

F. Schumm (2026):

Images of Lichens
from Japan 05

With this volume I document a collection of images mainly out of the Exsiccats of Kashiwadani, Kurokawa and Ohmura from Japan 05. I mostly omitted the search for description from the literature because most of them could be found in the earlier Vols. of Vezda. I added also some pictures of Lichens from other places when I had microscopic slides, made many years ago.

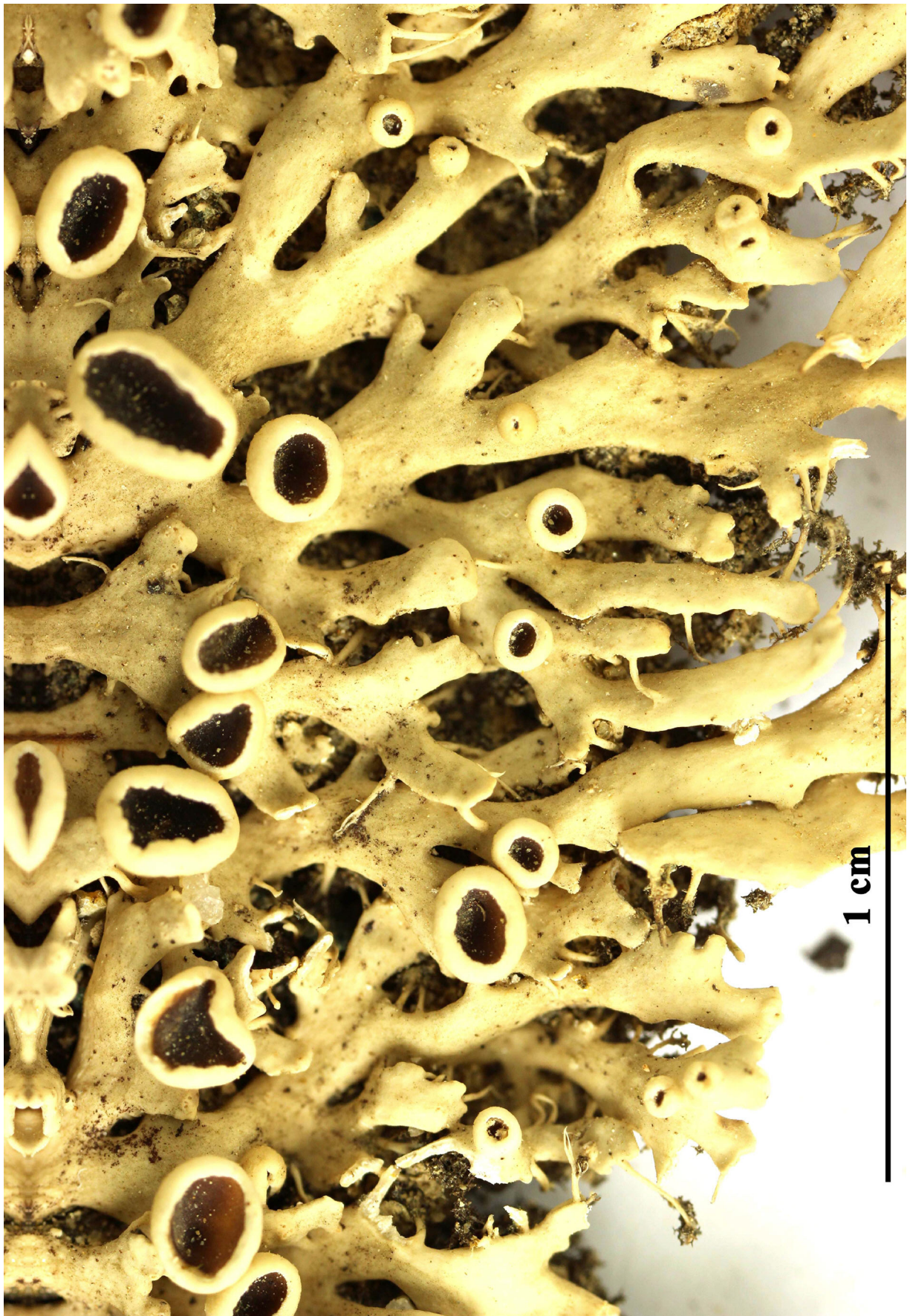
For the descriptions of europaean species I recomend the excellent descriptions that are provided in Prof. Nimis *ITALIC* 8 under the URL: **<https://italic.units.it/>**

F. Schumm, 2026

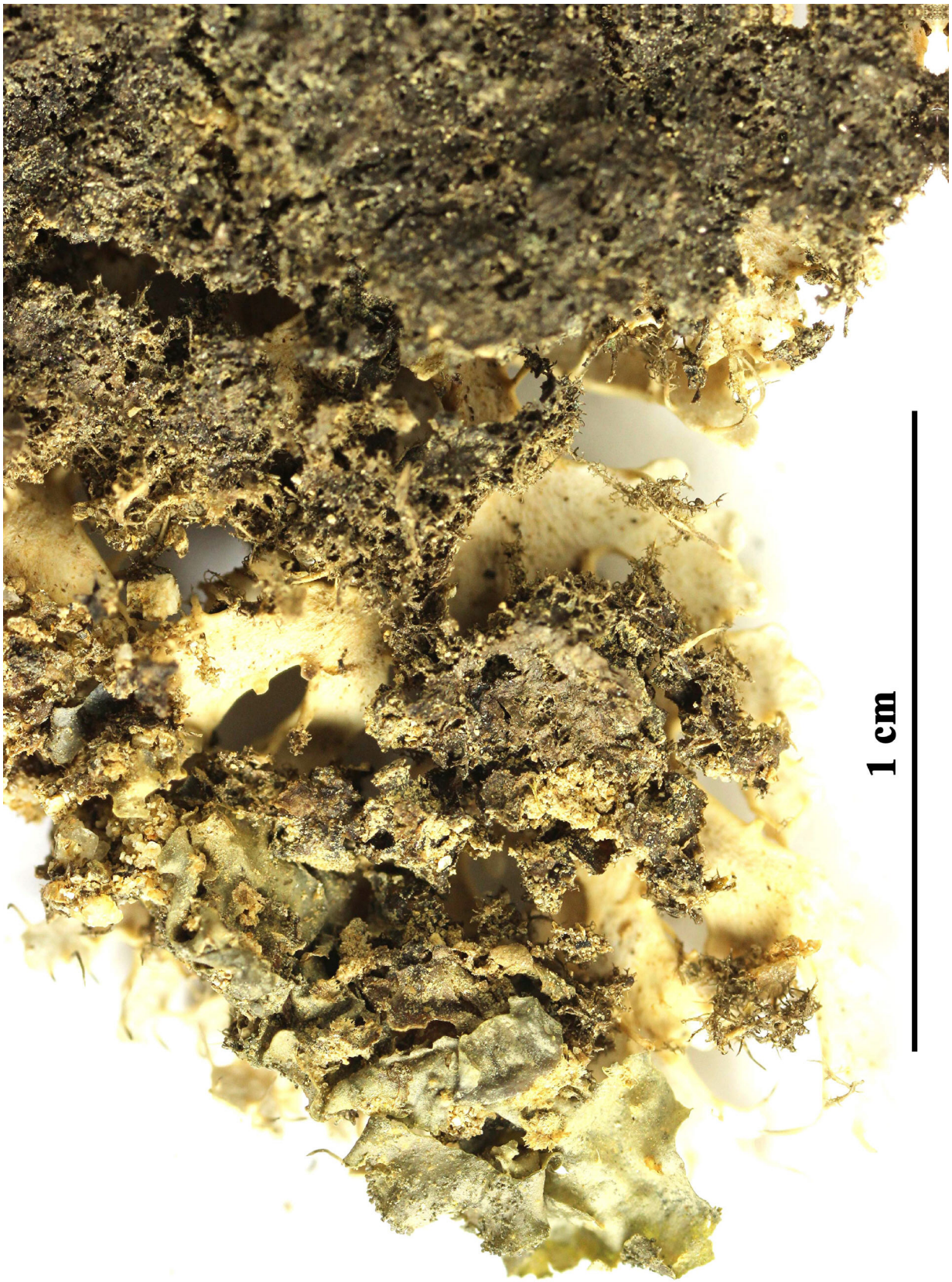
Anaptychia hypoleuca (Ach.) A. Massal., Atti Inst. Veneto Sci. lett., ed
Arti, Sér. 3 5: 249 (1860) [1859-1860]
= *Parmelia speciosa* f. *hypoleuca* Ach. 1814
= *Polyblastidium hypoleucum* (Ach.) Kalb, in Mongkolsuk, Meesim, Po-
engsungnoen, Buaruang, Schumm & Kalb, Phytotaxa 235(1): 42 (2015)

[KU302], Japan. Shikoku. Prov. Iyo. Nametoko, Kita Uwa-gun. On
rocks, 440 m. Leg. S. Kurokawa (no.72275), 20.11.1972, det. S. Kuro-
kawa. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES
EXSICCATI NR.302.

Thallus foliose, rarely orbicular, usually irregularly spreading, loosely
adnate, to 9 cm wide. Lobes 0.3–1.0 mm wide, to ca. 1.5–2.5 mm wide
at the tips, plane to weakly convex or weakly concave, sublinear-elon-
gate, irregularly branched, radiating; apices not ascending, usually
discrete, $\pm$ lobulate along the lobe margins, the lobules $\pm$ rounded,
0.1–0.2 mm wide, eciliate. Upper surface whitish to pale gray, without
soralia, isidia or phyllidia. Medulla white. Lower surface ecorticate, $\pm$
compact, white to beige in the centre; yellow pigments absent. Marginal
rhizines totally black or grayish at the base, simple or squarrosely
branched, 1–3 mm long. Apothecia common, laminal, substipitate, 1–7
mm wide; margin crenulate to lobulate, the lobules ecorticate on the
lower surface; disc concave, dark brown to brown-black, $\pm$ thinly gray
pruinose. Ascospores Polyblastidia-type, ellipsoidal, mostly without
polyblastidia, albeit in some specimens, almost one third of the spores
are with polyblastidia, $23\text{--}33 \times 12\text{--}17 \mu\text{m}$. Pycnidia not seen.



Anaptychia hypoleuca



Anaptychia hypoleuca

Anaptychia neoleucomelaena Kurok., J. Jap. Bot. 36(2): 51 (1961)
= *Heterodermia neoleucomelaena* (Kurok.) Follmann & Redón, Willdenowia 6(3): 446 (1972)

[KU105], Ethiopia. Zaquala. Leg. M. Nagasawa, 4.11.1962, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 105.



Anaptychia neoleucomelaena



Anaptychia neoleucomelaena

Cetraria cucullata (Bellardi) Ach., Methodus qua omnes detectos Lichenes
Secundum Organa Carpomorpha ad Genera, Species et Varietates Redigere
atque Observationibus Illustrare Tentavit Erik Acharius: 293 (1803)

= *Lichen cucullatus* Bellardi 1788

= *Nephromopsis cucullata* (Bellardi) Divakar, A. Crespo & Lumbsch,
in Divakar, Crespo, Kraichak, Leavitt, Singh, Schmitt & Lumbsch, Fungal
Diversity 84: 112 (2017)

= *Allocetraria cucullata* (Bellardi) Randlane & Saag

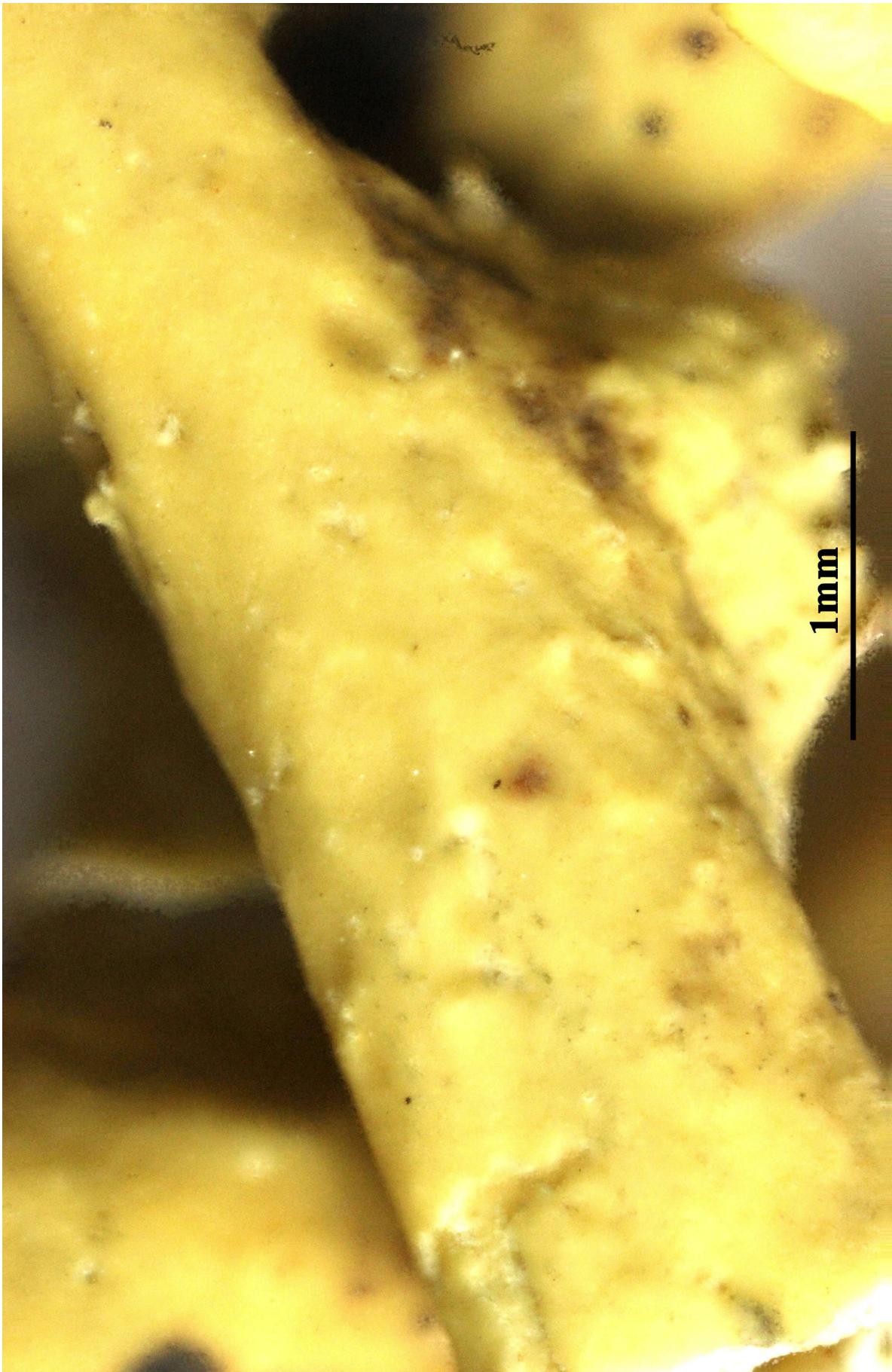
= *Flavocetraria cucullata* (Bellardi) Kärnefelt & A. Thell

[KU457], Japan. Hokkaido. Prov. Ishikari: Takanegahara, Daitsu
Mts., Among mosses, 1750 m. Leg. H. Kashiwadani (no. 16528) and Y.
Endo, 5.8.1980, det. H. Kashiwadani. EX S. KUROKAWA AND H.
KASHUWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 457.

Thallus fruticose, once or twice dichotomously branched, cream-co-
loured, smooth and glossy, deep red-purple to violet at the necrotic
base, loosely attached, sometimes forming compact mats. Lobes flat-
tened, smooth, canaliculate to subtubular, erect to ascending, 2-4(-8)
cm tall, to 5(-10) mm wide, often white-maculate on upper surface, the
margins with black, short-spinulose pycnidia; lower surface corticate,
with narrow, marginal, whitish pseudocyphellae. Cortex thin, paraple-
ctenchymatous in upper part; medulla white, rather lax. Apothecia
extremely rare, zeorine, submarginal at lobe-ends, with a brown disc.
Epithecium brownish; hymenium and hypothecium colourless. Asci
8-spored, narrowly clavate, with a small axial body and a distinct, K/I+
blue ring-structure in the rather large tholus, approaching the Lecanora-
type. Ascospores 1-celled, hyaline, ellipsoid, 5-10 x 3-5.5 μm . Pycnidia
black, immersed in marginal projections. Conidia swollen at both ends,
c. 6 x 1 μm . Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+
yellowish, P-; medulla K-, C-, KC-, P-; reddish basal parts K+ red.
Chemistry: cortex with usnic acid; medulla with lichesterinic and
protolichesterinic acids; basal necrotic parts with anthraquinones. -
Note: a circumpolar, arctic-alpine lichen, a typical element of tundra-
like vegetation in open, dry habitats above treeline, most frequent on
basic siliceous substrata, in wind-exposed ridges.



Cetraria cucullata



Cetraria cucullata

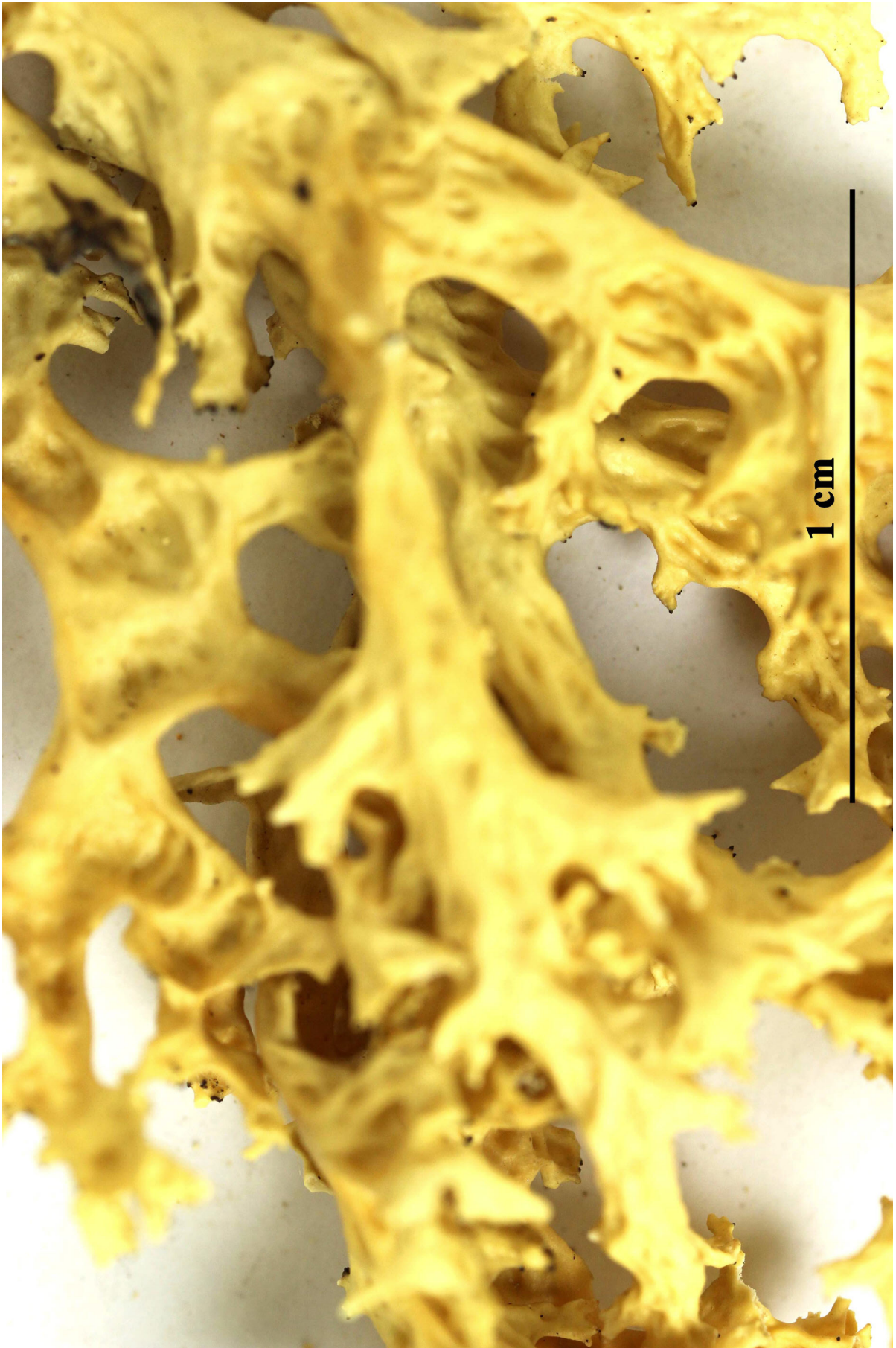
Cetraria nivalis (L.) Ach., Methodus qua omnes detectos Lichenes Secundum Organa Carpomorpha ad Genera, Species et Varietates Redigere atque Observationibus Illustrare Tentavit Erik Acharius: 294 (1803)

= *Lichen nivalis* L. 1753

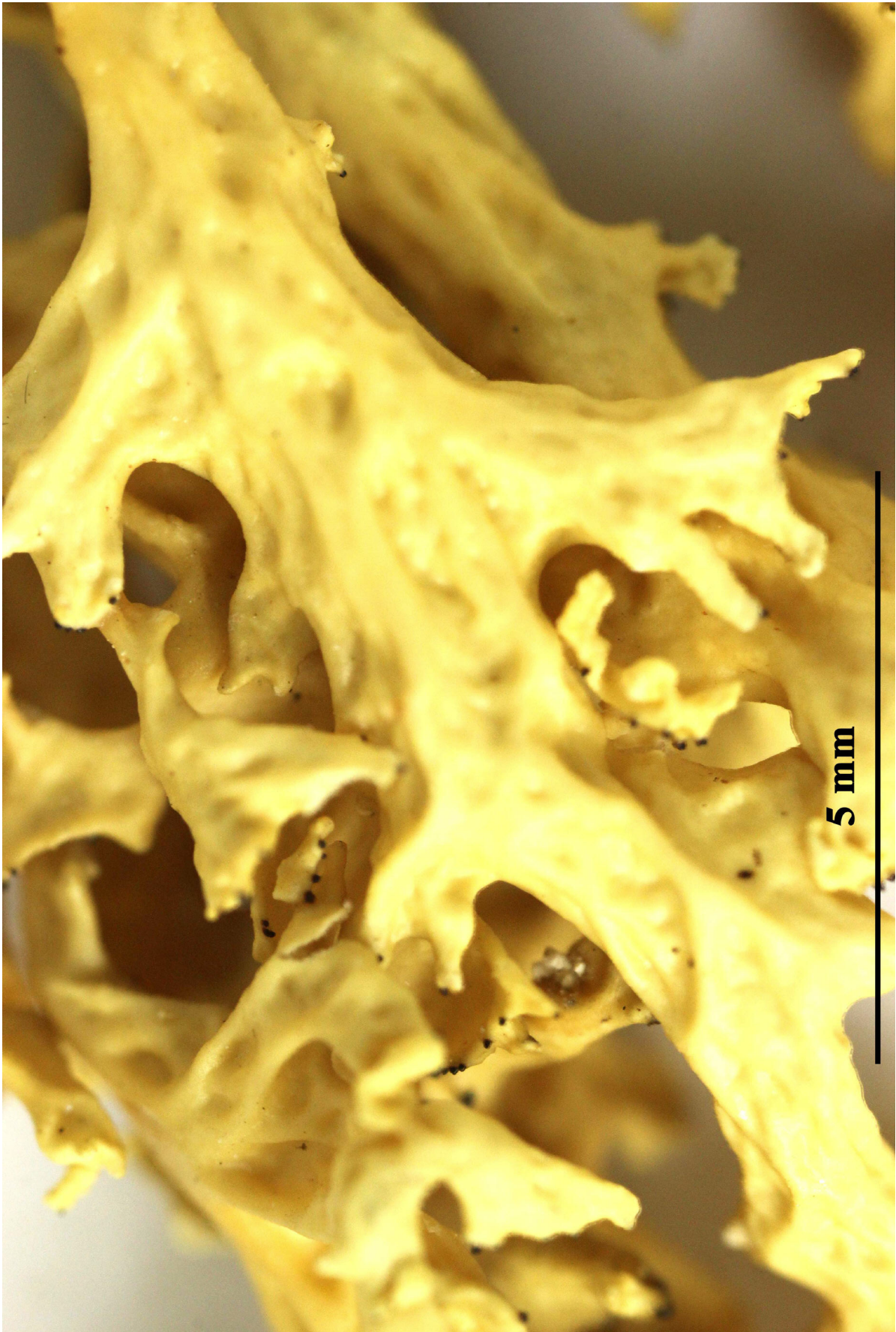
= *Foveolaria nivalis* (L.) Chesnokov, Prokopiev, Konoreva & Davydov, in Chesnokov, Davydov, Konoreva, Prokopiev, Poryadina, Zheludeva & Shavarda, Pl. Syst. Evol. 309(no. 24): 15 (2023)

[KU657], Svalbard. Spitzbergen. In gabbro area. Ossian Sarsfjellr. Kongsfjorden. On sandy soil rich in humus, 0-100 m. Leg. H. Kashiwadani (no.23181), 25.7.1985, det. H. Kashiwadani. EX S. KUOKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 657.

Thallus fruticose, once or twice dichotomously branched, cream-coloured, yellowish brown at the necrotic base, loosely attached, sometimes forming compact mats. Lobes 6-10 mm wide and 2-4(-8) cm tall (usually smaller in Italian material), foveolate and reticulately ridged, erect to ascending; underside corticate, with narrow, mostly marginal, whitish pseudocyphellae. Cortex thin, paraplectenchymatous in upper part; medulla white, rather lax. Apothecia extremely rare, zeorine, submarginal at lobe-ends, up to 8 mm across, with a brown disc. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, subglobose to broadly ellipsoid, 5-10 x 3-6 µm. Pycnidia black, marginal, slightly projecting. Conidia simple, swollen at both ends, c. 6 x 1 µm. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; brownish parts at the base with anthraquinones. - Note: a circumpolar, arctic-alpine lichen, a typical element of tundra-like vegetation in open, dry habitats above treeline.



Cetraria nivalis



Cetraria nivalis

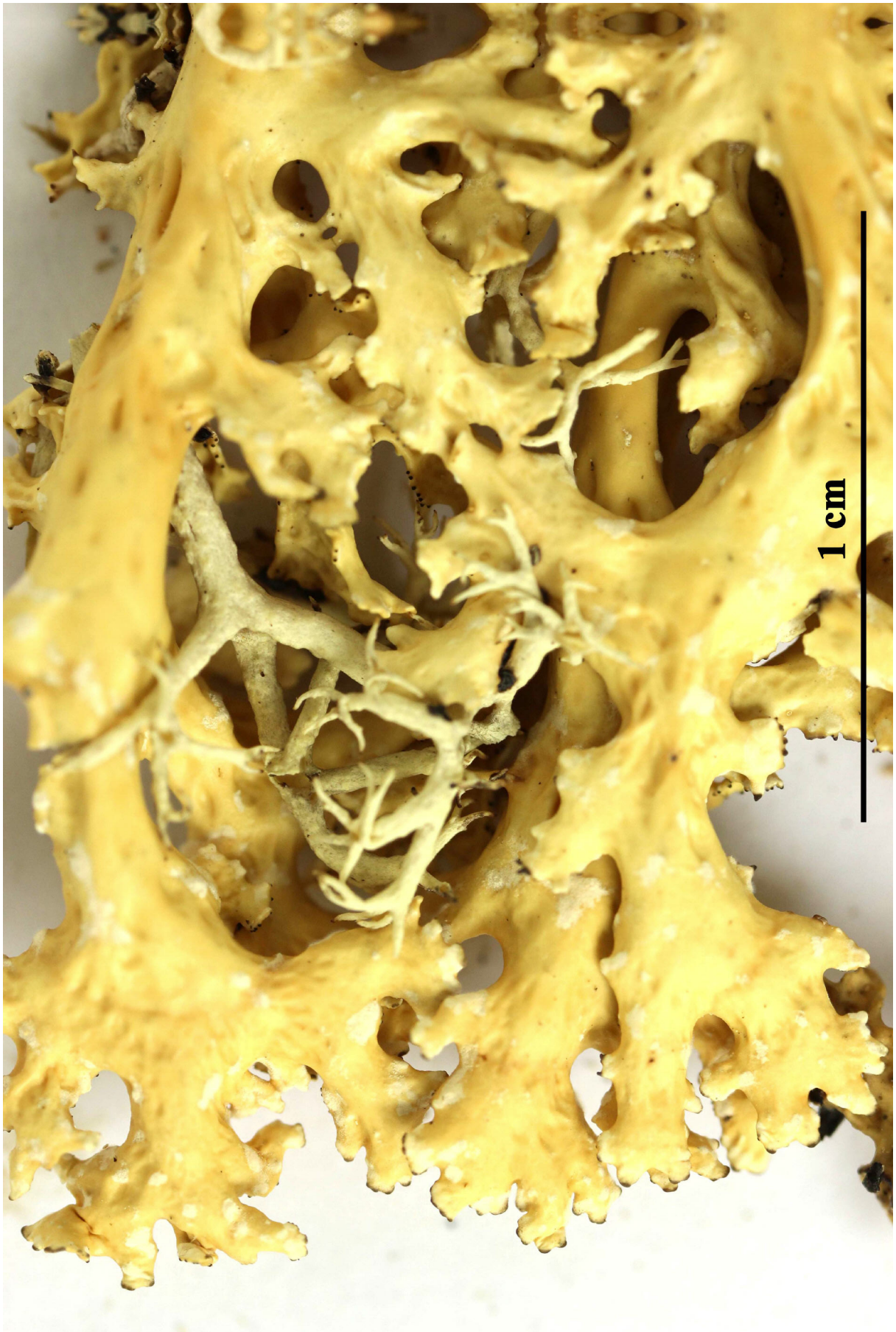
Cetraria nivalis (L.) Ach., Methodus qua omnes detectos Lichenes Secundum Organa Carpomorpha ad Genera, Species et Varietates Redigere atque Observationibus Illustrare Tentavit Erik Acharius: 294 (1803)

= *Lichen nivalis* L. 1753

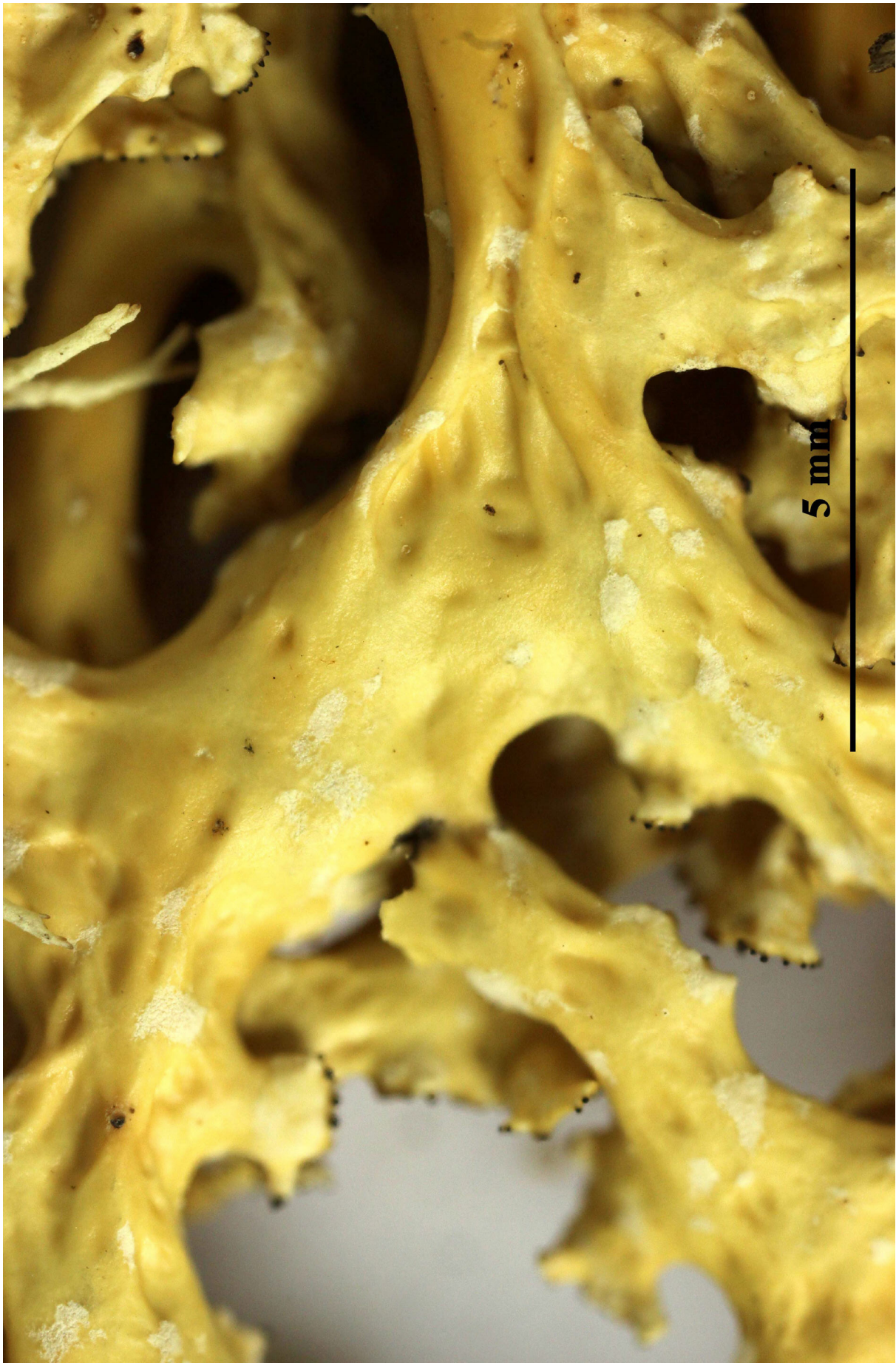
= *Foveolaria nivalis* (L.) Chesnokov, Prokopiev, Konoreva & Davydov, in Chesnokov, Davydov, Konoreva, Prokopiev, Poryadina, Zheludeva & Shavarda, Pl. Syst. Evol. 309(no. 24): 15 (2023)

[KU110], Japan. Hokkaido. Prov. Ishikari; Daini- Hanazono, Mt. Akadake, Daisetsu Mts. On soil, 1800 m. Leg. Y Endo (no. 394), 21.9.1964, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 110.

Thallus fruticose, once or twice dichotomously branched, cream-coloured, yellowish brown at the necrotic base, loosely attached, sometimes forming compact mats. Lobes 6-10 mm wide and 2-4(-8) cm tall (usually smaller in Italian material), foveolate and reticulately ridged, erect to ascending; underside corticate, with narrow, mostly marginal, whitish pseudocyphellae. Cortex thin, paraplectenchymatous in upper part; medulla white, rather lax. Apothecia extremely rare, zeorine, submarginal at lobe-ends, up to 8 mm across, with a brown disc. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, subglobose to broadly ellipsoid, 5-10 x 3-6 μm . Pycnidia black, marginal, slightly projecting. Conidia simple, swollen at both ends, c. 6 x 1 μm . Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; brownish parts at the base with anthraquinones. - Note: a circumpolar, arctic-alpine lichen, a typical element of tundra-like vegetation in open, dry habitats above treeline.



Cetraria nivalis



Cetraria nivalis

Dibaeis arcuata (Stirt.) Kalb & Gierl, in Gierl & Kalb, *Herzogia* 9(3-4): 617
(1993)
= *Baeomyces arcuatus* Stirt. 1875

[OH664], Japan. Honshu. Shinano Prov. (Nagano Pref.): Azusagawa,
Mt. Kokushi, Minamisaku-gun, on soil. Leg. M. Nuno, 12.8.1964, det.
Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI
NR.664.



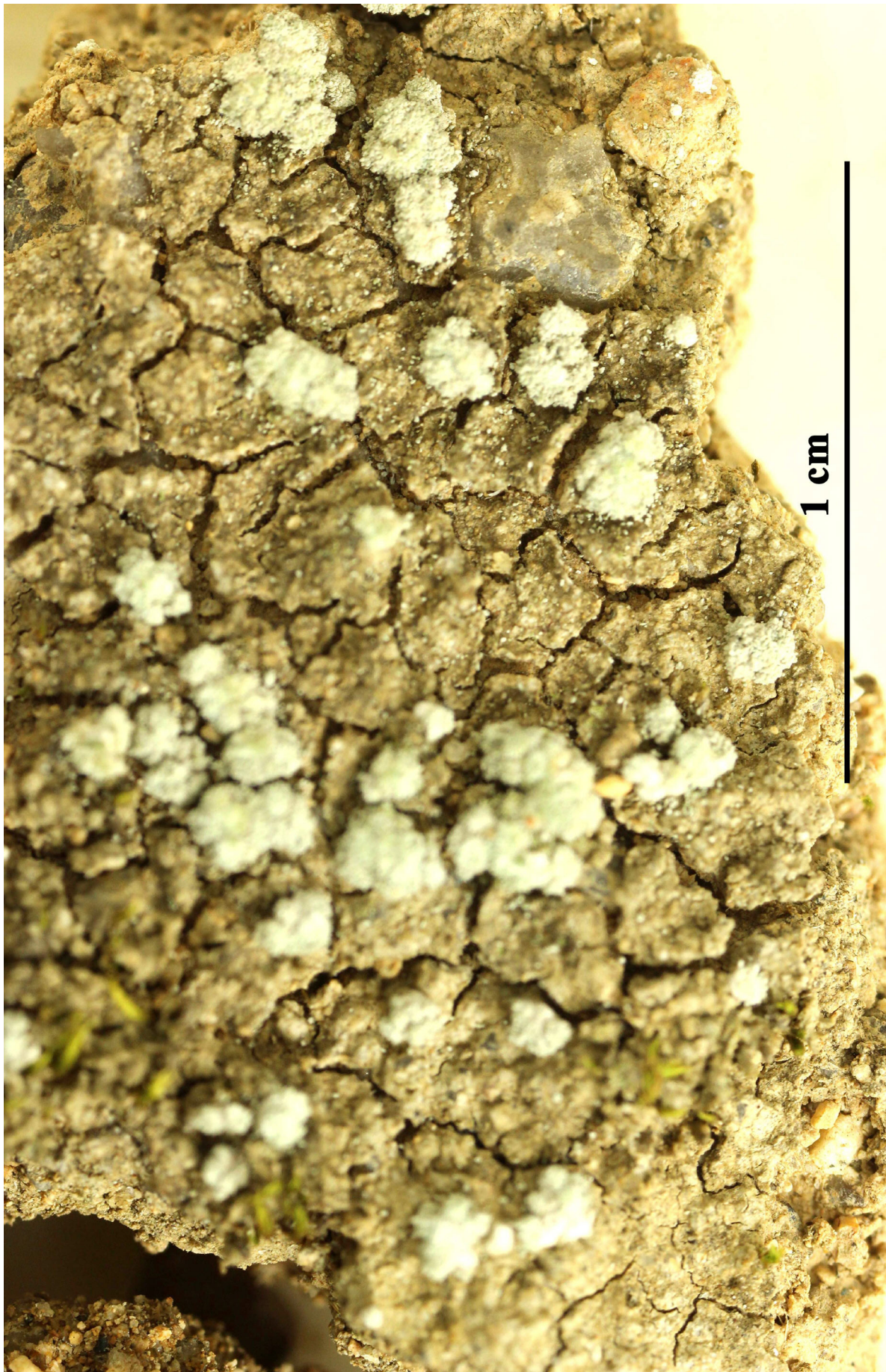
Dibaeis arcuata



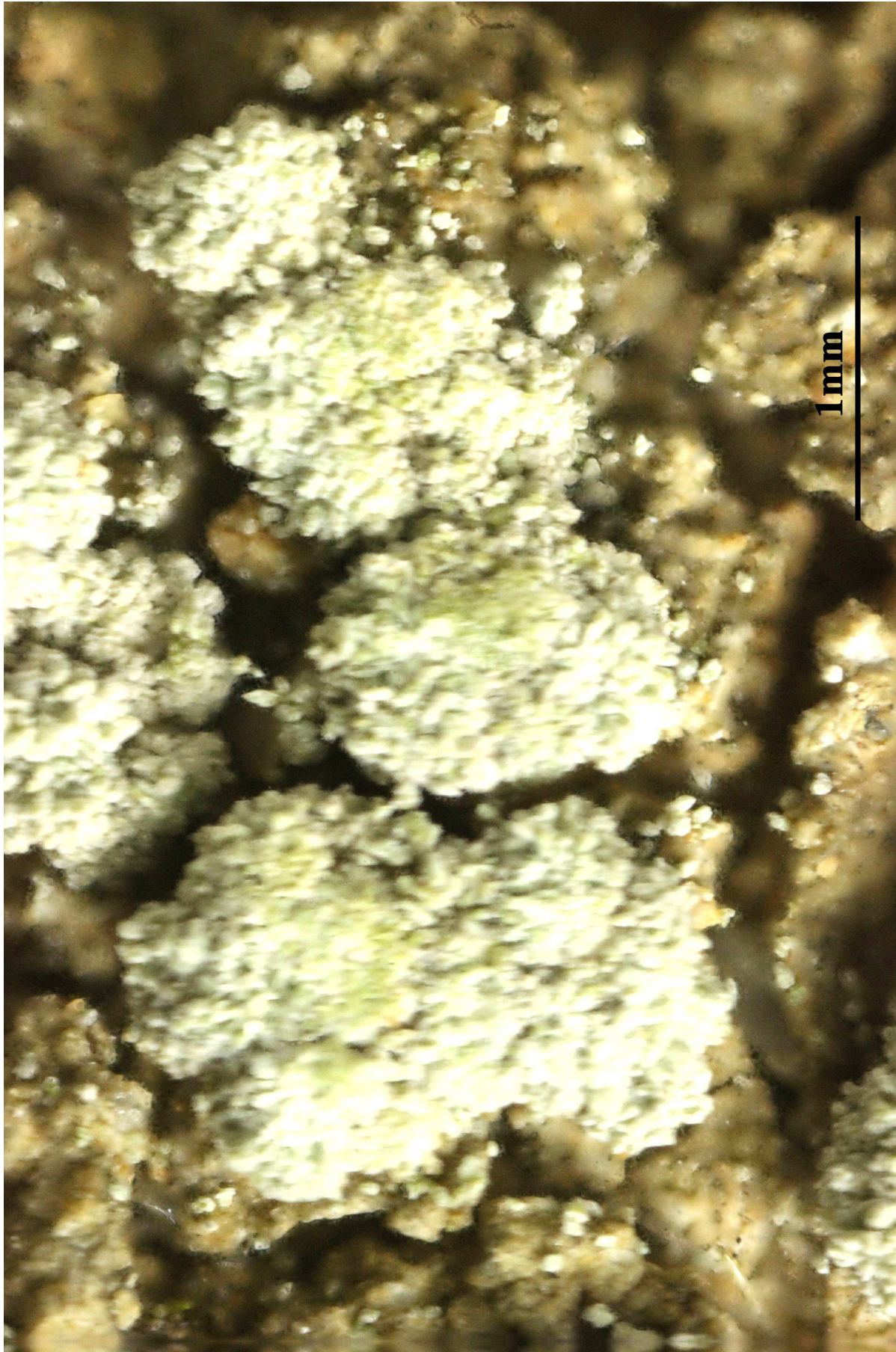
Dibaeis arcuata

Dibaeis sorediata Kalb & Gierl, in Gierl & Kalb, Herzogia 9(3-4): 615 (1993)

[OH608], Japan. Honshu. Prov. Bingo (Pref. Hiroshima): Kui, Mihara-city (34°29'04" N, 133°01'48" E). On soil, 364 m. Leg. M. Sugimoto (no. 522), 22.9.2018, det. M. Sugimoto & Y. Ohmura. EX Y.OHMURA LICHENES MINUS COGNITI EXSICCATI NR.608.



