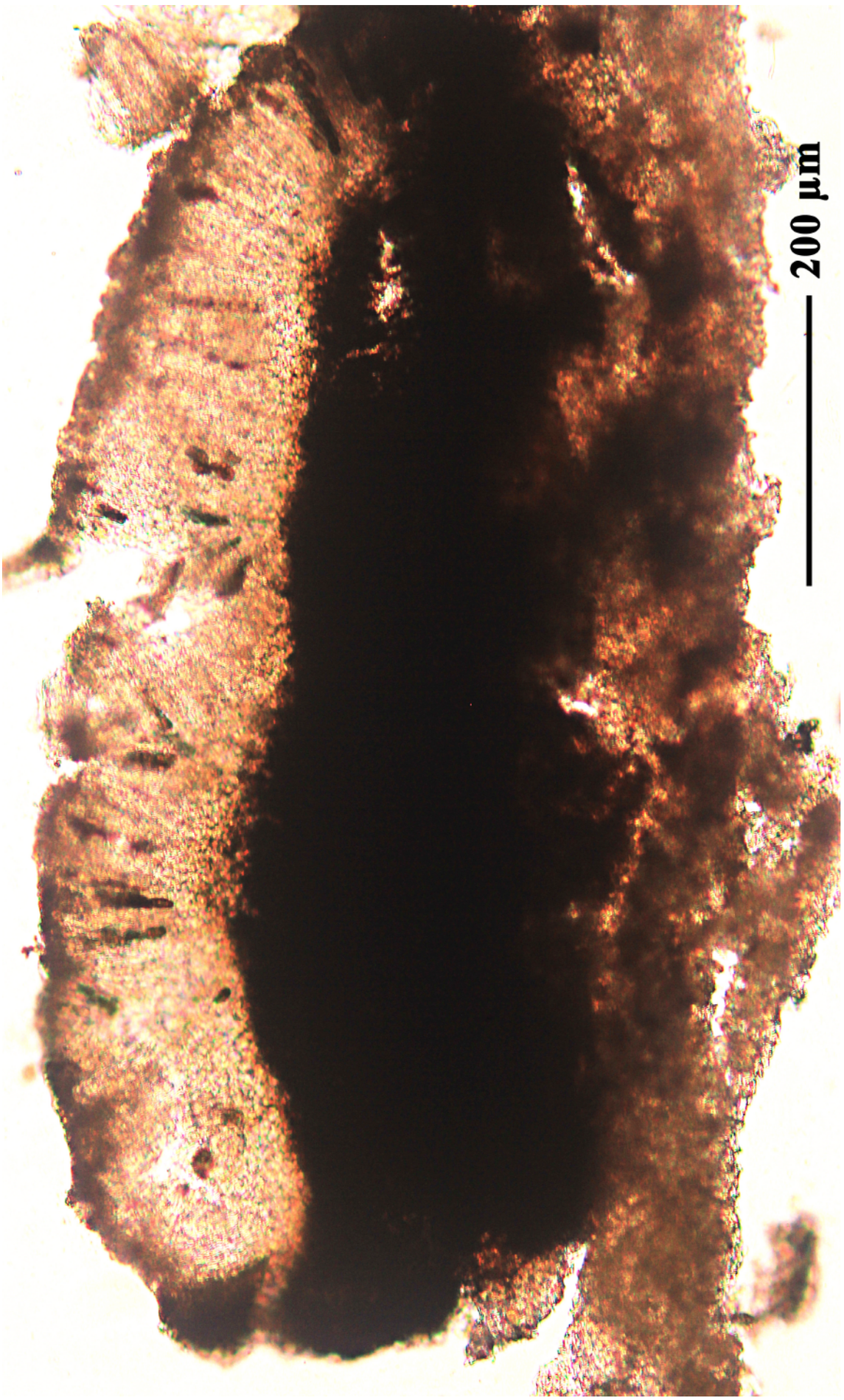
- Apothecien schwarz mit schwarzem Eigenrand, disc grey frosted. Spores brown, 1-septated, 8/ascus, 19.4 x 9.7 µm. Hymenium light brown, 143 µm. Hypothecium brown.