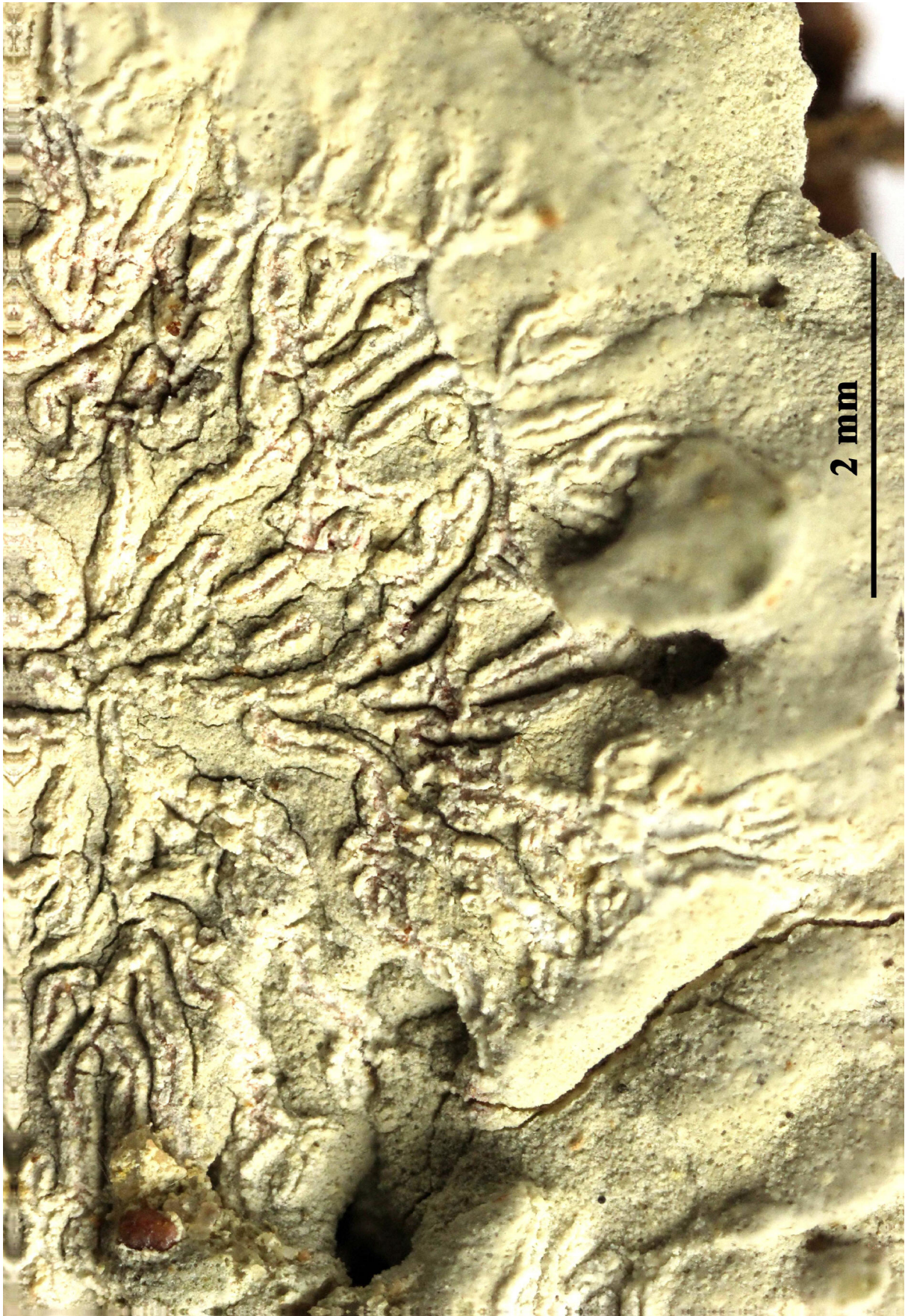
Dibaeis sorediata



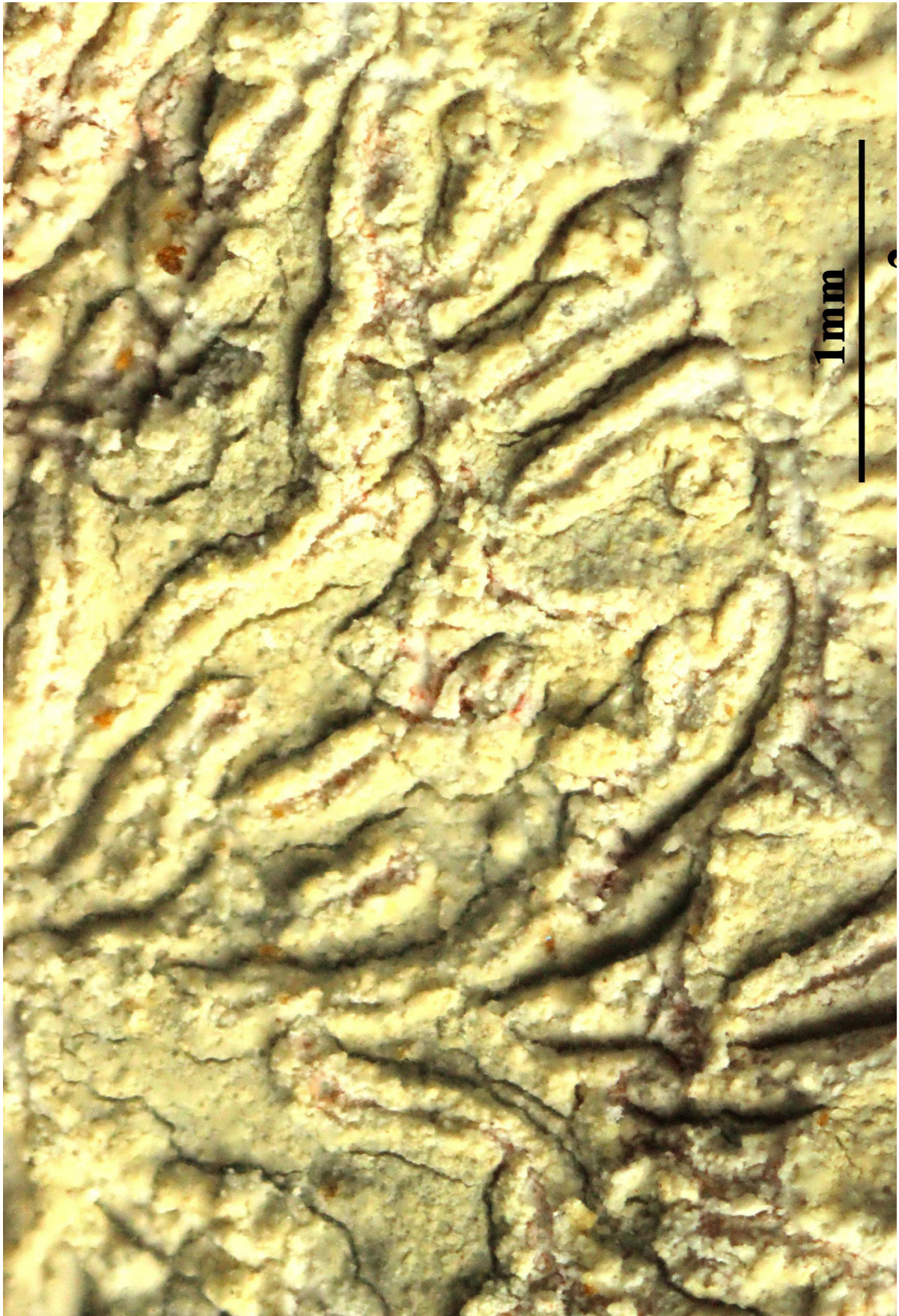
Dibaeis sorediata

Diorygma hieroglyphicum (Pers.) Staiger & Kalb, in Kalb et al., Symb.
bot. upsal. 34(no. 1): 151 (2004)
= *Opegrapha hieroglyphica* Pers. 1810

[Ka357], Cambodia. Prov. Siem Reap: Around Ta Nei temple, Angkor
Wats complex, Siem Reap (13°27'9" N, 103°53'9" E). On bark of *Diptero-
carpus elatus*, 30 m. Leg. H. Kashiwadani (no. 4774), 20.12.2005, et.
H. Kashiwadani. EX H. KASHIWADANI LICHENES MINUS COGNITI
EXSICCATI NR. 357.



Diorygma hieroglyphicum



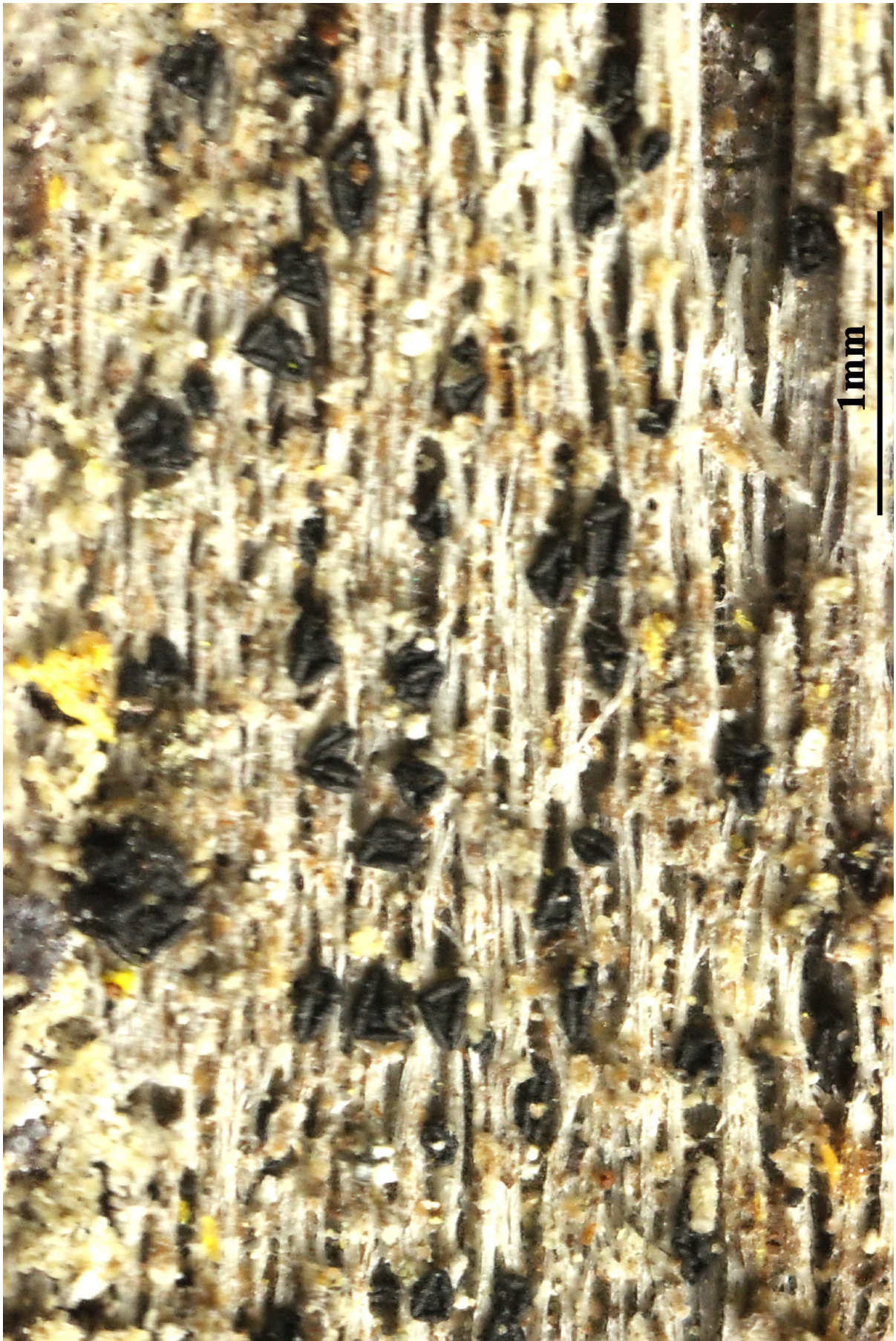
Diorygma hieroglyphicum

Elixia flexella (Ach.) Lumbsch, J. Hattori bot. Lab. 83: 62 (1997)
= *Limboria flexella* Ach. 1815

[OH458], Japan. Honshu. Prov.Kii (Pref. Wakayama): Mt. Koya, Koya-cho, Ito-gun. On weathered bark of *Cryptomeria japonica*, 810 m. Leg. A. Frisch (no. 12/Jp445) & Y. Ohmura, 3.3.2012. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 458.



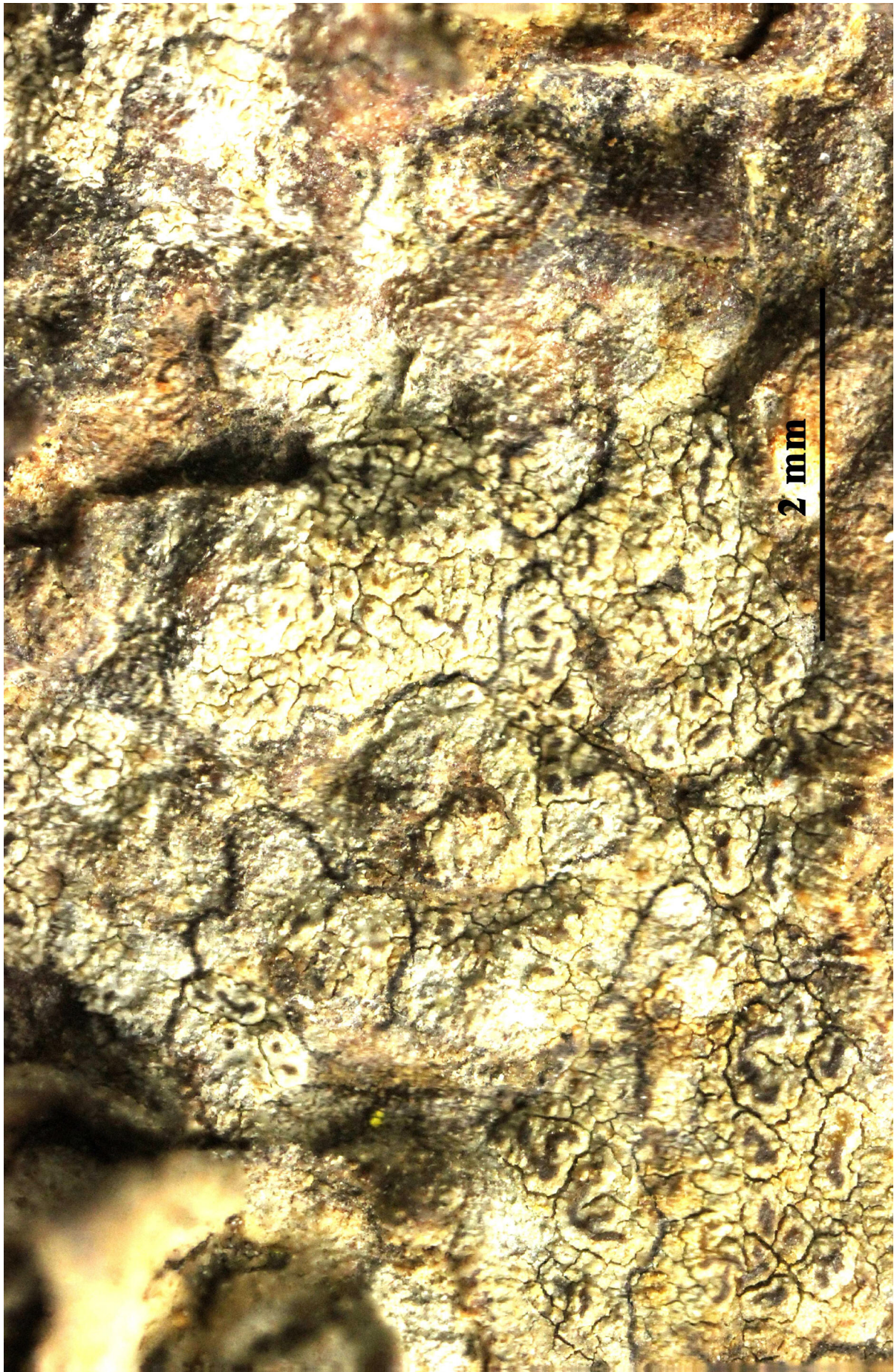
Elixia flexella



Elixia flexella

Enterographa hutchinsiae (Leight.) A. Massal., Atti Inst. Veneto Sci. lett.,
ed Arti, Sér. 3 5: 315 (1860) [1859-1860]
= *Platygramma hutchinsiae* Leight. 1854

[OH433], Japan. Honshu. Prov. Iwaki (Pref. Fukushima): Numanouchi-
Benzaiten, Taira, Iwaki-city. On bark of *Zellkova serrata*, 10 m. Leg. H.
Kashiwadani (no. 41465), 13.12.1994, det. A. Frisch. EX Y. OHMURA
LICHENES MINUS COGNITI EXSICCATI NR. 433.



Enterographa hutchinsiae



Enterographa hutchinsiae

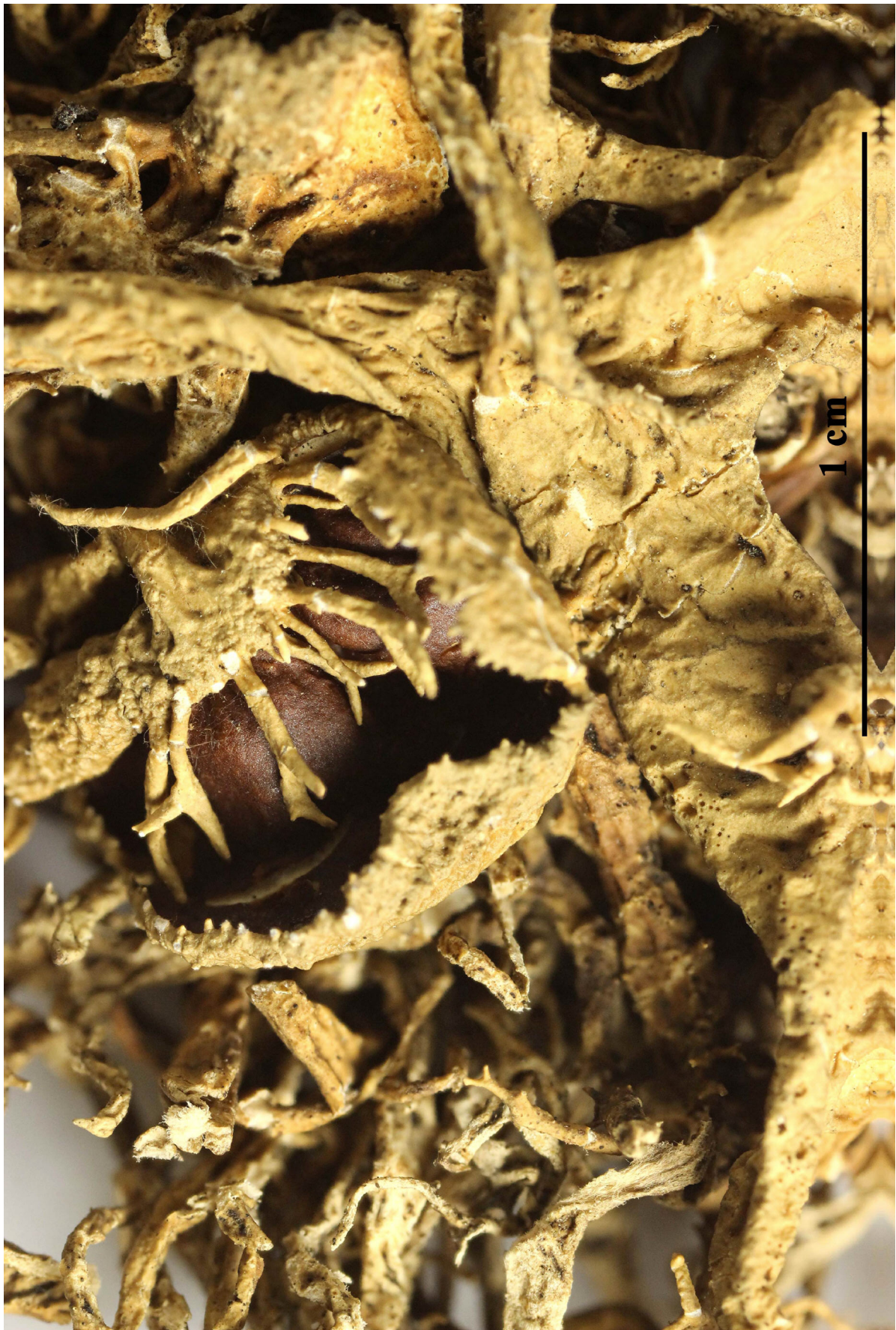
Evernia esorediosa (Müll. Arg.) Du Rietz, Svensk bot. Tidskr. 18: 390
(1924)

= *Evernia mesomorpha* f. *esorediosa* Müll. Arg. 1891

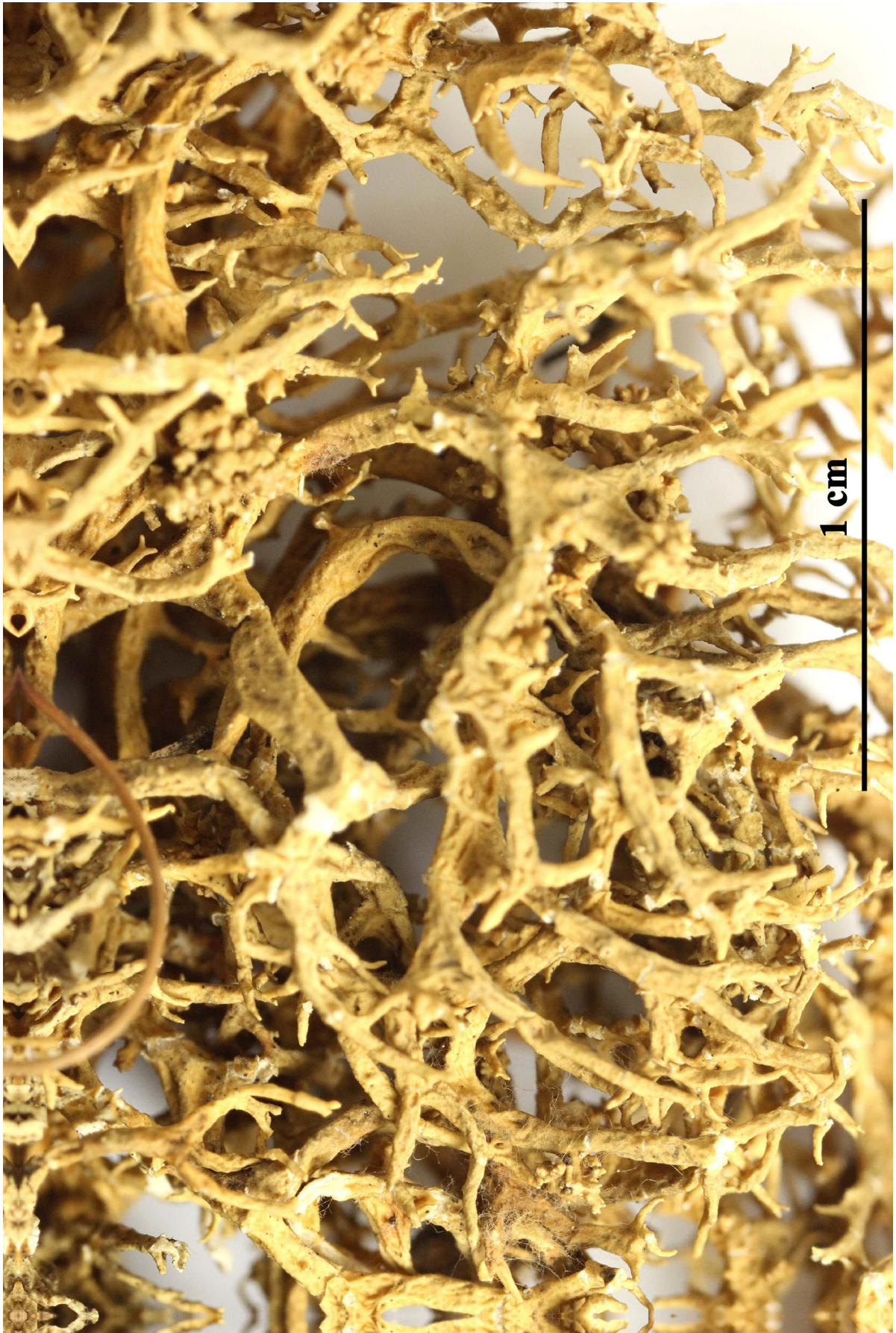
[OH581], Japan. Honshu. Prov. Shinano (Pref. Nagano): Mt. Takeshi-
mine, Utusukushigahara, Takeshi-mura, Chiisagata-gun. On tree bark,
1900 m. Leg. M. Inoue (no. 12667), 20.5.1979, det. M. Inoue. EX Y.
OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 581.



Evernia esorediosa



Evernia esorediosa

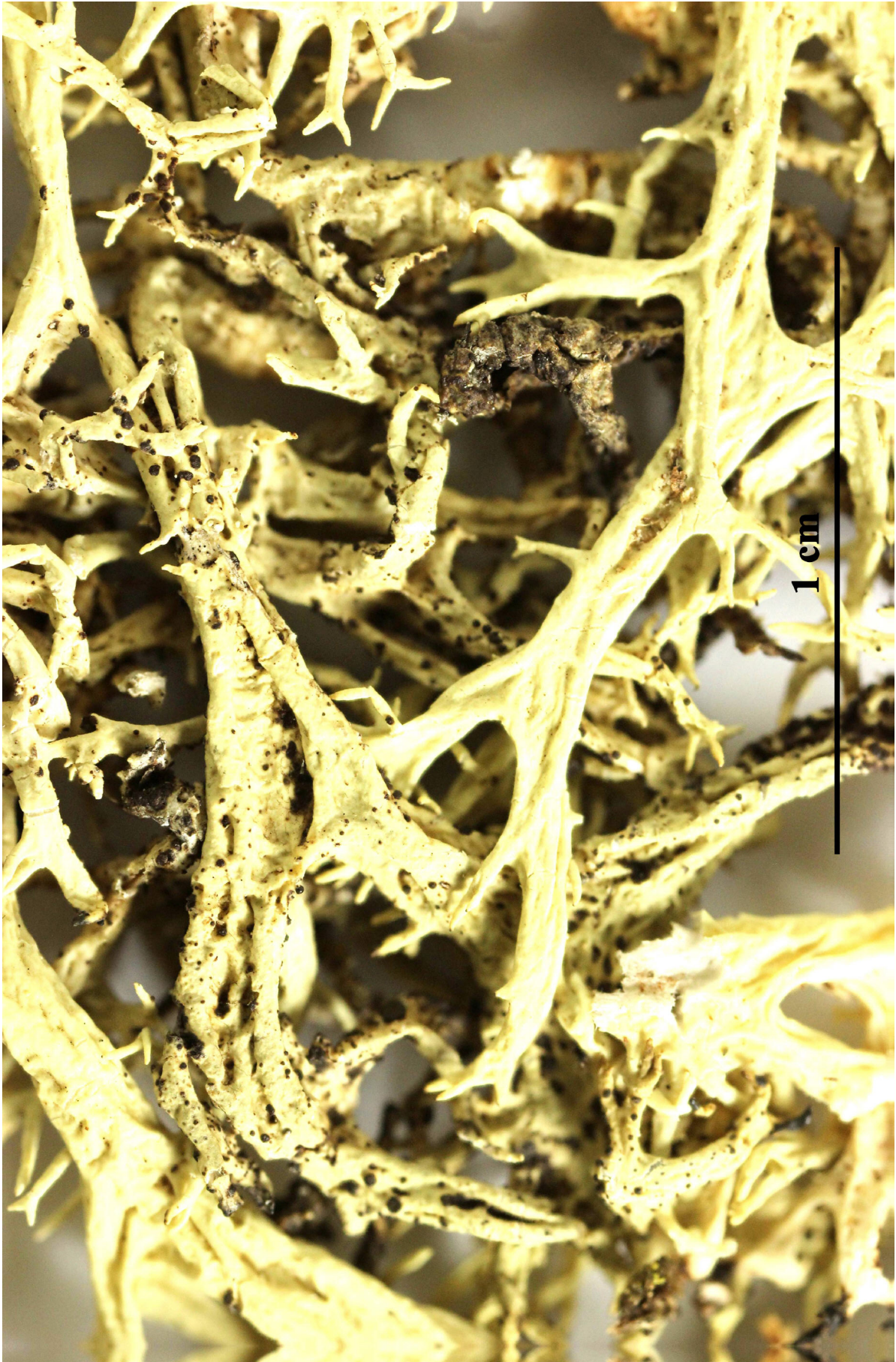


Evernia esorediosa

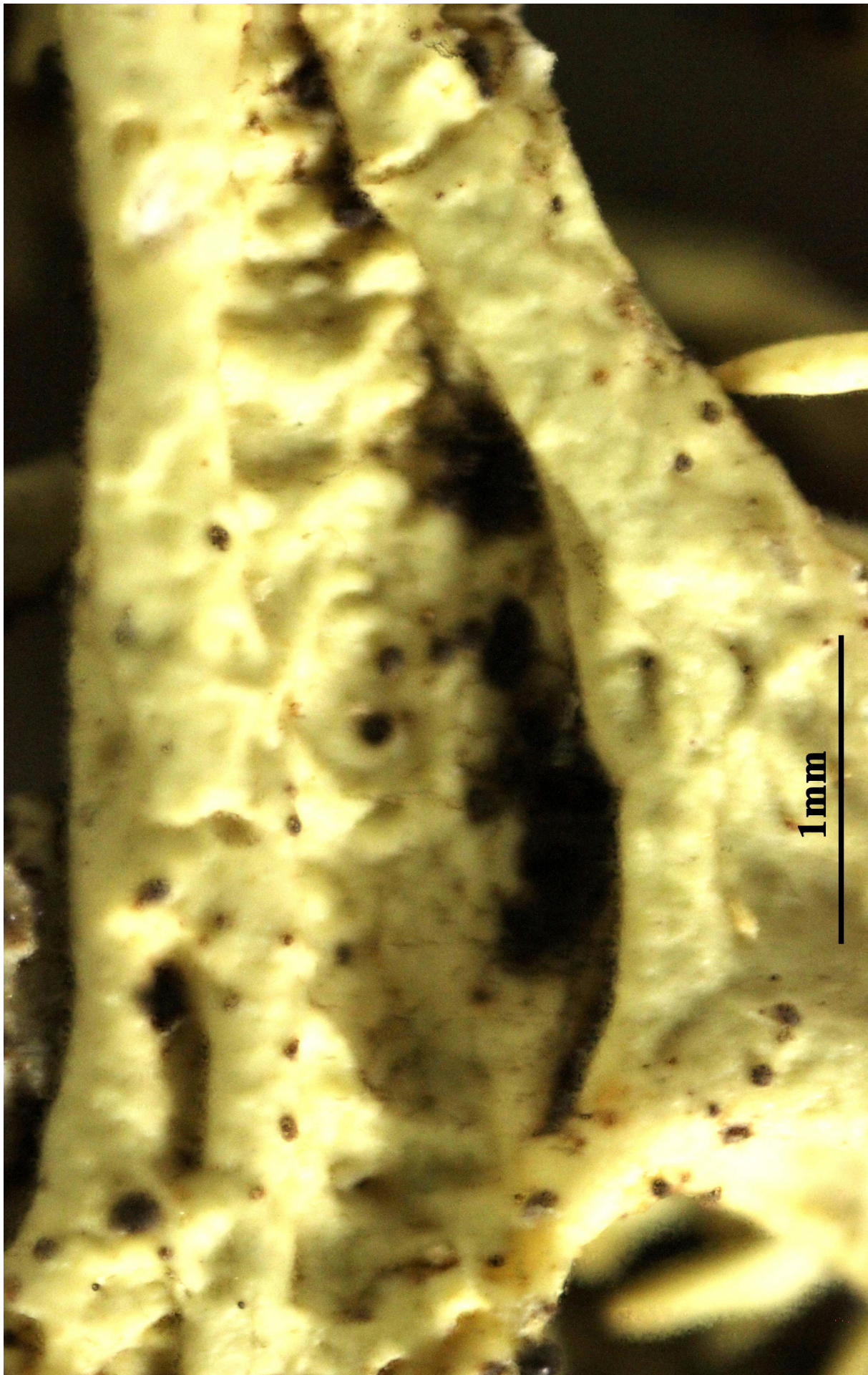
Evernia esorediosa (Müll. Arg.) Du Rietz, Svensk bot. Tidskr. 18: 390 (1924)

= *Evernia mesomorpha* f. *esorediosa* Müll. Arg. 1891

[OH609], Japan. Honshu. Prov. Iwashiro (Pref. Fukushima): en route from Asami-Shitsugen to Namajiri-daira. Oze-numa Pond. Oze National Park (36°56'01" N, 139°18'23" E). On trunk of *Abies* sp., 1600 m. Leg. Y. Ohmura (no.11782), 3.10.2018, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 609.



Evernia esorediosa



Evernia esorediosa

Evernia mesomorpha Nyl., Lich. Scand. (Helsinki): 74 (1861)

[KU420], Japan. Honshu. Prov. Shinano: Mt. Takeshimine. On bark of *Larix leptolepis*, 1700 m. Leg. H. Kashiwadani (no. 15032) and M. Inoue, 20.5.1979, det. H. Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 420.

Thallus fruticose, attached by a basal holdfast, shrubby to subpendulous, up to 8(-10) cm long, irregularly branched, grooved and weakly ridged between grooves, pale greyish green to yellowish green on all sides. Branches with diffuse, granular to subcylindrical, finally sorediate isidia originating from cracks along the ridges. Cortex thin, of anticlinally arranged, small-celled hyphae; medulla white, rather dense, without strands. Apothecia rare, lecanorine, to 6 mm across, with a brown disc and a wrinkled thalline margin. Proper exciple colourless; epithecium brownish, hymenium colourless; paraphyses mostly simple, thick, septate, hypothecium colourless. Asci 8-spored, clavate, the K/I+ blue tholus penetrated by a faintly amyloid apical cushion with parallel or diverging flanks, the wall K/I-, surrounded by a K/I+ blue outer layer, Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 8-9 x 5-6 μm . Pycnidia terminal on short lateral branches. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; medulla with divaricatic acid. - Note: a boreal-montane, circumpolar lichen found on bark (often on twigs) of conifers, sometimes on lignum (e.g. on wooden poles, decorated branches), with optimum in the subalpine belt.



Evernia mesomorpha

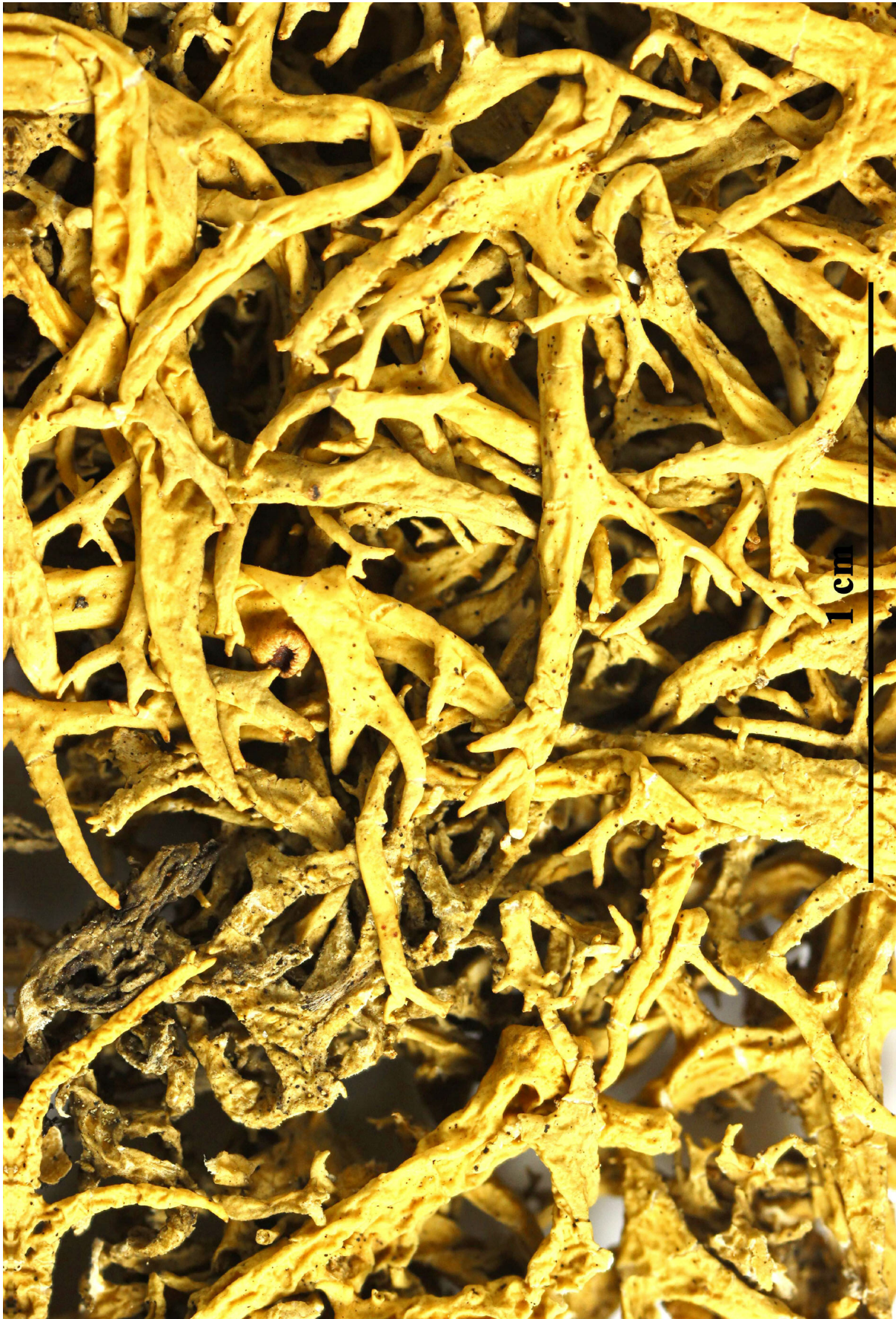


Evernia mesomorpha

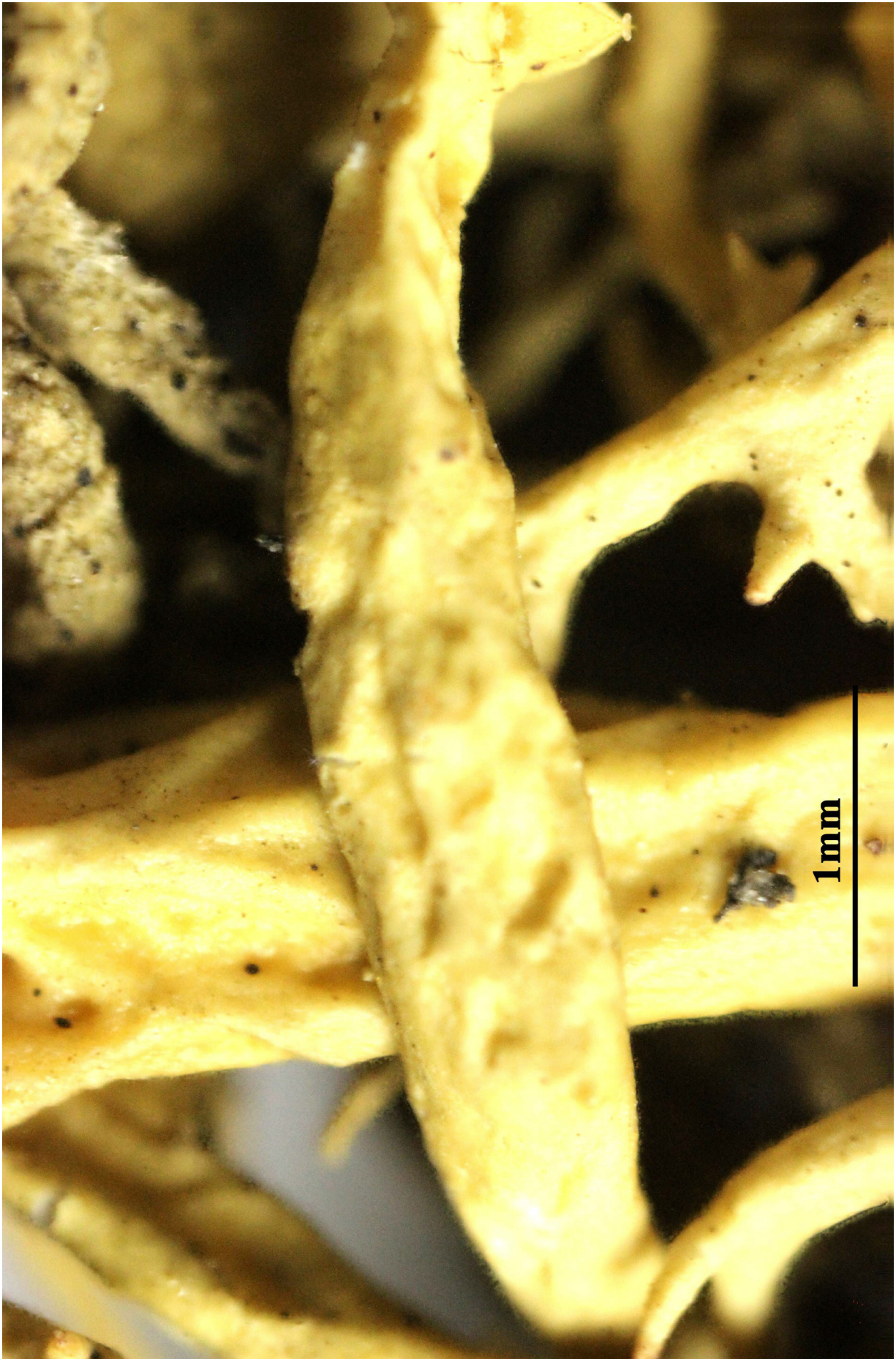
Evernia mesomorpha* f. *esorediosa Müll. Arg., Flora, Regensburg 74(1): 110 (1891)

[KU126], Japan. Honshu. Prov. Musashi: Juminji Pass, Chichibu. On trunk of *Abies veitchii*, 2100 m. Leg. H. Sibuichi (no. 4421), 2.8.1970, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 126.

In a study it has been found that its mycobiont contains hypostrepsilic acid, a dibenzofuran. It made up 3.2% of the dry weight. In its lichenized condition divaricatic acid, an orcinol depside, made up 1.9% of *Evernia esorediosa*'s dry weight. Furthermore it contains usnic acid. Distribution: Specimens have been found in Japan, Russia, the United States of America, Canada and Mongolia. It is common in larch forests in the cryolithozone



Evernia mesomorpha f. *esorediosa*



Evernia mesomorpha f. *esorediosa*

Fellhanera bouteillei (Desm.) Vězda, Folia geobot. phytotax. 21(2): 214 (1986)
= *Parmelia bouteillei* Desm. 1847

[OH434], Japan. Yaeyama Islands. Iriomote Island along the stream at SE foot of Mt. Goza, Taketomi-cho, Yaeyama-gun. On leaf of fern, 10 m. Leg- Y. Ohmura (no. 8083) & G. Tanaka, 11.3.2011, det. A. Frisch. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 434.

Thallus crustose, episubstratic, very thin to up to 0.3 mm thick, continuous to verruculose-rimose, greenish white, grey-green or bluish grey, minutely granular being completely covered in farinose soredia. Apothecia sessile, biatorine, 0.1-0.3(-0.4) mm across, with a white-pinkish (turning pale yellowish-brown in the herbarium), concave to finally convex disc, and a white, more or less regular, wavy, finally excluded proper margin. Proper exciple colourless, of ellipsoid to globose cells; epithecium colourless; hymenium colourless, 30-50 μm high, I+ blue; paraphyses simple or branched and anastomosing in upper part, 0.5-1 μm thick at mid-level, the apical cells up to 2 μm wide; hypothecium colourless. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Bysso-loma-type. Ascospores 1-septate, hyaline, ellipsoid to sole-shaped, sometimes slightly constricted at septum and with unequal cells, 9-15(-16) x 3-6(-7) μm . Pycnidia prominent, whitish, bottle-shaped, with a short neck and a gaping ostiole. Conidia pyriform, 3-4 x 1.3-1.7 μm . Photobiont: chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: usnic and isousnic acids, zeorine, variable amounts of asemone.
- Note: a temperate to southern boreal-montane species found on leaves and twigs of conifers (especially *Abies* in the Alps), but also on evergreen Mediterranean trees and shrubs (e.g. *Buxus*, *Ilex*) in very humid situations.



Fellhanera bouteillei



Cladonia *Fellhanera bouteillei*

Fellhanera bouteillei (Desm.) Vězda, Folia geobot. phytotax. 21(2): 214 (1986)
= *Parmelia bouteillei* Desm. 1847

[14562], Seychelles, Mahe, Missions Lodge an der Straße von Victoria nach Port Gland, 4°39.305' S, 55°26.657' E, ca. 450 m. Leg. F. Schumm & J.-P. Frahm, 07.10.2008, det. A. Aptroot 2008. EX HERBARIO F. SCHUMM NR. 14562.

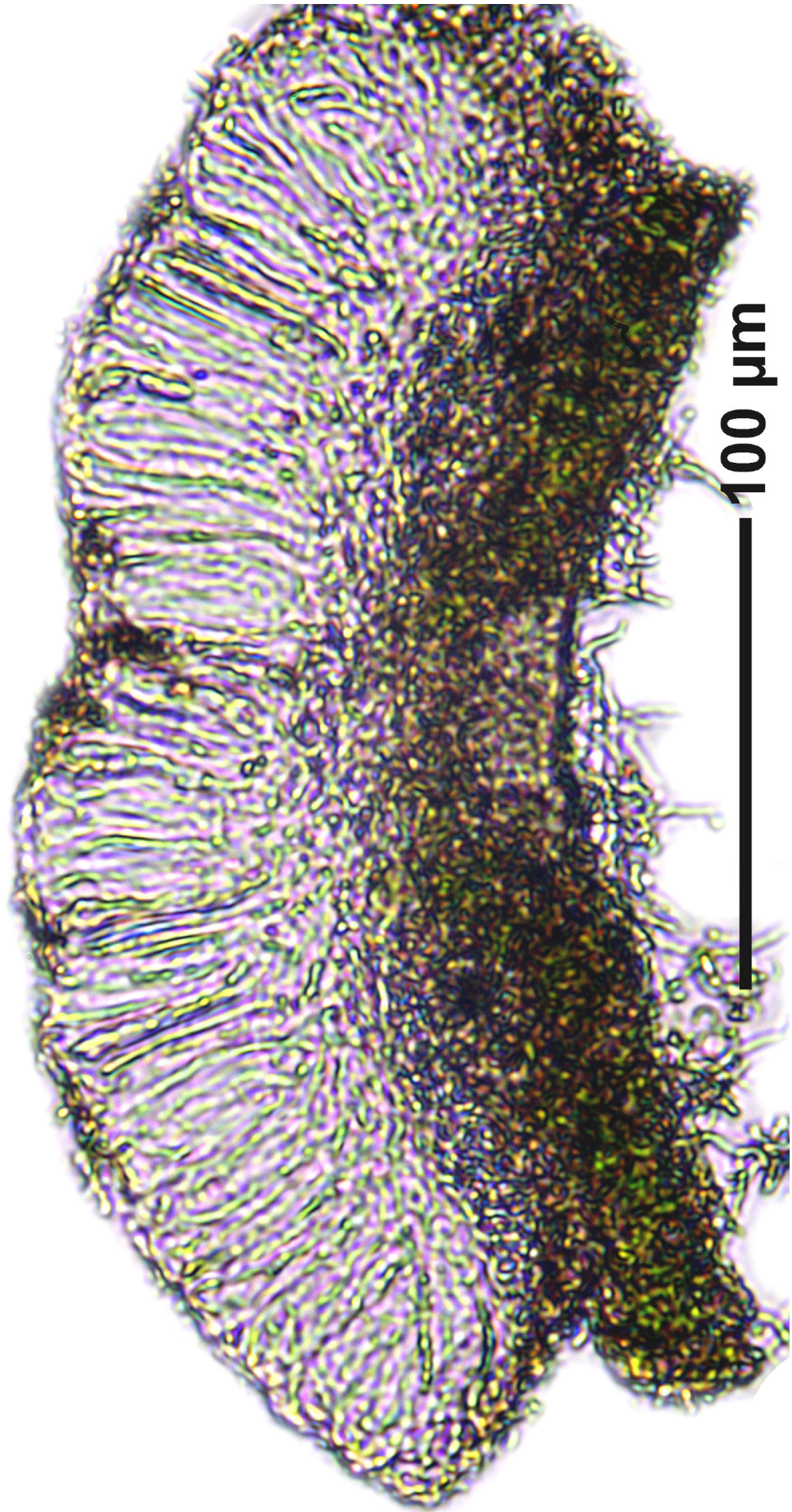
Thallus crustose, episubstratic, very thin to up to 0.3 mm thick, continuous to verruculose-rimose, greenish white, grey-green or bluish grey, minutely granular being completely covered in farinose soredia. Apothecia sessile, biatorine, 0.1-0.3(-0.4) mm across, with a white-pinkish (turning pale yellowish-brown in the herbarium), concave to finally convex disc, and a white, more or less regular, wavy, finally excluded proper margin. Proper exciple colourless, of ellipsoid to globose cells; epithecium colourless; hymenium colourless, 30-50 µm high, I+ blue; paraphyses simple or branched and anastomosing in upper part, 0.5-1 µm thick at mid-level, the apical cells up to 2 µm wide; hypothecium colourless. Asci 8-spored, clavate, with a K/I+ blue apical dome containing a darker blue, tubular ring-structure, and an amyloid coat, Bysso-loma-type. Ascospores 1-septate, hyaline, ellipsoid to sole-shaped, sometimes slightly constricted at septum and with unequal cells, 9-15(-16) x 3-6(-7) µm. Pycnidia prominent, whitish, bottle-shaped, with a short neck and a gaping ostiole. Conidia pyriform, 3-4 x 1.3-1.7 µm. Photobiont: chlorococcoid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: usnic and isousnic acids, zeorine, variable amounts of asemone.
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Fellhanera bouteillei

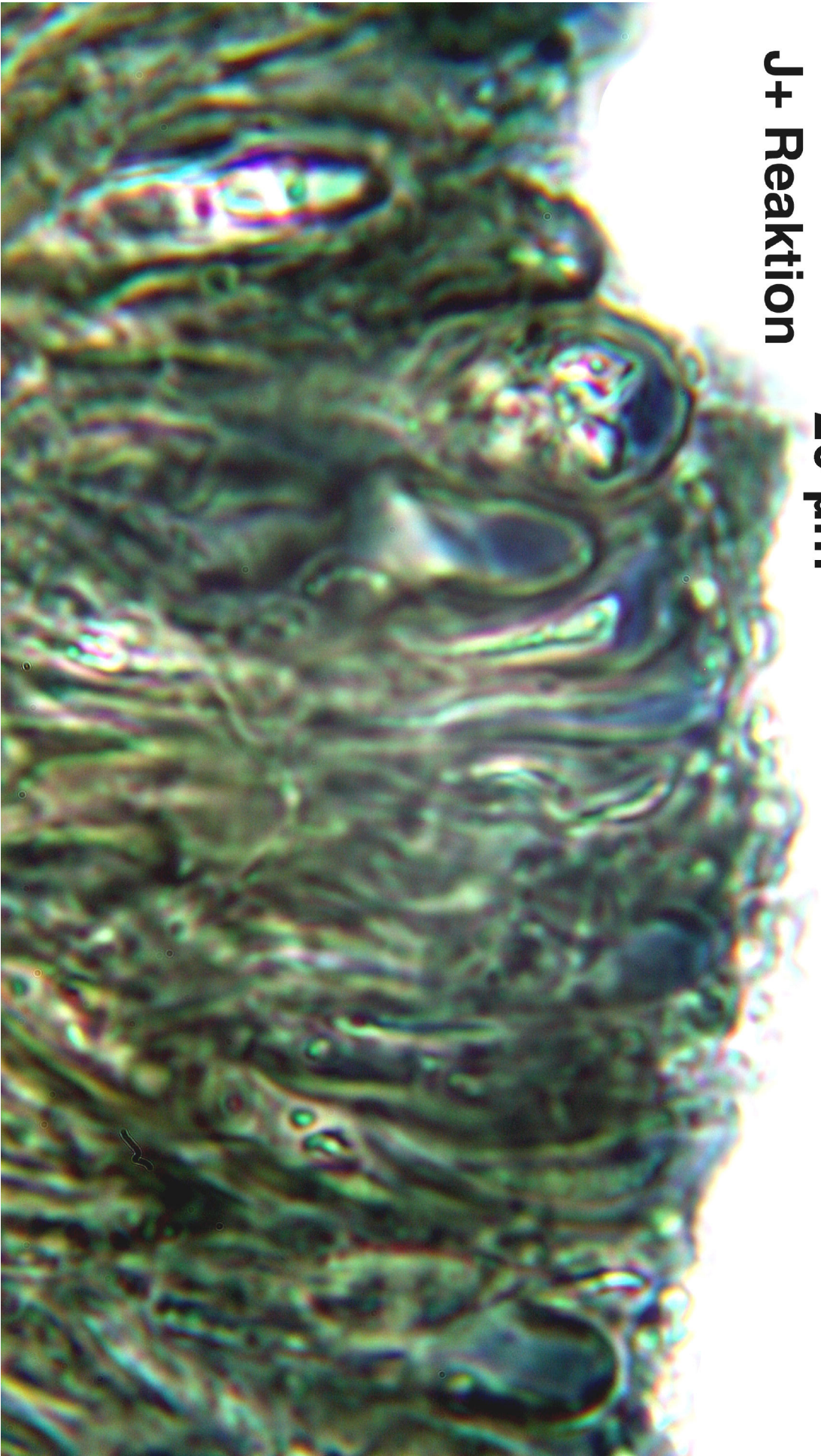


Fellhanera bouteillei

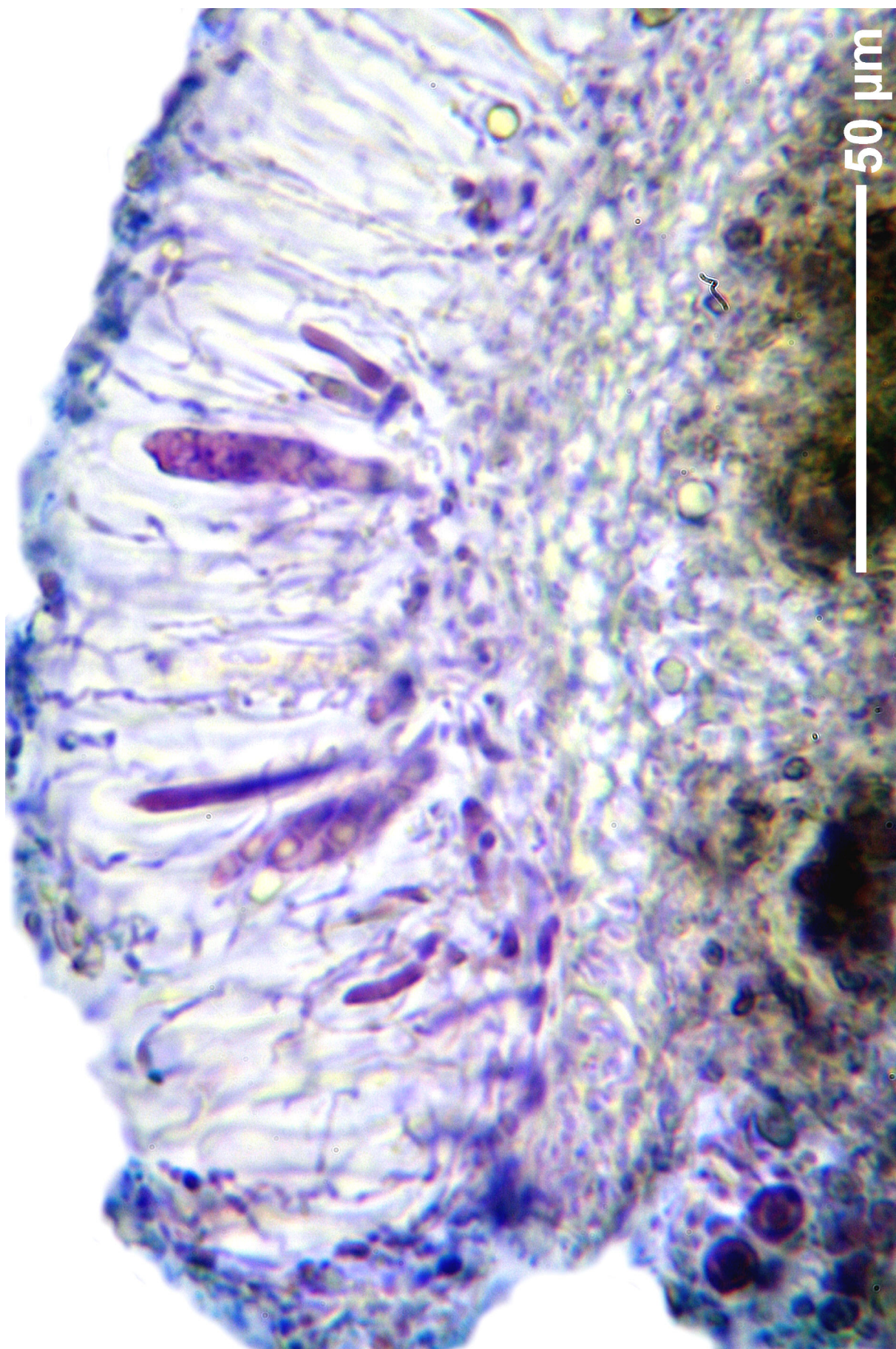


Fellhanera bouteillei

— 20 µm
J+ Reaktion



Fellhanera bouteillei



Fellhanera bouteillei

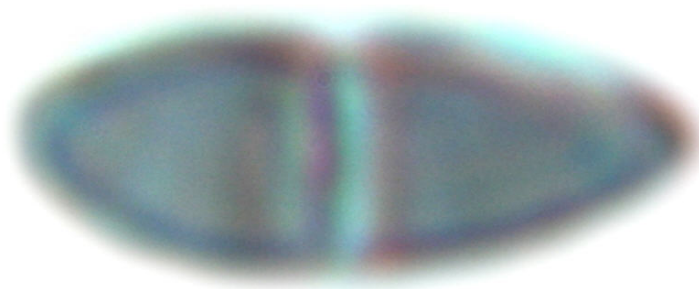
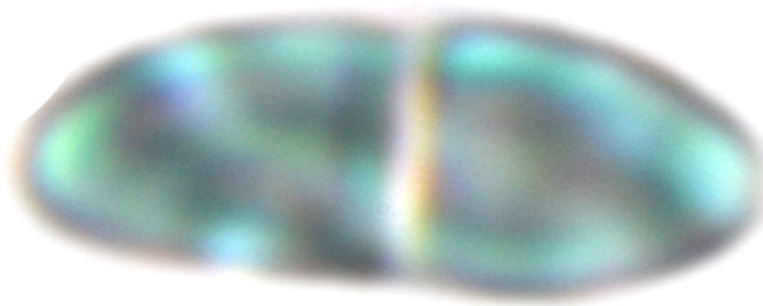
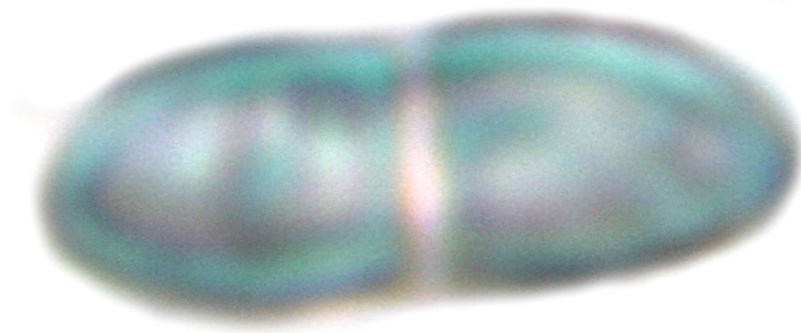


Fellhanera bouteillei



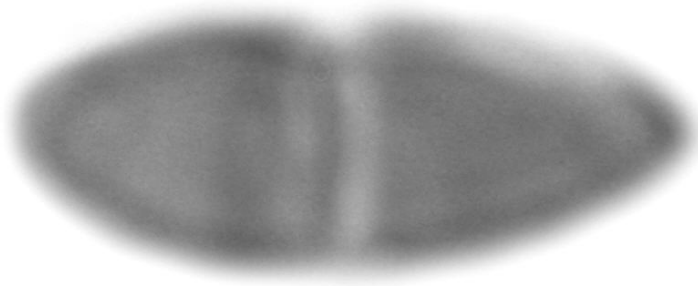
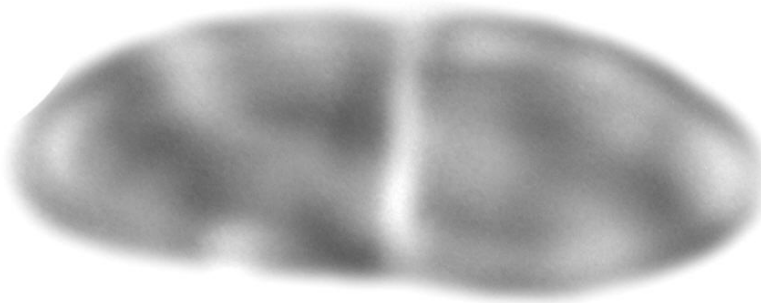
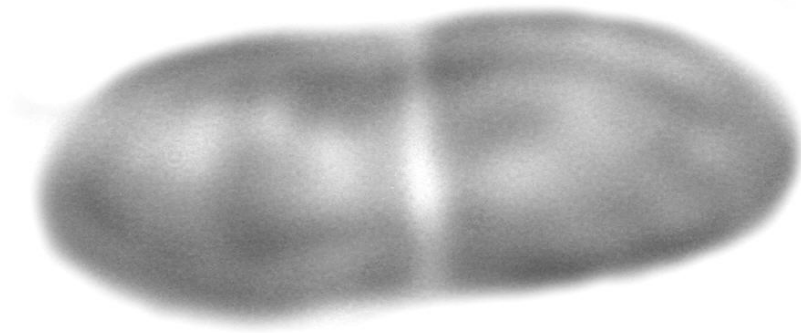
Fellhanera bouteillei

— 10 μm



Fellhanera bouteillei

————— 10 μm



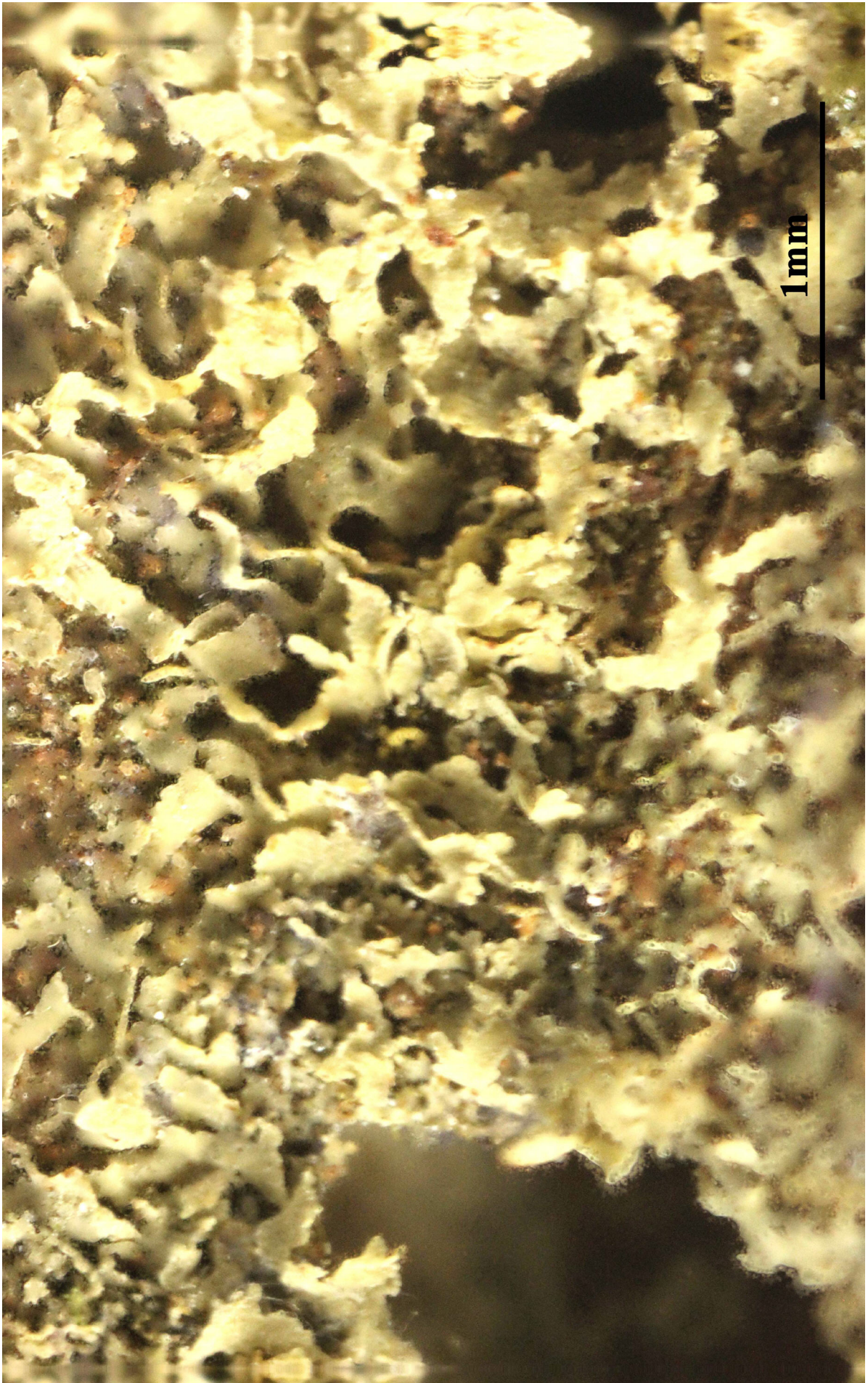
Flakea papillata O.E. Erikss., Syst. Ascom. 11(1): 14 (1992)

[459], Japan. Bonin Islands: Sekimon, Haha-jima Island. On bark of *Schima mertensiana*, 250 m. Leg. Y. Ohmura (no. 9602), 22.3.2013, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR. 459.

Thallus squamulose, small, loosely adnate. Lobes thin, grayish blue-green, becoming brown when old, flattened, 0.2-0.5(-0.9) mm wide, incised, narrower toward the base and often lobulate, often imbricate; surface papillate, with occasional shiny, dark green bundles of rhizoids extending from the thallus margin, sometimes coalescing into thick tufts. All chemical spot tests negative.



Flakea papillata



Flakea papillata

Flavocetraria cucullata (Bellardi) Kärnefelt & A. Thell, in Kärnefelt, Thell, Randle & Saag, Acta bot. fenn. 150: 81 (1994)
= *Lichen cucullatus* Bellardi 1788
= *Nephromopsis cucullata* (Bellardi) Divakar, A. Crespo & Lumbsch, in Divakar, Crespo, Kraichak, Leavitt, Singh, Schmitt & Lumbsch, Fungal Diversity 84: 112 (2017)

[OH460], Russia. Oblast Magadan: around a small lake, 120 km NE of Atoka (61°11'45" N, 153°55'52" E. On humus, 935 m. Leg. Y. Ohmura (no. 9600 m), L. Yakovchenko & E. Zheludeva, 8.8.2012, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 460.

Thallus fruticose, once or twice dichotomously branched, cream-coloured, smooth and glossy, deep red-purple to violet at the necrotic base, loosely attached, sometimes forming compact mats. Lobes flattened, smooth, canaliculate to subtubular, erect to ascending, 2-4(-8) cm tall, to 5(-10) mm wide, often white-maculate on upper surface, the margins with black, short-spinulose pycnidia; lower surface corticate, with narrow, marginal, whitish pseudocyphellae. Cortex thin, paraplectenchymatous in upper part; medulla white, rather lax. Apothecia extremely rare, zeorine, submarginal at lobe-ends, with a brown disc. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 5-10 x 3-5.5 µm. Pycnidia black, immersed in marginal projections. Conidia swollen at both ends, c. 6 x 1 µm. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-; reddish basal parts K+ red. Chemistry: cortex with usnic acid; medulla with lichesterinic and protolichesterinic acids; basal necrotic parts with anthraquinones. - Note: a circumpolar, arctic-alpine lichen, a typical element of tundra-like vegetation in open, dry habitats above treeline, most frequent on basic siliceous substrata, in wind-exposed ridges.



Flavocetraria cucullata

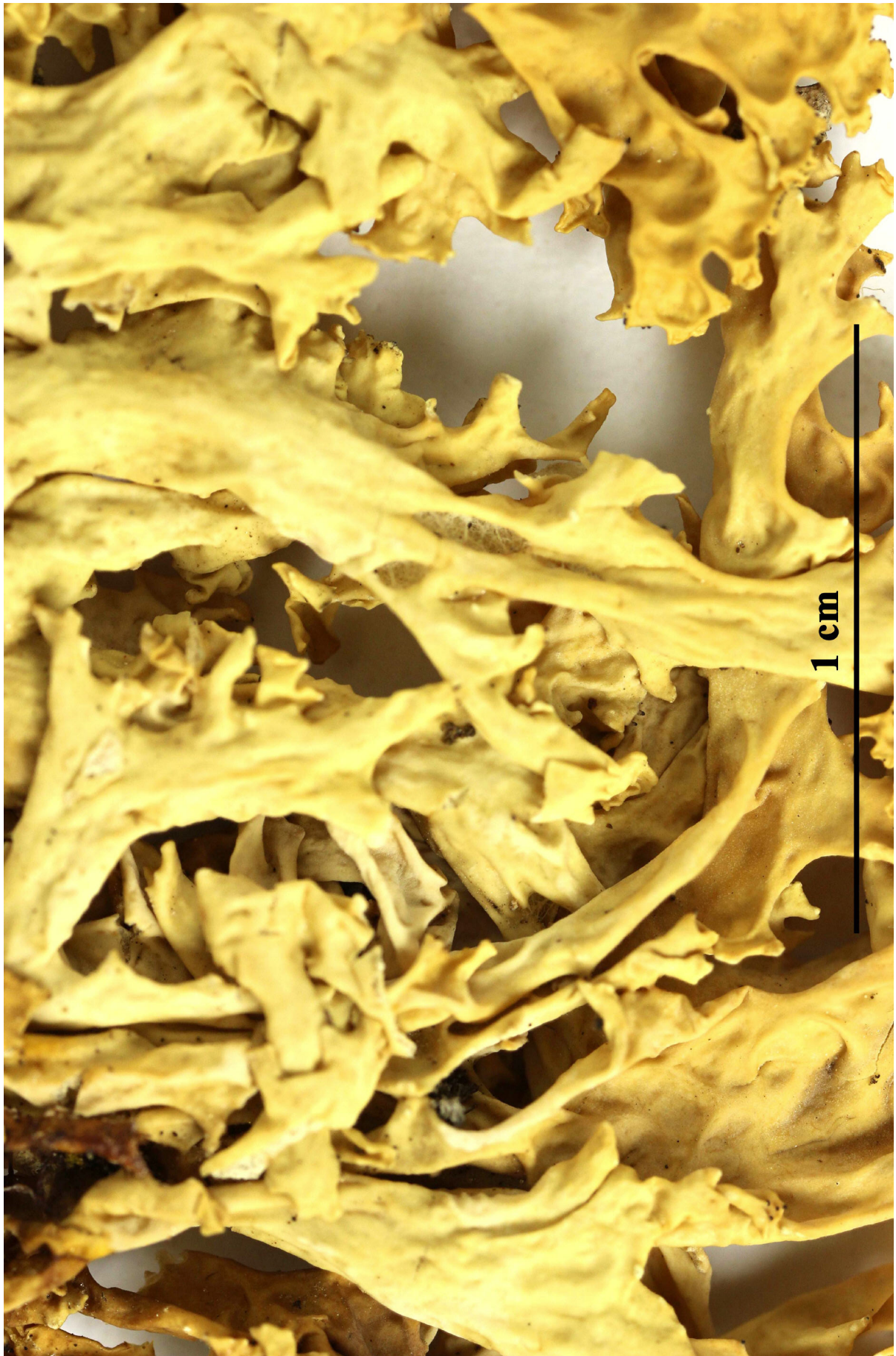


Flavocetraria cucullata

Flavocetraria nivalis (L.) Kärnefelt & A. Thell, in Kärnefelt, Thell, Randlane & Saag, Acta bot. fenn. 150: 84 (1994)
= *Lichen nivalis* L. 1753
= *Foveolaria nivalis* (L.) Chesnokov, Prokopiev, Konoreva & Davydov, in Chesnokov, Davydov, Konoreva, Prokopiev, Poryadina, Zheludeva & Shavarda, Pl. Syst. Evol. 309(no. 24): 15 (2023)

[OH534], Spitzbergen In gabbro area. Ossian Sarsfjellet, Kongsfjorden. On soil, 0-100 m. Leg. H. Kashiwadani (no. 23172), 25.7.1985, det. H. Kashiwadani. EX Y. OHMURA MINUS COGNITI EXSICCATI NR. 534.

Thallus fruticose, once or twice dichotomously branched, cream-coloured, yellowish brown at the necrotic base, loosely attached, sometimes forming compact mats. Lobes 6-10 mm wide and 2-4(-8) cm tall (usually smaller in Italian material), foveolate and reticulately ridged, erect to ascending; underside corticate, with narrow, mostly marginal, whitish pseudocyphellae. Cortex thin, paraplectenchymatous in upper part; medulla white, rather lax. Apothecia extremely rare, zeorine, submarginal at lobe-ends, up to 8 mm across, with a brown disc. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, narrowly clavate, with a small axial body and a distinct, K/I+ blue ring-structure in the rather large tholus, approaching the Lecanora-type. Ascospores 1-celled, hyaline, subglobose to broadly ellipsoid, 5-10 x 3-6 µm. Pycnidia black, marginal, slightly projecting. Conidia simple, swollen at both ends, c. 6 x 1 µm. Photobiont chlorococcoid. Spot tests: cortex K-, C-, KC+ yellowish, P-; medulla K-, C-, KC-, P-. Chemistry: cortex with usnic acid; brownish parts at the base with anthraquinones. - Note: a circumpolar, arctic-alpine lichen, a typical element of tundra-like vegetation in open, dry habitats above treeline.



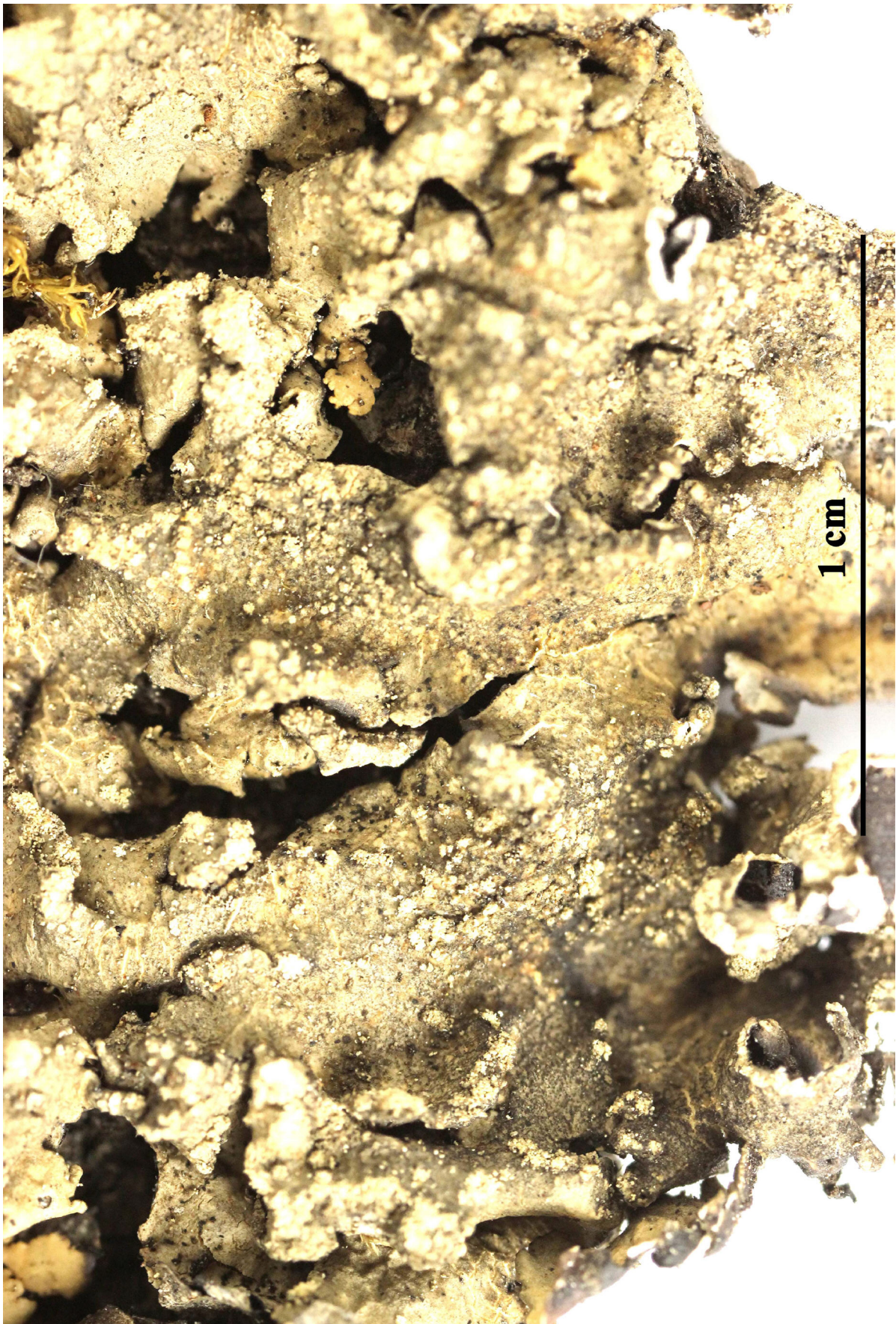
Flavocetraria nivalis



Flavocetraria nivalis

Flavoparmelia caperata (L.) Hale, Mycotaxon 25(2): 604 (1986)
= *Lichen caperatus* L. 1753

[OH556], Japan. Honshu. Prov. Shinano (Pref. Nagano): Yomikaki, Nagiso-machi, Kiso-gun. On bark of *Cerasus* x *yedonensis*, 430 m. Leg. M. Inoue (no. 26150), 3.1996, det. M. Inoue. EX Y. OHMURA LICHENES MINUS COGNITI NR.556.



Flavoparmelia caperata



Flavoparmelia caperata

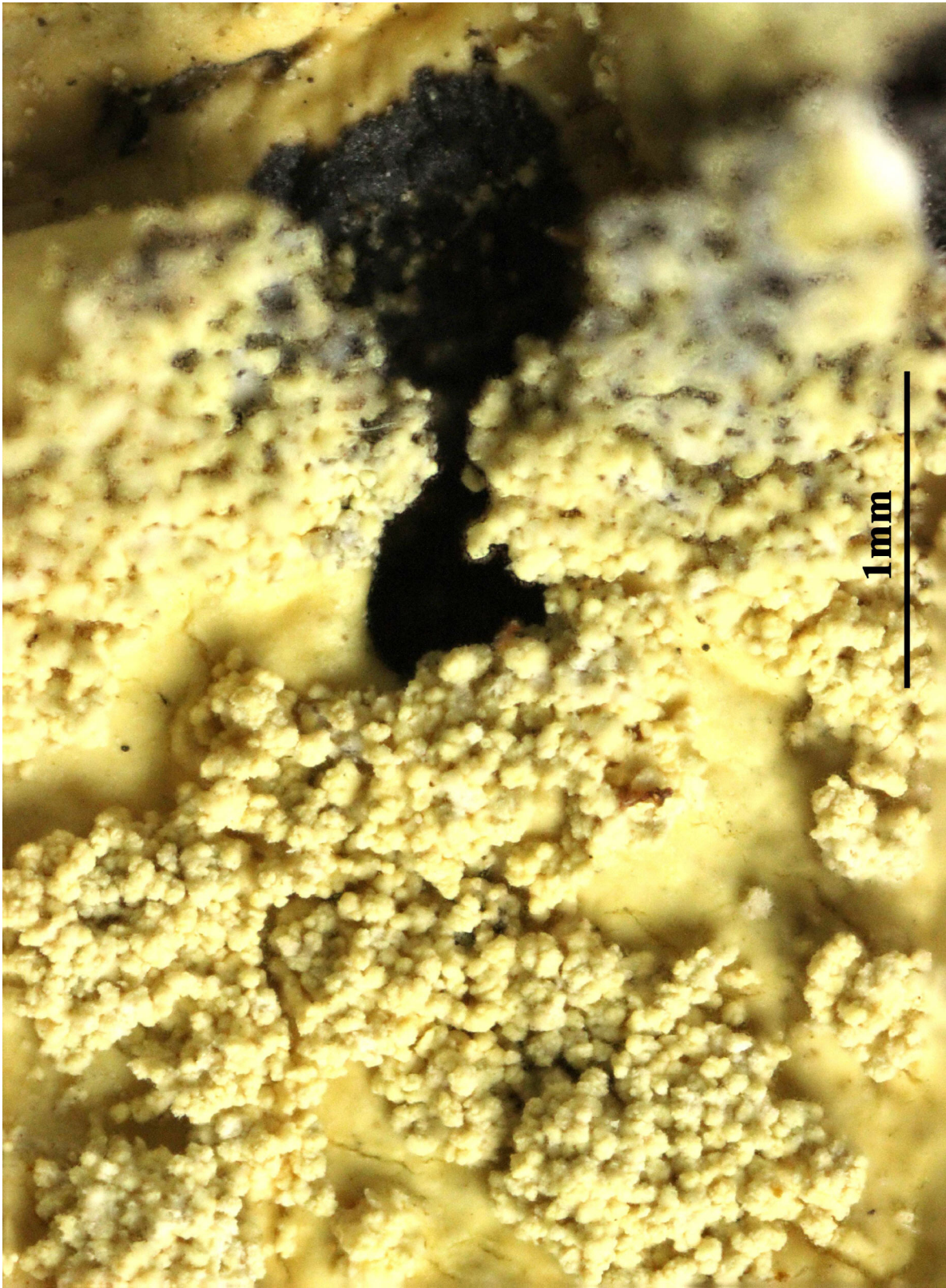
Flavoparmelia caperata (L.) Hale, Mycotaxon 25(2): 604 (1986)
= *Lichen caperatus* L. 1753

[OH407], Japan. Honshu. Prov. Shinano (Pref. Nagano): Sugadaira Montane Research Center, Sugadeira-Kogen, Ueda-city. On bark of *Metasequoia glyptostroboides*, 1366 m. Leg. A. Ohmura (no. 7865) & G. Tanaka, 1.3.2011, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR.407.

Thallus foliose, heteromerous, dorsiventral, broad-lobed, adnate to loosely adnate, forming regular, 5-25 cm wide rosettes, the individual thalli sometimes coalescing to cover extensive areas. Lobes elongate, flat to slightly convex, 5-15 mm wide, contiguous, with rounded apices, yellowish green, smooth but soon becoming strongly rugose and folded in central parts, emaculate, with laminal, granular to wart-like, pustulate soredia often covering the whole thallus centre. Lower surface black centrally, brown peripherally, with simple rhizines. Upper cortex of tightly packed, anticlinally oriented hyphae, with a thin pored epicortex, the cell walls with isolichenan; medulla white; algal layer continuous; lower cortex paraplectenchymatous. Apothecia rare, lecanorine to 1 cm across, with a brown, imperforate disc and a sorediate thalline margin. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, clavate, the K/I+ blue tholus penetrated by a faintly amyloid apical cushion with parallel or diverging flanks, the wall K/I-, surrounded by a K/I+ blue outer layer, Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, 15-19(-24) x (8-)9-11(-13) μm . Pycnidia laminal, semi-immersed, black. Conidia spindle-shaped, 5-7 x c. 1 μm . Photobiont chlorococcoid. Spot tests: upper cortex K-, C-, KC- or KC+ yellowish, P-; medulla K+ dirty yellow, C-, KC- or KC+ reddish, P+ orange-red, UV-. Chemistry: upper cortex with usnic acid (major); medulla with protocetraric acid (major) and caperatic acid (minor). - Note: a mild-temperate lichen found on isolated deciduous, more rarely evergreen trees, only exceptionally on rocks.