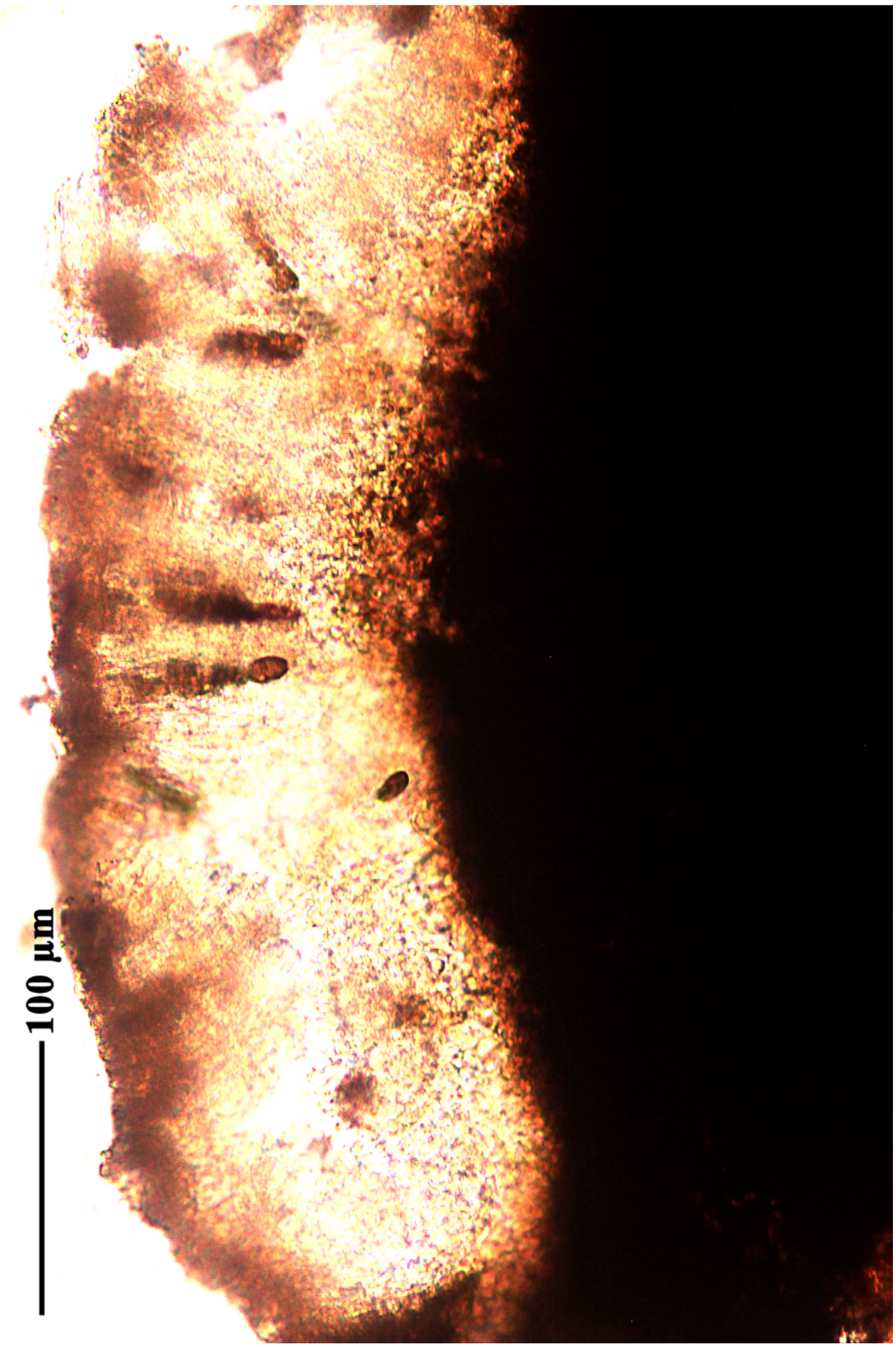

**Buellia sp**.



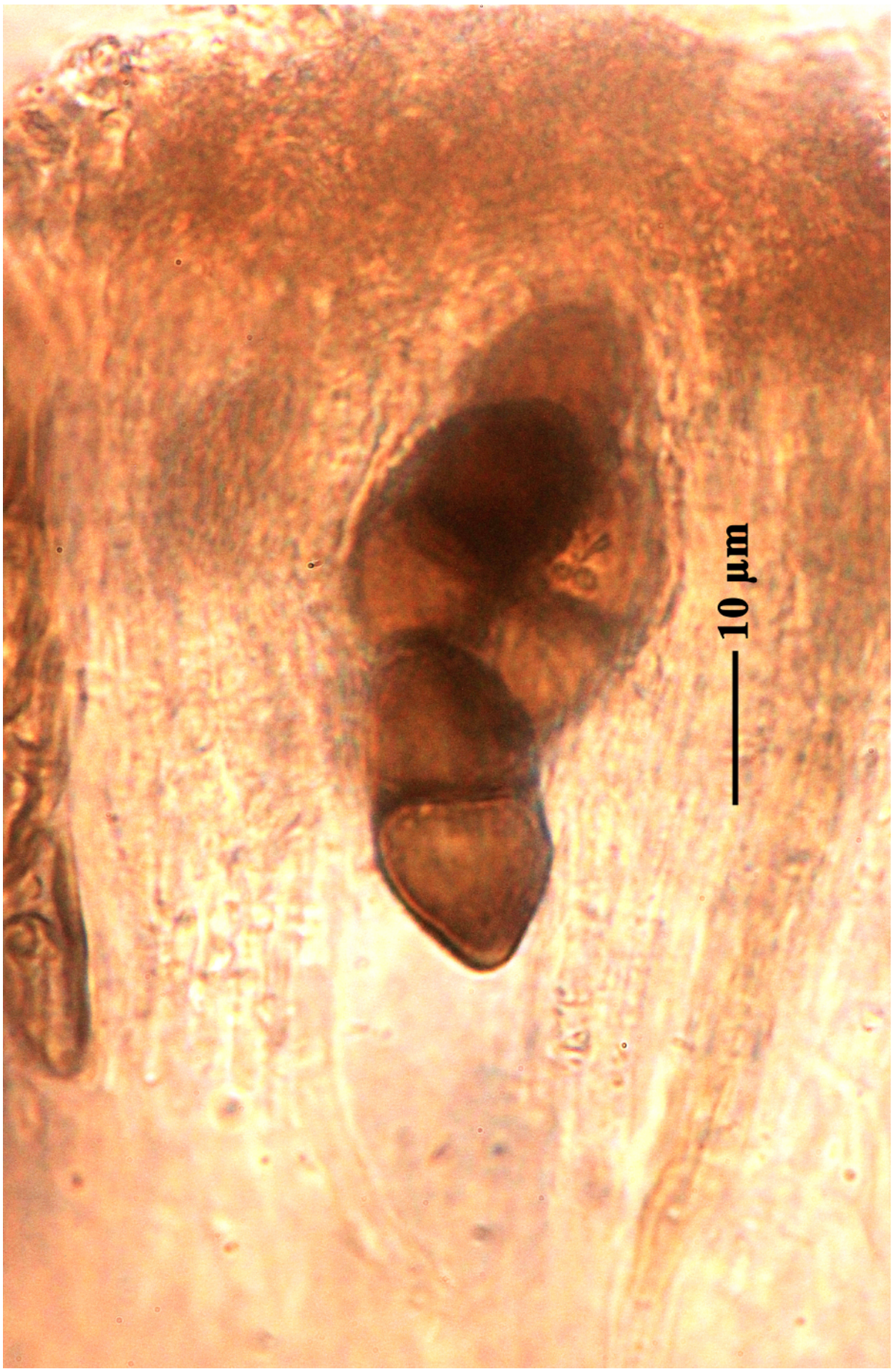

**Buellia sp**.




**Buellia sp**.




**Buellia sp**.




**Buellia sp**.




**Buellia sp**.

Images of Lichens Vol. 19 (Mixture of various Lichens mainly Diploschistes &, Cladia)