Flavoparmelia caperata

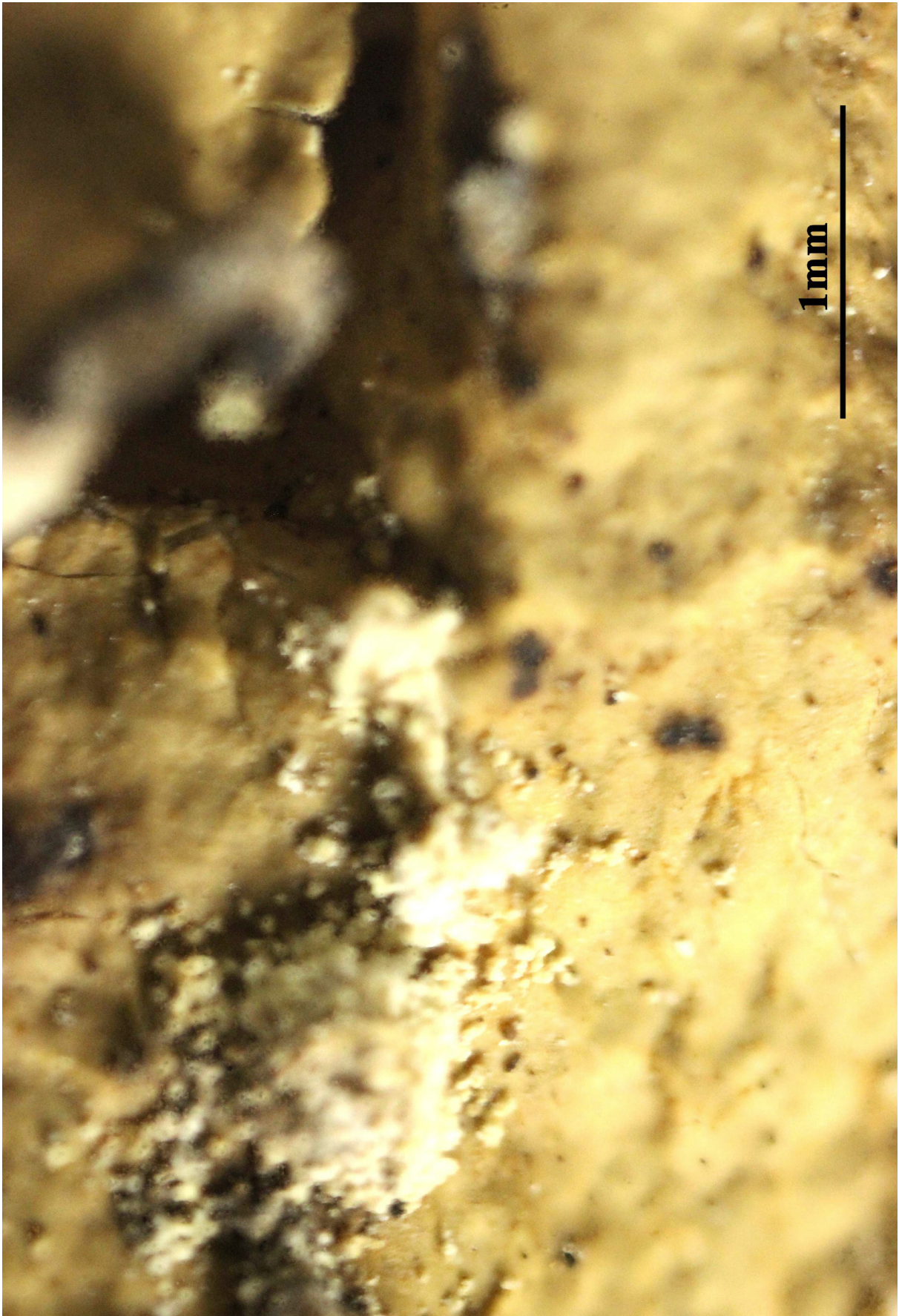


Flavoparmelia caperata

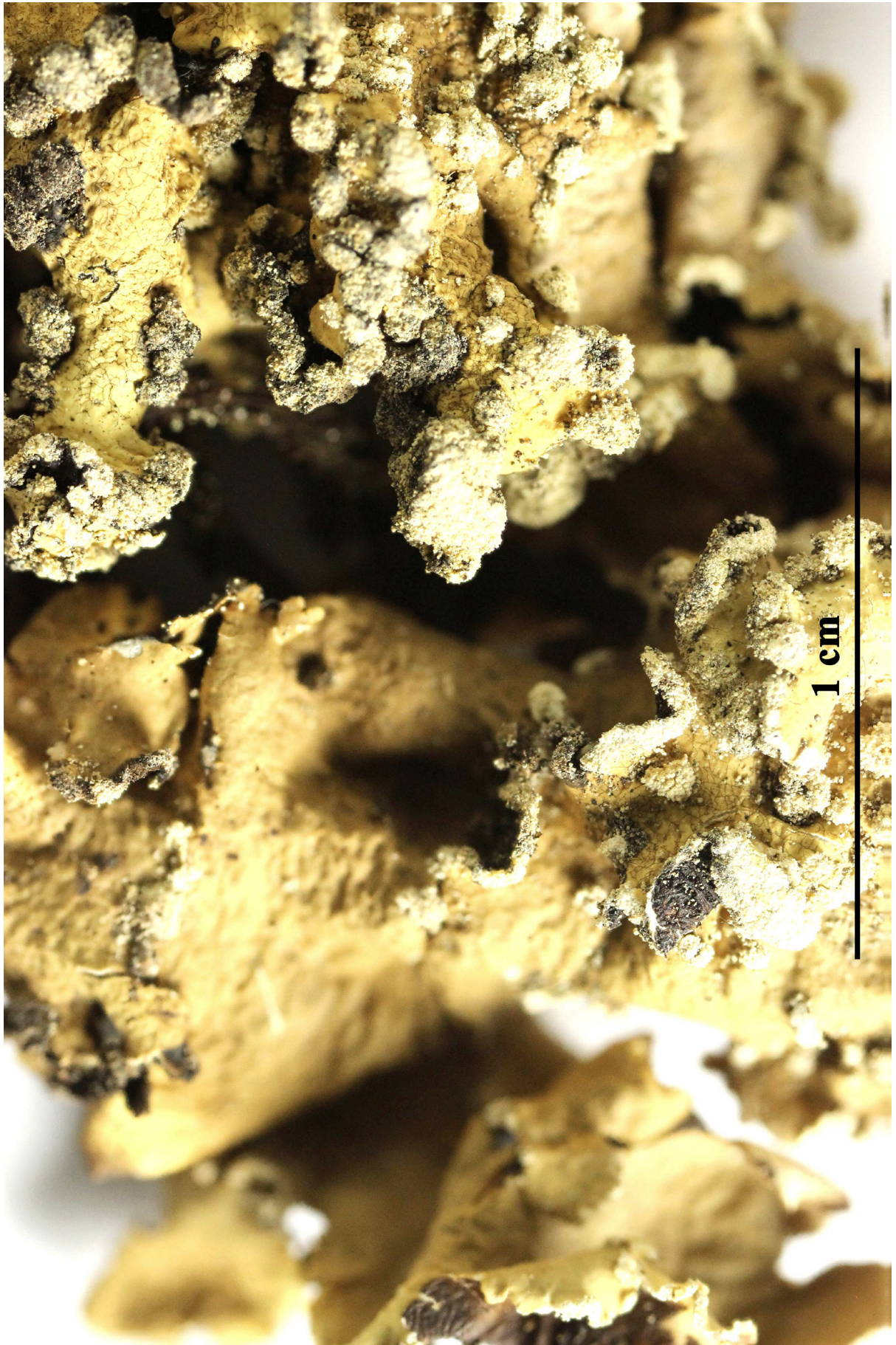
Flavopunctelia flaventior (Stirt.) Hale, Mycotaxon 20(2): 682 (1984)
= *Parmelia flaventior* Stirt. 1878

[KA306], USA. Hawaii, Hawaii Island. North Hilo Distr.: Puu Kaupakuhale. On bark of *Sophira chrysophylla*, 2600 m. Leg. T. Tuyama, 9.1969, det. K. Kurokawa. EX H. KASHIWADANI LICHENES MINUS COGNITI EXSICCATI NR. 306.

Thallus foliose, heteromerous, dorsiventral, tightly adnate to weakly appressed, forming 4-13(-20) cm wide rosettes. Lobes 2-6(-9) mm wide, flat, contiguous, greenish yellow, smooth to usually wrinkled to weakly ridged-reticulate, with white, large (to 1 mm), round to slightly elongated pseudocyphellae which give rise to round, laminal or rarely marginal, 0.5-2 mm wide soralia. Lower surface black to dark chestnut brown, paler at margin, with mostly simple, short, dark rhizines, except in the usually paler marginal zone. Upper cortex paraplectenchymatous, with a non-pored epicortex, the cell walls with an intermediate type of lichenan; medulla white; algal layer continuous; lower cortex paraplectenchymatous. Apothecia rare, lecanorine, 2-6 mm across, the disc brown, the margin pseudocyphellate and becoming sorediate. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored. Lecanora-type. Ascospores 1-celled, hyaline, ovoid to ellipsoid, 8-13 x 5-7 μ m. Pycnidia rare, black, immersed. Conidia bifusiform, 6-10 μ m long. Photobiont chlorococcoid. Spot tests: cortex K⁺ yellowish, KC- or KC⁺ pale yellow, C-, P-; medulla K- C⁺ red, KC⁺ red, P-. Chemistry: cortex with usnic acid (minor) and rarely traces of atranorin; medulla with lecanoric acid (major). - Note: a species of rather continental areas, found on more or less isolated deciduous trees, most frequent in dry Alpine valleys.



Flavopunctelia flaventior

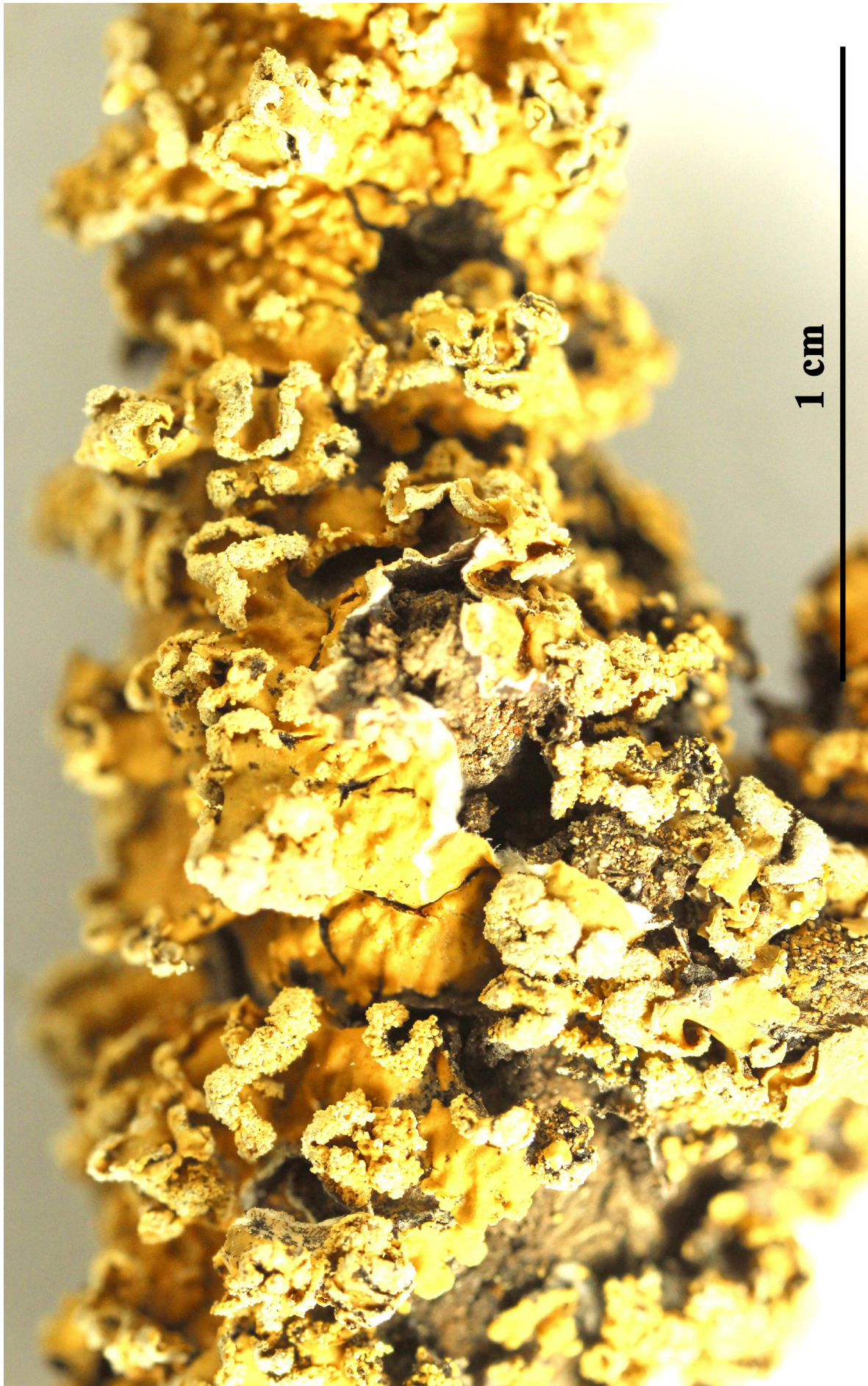


Flavopunctelia flaventior

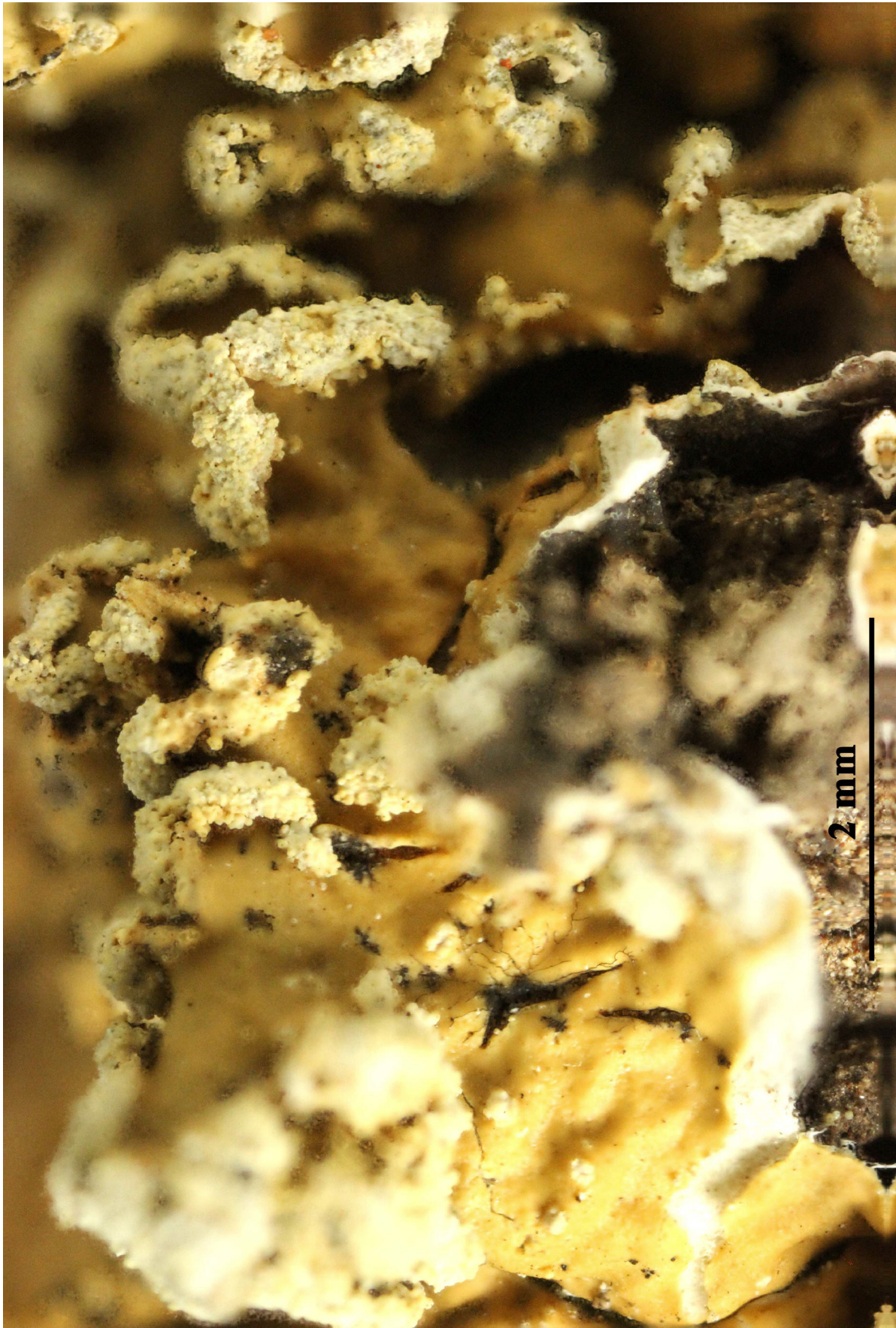
Flavopunctelia soledica (Nyl.) Hale, Mycotaxon 20(2): 682 (1984)
= *Parmelia soledica* Nyl. 1873

[KAA307], Mexico, Baja California: Isla Cedros N-end, Top of ridge, on S-side of road to mine (28°08' N, 115°13' §W). On bark of *Simmod-sia chinensis*, 1100 m. Leg. H. Kashiwadani (no. 44886), 21.3.1994, det. K. H. Moon. EX H. KASHIWADANI LICHENES MINUS COGNITI EXSICCATI NR. 307.

Thallus foliose, heteromerous, dorsiventral, appressed to tightly adnate, forming up to 10(-12) cm wide rosettes. Lobes contiguous, flat, 3-8(-10) mm wide, with rounded apices. Upper surface yellowish green, turning brownish in the herbarium, smooth to weakly wrinkled, frequently white-maculate but rarely with true, very small, punctiform pseudocyphellae. Soredia white, farinose to granular, arranged into crescent- to lip-shaped soralia along the reflexed, wavy lobe margins, rarely also laminal. Lower surface smooth to finely wrinkled, dark brown at margin, black in central parts, with simple or rarely forked, short, dark rhizines which usually lack in a narrow marginal zone. Upper cortex paraplectenchymatous, with a non-pored epicortex, the cell walls with an intermediate type of lichenan; medulla white; algal layer continuous; lower cortex paraplectenchymatous. Apothecia rare, lecanorine, with a brown disc and an often sorediate thalline margin. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, clavate, Lecanora- type. Ascospores 1-celled, hyaline, ellipsoid, 9-12 x 5-7 µm. Pycnidia rare, black. Conidia straight, bifusiform or almost thread-like, 7-11 µm long. Photobiont chlorococcoid. Spot tests: upper cortex K+ yellowish, KC- or KC+ pale yellow, C-, P-; medulla K-, C+ red, KC+ red, P-. Chemistry: upper cortex with usnic acid; medulla with lecanoric acid (major) and 5-chlorolecanoric acid (minor or trace). - Note: a mainly epiphytic species, restricted to Alpine valleys with a continental climate, certainly very rare in Italy.



Flavopunctelia soledica



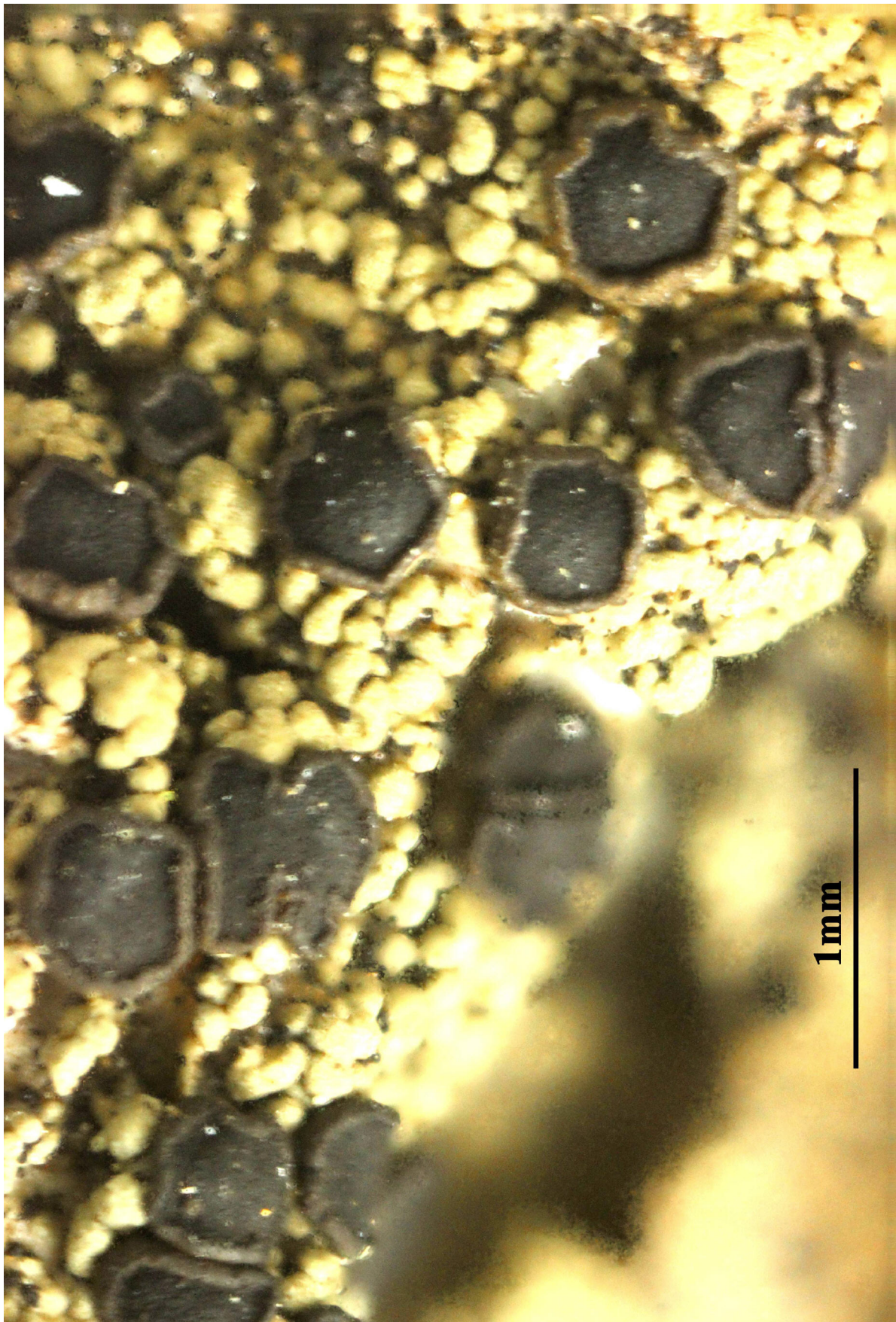
Flavopunctelia soledica

Fuscidea verruciformis Mas. Inoue, Hikobia, Supplement 1: 171 (1981)

[OH408], Japan. Honshu. Prov. Shinano (Pref. Nagano): along the route from Sugadaira Pasture to Mt. Azumaya, Ueda-city. On bark of *Betula ermanii*, 1636 m. Leg. Y. Ohmura (no. 7147) & A. Okamura, 31.5.2010, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 408.



Fuscidea verruciformis



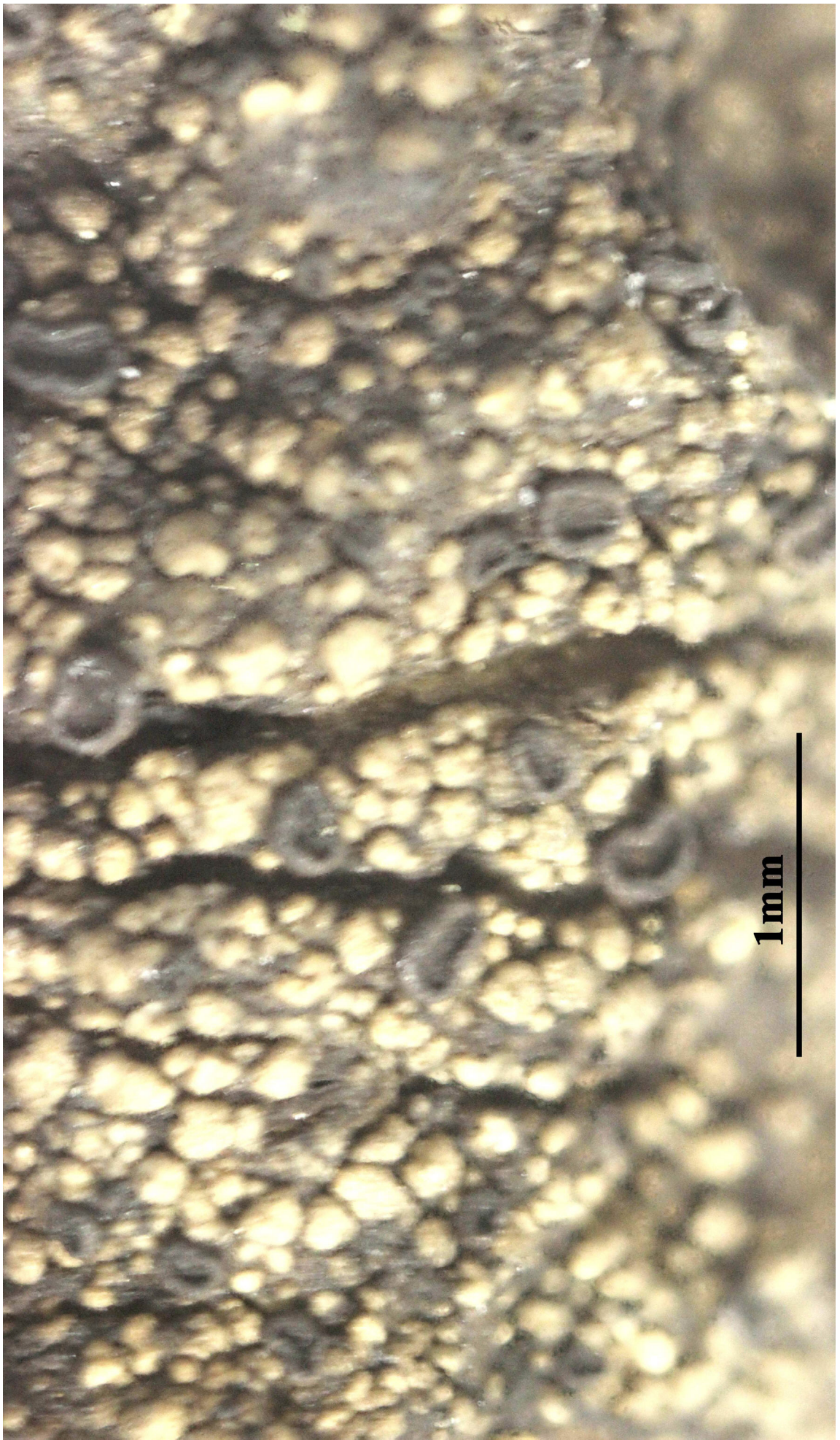
Fuscidea verruciformis

Fuscidea verruciformis Mas. Inoue, Hikobia, Supplement 1: 171 (1981)

[KA331], Japan. Hokkaido. Prov. Kushiro: Furebetsu Bokke. N slope of Mt. Furebetsu, Akan-cho, Akan-gun. On twigs of *Pinus pumila*, 790 m. Leg. H. Kashiwadani (no. 43100), 9.9.1959, det. H. Kashiwadani. EX H. KASHIWADANI LICHENES MINUS COGNITI EXSICCATI NR. 331.



Fuscidea verruciformis



Fuscidea verruciformis

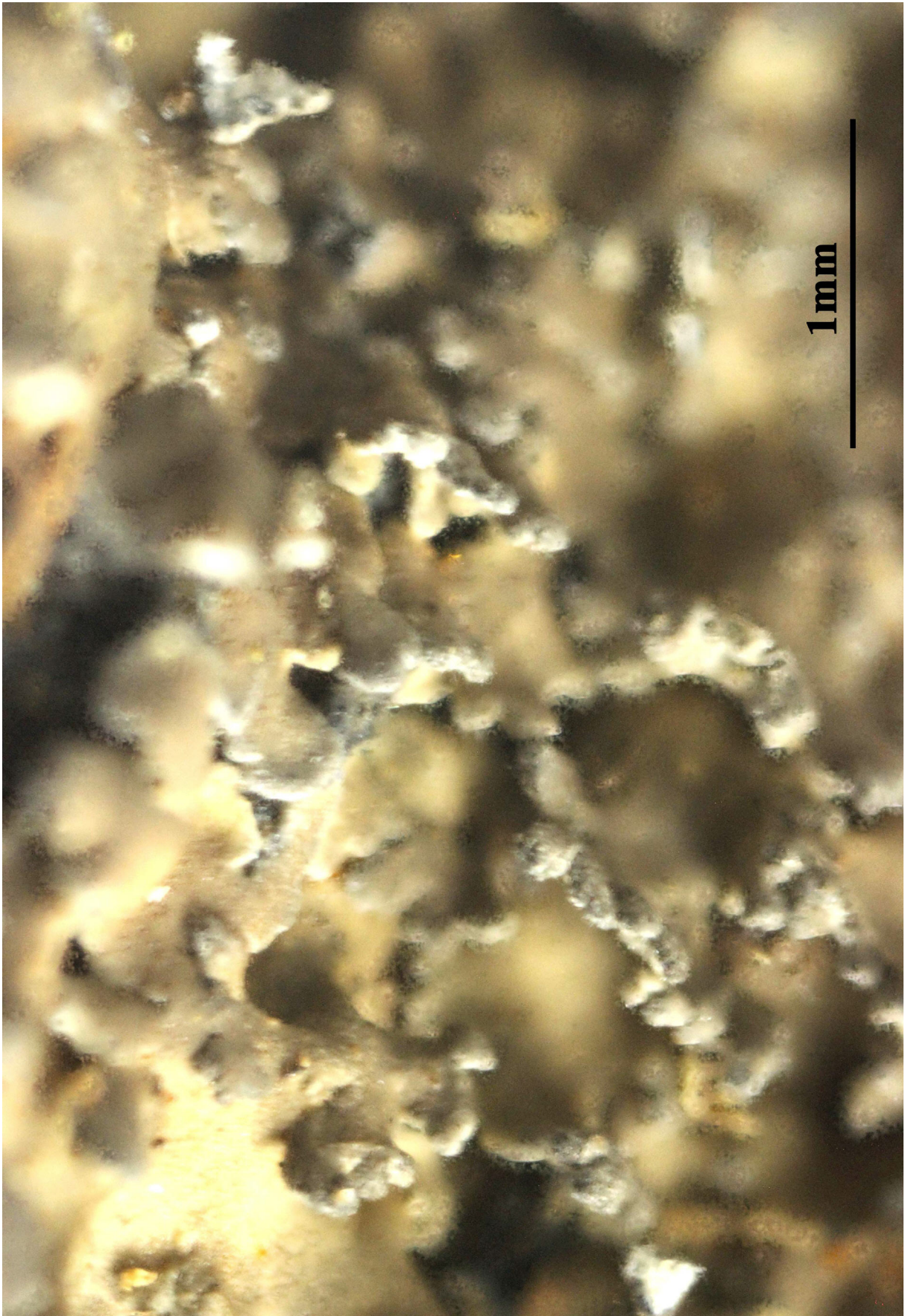
Fuscopannaria protensa (Hue) P.M. Jørg., J. Hattori bot. Lab. 76: 205
(1994)

= *Pannaria protensa* Hue 1909

[OH409], Japan. Kyushu. Prov. Hyuga (Pref. Miyazaki): en route from
Ebino Highlands to Mt. Koshiki-dake, Ebino-city. On bark of *Kalopana*
pictus, 1200. Leg. Y. Ohmura (no. 47841) & S. Kurgoi, 15.12.2001, det.
P. M. Jørgensen. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI
NR. 409.



Fuscopannaria protensa

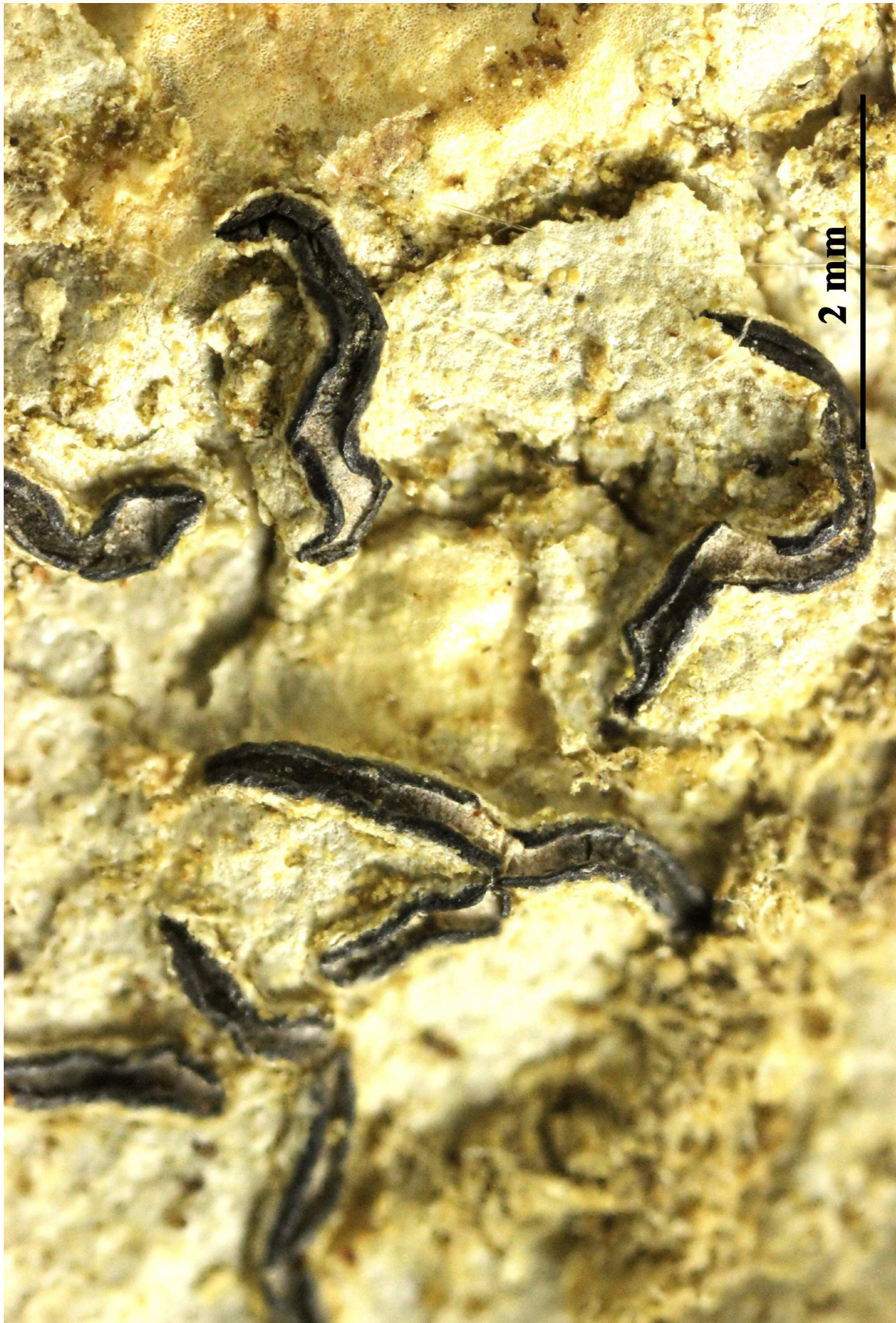


Fuscopannaria protensa

Graphina alpestris Zahlbr., in Handel-Mazzetti, Symb. Sinic. 3: 56 (1930)
= *Graphis alpestris* (Zahlbr.) Staiger, Biblioth. Lichenol. 85: 205 (2002)

[KU476], Japan. Honshu. Prov. Shinano: En route from Todai to Kitazawa Pass, Kami-Ina-gun. On trunk of *Betula ermani*, 2000 m. Leg. S. Kurokawa (no. 79005), 27.7.1979, det. S. Kurokawa. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 476.

TLC no lichen substances, anal. B. Staiger, 2000.



Graphina alpestris



Graphina alpestris

Graphis acharii Fée, Essai Crypt. Exot. (Paris): 39 (1825) [1824]
= *Allographa acharii* (Fée) Lücking & Kalb, in Kalb, Lücking & Kalb,
Phytotaxa 377(1): 15 (2018)

[KA358], Cambodia Prov. Siem Reap: around Ta Nei temple, Angkor Wat complex, Siem Reap (13°27' N, 103°53' E) On bark of *Tetrameles nudiflora*, 30 m. Leg. H. Kashiwadani (no. 47773), 20.12.2005, det. H. Kashiwadani. EX. H. KASIWADANI LICHENES MINUS COGNITI EXSICCATI NR. 358.



Graphis acharii



Graphis acharii

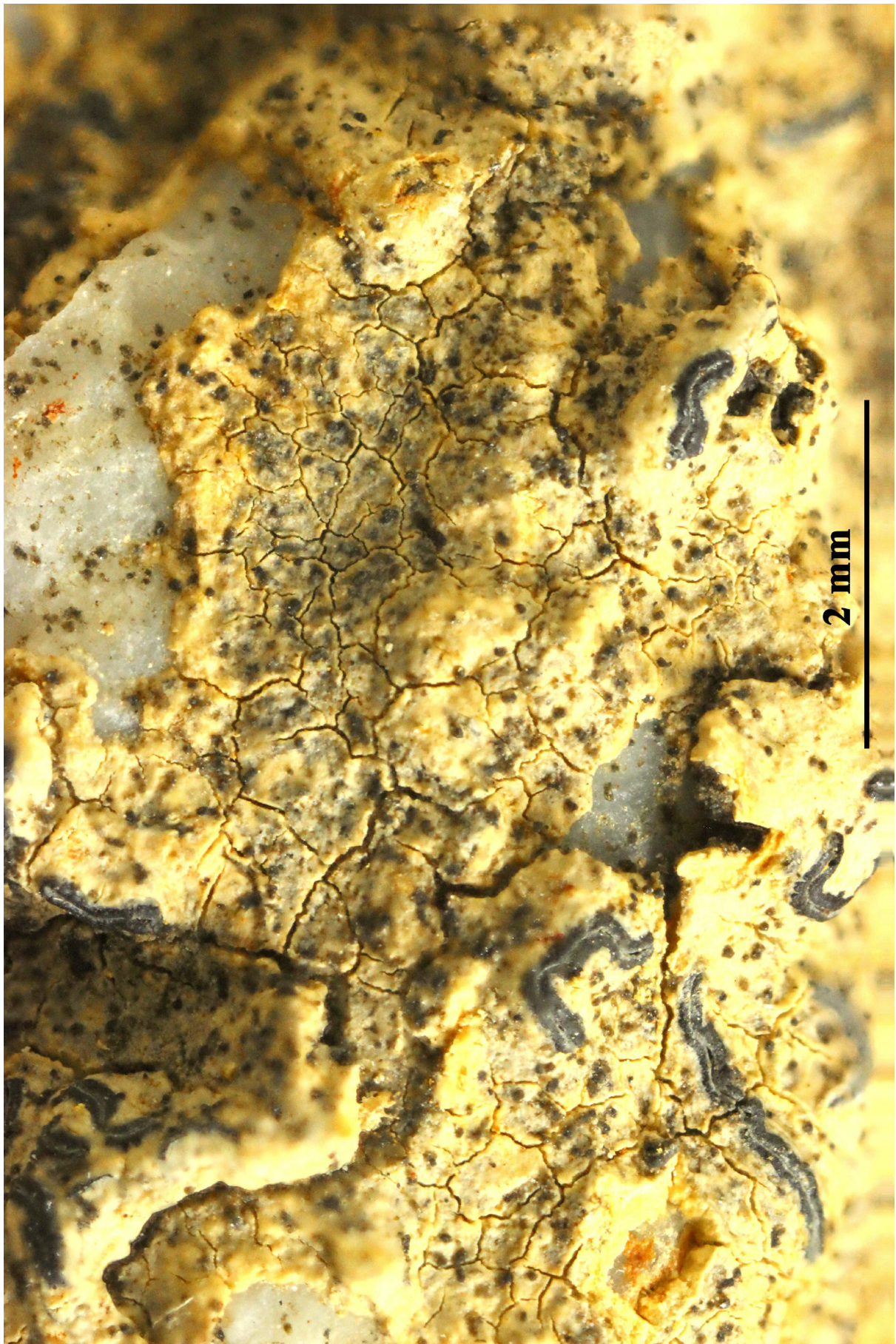
Graphis cervina Müll. Arg., Nuovo G. bot. ital. 24(3): 199 (1892)

[KU362], Japan. Honshu. Prov. Suo: Dadoko, Tokotyama-city. On-rocks, 400 m. Leg. H. Kashiwadani (no. 14536), M. Nakanishi, M. Oshio and M. Inoue, 23.4.1978, det. M. Nakanishi. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCAI NR. 362.

Norstictic acid, Connorstictic acid, anal. B. Staiger, 2000.



Graphis cervina



Graphis cervina

Graphis cognata Müll. Arg., Nuovo G. bot. ital. 24(3): 200 (1892)
= *Allographa cognata* (Müll. Arg.) Lücking & Kalb, Herzogia 31(1, Teil
2): 548 (2018)

[KA332], Japan. Kyushu. Prov. Bungo (Pref. Ohita): Mt. Kuroiwa,
Kokonoe-cho, Kusu-gun. On twigs of *Hydrangea paniculata*, 1520 m.
Leg. H. Kashiwadani (no. 45065), Y. Umezu & K. Umezu, 22.10.2002,
det. H. Kashiwadani. EX H. KASHIWADANI LICHENES MINUS COGNITI
EXSICCATI NR. 332.



Graphis cognata



Graphis cognata

Graphis parallela Müll. Arg., Nuovo G. bot. ital. 24(3): 200 (1892)
= *Allographa parallela* (Müll. Arg.) Lücking & Kalb, Herzogia 31(1, Teil
2): 554 (2018)

[KU477], Japan, Honshu. Prov. Kai: Shoji-guchi 3-gome, Mt. Fuji. On
bark of *Abies veitchii*, 1700 m. Leg. H. Kashiwadani (no. 15752),
4.6.1880, det. M. Nakanishi. EX S. KUROKAWA AND H. KASHIWADANI
LICHENES RARIORES ET CRITICI EXSICCATI NR. 477.