A
Acrorixis actinostoma (Ach.) Trevis..... 70, 80, 84, 88
Acrorixis euganea (A. Massal.) Trevis..... 137, 146
Alysphaeria muscorum (Scop.) Turpin..... 169
Aspicilia aperta (Schaer.) Motyka..... 70, 80, 84, 88
Aspicilia stictica Körb..... 218, 221
B
Baeomyces aggregatus (Sw.) Ach..... 2, 6, 10, 14, 18
Baeomyces retiporus Labill..... 48, 53
Buellia sp. 15422 ??..... 260
Buellia sp. 15430..... 252
C
Cenomyce aggregata (Sw.) Ach..... 2, 6, 10, 14, 18
Cenomyce diatrypa Taylor..... 2, 6, 10, 14, 18
Cenomyce retipora (Labill.) Ach..... 48, 53
Cladia aggregata (Sw.) Nyl..... 2, 6, 10, 14, 18
Cladia collodes (Hook. f. & Taylor) C.W. Dodge..... 2, 6, 10, 14, 18
Cladia ferdinandii (Müll. Arg.) Filson..... 22, 25
Cladia fuliginosa Filson..... 31
Cladia inflata (F. Wilson) D.J. Galloway..... 34, 38
Cladia moniliformis Kantvilas & Elix..... 43
Cladia retipora (Labill.) Nyl..... 48, 53
Cladia schizopora (Nyl.) Nyl..... 56, 59
Cladia sullivanii (Müll. Arg.) W. Martin..... 64, 67
Cladina aggregata (Sw.) Nyl..... 2, 6, 10, 14, 18
Cladina gorgonea var. subrangiferina (Nyl.) Stizenb..... 2, 6, 10, 14, 18
Cladina retipora (Labill.) Nyl..... 48, 53
Cladina schizopora (Nyl.) Nyl..... 56, 59
Cladonia aggregata (Sw.) Spreng..... 2, 6, 10, 14, 18
Cladonia aggregata f. inflata F. Wilson..... 34, 38
Cladonia aggregata f. subdivergens Hellb..... 2, 6, 10, 14, 18
Cladonia aggregata var. straminea Müll. Arg..... 2, 6, 10, 14, 18
Cladonia aggregata var. subdivergens (Hellb.) Räsänen 2, 6, 10, 14, 18
Cladonia aggregata var. tenera F. Wilson..... 2, 6, 10, 14, 18
Cladonia cornicularia Flörke..... 2, 6, 10, 14, 18
Cladonia ferdinandii Müll. Arg..... 22, 25
Cladonia gorgonea var. subrangiferina Nyl..... 2, 6, 10, 14, 18
Cladonia gorgonina (Bory) Vain..... 2, 6, 10, 14, 18

Cladonia gorgonina var. subrangiferina (Nyl.) Vain..... 2, 6, 10, 14, 18
Cladonia retipora (Labill.) Fr..... 48, 53
Cladonia retipora var. ferdinandii (Müll. Arg.) Vain..... 22, 25
Cladonia schizopora Nyl..... 56, 59
Cladonia sullivanii Müll. Arg..... 64, 67
Clathrina aggregata (Sw.) Müll. Arg..... 2, 6, 10, 14, 18
Clathrina aggregata var. pygmaea Müll. Arg..... 56, 59
Clathrina ferdinandii (Müll. Arg.) Müll. Arg..... 22, 25
Clathrina retipora (Labill.) Müll. Arg..... 48, 53
Clathrina schizopora (Nyl.) Müll. Arg..... 56, 59
Clathrina sullivanii (Müll. Arg.) Müll. Arg..... 64, 67
Coralloides gorgonina Bory..... 2, 6, 10, 14, 18
D
Diploschistes actinostomus (Ach.) Zahlbr..... 70, 80, 84, 88
Diploschistes actinostomus f. apertus (Schaer.) Zahlbr.. . 70, 80, 84, 88
Diploschistes actinostomus var. farinosus (Anzi) Zahlbr..... 149
Diploschistes australasicus Lumbsch & Elix..... 230
Diploschistes bartlettii (Lumbsch) Lücking..... 182
Diploschistes bisporus (Bagl.) J. Steiner..... 91
Diploschistes bryophilus (Ach.) Zahlbr..... 169
Diploschistes bryophilus f. parasitica Lettau..... 169
Diploschistes candidissimus (Kremp.) Zahlbr..... 149
Diploschistes cinereocaesius (Sw.) Vain..... 94, 97, 100
Diploschistes diacapsis (Ach.) Lumbsch 103, 109, 116, 120, 123, 212, 215
Diploschistes diacapsis subsp. interpediens (Nyl.) Cl. Roux 103, 109, 116, 120, 123
Diploschistes diacapsis subsp. interpediens (Nyl.) Clauzade & Cl. Roux..... 103, 109, 116, 120, 123
Diploschistes diploschistoides (Vain.) G. Salisb..... 127
Diploschistes euganeus (A. Massal.) J. Steiner..... 137, 146
Diploschistes farinosus (Anzi) Vězda..... 149
Diploschistes gypsaceus (Ach.) Zahlbr..... 152
Diploschistes gypsaceus subsp. interpediens (Nyl.) Clauzade & Cl. Roux..... 103, 109, 116, 120, 123, 166
Diploschistes hypoleucus Zahlbr..... 163
Diploschistes interpediens (Nyl.) Zahlbr..... 166
Diploschistes lichenicola (Mont. & Fr.) Vain..... 169
Diploschistes muscorum (Scop.) R. Sant..... 169
Diploschistes muscorum subsp. bartlettii Lumbsch..... 182
Diploschistes ocellatus (Fr.) Norman..... 194