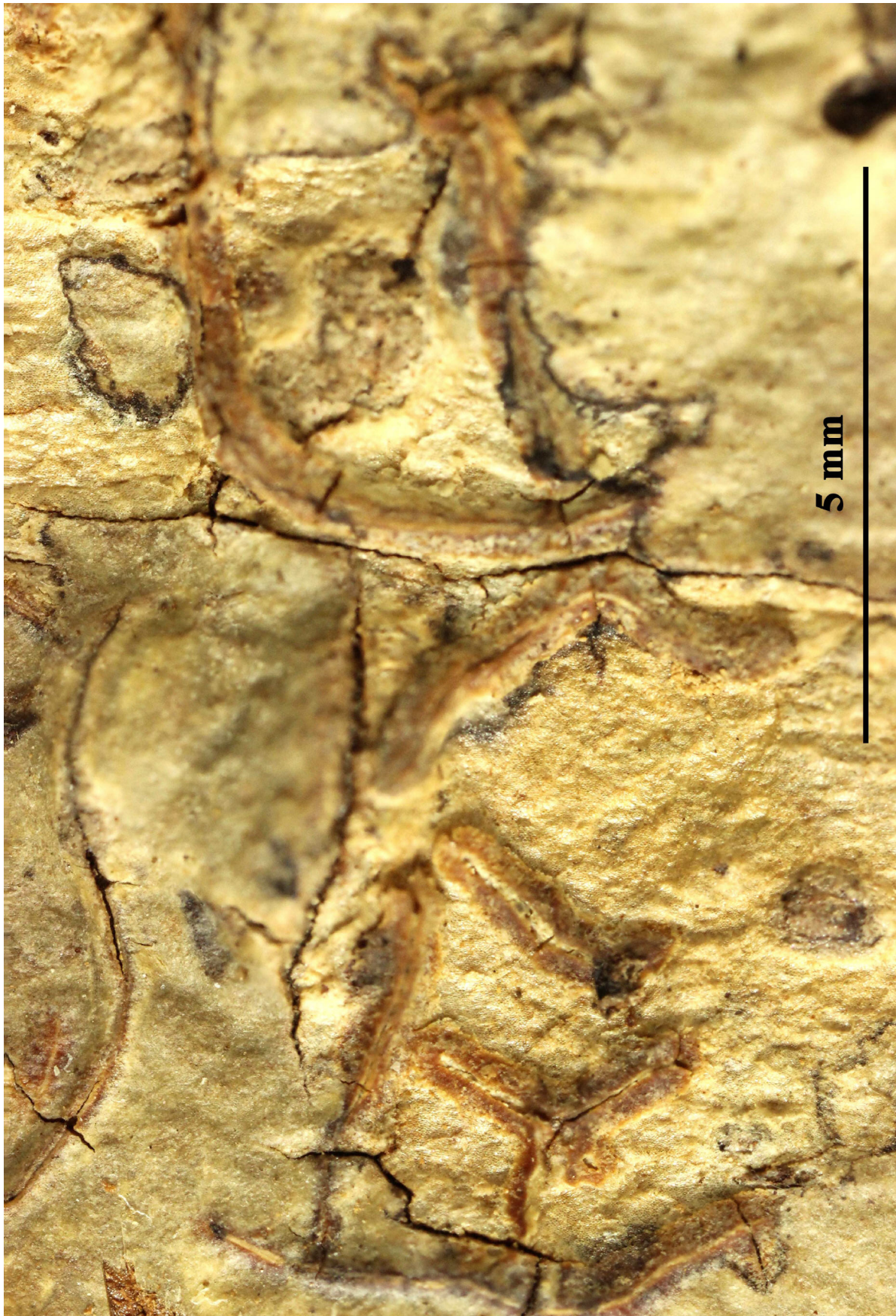
Graphis parallela



Graphis parallela

Graphis rufula Mont., Annls Sci. Nat., Bot., sér. 3 16: 57 (1851)
= *Fissurina rufula* (Mont.) Staiger, Biblioth. Lichenol. 85: 160 (2002)

{KU314}, Japan. Bonon Islands: Mt. Sekimon, Haha-jima Island. On bark of trees, 380 m. Leg. H. Kashiwadabi (no. 14053), 15.6.1977, det. M. Nakanishi. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 314.



Graphis rufula

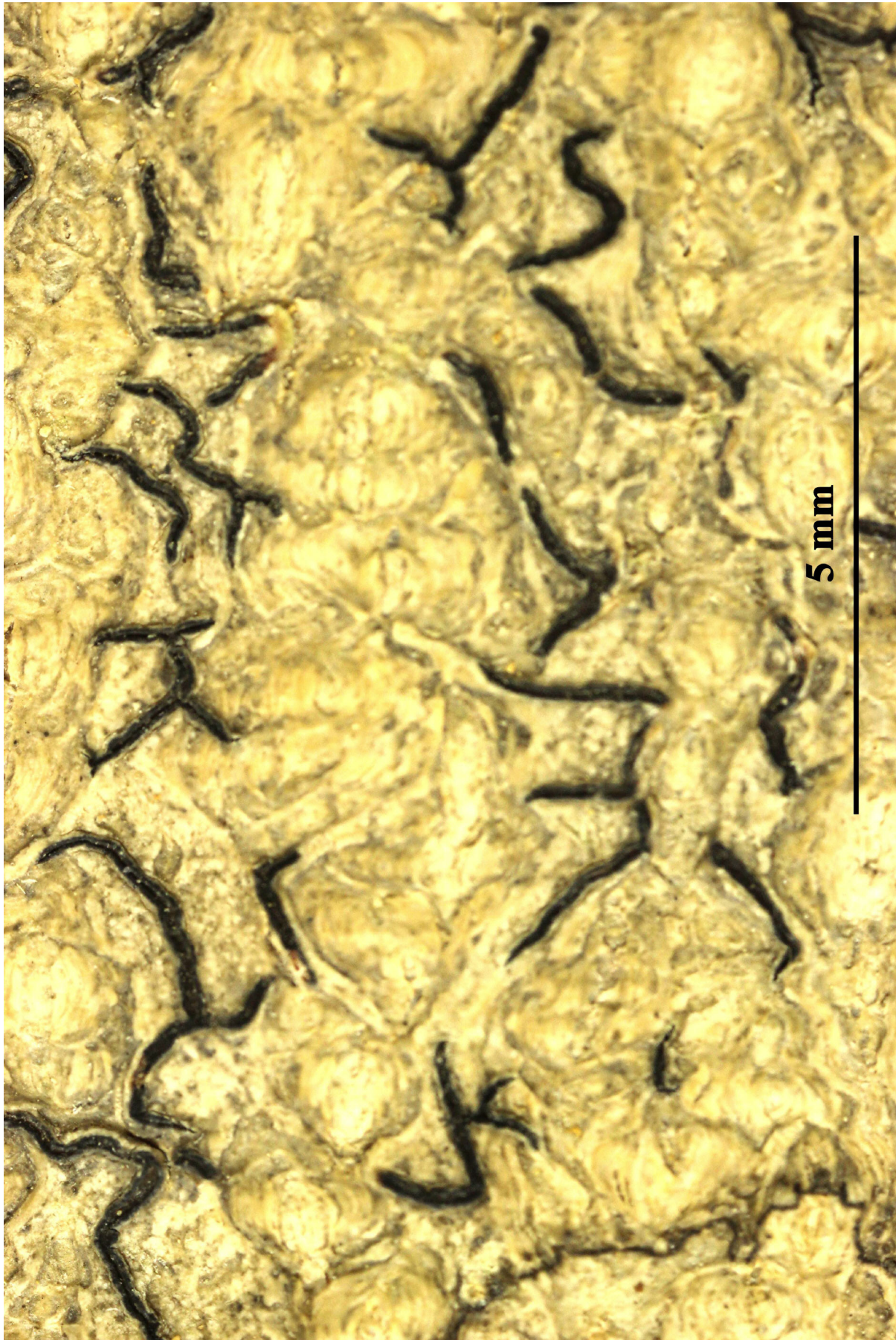


Graphis rufula

Graphis scripta (L.) Ach., K. Vetensk-Acad. Nya Handl. 30(3): 145 (1809)
= *Lichen scriptus* L. 1753

[KU363], Japan, Hokkaido. Prov. Shiribeshi: Mt. Katsuma, Okushiri Island. On bark of *Fagus crenata*, 340 m. Leg. H. Kashiwadani (no. 14712), 7.9.1978, det. M. Nakanishi. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR.363.

Thallus crustose, continuous to finely cracked, white, pale grey or brownish, dull, often delimited by a dark prothallus. Apothecia lirelliform, black, raised, oblong to linear, more or less flexuose and often with several parallel branches, rounded at ends, 2-10 x 0.2-0.4 mm, with a slit-like, epruinose disc hidden by a well-developed, often glossy, 15-40 µm thick exciple with entire lips; a very thin pseudothalline margin is often present. Proper exciple black, carbonized laterally, poorly developed and not carbonized at base; epithecium brown; hymenium colourless, not interspersed with oil droplets, 90-100 µm high; paraphyses simple, dense, 1.5-2 µm thick, with brownish tips; subhymenium colourless. Asci (6-)8-spored, clavate or cylindrical-clavate, non fissitunicate, dehiscent by an apical split, K/I-, *Graphis*-type. Ascospores: (5-)7-10(-13)-septate with lens-shaped lumina, hyaline, fusiform-cylindrical, 20-63 x 5-12 µm, the wall I+ blue-violet. Pycnidia rare, immersed. Conidia bacilliform, 2-5 x 1 µm. Photobiont trentepohlioid. Spot tests: cortex and medulla K- or K+ yellowish brown, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a widespread temperate to southern boreal-montane lichen found on smooth bark, mostly in deciduous forests, in humid areas also on twigs and branches, but normally on trunks, in drier areas restricted to the base of the boles. In a narrow sense the taxon is characterised by apothecia with more or less hidden disc, and a thin (≤ 0.1 mm) to absent thalline margin.



Graphis scripta



Graphis scripta

Graphis scripta (L.) Ach., K. Vetensk-Acad. Nya Handl. 30(3): 145 (1809)
= *Lichen scriptus* L. 1753

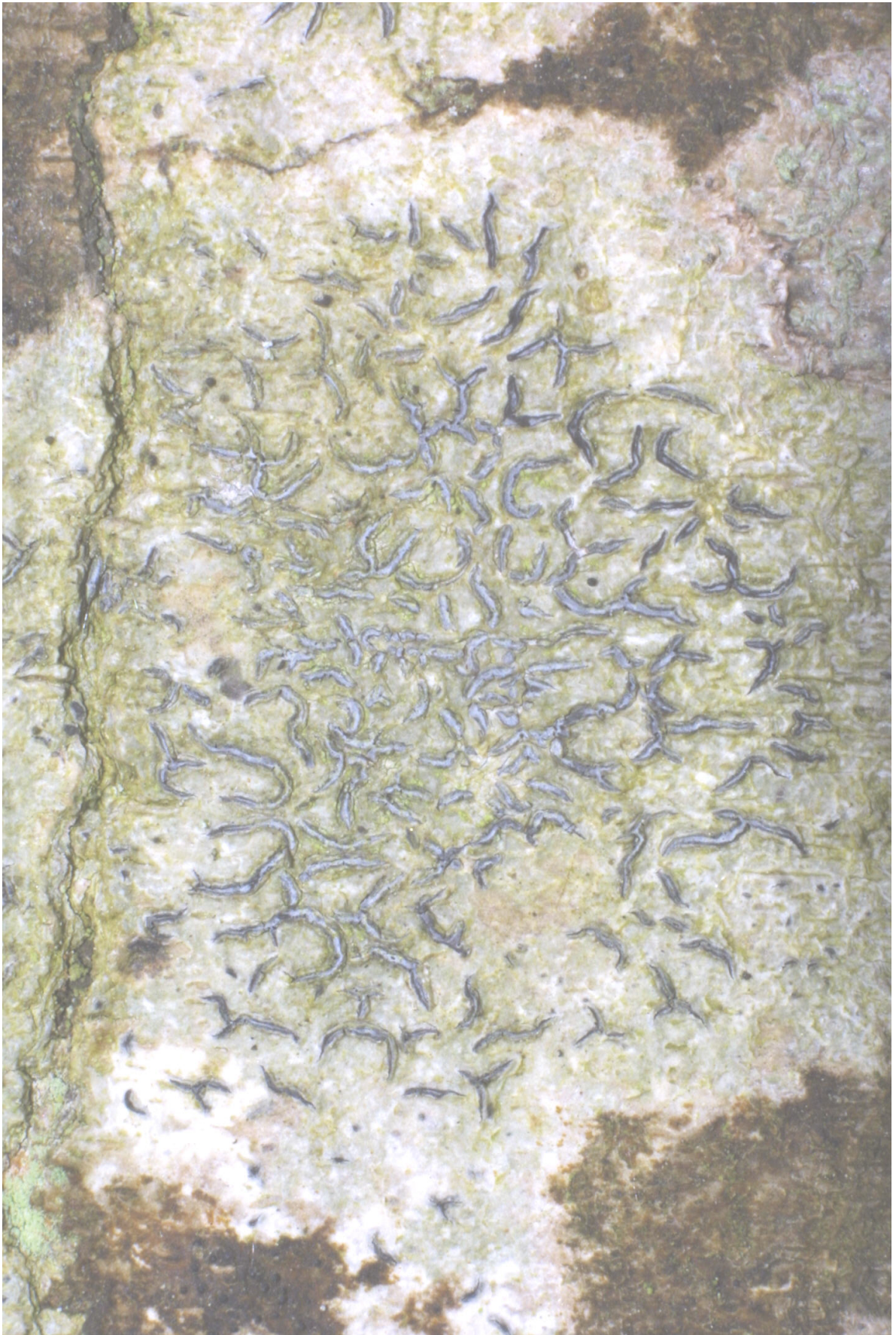
[12550], Germany, Baden-Württemberg, Kreis Göppingen, zwischen Wangen und Unterberken, im Fetzentöbele, Weg "Seesteige", an schattiger junger Buche, 48°45.494' N, 9°34.628' E, 390 m, TK:7223. Leg. F. Schumm, 16.07.2007, det. F. Schumm. EX HERBARIO F. SCHUMM NR. 12550.

- Sporen linsenfächerig, ca. 7-septiert; 27 x 6-8 µm; Paraphysen unverzweigt, straff; Trentepohlia.

Thallus crustose, continuous to finely cracked, white, pale grey or brownish, dull, often delimited by a dark prothallus. Apothecia lirelliform, black, raised, oblong to linear, more or less flexuose and often with several parallel branches, rounded at ends, 2-10 x 0.2-0.4 mm, with a slit-like, epruinose disc hidden by a well-developed, often glossy, 15-40 µm thick exciple with entire lips; a very thin pseudothalline margin is often present. Proper exciple black, carbonized laterally, poorly developed and not carbonized at base; epithecium brown; hymenium colourless, not interspersed with oil droplets, 90-100 µm high; paraphyses simple, dense, 1.5-2 µm thick, with brownish tips; subhymenium colourless. Asci (6-)8-spored, clavate or cylindrical-clavate, non fissitunicate, dehiscent by an apical split, K/I-, Graphis-type. Ascospores: (5-)7-10(-13)-septate with lens-shaped lumina, hyaline, fusiiform-cylindrical, 20-63 x 5-12 µm, the wall I+ blue-violet. Pycnidia rare, immersed. Conidia bacilliform, 2-5 x 1 µm. Photobiont trentepohlioid. Spot tests: cortex and medulla K- or K+ yellowish brown, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a widespread temperate to southern boreal-montane lichen found on smooth bark, mostly in deciduous forests, in humid areas also on twigs and branches, but normally on trunks, in drier areas restricted to the base of the boles. In a narrow sense the taxon is characterised by apothecia with more or less hidden disc, and a thin (<= 0.1 mm) to absent thalline margin.



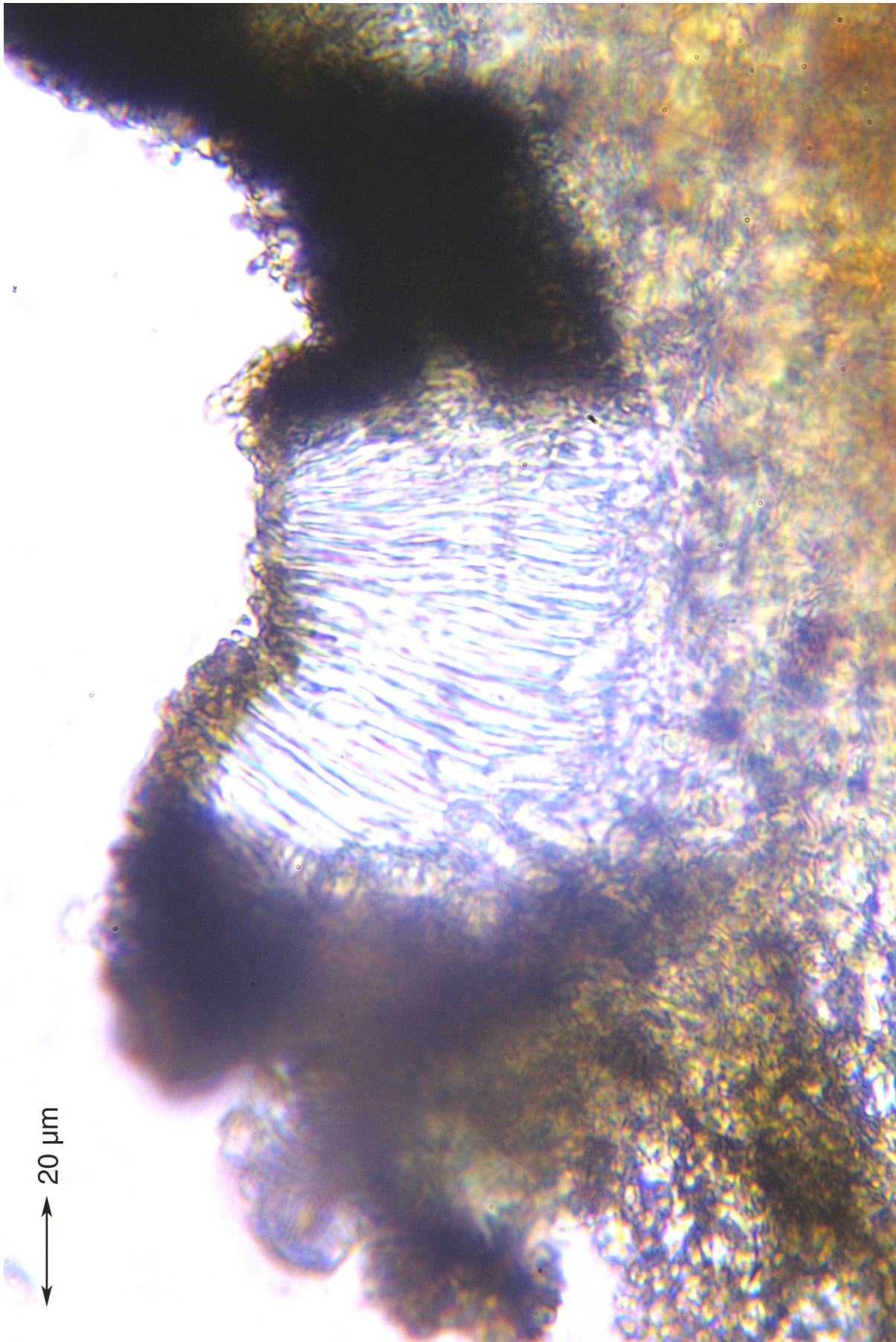
Graphis scripta



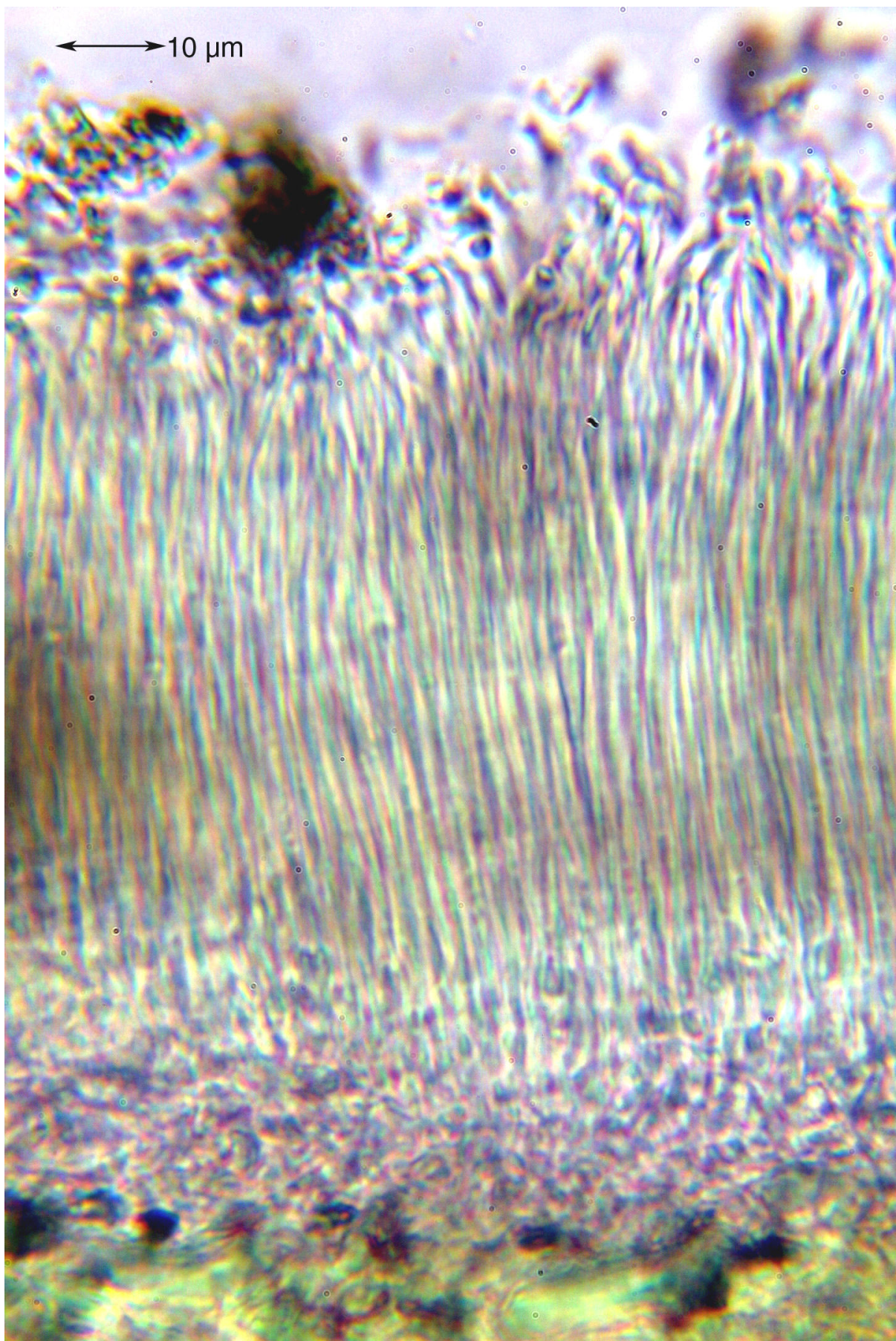
Graphis scripta



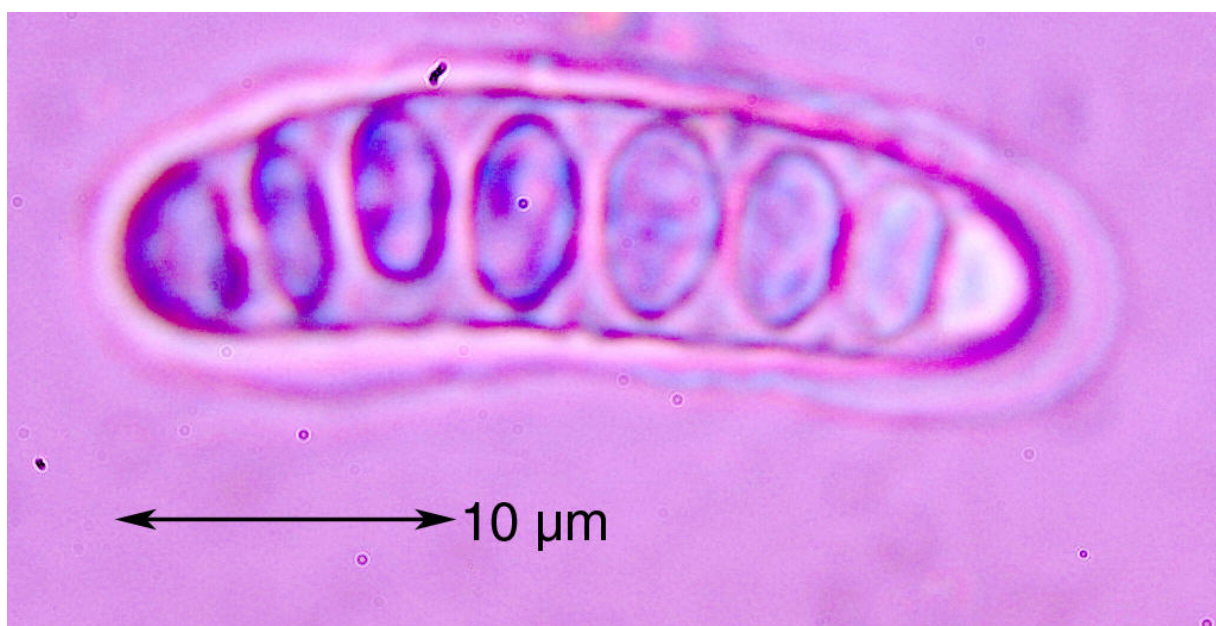
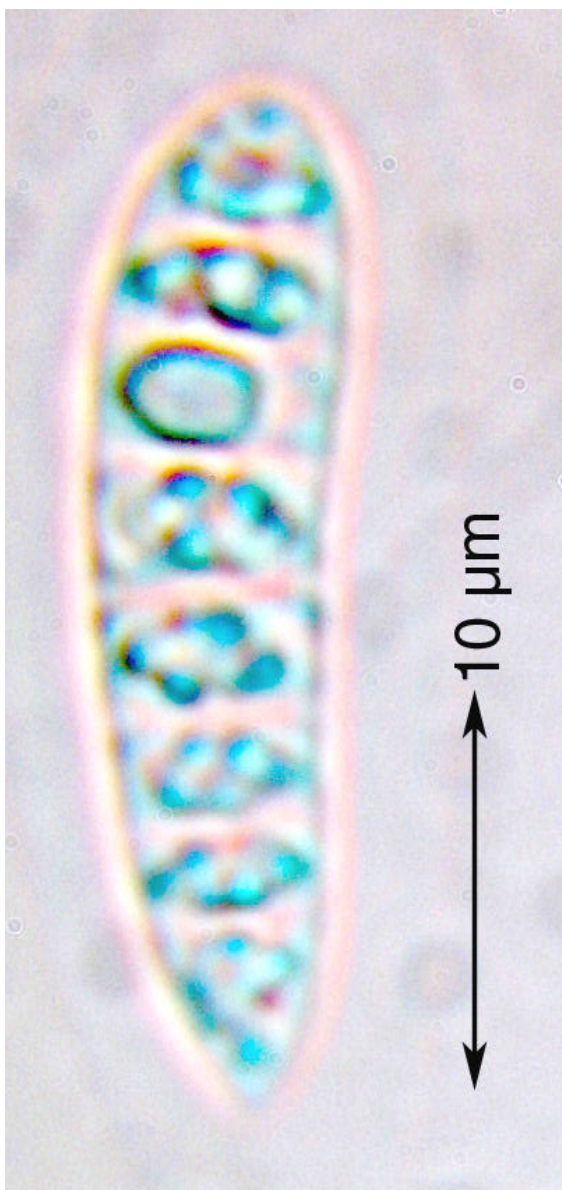
Graphis scripta



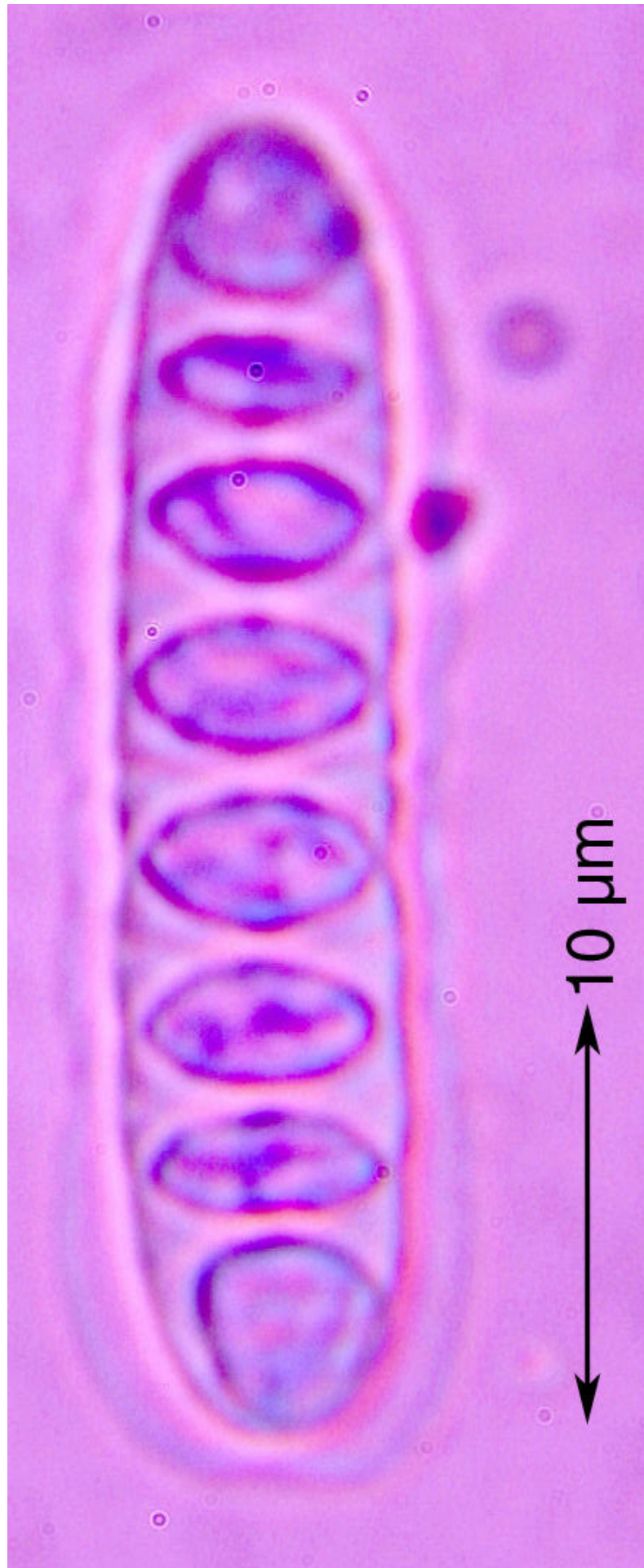
Graphis scripta



Graphis scripta



Graphis scripta



Graphis scripta

Gymnoderma insulare Yoshim. & Sharp, Am. J. Bot. 55: 638 (1968)

[KU621], Japan. Kyushu. Prov. Ohsumi: Yakusugi-land, Yakushima Island. On bark of *Cryptomeria japonica*, 100 m. Leg. H. Shibuichi (no. 7683) & K. Yoshida, 28.7.1984. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 621.

Eine seltene Art, die außer auf dem Berg Kōya in Kishū nur an drei weiteren Orten gesammelt wurde. Sie wächst epiphytisch auf der Rinde großer Sugi-Bäume (Japanische Zeder). Der Thallus ist flach und ähnelt den Schuppen von *Cladonia*-Arten. Länge 0,5–1,5 cm, Breite 2–8 mm, der Rand ist etwas abgerundet. Der Unterseite fehlt eine Rindenschicht. Die Podetien (Stiele) sind kurz. Die Apothecien (Fruchtkörper) sitzen am Rand der Thallustriebe. Enthält Didymsäure und Atranorin. Verbreitung: Honshū (Kōyasan), Shikoku (Ishizuchisan), Kyūshū; Taiwan.



Gymnoderma insulare



Gymnoderma insulare

Haematomma fauriei Zahlbr., Annls mycol. 14(1/2): 59 (1916)

[KU127], Japan. Honshu. Prov. Musashi: Karisaka Pass. Chichibu. On trunk of *Fagus crenata*, 1770 m. Leg. S. Kurokawa (no. 70129), 24.5.1970, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 127.

Thallus gelblich, grünlich oder schmutziggrau, unregelmäßig kleinwarzig oder uneben, leicht rissig, ca. 0.3-0.5 mm dick, ohne Sorale. Apothecien aufsitzend, meist 1-2 mm im Durchmesser, Scheibe dunkel scharlachrot oder ziegelfarbig, nackt, meist gewölbt, Rand dünn, glatt oder wenig crenuliert. Oft wachsen auf großen älteren Apothecien jüngere nach. Sporen 8/Ascus, 7 bis 10 (bis 14) zellig, gerade oder leicht sigmoid gekrümmt, 50-(61.2)-70 (-75) x 5-(5.5)-6 µm. Spermatien länglich, gekrümmt, 13-18 x 0.8-1 µm. Chemie: Atranorin, Usninsäure, Psoromsäure, 2'-O-Demethylpsoromsäure, Russulon, unbekannte Fettsäure, anal. B. Staiger, 8.2.1994. Endemisch in Japan.



Haematomma fauriei

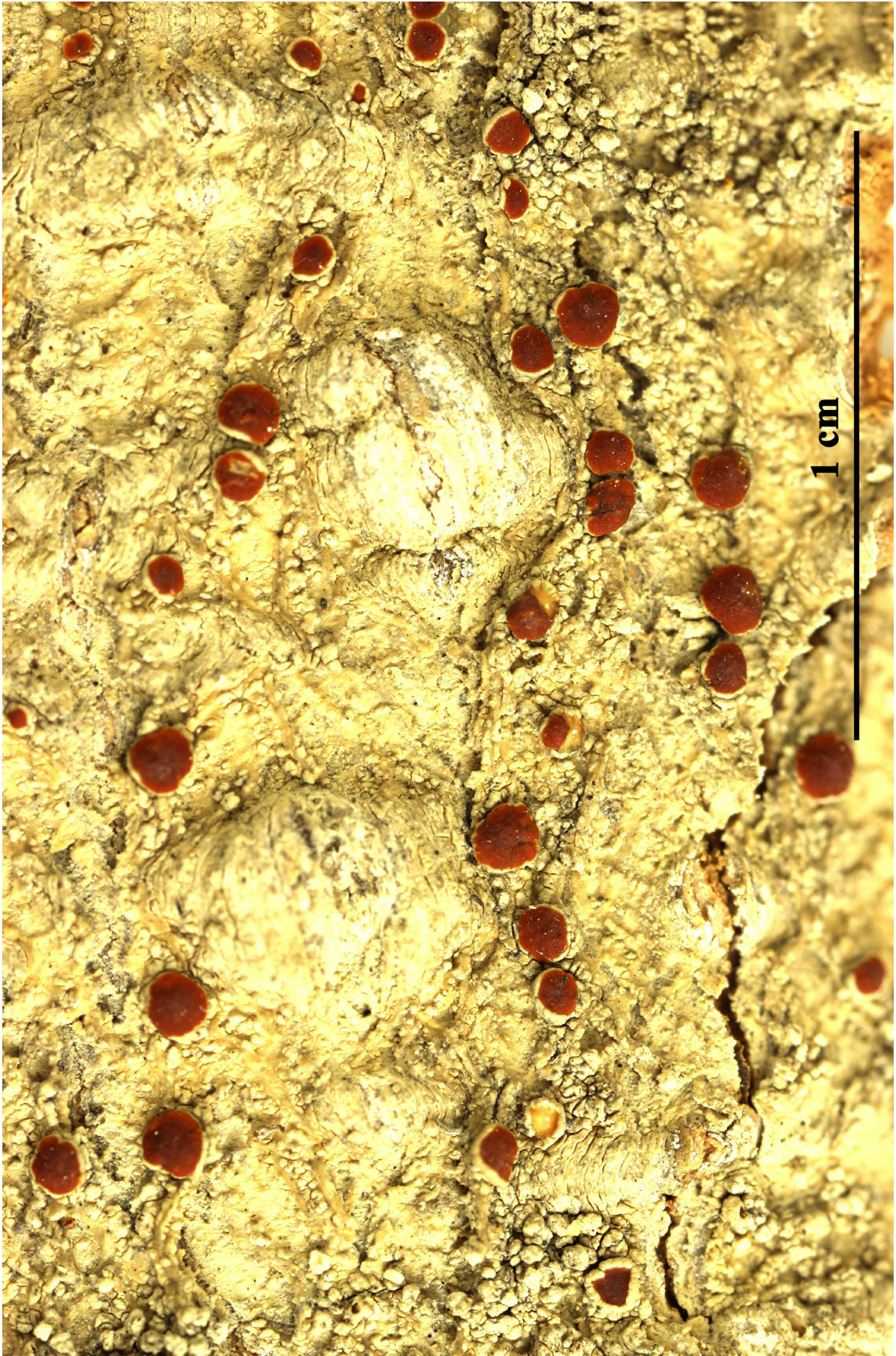


Haematomma fauriei

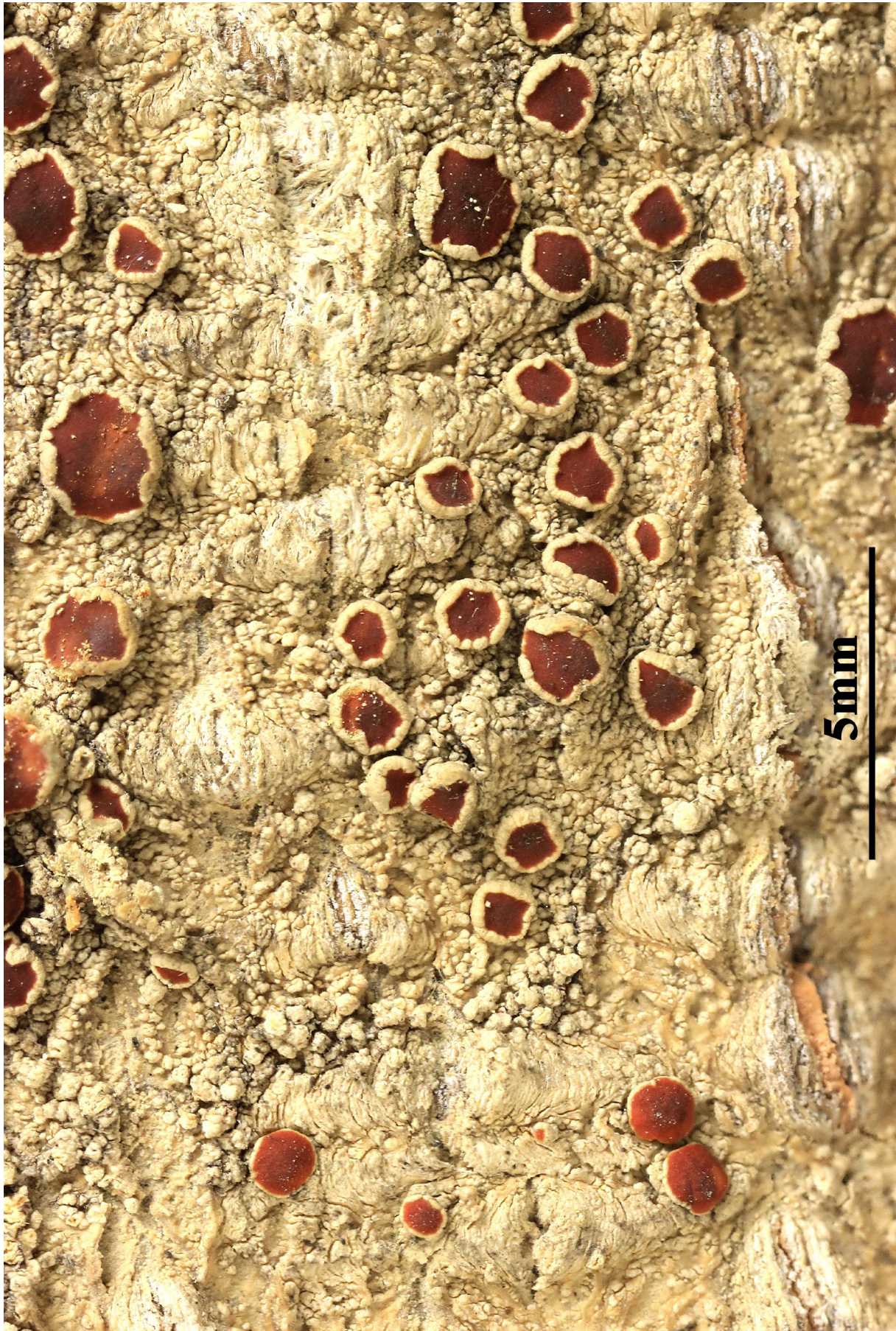
Haematomma fauriei Zahlbr., Annls mycol. 14(1/2): 59 (1916)

[KU364], Japan. Honshu. Prov. Musashi: Mt, Ryogami. On bark of *Fagus crenata*, 1400 m. Leg. H. Kashiwadani (no 14596), H. Shibuichi, and K. Yoshida, 10.7.1978, det. H. Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES EWT CRITICI EXSICCATI NR.364.

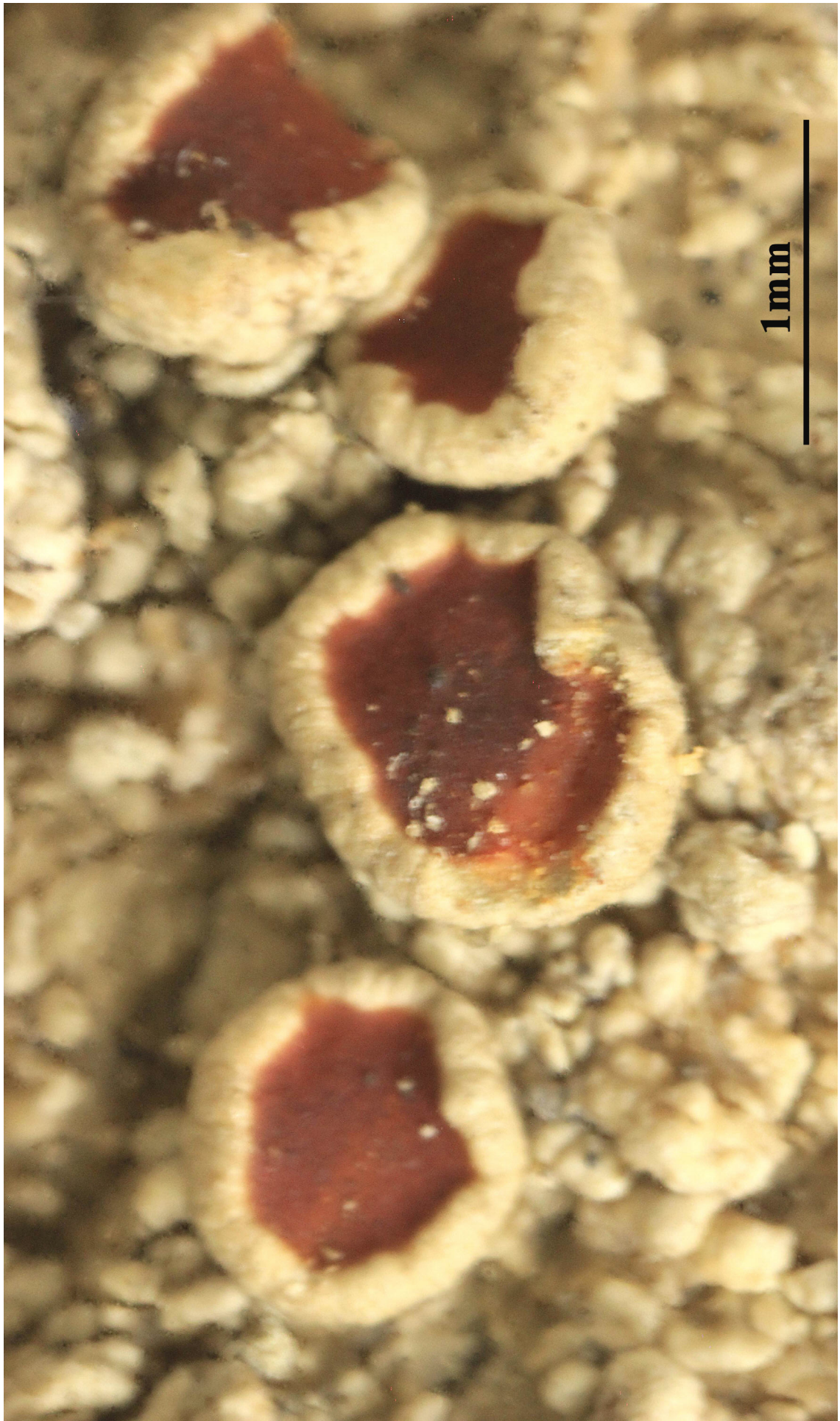
Thallus gelblich, grünlich oder schmutziggrau, unregelmäßig kleinwarzig oder uneben, leicht rissig, ca. 0.3-0.5 mm dick, ohne Sorale. Apothecien aufsitzend, meist 1-2 mm im Durchmesser, Scheibe dunkel scharlachrot oder ziegelfarbig, nackt, meist gewölbt, Rand dünn, glatt oder wenig crenuliert. Oft wachsen auf großen älteren Apothecien jüngere nach. Sporen 8/Ascus, 7 bis 10 (bis 14) zellig, gerade oder leicht sigmoid gekrümmt, 50-(61.2)-70 (-75) x 5-(5.5)-6 µm. Spermastien länglich, gekrümmt, 13-18 x 0.8-1 µm. Chemie: Atranorin, Usninsäure, Psoromsäure, 2'-O-Demethylpsoromsäure, Russulon, unbekannte Fettsäure, anal. B. Staiger, 8.2.1994. Endemisch in Japan.