Diploschistes ocellatus var. tenuis Fern.-Brime & Llimona..... 194
Diploschistes ochraceus var. bisporus (Bagl.) Lettau..... 91
Diploschistes ptychochrous Lettau..... 166
Diploschistes scruposus (Schreb.) Norman..... 206, 209
Diploschistes scruposus f. bryophilus (Ach.) Oxner..... 169
Diploschistes scruposus f. centrosus Werner..... 166
Diploschistes scruposus f. flavescens Zahlbr..... 166
Diploschistes scruposus f. parasitica Anders..... 169
Diploschistes scruposus subsp. gypsaceus (Ach.) Clauzade & Cl. Roux..... 152
Diploschistes scruposus subsp. muscorum (Scop.) Clauzade & Cl. Roux..... 169
Diploschistes scruposus subsp. ptychochrous (Lettau) Clauzade & Cl. Roux..... 166
Diploschistes scruposus subsp. violarius (Nyl.) Clauzade & Cl. Roux 166
Diploschistes scruposus var. australica Räsänen..... 230
Diploschistes scruposus var. bryophilus (Ach.) Müll. Arg..... 169
Diploschistes scruposus var. cinereocaesius (Sw.) Müll. Arg. 94, 97, 100
Diploschistes scruposus var. clauzadei B. de Lesd..... 166
Diploschistes scruposus var. parasiticus Zahlbr..... 169
Diploschistes steppicus Reichert..... 212, 215
Diploschistes sticticus (Körb.) Müll. Arg..... 218, 221
Diploschistes subocellatus (Nyl.) Zahlbr..... 194
Diploschistes thunbergianus (Ach.) Lumbsch & Vězda..... 230
Diploschistes violarius (Nyl.) Zahlbr..... 166
Dufourea collodes Hook. f. & Taylor..... 2, 6, 10, 14, 18
G
Gyalecta bryophila (Ach.) Ach..... 169
Gyalecta thunbergiana Ach..... 230
H
Hymenelia stictica (Körb.) Motyka..... 218, 221
I
Ingvariella bispora (Bagl.) Guderley & Lumbsch, in Guderley, Lumbsch & Feige..... 91
Ingvariella bispora var. multispora Guderley & Lumbsch, in Guderley, Lumbsch & Feige..... 91
L
Lagerheimina actinostoma (Ach.) Kuntze..... 70, 80, 84, 88
Lagerheimina cinereocaesia (Sw.) Kuntze..... 94, 97, 100

Lagerheimina ocellata (Fr.) Kuntze..... 194
Lagerheimina scruposa (Schreb.) Kuntze..... 206, 209
Lecanora actinostoma (Ach.) Nyl..... 70, 80, 84, 88
Lecanora diacapsis (Ach.) Lumbsch,..... 103, 109, 116, 120, 123
Lecanora ocellata Nyl..... 194
Lecanora scruposa (Schreb.) Sommerf..... 206, 209
Lecanora scruposa var. bryophila (Ach.) Nyl..... 169
Lecanora scruposa var. diacapsis (Ach.) Nyl... 103, 109, 116, 120, 123
Lecanora scruposa var. gypsacea (Ach.) Sommerf..... 152
Lecanora scruposa var. parasitica Sommerf..... 169
Lecanora villarsii Ach..... 194
Lichen aggregatus Sw..... 2, 6, 10, 14, 18
Lichen bryophilus Ehrh..... 169
Lichen cinereocaesius Sw..... 94, 97, 100
Lichen muscorum Scop..... 169
Lichen ocellatus Vill..... 194
Lichen opegraphus * gypsacea (Ach.) Lam..... 152
Lichen opegraphus * ocellata Lam..... 194
Lichen opegraphus * thunbergiana (Ach.) Lam..... 230
Lichen retiporus (Labill.) DC..... 48, 53
Lichen scruposus Schreb..... 206, 209
Lichen tartareus var. muscorum (Scop.) Latourr..... 169
Limboria actinostoma (Ach.) A. Massal..... 70, 80, 84, 88
Limboria actinostoma var. euganea (A. Massal.) Arnold..... 137, 146
Limboria euganea A. Massal..... 137, 146
M
Malmidea sp. Nr. 15108..... 241
Mellitiosporium lichenicola (Mont. & Fr.) Massee..... 169
P
Parmelia bryophila (Ach.) L. Colla..... 169
Parmelia ocellata Fr..... 194
Parmelia scruposa var. bryophila (Ach.) Hepp..... 169
Parmelia scruposa var. diacapsis (Ach.) Fr..... 103, 109, 116, 120, 123
Parmelia scruposa var. gypsacea (Ach.) Flot..... 152
Parmelia villarsii (Ach.) Spreng..... 194
Patellaria muscorum (Scop.) Hoffm..... 169
Patellaria scruposa (Schreb.) Hoffm..... 206, 209
Placodium ocellatum (Fr.) Link..... 194
Psora scruposa (Schreb.) Fürnr..... 206, 209
Pulchrocladia ferdinandii (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti 22, 25