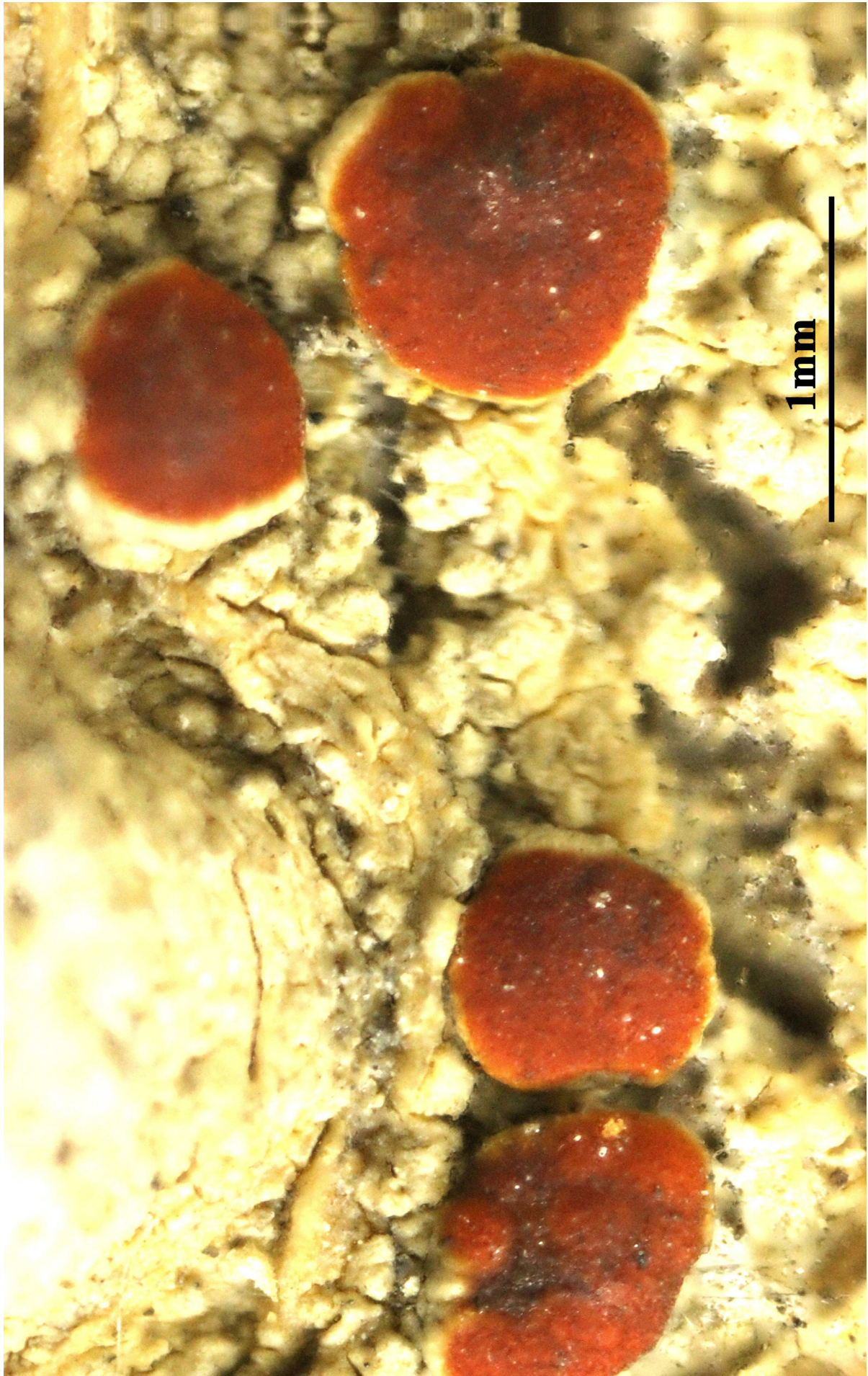
Haematomma fauriei



Haematomma fauriei



Haematomma fauriei



Haematomma fauriei

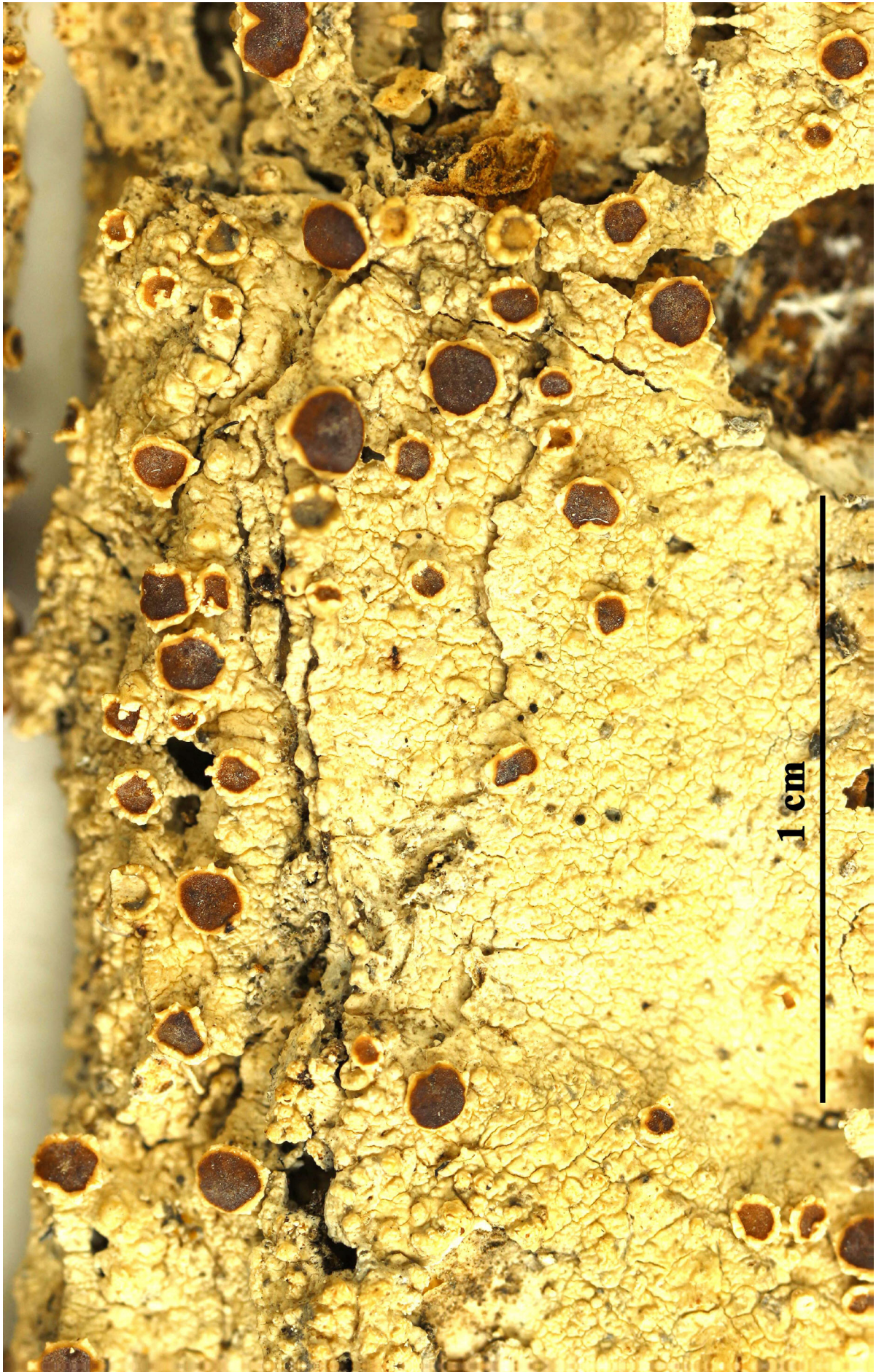
Haematomma ochrophaeum (Tuck.) A. Massal., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 3 5: 253 (1860) [1859-1860]
= *Biatora ochrophaea* Tuck. 1848
= *Loxospora ochrophaea* (Tuck.) R.C. Harris, in Egan, Bryologist 93(2): 217 (1990)

[KU166], Japan. Honshu. Prov. Musashi: Oh-yama, Chichibu-gun. On trunk of *Tsuga diversifolia*, 2100 m. Leg. H. Shibuichi (no. 4734), 10.8.1972, det, S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 166.

Thallus crustose, thick and verrucose; prothallus white, webby. Vegetative diaspores absent. Photobiont chlorococcoid alga. Ascomata lecanorine apothecia, large, up to 1.5 mm diam., constricted at base, somewhat raised; disk red-brown, lightly pruinose to epruinose; margin prominent, ragged. Paraphyses slightly branched. Asci clavate, with somewhat thickened tholus, K/I+ blue, 8-spored; ascospores hyaline, fusiform, ± curved or twisted (kidney-shaped), transversely 4-8-septate, 30-55 x 4-5.5 µm, septa often faint. Chemistry. K+ deep yellow, KC-, C-, PD+ orange; thamnolic acid detected by TLC. Substrate and habitat. Corticolous, mostly on conifers. Distribution. Northeastern North America southwest along Appalachian mountains; in North Carolina.

Literature

Brodo, I.M., S. Duran Sharnoff & S. Sharnoff. (2001) Lichens of North America. Yale University Press, New Haven & London. 795 pp.



Haematomma ochrophaeum



Haematomma ochrophaeum

Heterodermia isidiophora (Nyl.) D.D. Awasthi, Geophytology 3: 114 (1973)

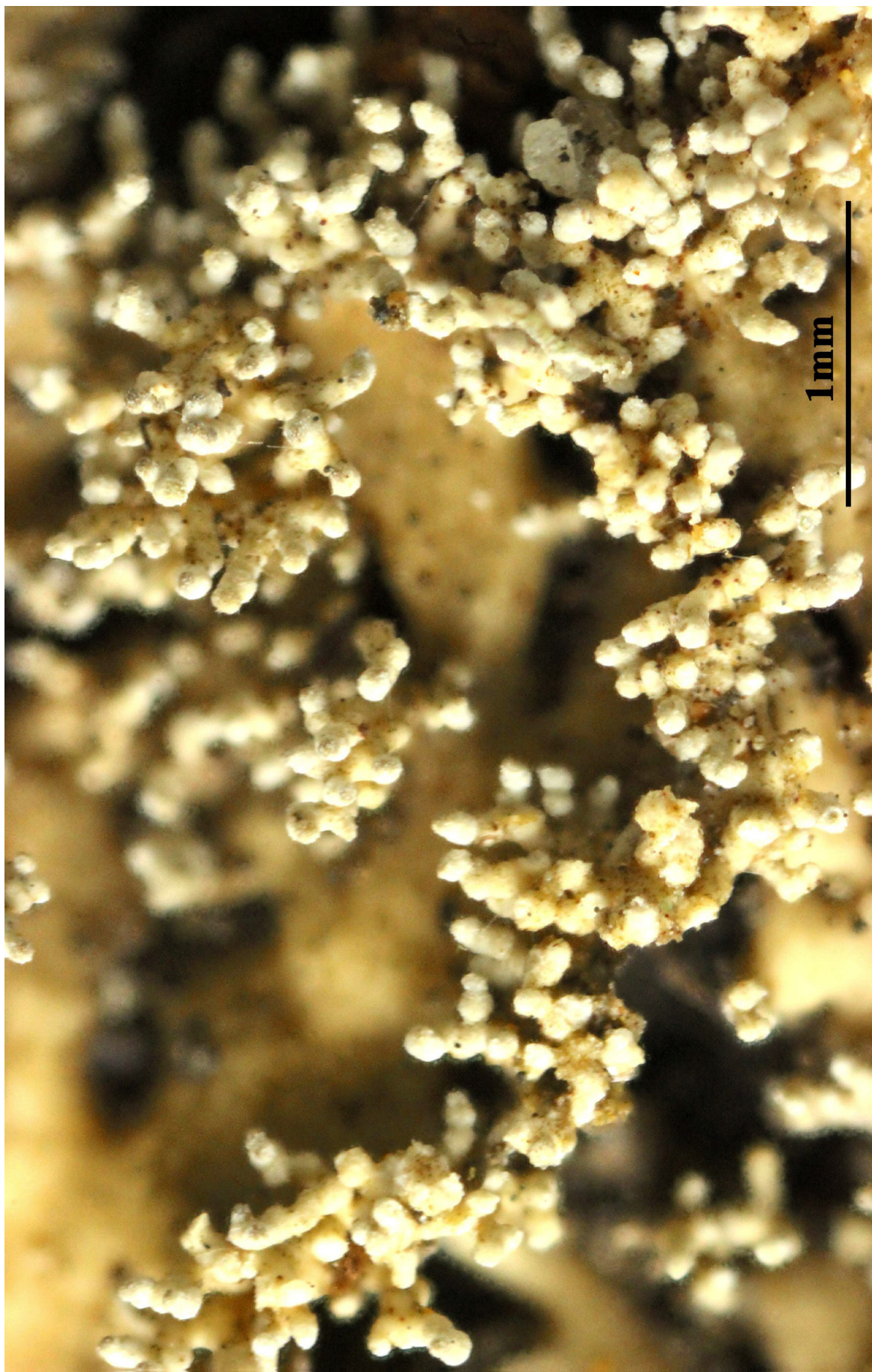
= *Physcia speciosa* f. *isidiophora* Nyl. 1860

[OH557], Japan. Kyushu. Prov. Higo (Pref. Kumamoto): Myotokuji Temple, Honto, Amakusa. On rocks, 30 m. Leg. M. Togashi & Y. Asahina, 1.12.1959, det. Y. Asahina. EXY. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 557.

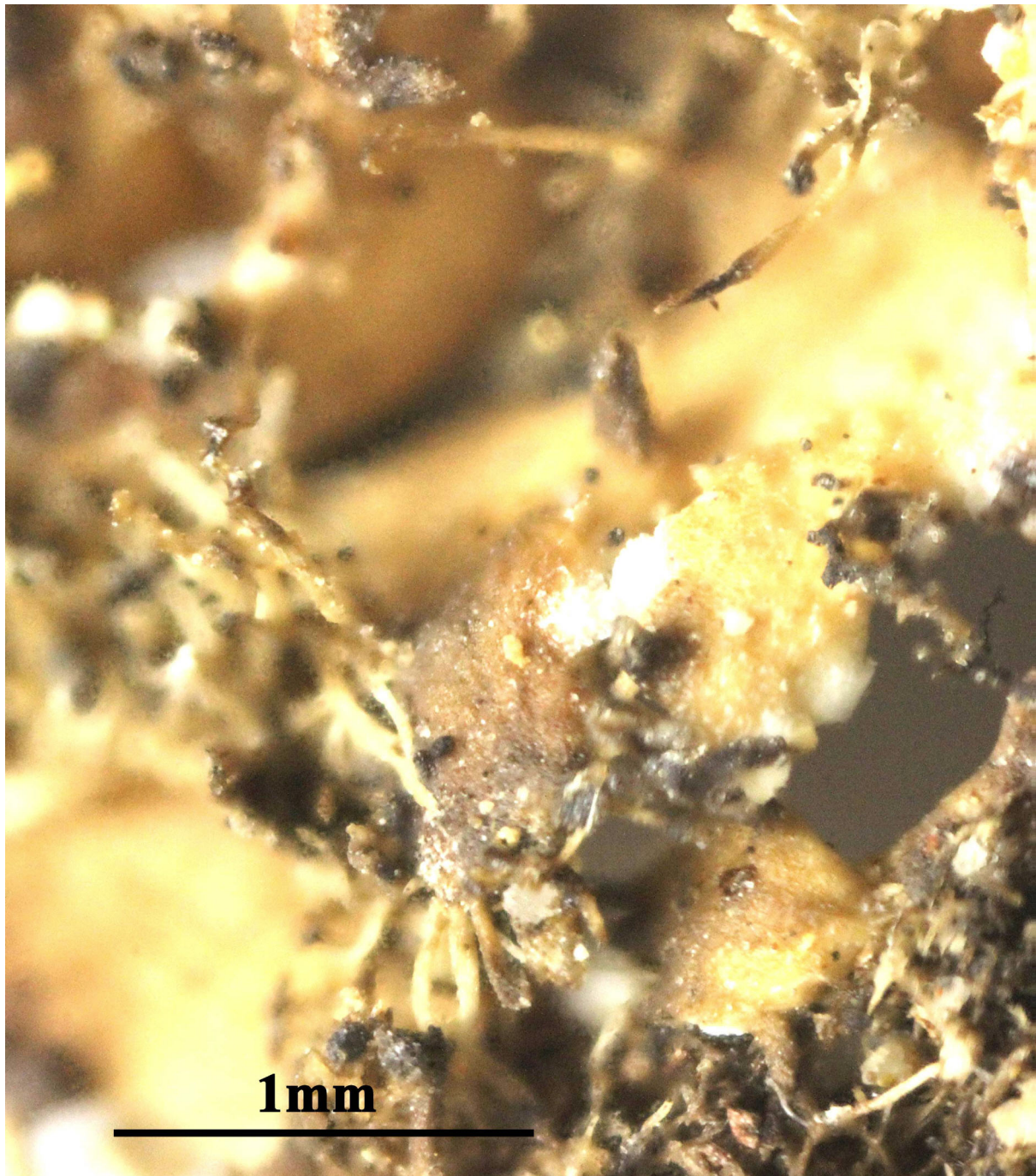
Thallus foliose, orbicular to irregularly spreading, loosely adnate, forming extensive colonies to 20 cm wide. Lobes 0.7–2.5 mm wide, $\pm$ plane, sublinear-elongate, sympodially or irregularly branched, $\pm$ discrete to contiguous at the periphery, with short lateral lobes; apices not ascending, eciliate. Upper surface whitish gray, esorediate, isidiate; isidia marginal and $\pm$ laminal, cylindrical or occasionally somewhat flattened, simple to coralloid-branched. Medulla white. Lower surface corticate, white to grayish to pale brown near the centre. Rhizines numerous, concolorous with the thallus or becoming dark to brown-black towards the apices, irregularly branched, mainly marginal, forming a dense black mat. Apothecia rare, laminal, adnate to substipitate 1.5–5.0 mm wide; margin isidiate; disc concave, brown to brown-black, epruinose. Ascospores Pachysporaria-type, ellipsoidal, $21\text{--}31 \times 12\text{--}17 \mu\text{m}$. Pycnidia rare, immersed; conidia bacilliform, $4\text{--}6 \times 1 \mu\text{m}$. Chemistry: Cortex K⁺ yellow, C[–], KC[–], P⁺ yellow; medulla K⁺ yellow, C[–], P[–]; containing atranorin (major), zeorin (major), 16 β -acetoxypentane-6 α ,22-diol (major), 6 α -acetoxypentane-16 β ,22-diol (minor or trace), leucotylin (minor), 6 α ,16 β -diacetoxypentane-22-ol (minor or trace). - Occurs on bark of unidentified trees and, more rarely, on rocks in hill evergreen forest, mixed deciduous forest and lower montane forest from 880–1595 m above sea level; also in Australia, Central and South America, Africa, Asia and New Zealand. Remarks:-This species is characterized by the laminal and marginal, simple to coralloid-branched isidia, the corticate lower surface with concolorous to brown-black rhizines and the lack of depsidones.



Heterodermia isidiophora



Heterodermia isidiophora



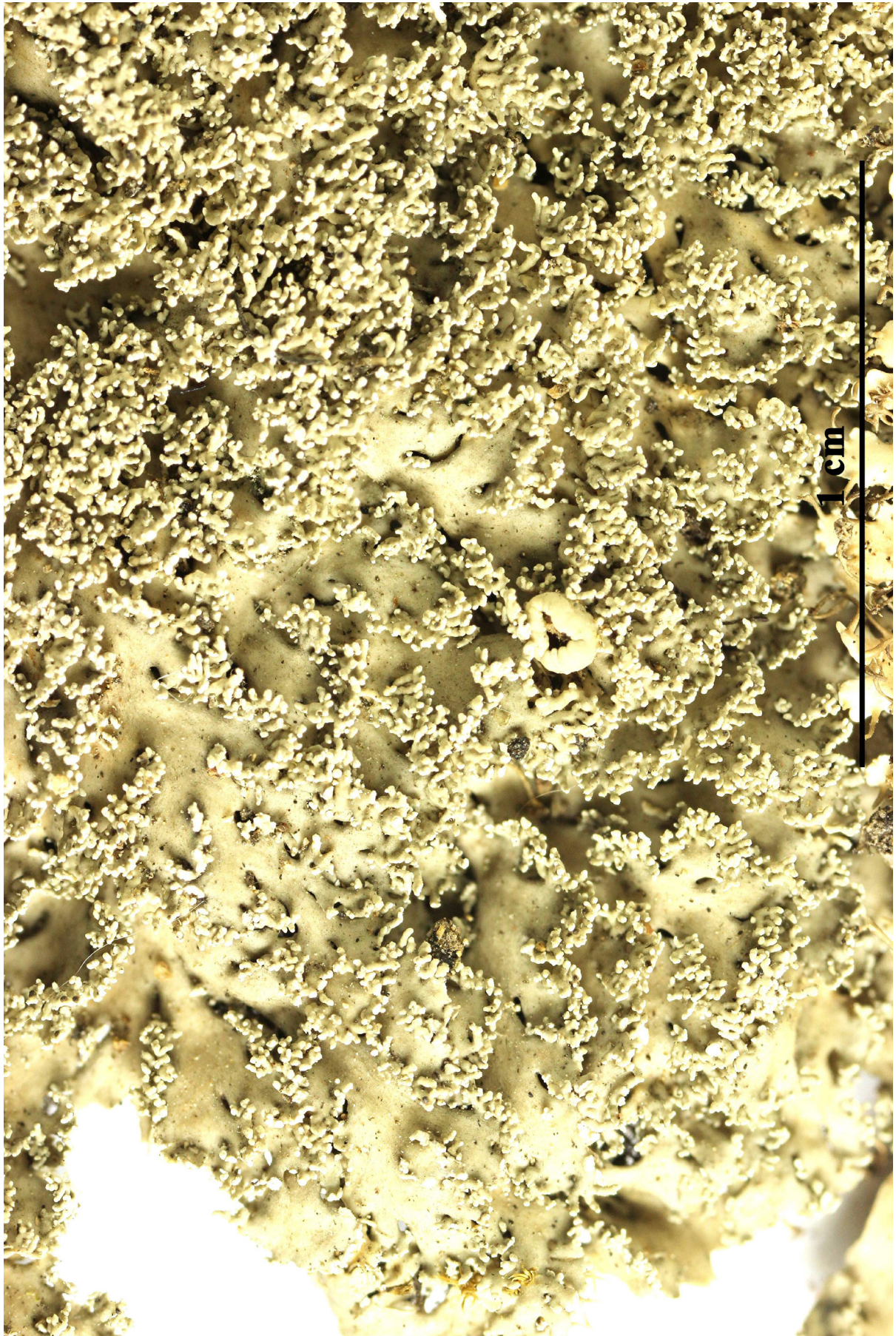
Heterodermia isidiophora

Heterodermia isidiophora (Nyl.) D.D. Awasthi, Geophytology 3: 114 (1973)

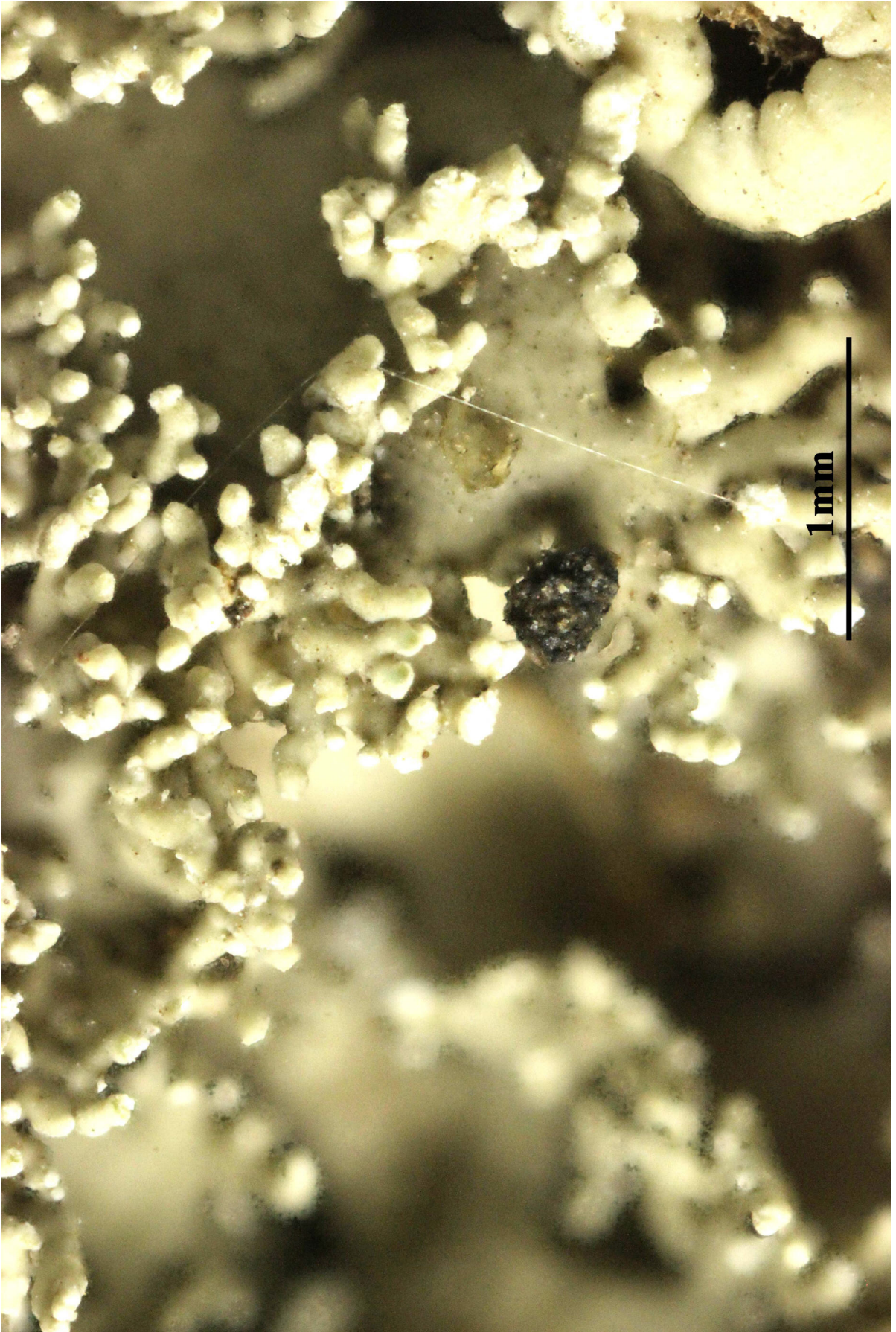
= *Physcia speciosa* f. *isidiophora* Nyl. 1860

[OH509], Japan. Honshu. Prov. Settsu (Pref. Hyogo): Kazan-in Temple. Miwa-cho, Arima-gun (34°56'27" N, 135°14'25" E). On rock, 380 m. Leg. M. Togashi, 30.8.1953, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR. 509.

Thallus foliose, orbicular to irregularly spreading, loosely adnate, forming extensive colonies to 20 cm wide. Lobes 0.7–2.5 mm wide, ± plane, sublinear-elongate, sympodially or irregularly branched, ± discrete to contiguous at the periphery, with short lateral lobes; apices not ascending, eciliate. Upper surface whitish gray, esorediate, isidiate; isidia marginal and ± laminal, cylindrical or occasionally somewhat flattened, simple to coralloid-branched. Medulla white. Lower surface corticate, white to grayish to pale brown near the centre. Rhizines numerous, concolorous with the thallus or becoming dark to brown-black towards the apices, irregularly branched, mainly marginal, forming a dense black mat. Apothecia rare, laminal, adnate to substipitate 1.5–5.0 mm wide; margin isidiate; disc concave, brown to brown-black, epruinose. Ascospores *Pachysporaria*-type, ellipsoidal, 21–31 × 12–17 µm. Pycnidia rare, immersed; conidia bacilliform, 4–6 × 1 µm. Chemistry: Cortex K⁺ yellow, C[–], KC[–], P⁺ yellow; medulla K⁺ yellow, C[–], P[–]; containing atranorin (major), zeorin (major), 16β-acetoxypentane-6α,22-diol (major), 6α-acetoxypentane-16β,22-diol (minor or trace), leucotylin (minor), 6α,16β-diacetoxypentane-22-ol (minor or trace). - Occurs on bark of unidentified trees and, more rarely, on rocks in hill evergreen forest, mixed deciduous forest and lower montane forest from 880–1595 m above sea level; also in Australia, Central and South America, Africa, Asia and New Zealand. Remarks:-This species is characterized by the laminal and marginal, simple to coralloid-branched isidia, the corticate lower surface with concolorous to brown-black rhizines and the lack of depsidones.



Heterodermia isidiophora



Heterodermia isidiophora

Heterodermia japonica (M. Satô) Swinscow & Krog, Lichenologist 8(2): 122 (1976)

= *Anaptychia dentritica* var. *japonica* M. Satô

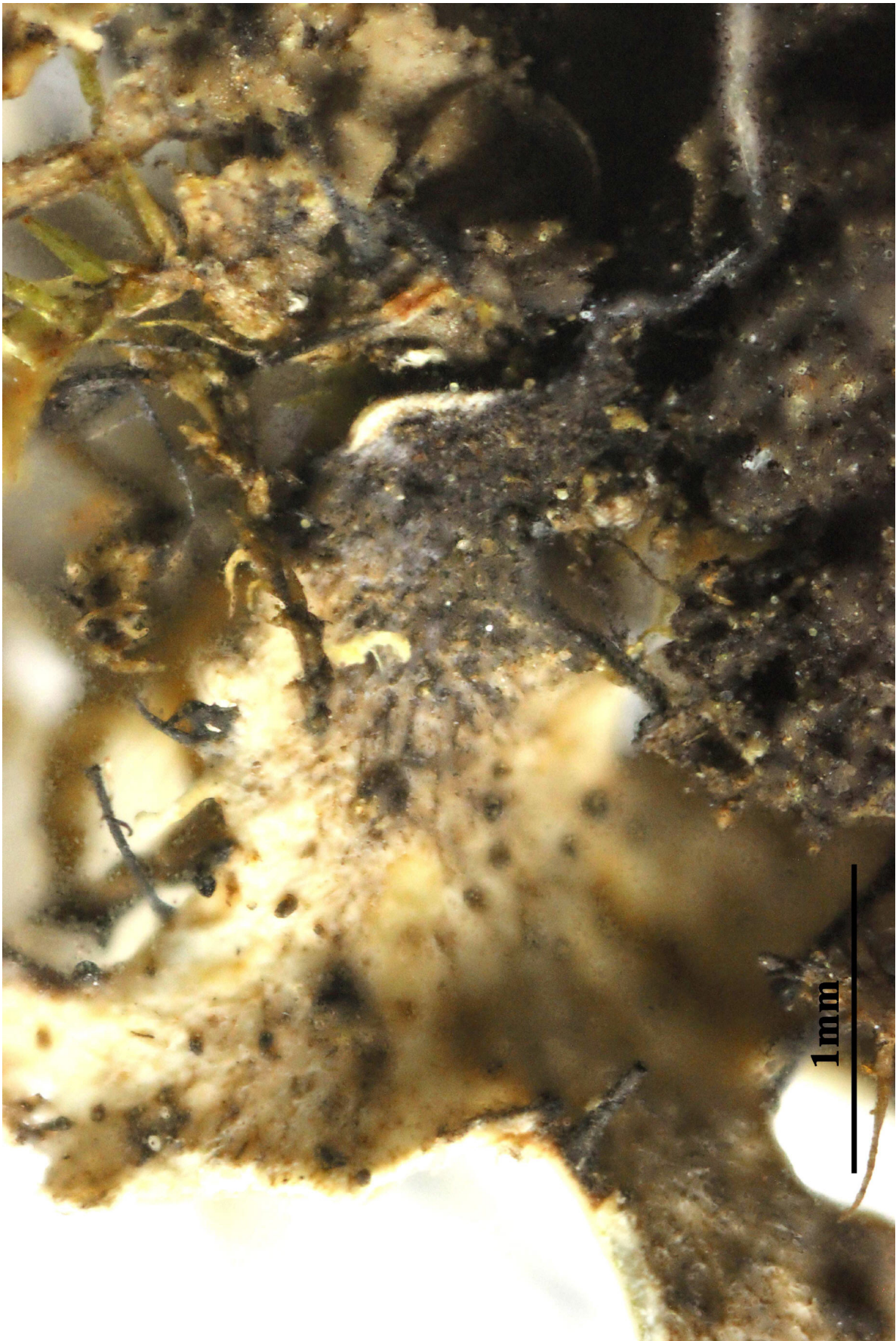
= *Polyblastidium japonicum* (M. Satô) Kalb, in Mongkolsuk, Meesim, Poengsungnoen, Buaruang, Schumm & Kalb, Phytotaxa 235(1): 43 (2015)

[OH610], Japan. Honshu. Prov. Izu (Pref. Shizuoka): Haccho Pond. Amagi Mts. Izu-city (34°50'40" N, 138°57'38" E). On trunc of *Pieris japonica*, 1180 m. Leg. Y. Ohmura (no. 12074) & M. Sugimoto, 13.3.2015. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 610.

Thallus foliose, irregularly spreading to $\pm$ orbicular, loosely adnate, to 5 cm wide, often coalescing to form colonies up to 15 cm wide. Lobes 0.7–2.0 mm wide, to ca. 2–4(–5) mm wide at the tips, plane to weakly convex or weakly concave, sublinear-elongate, dichotomously branched, radiating; apices ascending, usually discrete, $\pm$ lobulate along the lobe margins, lobules $\pm$ rounded or sparingly branched, 0.3–0.8 mm wide, rarely with small soralia. Upper surface greenish white, whitish to pale gray, sorediate; soredia farinose to granular, soralia labriform to capitate, on lateral and terminal lobes, occasionally spreading along lobe margins. Medulla white. Lower surface ecorticate, $\pm$ compact, white to violet-black in the centre; yellow pigments absent. Rhizines marginal, black, simple or squarrosely branched, 1–3(–7) mm long. Apothecia very rare, laminal, substipitate, 1–8 mm wide; margin lobulate, lobules ecorticate, partly yellow on the lower surface, apically sorediate; disc concave, dark brown to brown-black, $\pm$ gray pruinose. Ascospores Polyblastidia-type, ellipsoidal, with 2–3 sporoblastidia, 40–45 $\times$ 20–23 μ m. Pycnidia common, immersed, then becoming emergent, visible as black dots; conidia bacilliform, 4–5 $\times$ 1 μ m. Chemistry: Cortex K+ yellow, C–, KC–, P+ yellow; medulla K+ yellow, C–, P–; containing atranorin (major), zeorin (major), japonene (major), 16 β -acetoxypopane-6 α ,22-diol (trace), 6 α -acetoxypopane-22-hydroxypopane-25-oic acid (trace), anaptychin 5 (minor). - A pantropical and pantemperate species. Remarks: This species is characterized by sorediate upper surface, $\pm$ radiating lobe apices, the absence of a lower cortex, the white to blackish violet lower surface, ascospores with sporoblastidia and the presence of atranorin and triterpenes.



Heterodermia japonica



Heterodermia japonica

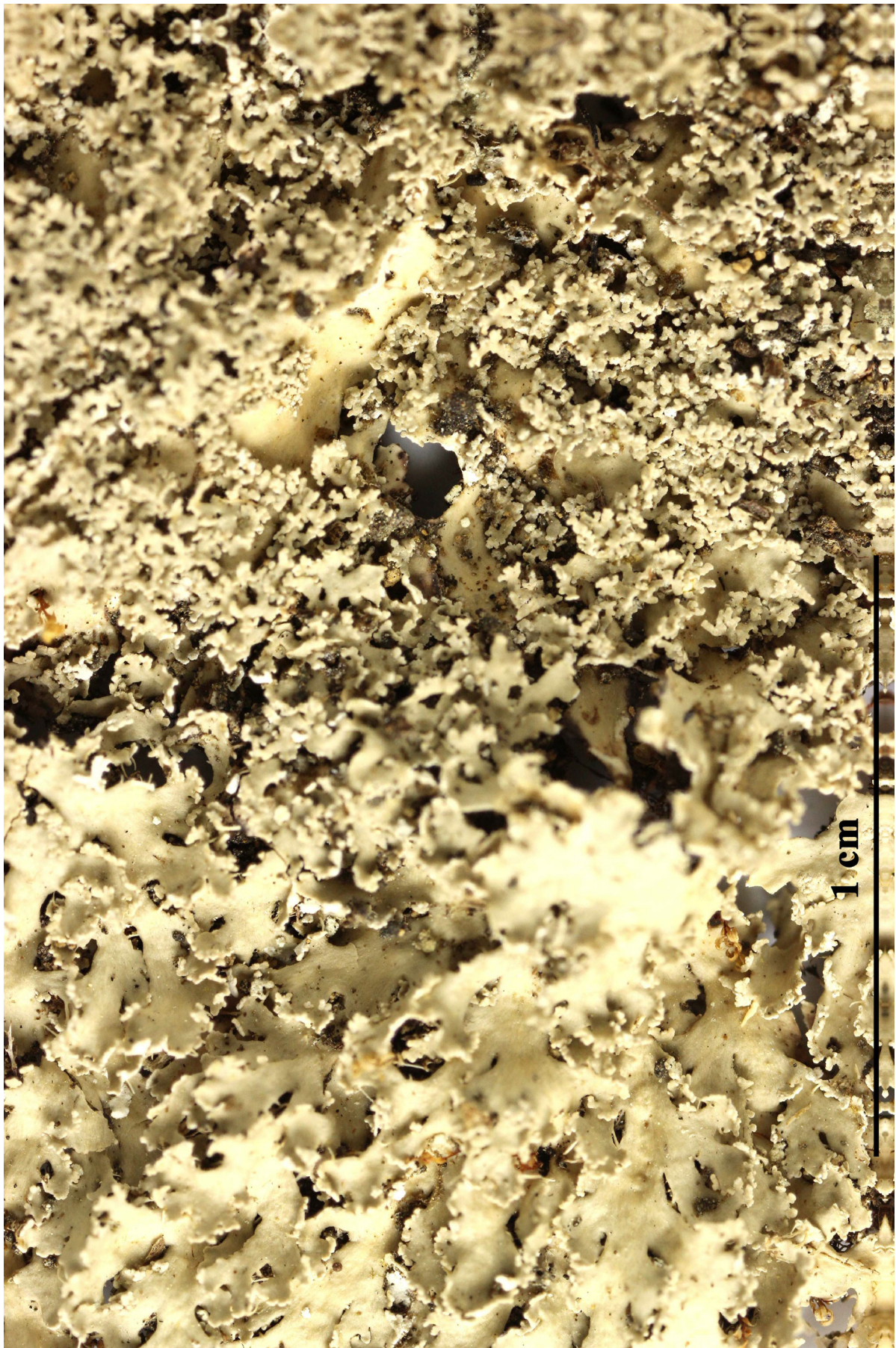
Heterodermia microphylla (Kurok.) Skorepa, Lichenologist 8(2): 132 (1976)

= *Anaptychia hypoleuca* var. *microphylla* Kurok. 1959

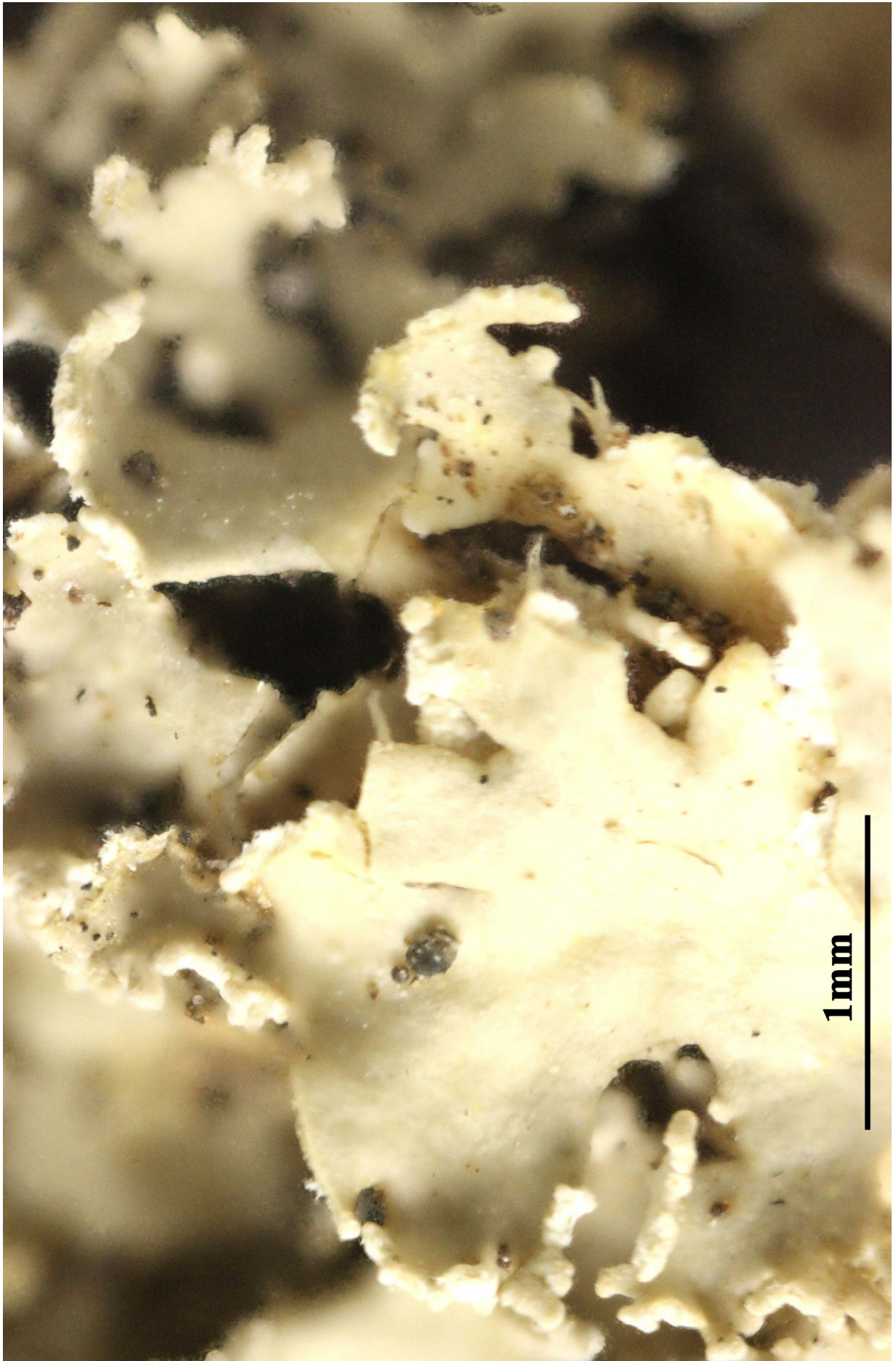
= *Polyblastidium microphyllum* (Kurok.) Kalb, in Mongkolsuk, Meesim, Poengsungnoen, Buaruang, Schumm & Kalb, Phytotaxa 235(1): 44 (2015)

[OH611], Japan. Honshu. Prov. Izu. Miyagahara. Nishiizu-cho, Kamogun (4°49'57" N, 138°51'09" E). On rock, 459 M. Leg. Y. Ohmura (no.12082) M. Sugimoto & H. Kashiwadani, 15.3.2019, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR.611.