Pulchrocladia retipora (Labill.) S. Stenroos, Pino-Bodas & Ahti 48, 53
Pycnothelia retipora (Labill.) Fée..... 48, 53
R
Rexia fuliginosa (Filson) S. Stenroos, Pino-Bodas & Ahti..... 31
Rexia sullivanii (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti.… 64, 67
Rexiella fuliginosa (Filson) S. Stenroos, Pino-Bodas & Ahti..... 31
Rexiella sullivanii (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti 64, 67
S
Scutellaria scruposa (Schreb.) Baumg..... 206, 209
Stereocaulon aggregatum (Sw.) Raeusch..... 2, 6, 10, 14, 18
Stictis lichenicola Mont. & Fr..... 169
T
Thelotrema diploschistoides Vain..... 127
U
Urceolaria actinostoma b aperta Schaer..... 70, 80, 84, 88
Urceolaria actinostoma Pers. ex Ach..... 70, 80, 84, 88
Urceolaria actinostoma Pers. ex Schaer..... 70, 80, 84, 88
Urceolaria actinostoma var. farinosa Anzi..... 149
Urceolaria albissima var. gypsacea (Ach.) Arnold..... 152
Urceolaria bispora Bagl..... 91
Urceolaria bryophila (Ach.) Funck..... 169
Urceolaria cinereocaesia (Sw.) Ach..... 94, 97, 100
Urceolaria diacapsis Ach..... 103, 109, 116, 120, 123
Urceolaria euganea (A. Massal.) Jatta..... 137, 146
Urceolaria gypsacea Ach..... 152
Urceolaria hypoleuca Vain..... 163
Urceolaria interpediens Nyl..... 166
Urceolaria lichenicola (Mont. & Fr.) O.J. Rich..... 169
Urceolaria ocellata DC..... 194
Urceolaria scruposa (Schreb.) Ach..... 206, 209
Urceolaria scruposa ? muscorum (Scop.) Lam. & DC..... 170
Urceolaria scruposa b parasitica Arnold..... 169
Urceolaria scruposa f. bryophila (Ach.) Leight..... 169
Urceolaria scruposa f. gypsacea (Ach.) Leight..... 152
Urceolaria scruposa f. lichenicola (Mont. & Fr.) Arnold..... 170
Urceolaria scruposa subsp. bryophila (Ach.) Nyl..... 170
Urceolaria scruposa var. actinostoma (Ach.) Grognot..... 70, 80, 84, 88
Urceolaria scruposa var. bryophila Ach..... 170
Urceolaria scruposa var. cinereocaesia (Sw.) Müll. Arg..... 94, 97, 100
Urceolaria scruposa var. diacapsis (Ach.) Nyl. 103, 109, 116, 120, 123
Urceolaria scruposa var. gypsacea (Ach.) Körb..... 152

Urceolaria scruposa var. interpediens (Nyl.) Boistel 103, 109, 116, 120, 123
Urceolaria scruposa var. lichenicola (Mont. & Fr.) H. Olivier..... 170
Urceolaria scruposa var. ocellata (Lam.) Schaer..... 194
Urceolaria scruposa var. parasitica Tuck..... 170
Urceolaria stictica Körb..... 218, 221
Urceolaria subocellata Nyl..... 194
Urceolaria villarsii (Ach.) Flot..... 194
V
Verrucaria actinostoma Ach..... 70, 80, 84, 88
Verrucaria scruposa (Schreb.) Hoffm..... 206, 209
X
Xalocoa ocellata (Fr.) Kraichak, Lücking & Lumbsch..... 194