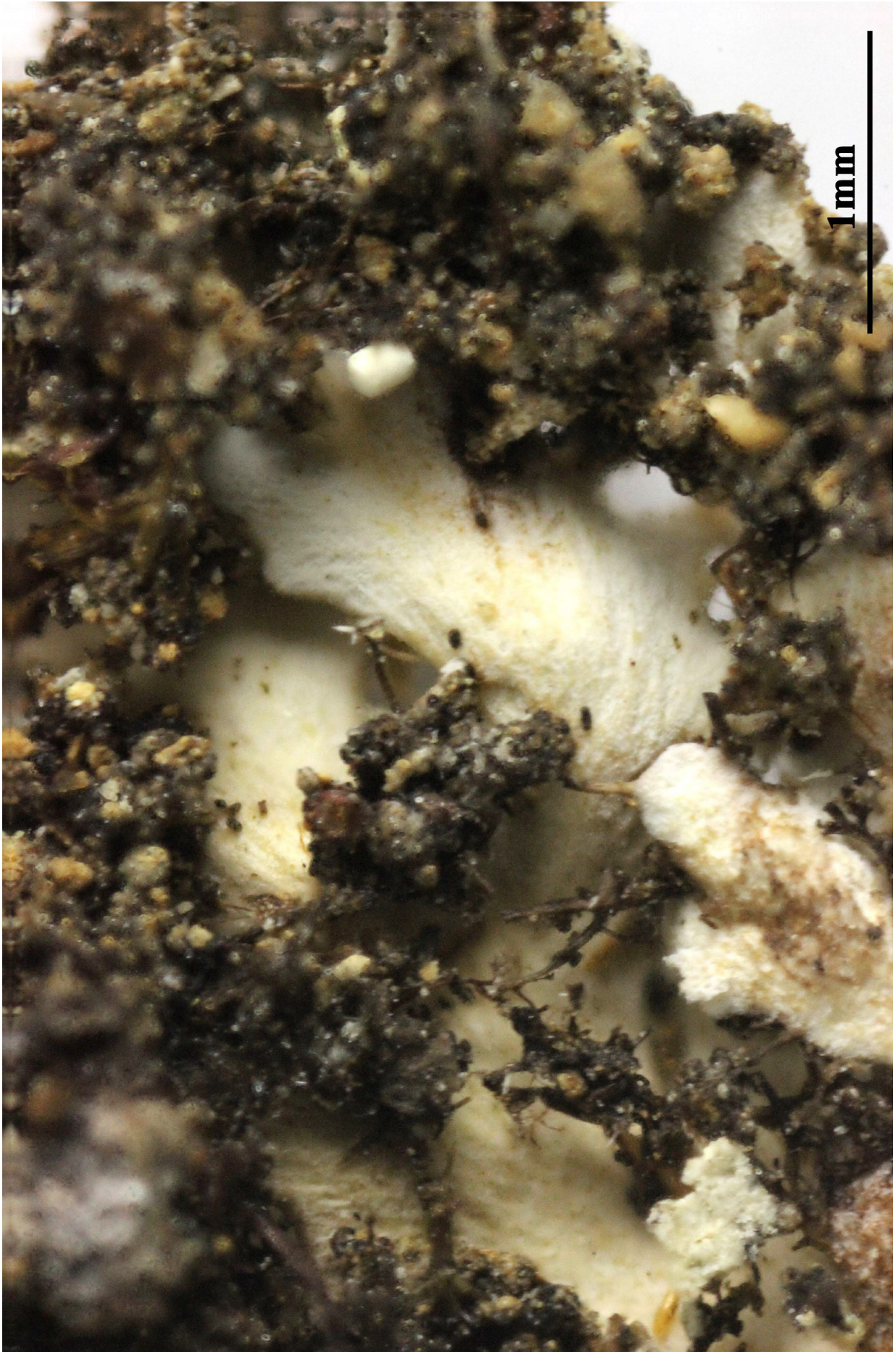
Thallus foliose, orbicular to irregularly spreading, loosely adnate, 5–15 cm wide. Lobes 0.5–2.0 mm wide, plane to weakly convex or weakly concave, sublinear-elongate, irregularly to subdigitately branched; apices not ascending, $\pm$ discrete to contiguous at the periphery, with short lateral lobes, eciliate. Upper surface gray-white to gray, epruinose, with marginal dorsiventral lobules, rarely also laminal, usually minutely dissected, often granular near the tips, or entire phyllidia becoming granular and appearing sorediate. Medulla white. Lower surface ecorticate, white to grayish or pale brown in the centre. Rhizines numerous, mainly marginal, concolorous with the thallus or darkening and forming a dense marginal mat, irregularly branched. Apothecia rare, laminal, sessile to substipitate, 3–5 mm wide; margin phyllidiate, the phyllidia becoming $\pm$ sorediate; disc concave, brown to brown-black, epruinose. Ascospores Polyblastidia-type, ellipsoidal, mostly without polyblastidia, albeit in some specimens, some of the spores are with polyblastidia (Swinscow & Krog 1988: 98), $25\text{--}35 \times 12\text{--}18 \mu\text{m}$. Pycnidia initially immersed, becoming emergent, visible as black dots; conidia bacilliform, $3\text{--}5 \times 1 \mu\text{m}$. Chemistry: Cortex K+ yellow, C–, KC–, P+ yellow; medulla K+ yellow, C–, P+ pale yellow; containing atranorin (major), zeorin (major), aipolic acid (trace), 6 α -acetoxyhopane-16 β ,22-diol (trace), japonene (trace), 6 α -acetoxy-16 β ,22-dihydroxyhopane-25-oic acid (minor), $\pm$ 16 β -acetoxyhopane-6 α ,22-dihydroxyhopane-25-oic acid (trace), anaptychin 1 (trace). Distribution and habitat:—Known from n South America, Australia, East Africa, South Africa, South, South-east and East Asia and New Zealand. Remarks: This species is characterized by minutely dissected marginal phyllidia, ecorticate lower surface, Polyblastidia-type ascospores and presence of the japonica-chemosyndrome of triterpenes.



Heterodermia microphylla



Heterodermia microphylla



Heterodermia microphylla

Himantormia lugubris (Hue) I.M. Lamb, Brit. Antarct. Surv. Sci. Rep. 38:
18 (1964)
= *Ramalina lugubris* Hue 1915

[OH582], Antarctica. South Shetland Islands. Nelson Island. Harmony
Cove. On rock, 5-10 m. Leg. M. Inoue (no. 21742), 17.12.1988, det. M.
Inoue. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR.582.



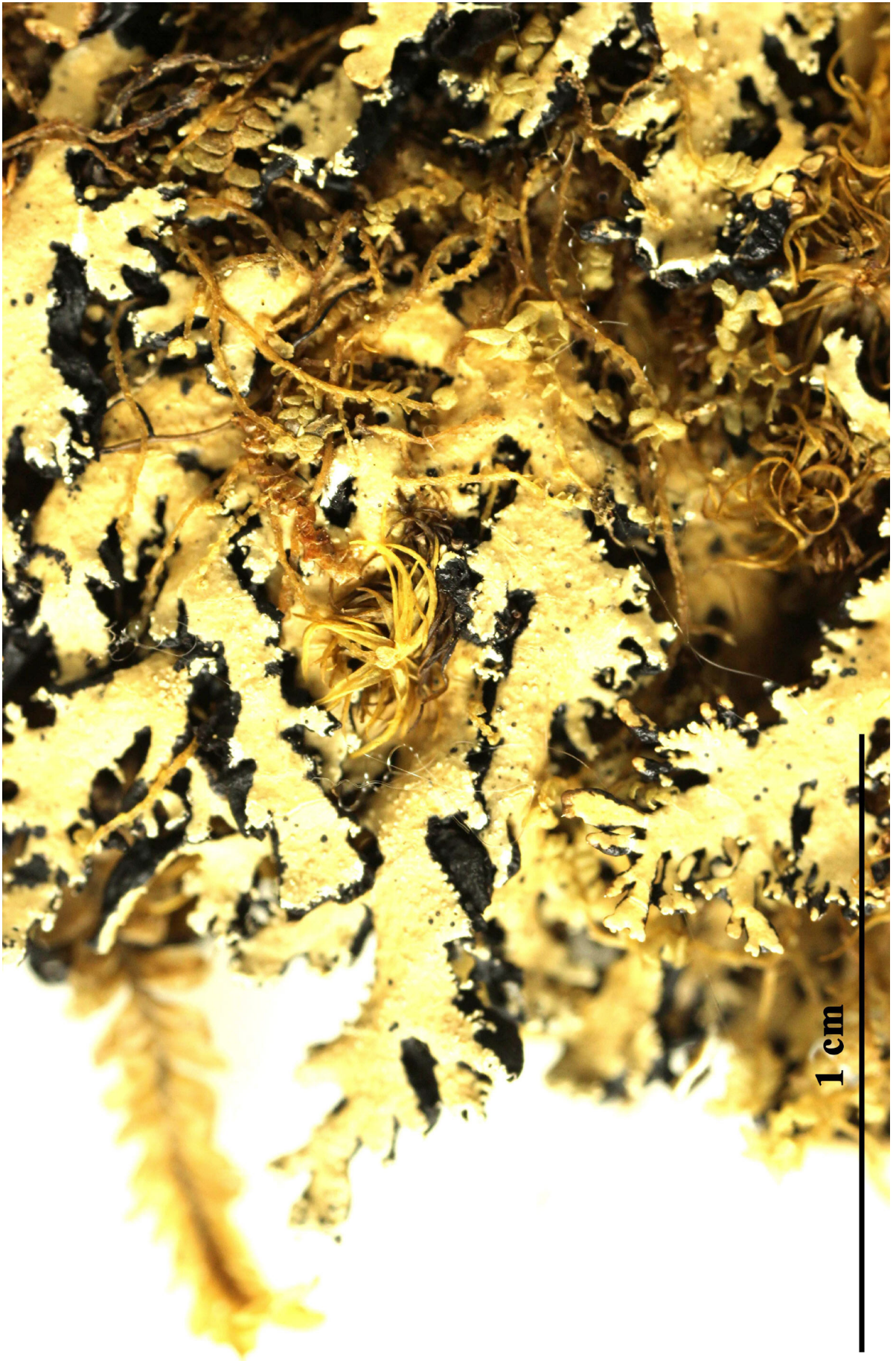
Himantormia lugubris



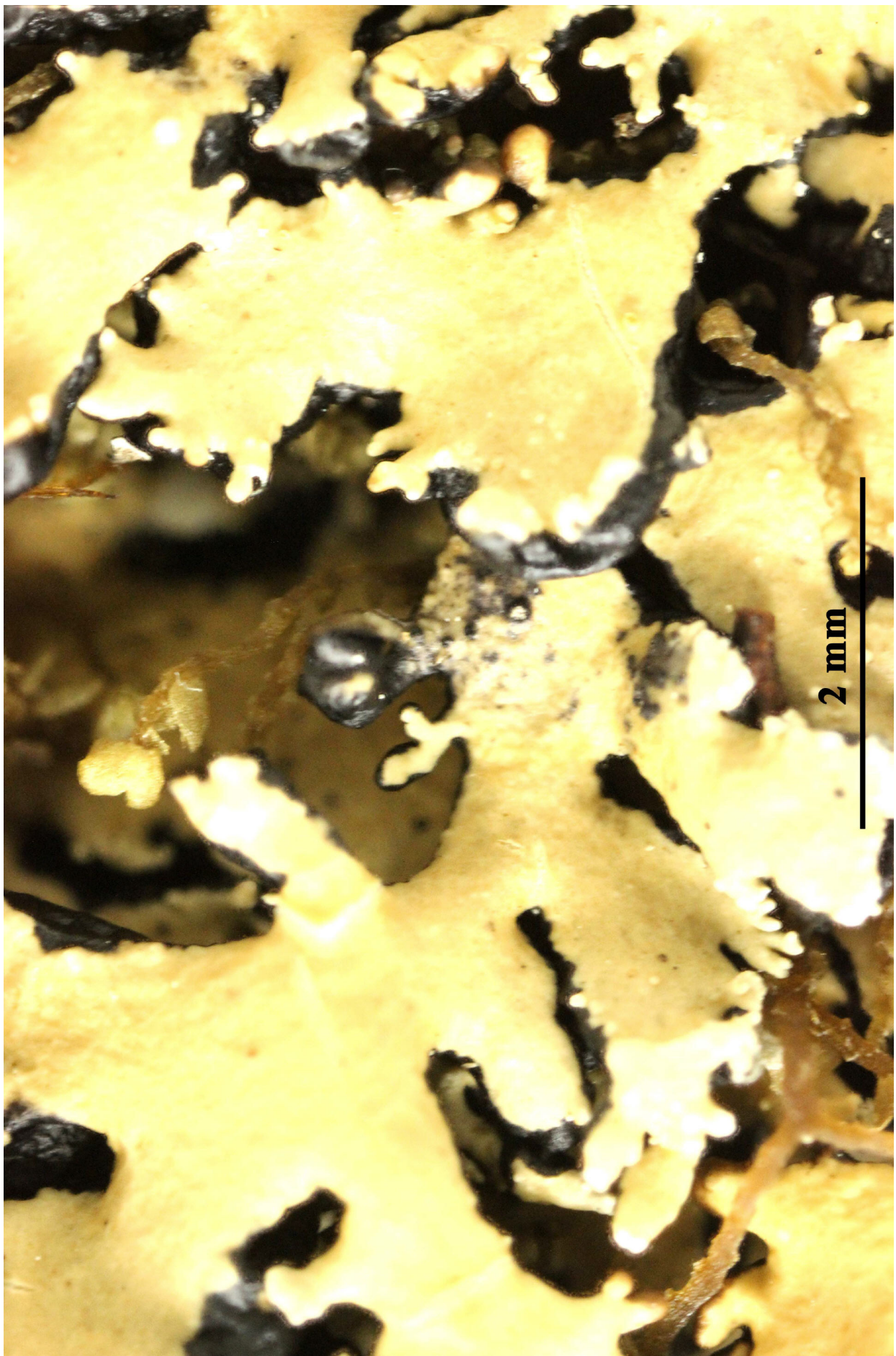
Himantormia lugubris

Hypogymnia hokkaidensis Kurok., Mem. Natn Sci. Mus, Tokyo 4: 62 (1971)

[KU167], Japan. Hokkaido. Prov. Nemuro: Ochiishi. On trunk of *Pinus glehnii*, 50 m. Leg. S. Kurokawa (no. 65826), 2.9.1965, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 167.



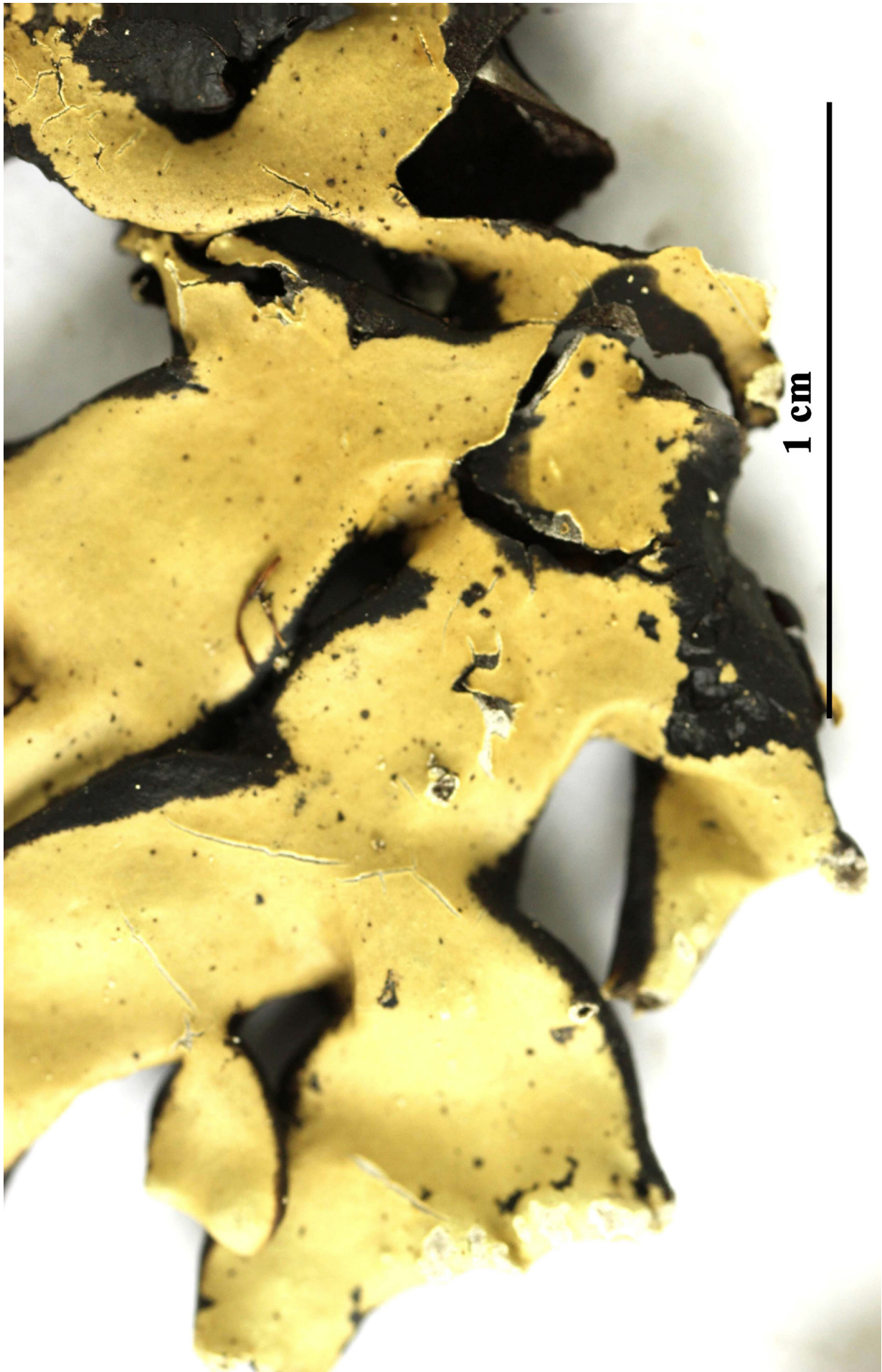
Hypogymnia hokkaidensis



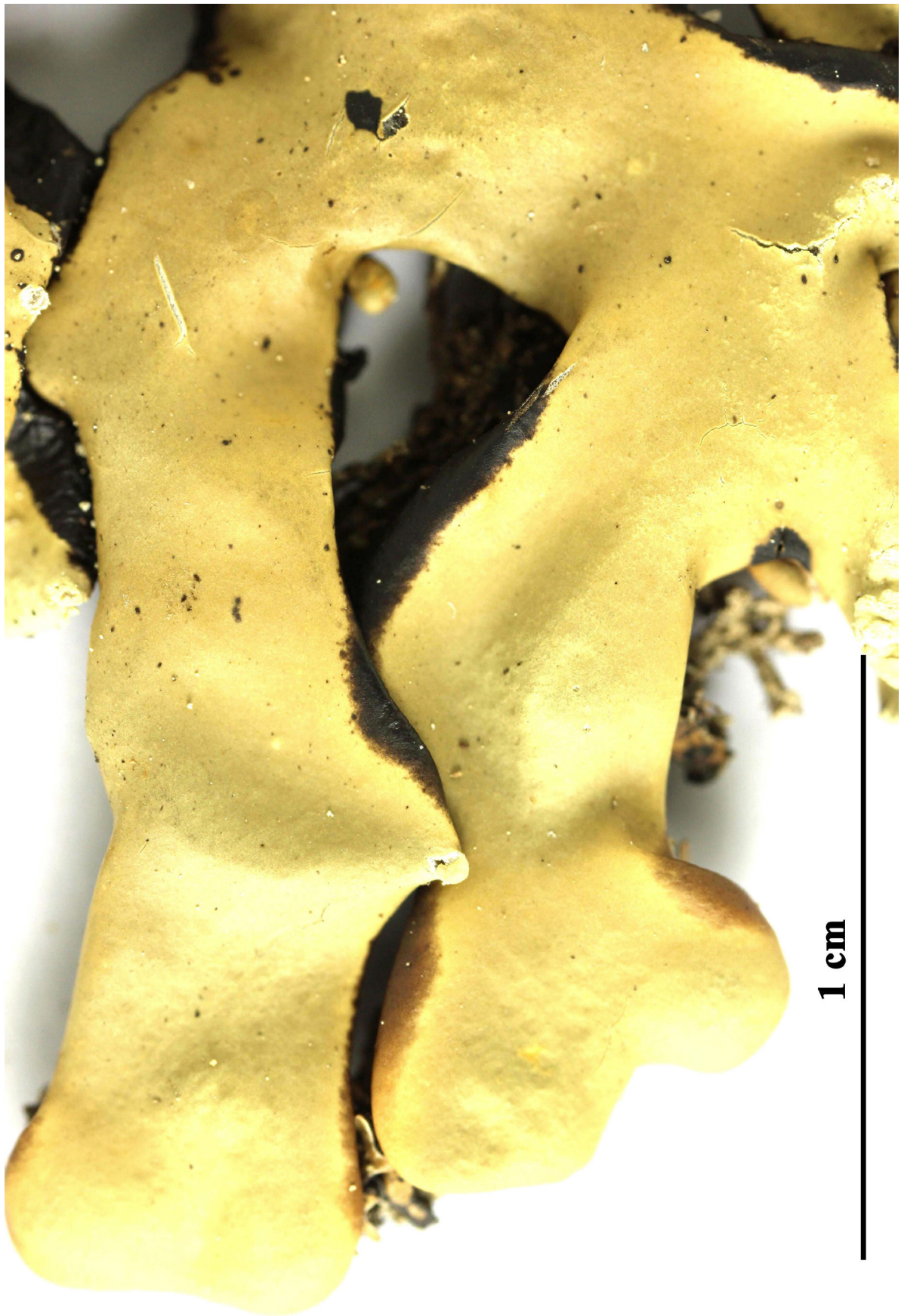
Hypogymnia hokkaidensis

Hypogymnia hypotrypella (Asahina) Rass., Bot. Mater. Gerb. bot. Inst.
V.A. Komarova 13: 23 (1960)
= *Parmelia hypotrypella* Asahina 1950

[KU223], Japan. Honshu. Prov. Musashi: Mt. Tokusa, Chichibu-gun.
On bark of *Abies mariesii*, 2459 m. Leg. K. Yoshida, 15.6.1975, det. S.
Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSIC-
CATI NR. 223.



Hypogymnia hypotrypella



Hypogymnia hypotrypella

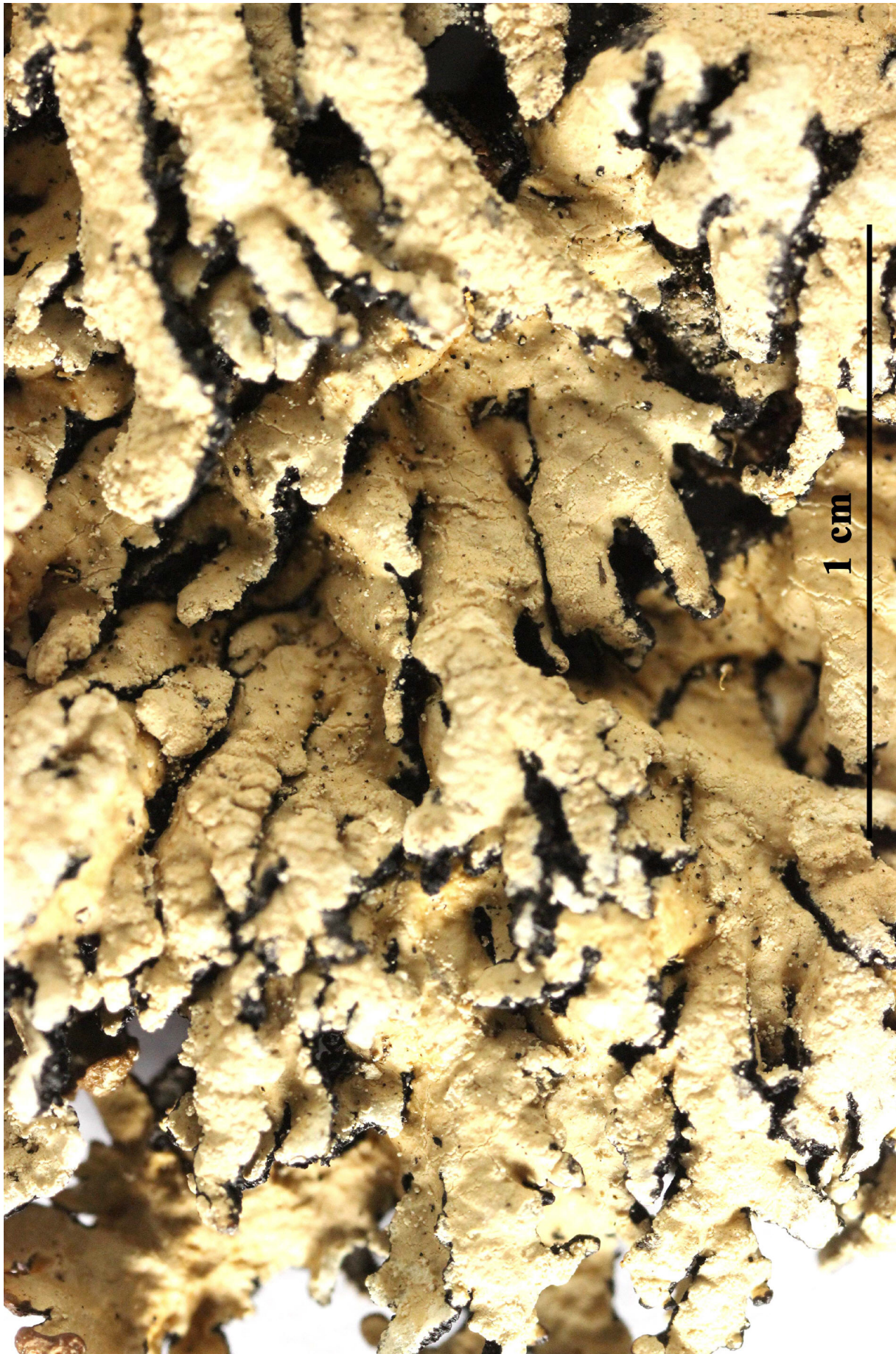


Hypogymnia hypotrypella

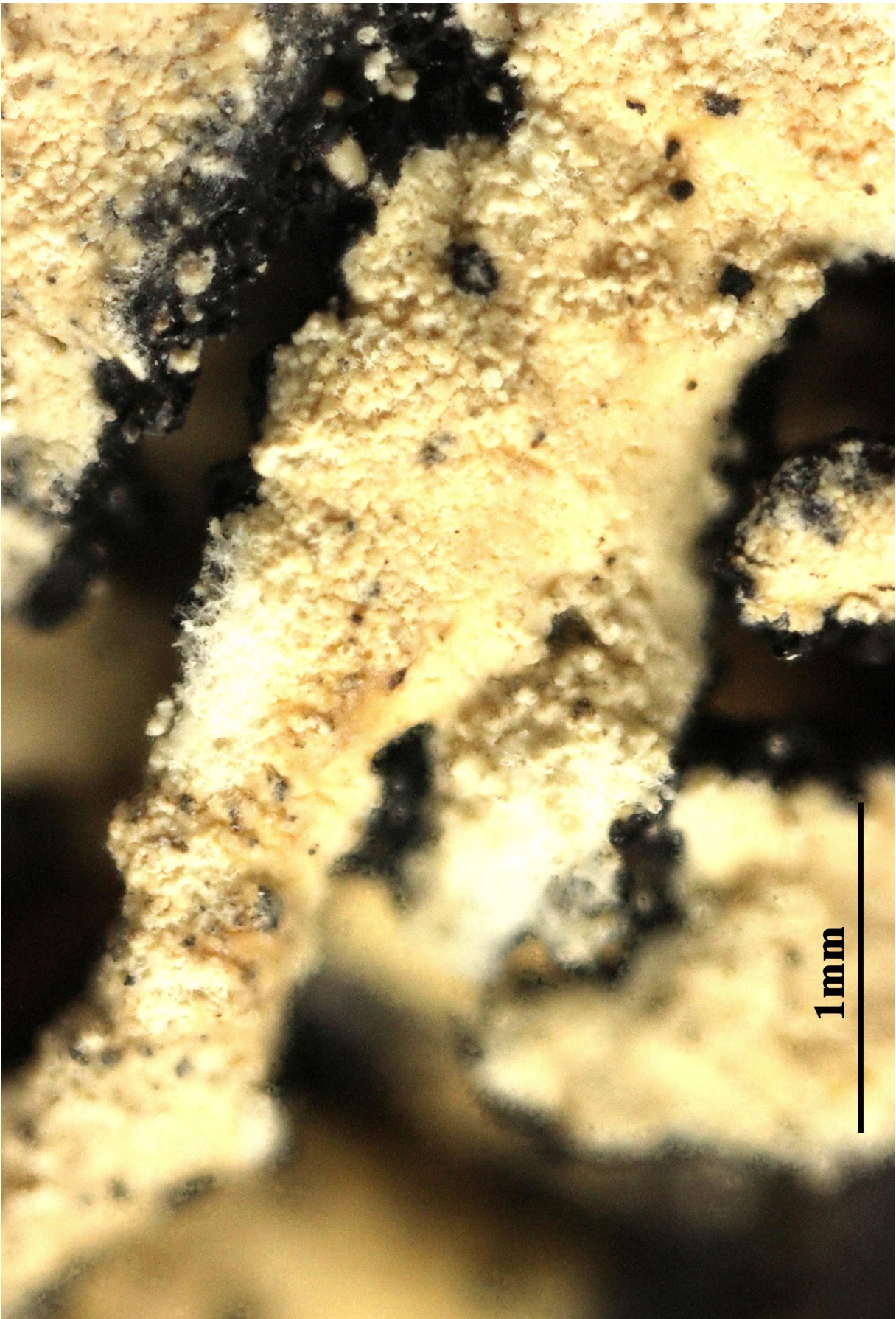
Hypogymnia mundata* f. *sorediosa (Bitter) Rass., Bot. Mater. Otd. Sporo-
rov. Rast. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 11: 11 (1956)
= *Parmelia mundata* f. *sorediosa* Bitter 1901
= *Hypogymnia pulverata* Elix, Brunonia 2(2): 217 (1980)

[KU168], Japan. Hokkaido. Pro. Nemuro: Ochiishi. On trunk of *Pinus glehnii*, 50 m. Leg. S. Kurokawa (no, 65830), 2.9.1965, det. S. Kurokawa. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 168.

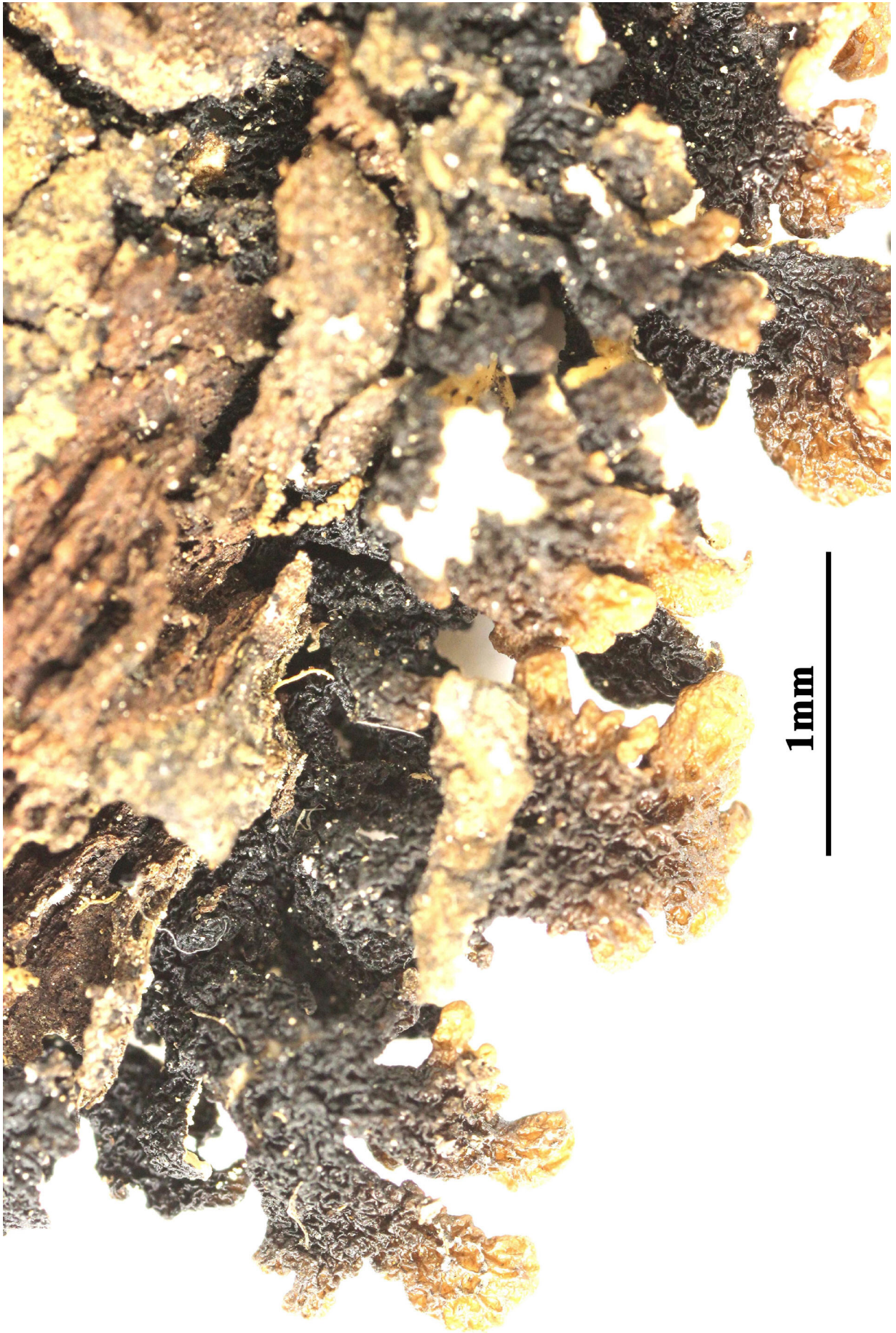
Thallus foliose, with distinct upper and lower surfaces (cortices), circular, to 15 cm wide, of crowded or contiguous lobes. Lobes 1-10 mm wide, somewhat puffed and thick but solid inside, unlike the hollow lobes of other *Hypogymnia* species. Lobes dichotomously branched, not crowded; near the center of the thallus they adhere to the substrate while lobes on the periphery are trailing. Upper cortex grey with wrinkles on the surface, erupting into granular soredia that may cover the upper surface. Medulla mostly solid. Lower surface strongly wrinkled, pale brown near the tips, becoming black inwards. Apothecia rare, rising above the surface so they appear stalked, funnel-shaped, 3-12 mm wide, the fruiting surface concave to flat, red-brown, thalline margin smooth (entire), becoming sorediate with age. Soredia laminal, arising through disintegration of the upper cortex. Photobiont a green alga. Chemistry: Cortex K⁺ yellow (atrorin), medulla KC⁺ red, P⁺ red or P⁻. Distinctive characters: Evenly forked thallus with solid medulla, coarsely sorediate upper cortex.



Hypogymnia mundata f. *solediosa*



Hypogymnia munda f. *solediosa*

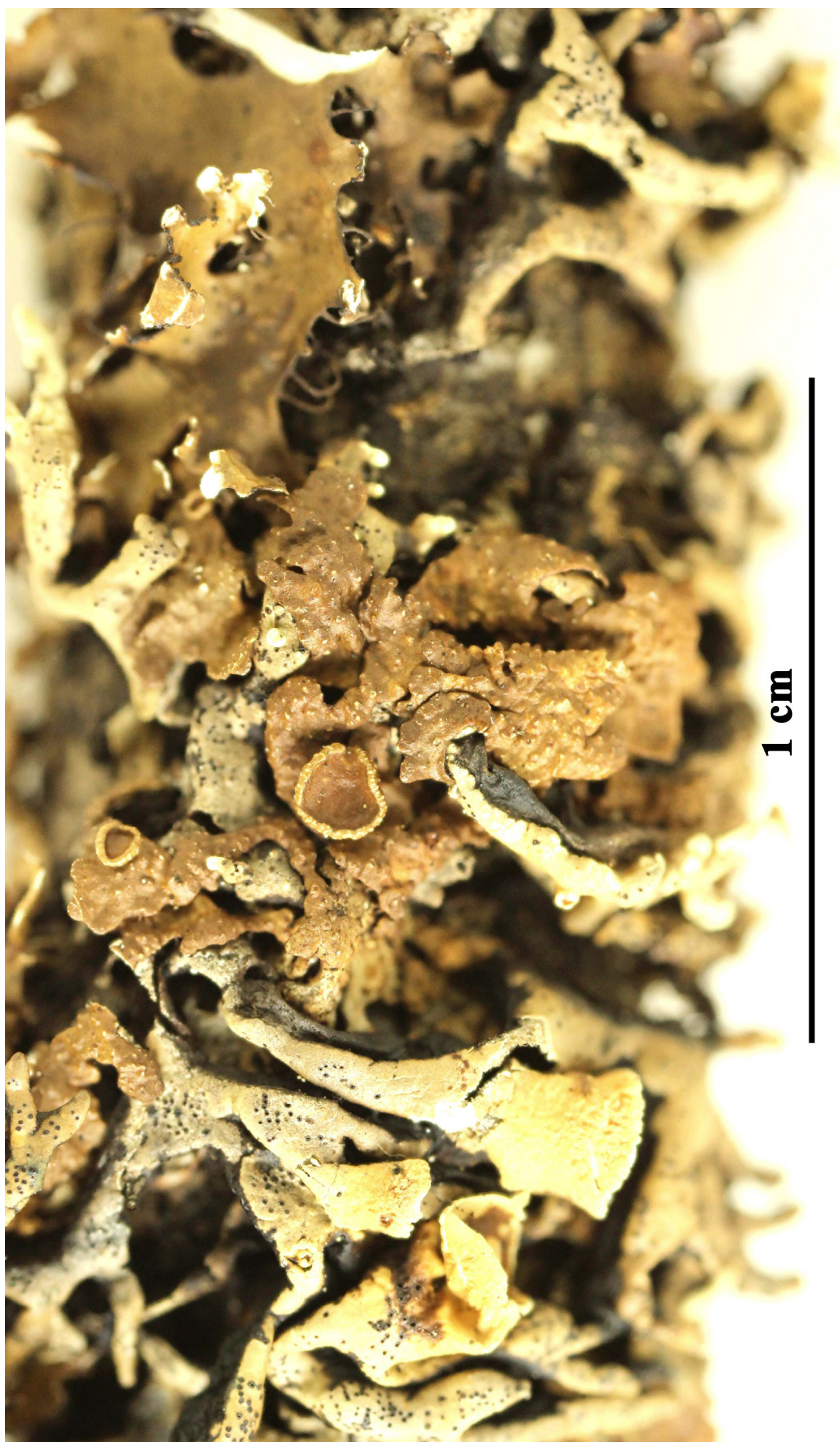


Hypogymnia mundata f. *solediosa*

Hypogymnia nikkoensis (Zahlbr.) Rass., Novosti Sist. Nizsh. Rast. 4: 294 (1967)

= *Parmelia nikkoensis* Zahlbr. 1927

[KU567], Japan. Honshu. Prov. Shinano: Jumonji Pass, Kawakami-mura. Minamisaku-gun. On trunk of *Larix leptolepis*, 2000 m. Leg. K. Yoshida (no.3518), 18.10.1978, det. K. Yoshida. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 567.



Hypogymnia nikkoensis



Hypogymnia nikkoensis

Hypogymnia pseudophysodes (Asahina) Rass., Novosti Sist. Nizsh. Rast.
4: 294 (1967)
= *Parmelia pseudophysodes* Asahina 1951

[KU569], Japan. Honshu. Prov. Musashi: Mt. Kobushi, Chichibu-gun. On twigs of *Abies veitschii*, 2400 m. Leg. H. Shibuichi (no. 5238), 2400m. Leg. H. Shibuichi (no. 5238). & K. Yoshida, det. K. Yoshida. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIOERS ET CRITICI EXSICCATI NR. 569.

Wächst epiphytisch auf der Rinde in Nadelwaldzonen. Ähnelt *Hypogymnia physodes* (Konaribongoke), lässt sich jedoch dadurch unterscheiden, dass Soredien (Abb. 36g) zerstreut über die gesamte Oberseite des Lagerkörpers verteilt sind. Inhaltsstoffe und chemische Reaktionen entsprechen denen von *Hypogymnia physodes*. Verbreitung: Hokkaido – Shikoku; Taiwan, Sachalin. Exemplare mit einer P+ vermilionroten Markreaktion (enthält Physodalsäure) werden als var. *reagens* (Asah.) Kurok. abgegrenzt, während das Typusexemplar P– reagiert.



Hypogymnia pseudophysodes

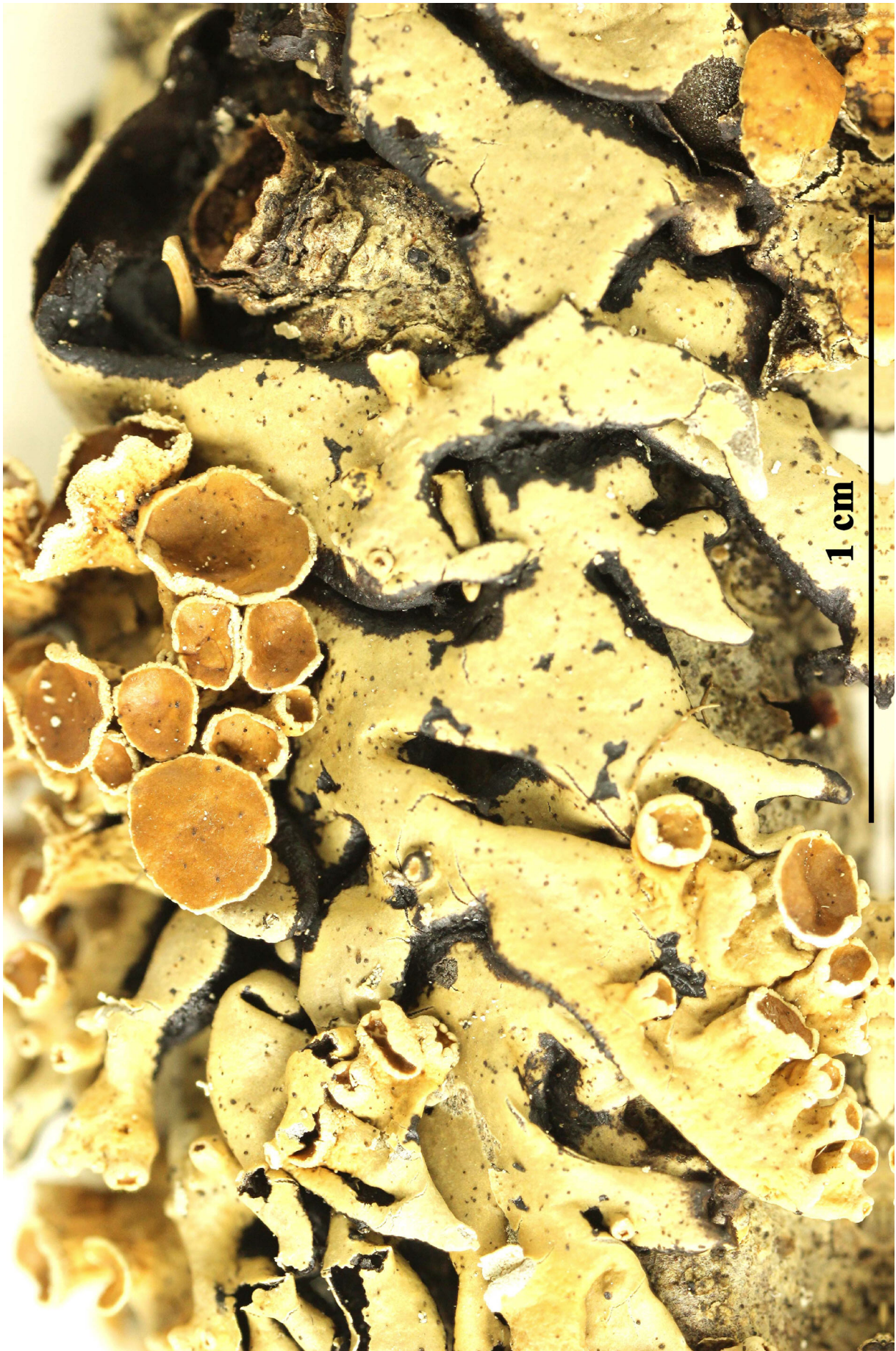


Hypogymnia pseudophysodes

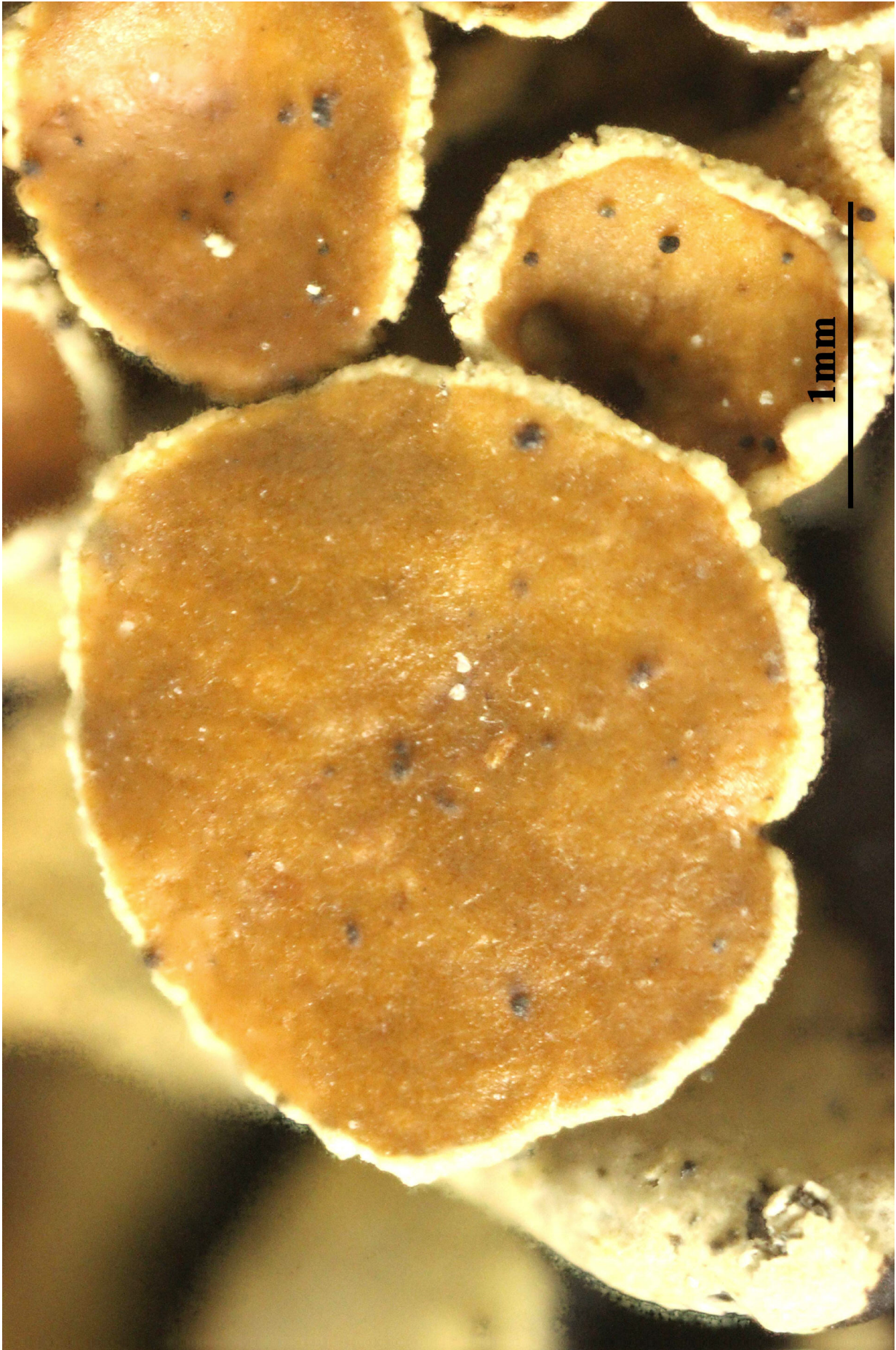
Hypogymnia pseudophysodes (Asahina) Rass., Novosti Sist. Nizsh. Rast.
4: 294 (1967)
= *Parmelia pseudophysodes* Asahina 1951

[KU568], Japan. Honshu. Shinano: Mt. Asahi-dake. Mt. Kimpu. Ontrink of *Abies mariesii*, 2500m. Leg. K. Yoshida (no. 3035), 18.10.1977, det. K. Yoshida. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIOERS ET CRITICI EXSICCATI NR. 568.

Wächst epiphytisch auf der Rinde in Nadelwaldzonen. Ähnelt *Hypogymnia physodes* (Konaribongoke), lässt sich jedoch dadurch unterscheiden, dass Soredien (Abb. 36g) zerstreut über die gesamte Oberseite des Lagerkörpers verteilt sind. Inhaltsstoffe und chemische Reaktionen entsprechen denen von *Hypogymnia physodes*. Verbreitung: Hokkaido – Shikoku; Taiwan, Sachalin. Exemplare mit einer P+ vermillionroten Markreaktion (enthält Physodalsäure) werden als var. *reagens* (Asah.) Kurok. abgegrenzt, während das Typusexemplar P– reagiert.



Hypogymnia pseudophysodes



Hypogymnia pseudophysodes

Hypogymnia pulverata Elix, Brunonia 2(2): 217 (1980)

[KU570], Japan. Honshu. Prov. Shinano: Around Jumonjii Pass. Kawakami-mura. Minamisaku-gun. On trunk of *Tsuga diversifolia*, 1950 m. Leg. K. Yoshida (no. 3510), 19.10.1978, det. K. Yoshida. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 570.



Hypogymnia pulverata



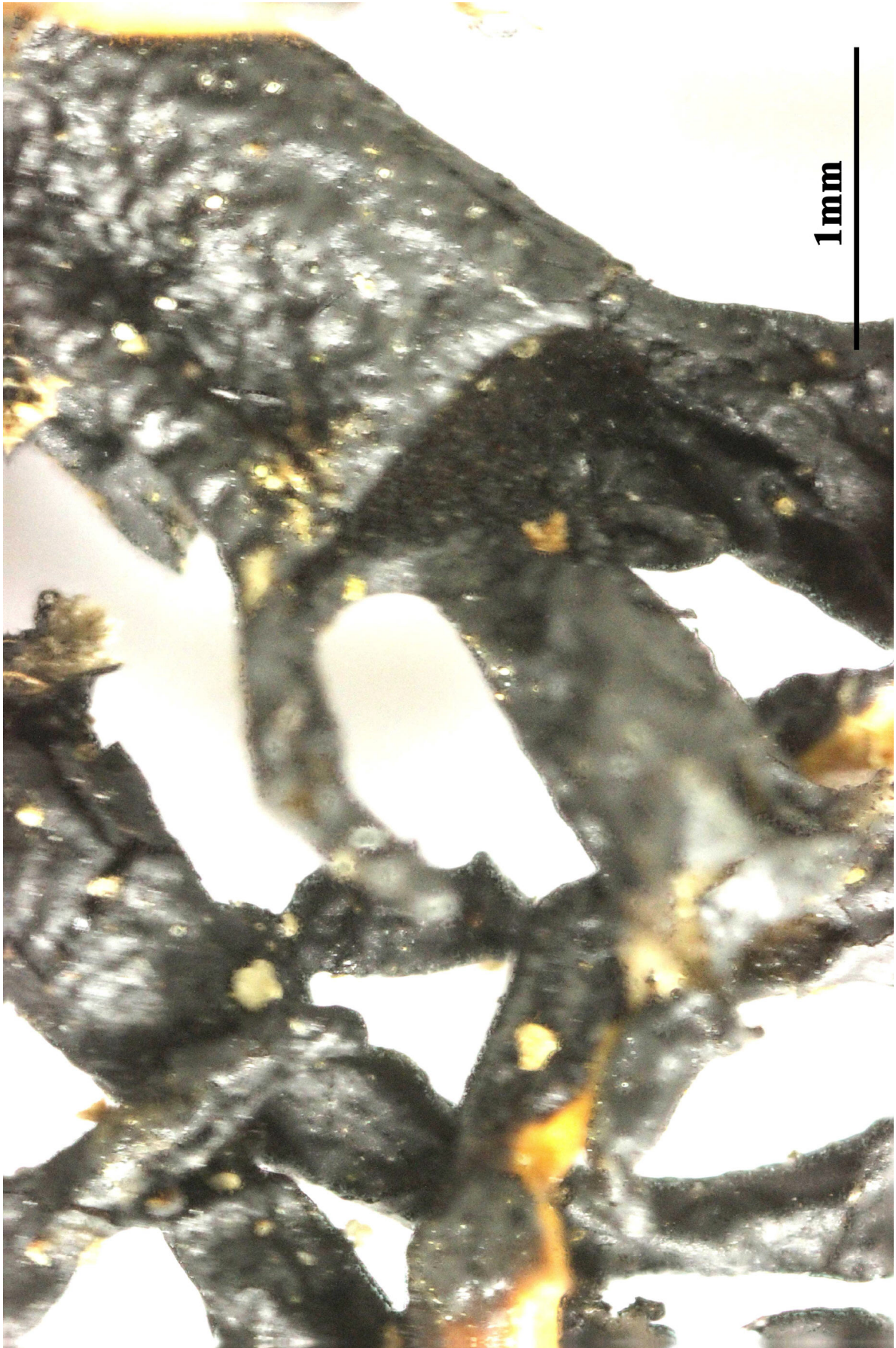
Hypogymnia pulverata

Hypogymnia stricta (Hillmann) K. Yoshida, Bull. natn. Sci. Mus., Tokyo,
B 27(2, 3): 36 (2001)
= *Parmelia elongata* var. *stricta* Hillmann 1938

[KA308], Japan. Honshu. Prov. Yamato (Pref. Nara): Obdaigahara
Mts.. Leg. M. Togashi, 13.8.1961, det. K. Yoshida. EX H. KASHIWADA-
NI LICHENES MINUS COGNITI EXSICCATI NR. 308.



Hypogymnia stricta



Hypogymnia stricta

Hypogymnia vittata (Ach.) Parrique, Act. Soc. linn. Bordeaux 53: 66 (1898)
= *Parmelia physodes* var. *vittata* Ach. 1803

[KU478], Japan. Honshu. Prov. Shinano: En route between Shibunoyu Hot Spring and Kuroyuridaira, Yatsugadake Mts. On bark of *Abies veitchii*, 2400m. Leg. H. Kashiwadani (no. 16087), 2.9.1980, det. H. Kashiwadani. EX S. KUOKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 478.

Thallus foliose to subfruticose, heteromerous, dorsiventral, at first loosely adnate, but often soon ascending or pendent, forming up to 10(-15)cm broad, irregular rosettes or irregularly spreading, the lobes swollen, hollow inside, 0.5-2(-3) mm wide, elongate, slender, irregularly branching, separate to imbricate, with small, marginal secondary lobules. Soredia terminal, at first labriform, then becoming strongly lacerate. Upper surface smooth to weakly rugose, whitish, greenish grey or sometimes partially brown, often with a black border. Lower surface black to brownish black, sparsely perforate near tips and at the branching points, erhizinate, often visible from above along lobe margins. Upper cortex of tightly packed, more or less anticlinally oriented hyphae, the cell walls with Cetraria-type lichenan; medulla soon becoming hollow, lining the cavity inside the lobes; lower cortex dark, paraplectenchymatous. Apothecia rare, lecanorine, mainly laminal, brought by hollow stipes, 6-8(10) mm across, with a brown disc. Epithecium brown; hymenium and hypothecium colourless; paraphyses coherent, simple or sparingly branched in upper part. Asci 8-spored, clavate, Lecanora-type. Ascospores 1-celled, hyaline, broadly ellipsoid, 4.5-7 x 4-5.5 μ m. Pycnidia frequent, laminal, black, often in clusters. Conidia narrowly cylindrical to weakly bifusiform, 4.5-6.5 x c. 1 μ m. Photobiont chlorococcoid. Spot tests: upper cortex K+ yellow, C-, KC-, P- or P+ pale yellow, UV-; medulla K-, C-, KC+ orange-red, P-, UV+ pale blue-violet. Chemistry: upper cortex with atranorin; medulla with physodic acid, 3-hydroxyphysodic acid (both major), and vittatolic acid (minor/accessory). - Note: a circumboreal-montane lichen found on acid bark, often on basal parts of trunks, on acid soil and overgrowing moribund bryophytes.



Hypogymnia vittata



Hypogymnia vittata

Icmadophila ericetorum (L.) Zahlbr., Wiss. Mittellung. Bosnien und der
Hercegov. 3: 605 (1895)
= *Lichen ericetorum* L. 1753

[OH665], Japan- Honshu. Shinano Prov. (Nagano Pref.): Jumonji Pass,
Minamisaku-gun. On bark. Leg. M. Nuno, 23.8.1964, det. Y. Ohmura.
EX Y. OHMURA LICHENES MINUS COGNITI NR. 665.

Thallus crustose, episubstratic, pale green, glaucous green or whitish grey, brighter green when wet, continuous, consisting of a soft layer of 100-300 μm thick, ecorticate, soredia-like to wart-like granules. Apothecia biatorine, round to irregular in outline, strongly constricted to substipitate, 1-2(-3.5) mm across, with a flesh-coloured to pale orange-pink, sometimes faintly white-pruinose, smooth to finally wrinkled, flat to convex disc, and a thin, smooth, sometimes irregularly lobulate, often paler, sometimes whitish-pruinose, finally often excluded proper margin. Proper exciple of intricately interwoven hyphae, extending below the hymenium; epithecium reddish brown, with many small crystals, K+ orange-red; hymenium colourless, 120-160 μm high, I+ blue; paraphyses simple or sparingly branched in upper part, slender, c. 1 μm thick at mid-level, the apical cells swollen, up to 5 μm wide; hypothecium colourless, the central part with colourless crystals not dissolving in K. Asci (6-)8-spored, narrowly cylindrical, K/I- except for a thin K/I+ dark blue cap in the apical wall, *Icmadophila*-type. Ascospores 1(-3)-septate, hyaline, fusiform-elongate, 12-28(-30) x 4-6(-7) μm . Pycnidia pale, immersed, with a colourless wall, the conidiogenous cells enteroblastic, short-cylindrical. Conidia simple, hyaline, bacilli-form, 3.5-4.5 x 0.5-1 μm . Photobiont chlorococcoid (*Coccomyxa*), the cells ellipsoid, 5-8 x 3-4 μm , with a large parietal chloroplast, surrounded by a gelatinous layer. Spot tests: thallus K+ orange turning brownish orange, C-, KC+ orange, P+ orange, UV+ glaucous; apothecia K+ and P+ orange-red, UV-. Chemistry: thallus with thamnolic and perlatolic acid, apothecia with thamnolic acid only. - Note: a cool-temperate to boreal-montane, circumpolar species found on decaying wood and muribund bryophytes, usually in upland areas.



Icmadophila ericetorum



Icmadophila ericetorum

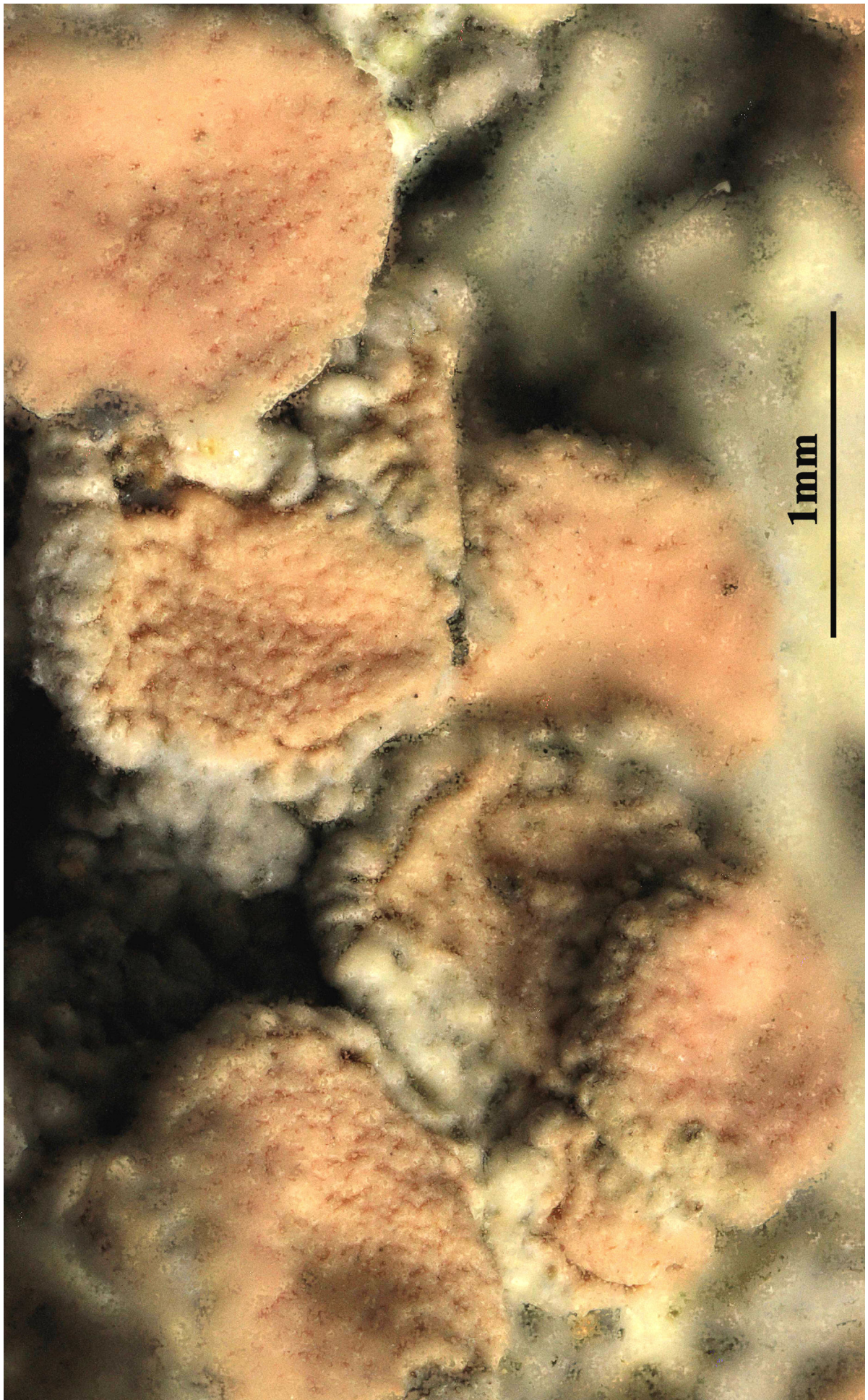
Icmadophila ericetorum (L.) Zahlbr., Wiss. Mittellung. Bosnien und der
Hercegov. 3: 605 (1895)
= *Lichen ericetorum* L. 1753

[565}, Österreich, Land Salzburg, Steir. Salzkammergut, Mitterndorf
bei der Sonnenalm. Leg. D. & F. Schumm, 06.1967, det. F. Schumm.
EX HERBARIO F. SCHUMM NR.565.

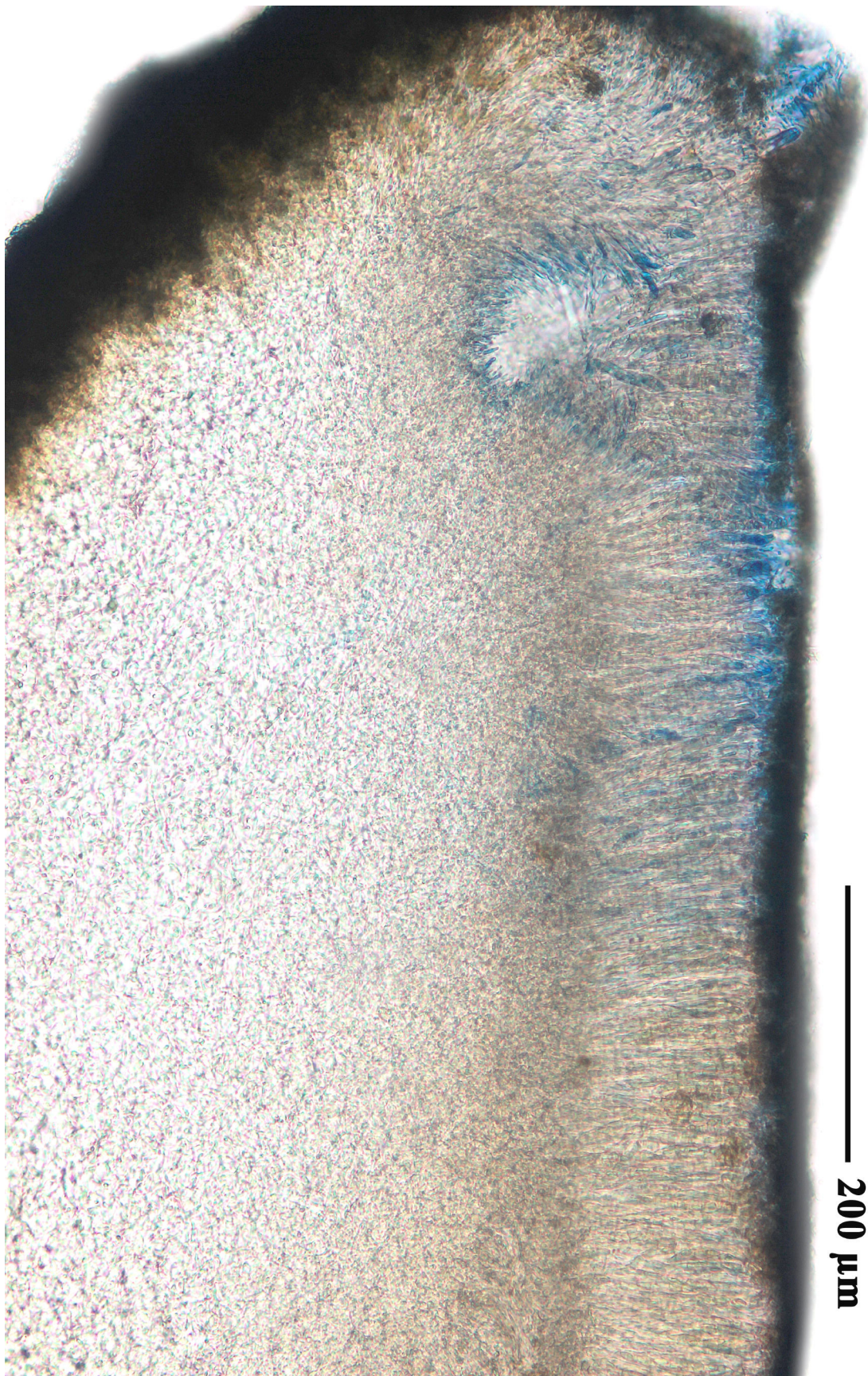
Thallus crustose, episubstratic, pale green, glaucous green or whitish grey, brighter green when wet, continuous, consisting of a soft layer of 100-300 μm thick, ecorticate, soredia-like to wart-like granules. Apothecia biatorine, round to irregular in outline, strongly constricted to substipitate, 1-2(-3.5) mm across, with a flesh-coloured to pale orange-pink, sometimes faintly white-pruinose, smooth to finally wrinkled, flat to convex disc, and a thin, smooth, sometimes irregularly lobulate, often paler, sometimes whitish-pruinose, finally often excluded proper margin. Proper exciple of intricately interwoven hyphae, extending below the hymenium; epithecium reddish brown, with many small crystals, K+ orange-red; hymenium colourless, 120-160 μm high, I+ blue; paraphyses simple or sparingly branched in upper part, slender, c. 1 μm thick at mid-level, the apical cells swollen, up to 5 μm wide; hypothecium colourless, the central part with colourless crystals not dissolving in K. Asci (6-)8-spored, narrowly cylindrical, K/I- except for a thin K/I+ dark blue cap in the apical wall, *Icmadophila*-type. Ascospores 1(-3)-septate, hyaline, fusiform-elongate, 12-28(-30) x 4-6(-7) μm . Pycnidia pale, immersed, with a colourless wall, the conidiogenous cells enteroblastic, short-cylindrical. Conidia simple, hyaline, bacilli-form, 3.5-4.5 x 0.5-1 μm . Photobiont chlorococcoid (*Coccomyxa*), the cells ellipsoid, 5-8 x 3-4 μm , with a large parietal chloroplast, surrounded by a gelatinous layer. Spot tests: thallus K+ orange turning brownish orange, C-, KC+ orange, P+ orange, UV+ glaucous; apothecia K+ and P+ orange-red, UV-. Chemistry: thallus with thamnolic and perlatolic acid, apothecia with thamnolic acid only. - Note: a cool-temperate to boreal-montane, circumpolar species found on decaying wood and muribund bryophytes, usually in upland areas.



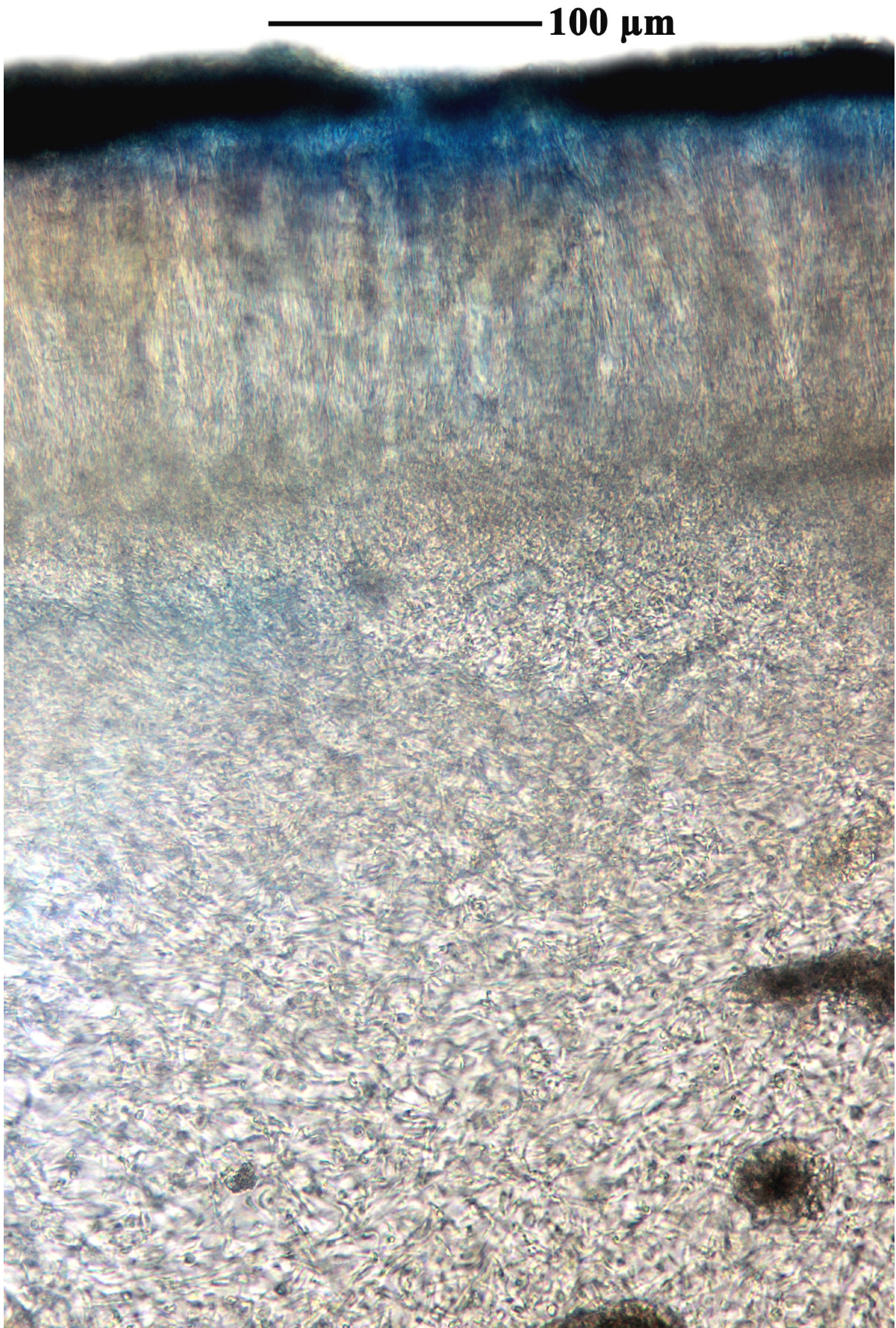
Icmadophila ericetorum



Icmadophila ericetorum



Icmadophila ericetorum



Icmadophila ericetorum



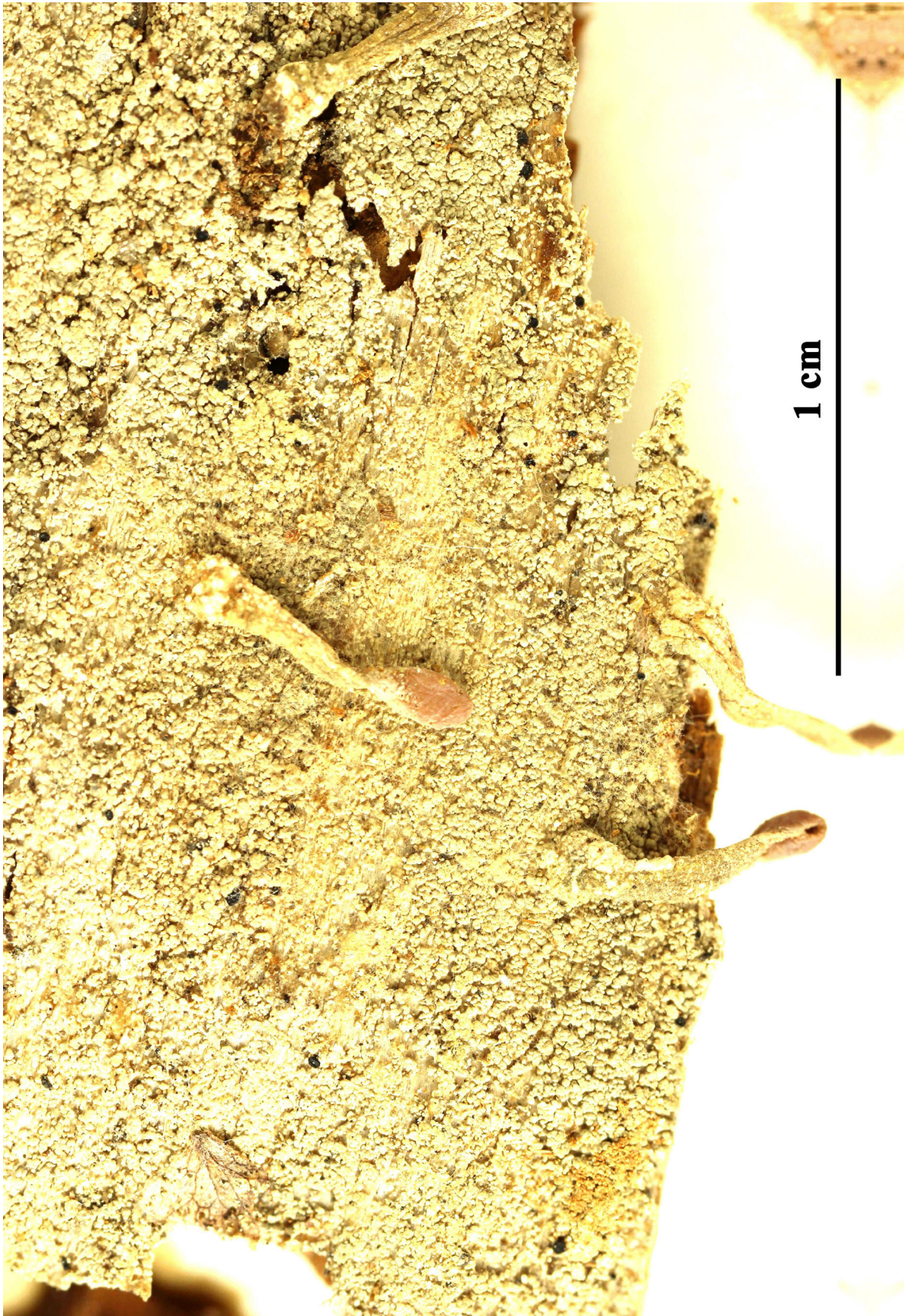
Icmadophila ericetorum



Icmadophila ericetorum

Icmadophila japonica (Zahlbr.) Rambold & Hertel, Biblioth. Lichenol.
53: 230 (1993)
= *Glossodium japonicum* Zahlbr. 1927

[OH381], Japan. Hokkaido. Prov. Tokachi: at the foot of Mt. Hakuun,
Lake Shibaribetsu, Kato-gun. On tree trunk, 900 m. Leg. M. Togashi,
29.6.1970, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI
EXSICCATI NR. 381.



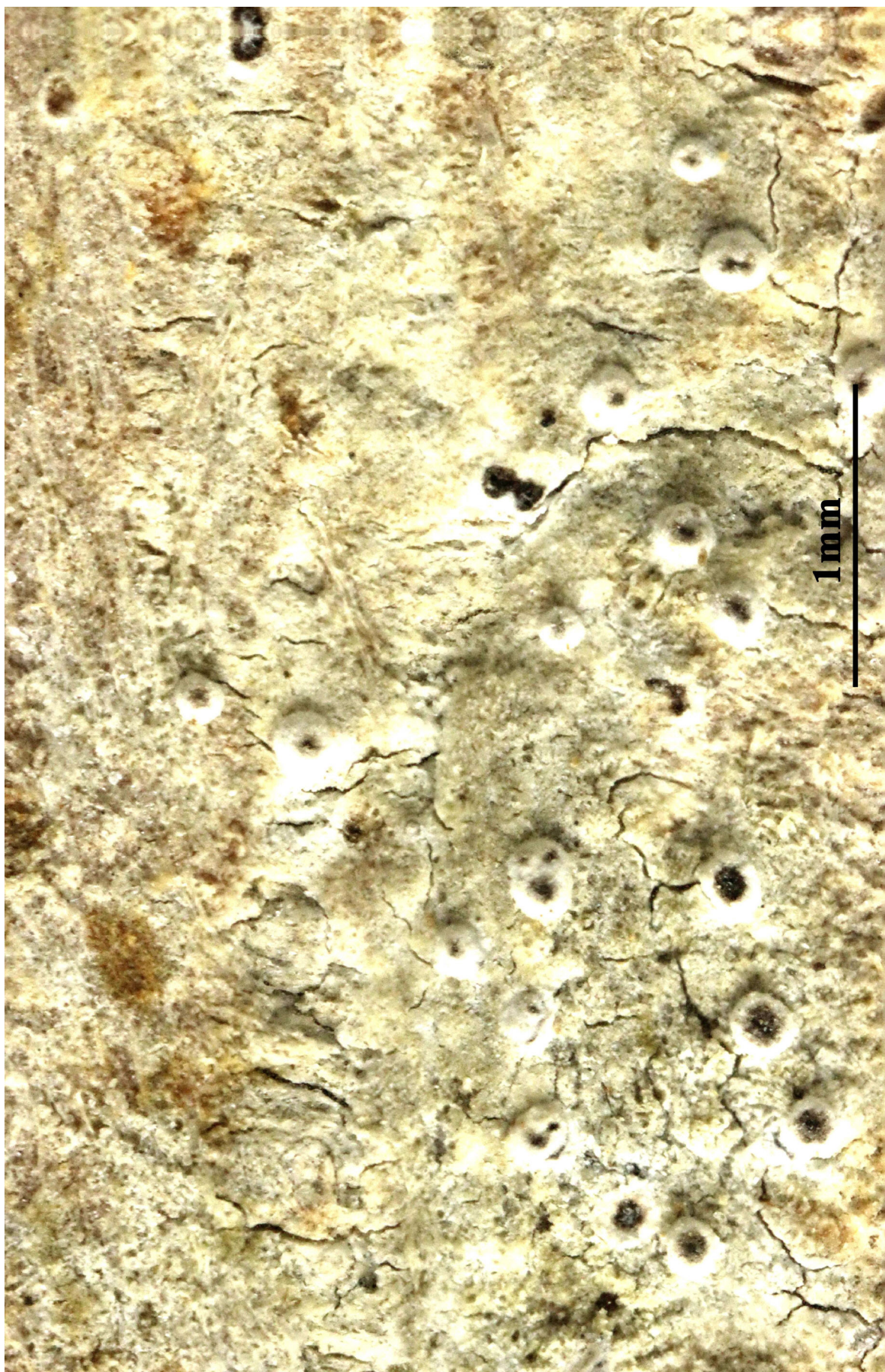
Icmadophila japonica



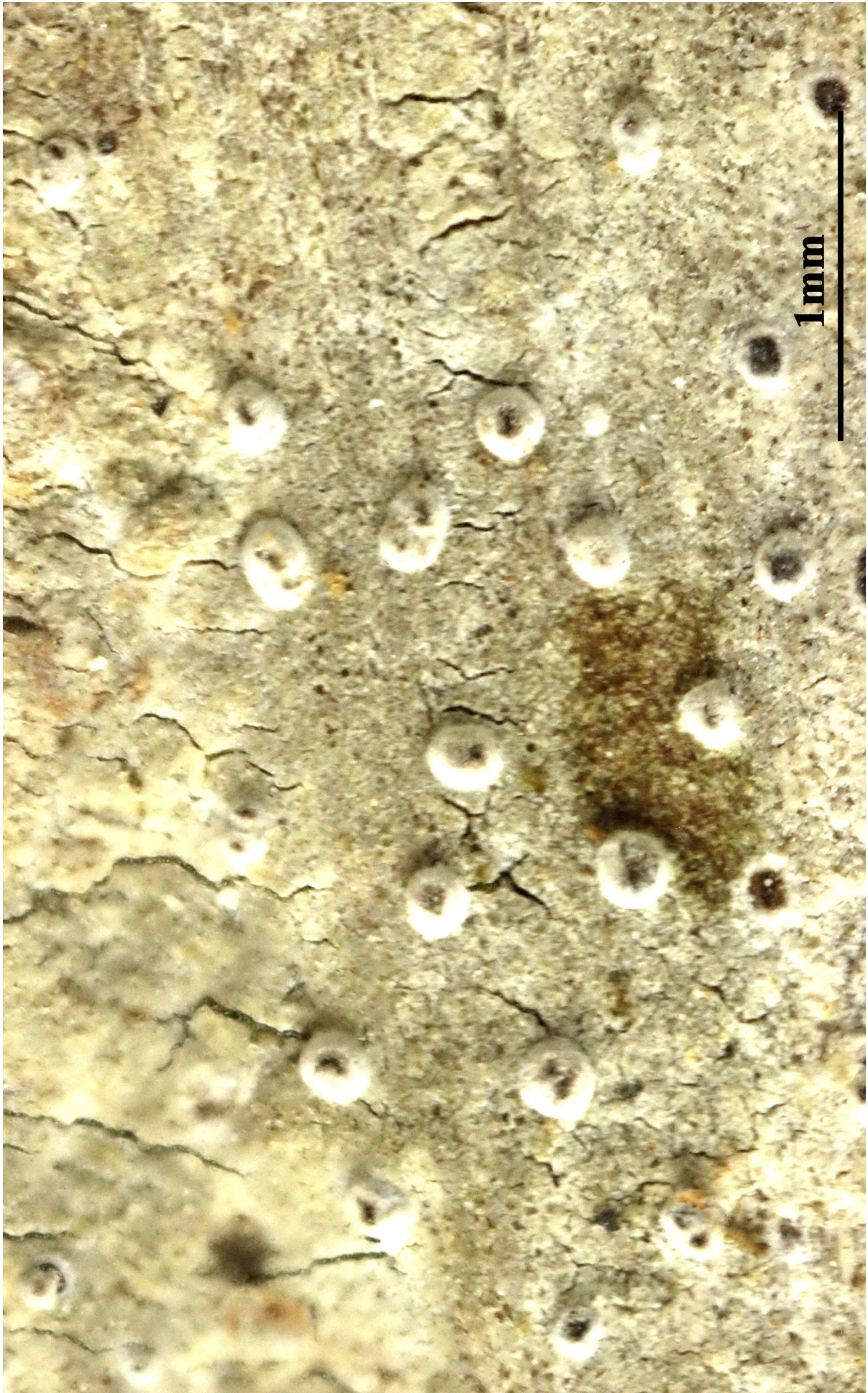
Icmadophila japonica

Inoderma nipponicum Frisch, Y. Ohmura & G. Thor, in Frisch, Ohmura, Ertz & Thor, *Lichenologist* 47(4): 243 (2015)

[OH537], Japan. Honshu. Prov. Musashi (Tokyo Metropolis): Chikurin, Imperial Palace grounds, Chiyoda-ku (35°41'00" N, 139°44'29" E). On bark of *Acer buergerianum*, 300 m. Leg. A. Frisch (no. 13/Jp1), Y. Ohmura & G. Thor, 7.3.2013, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 537.



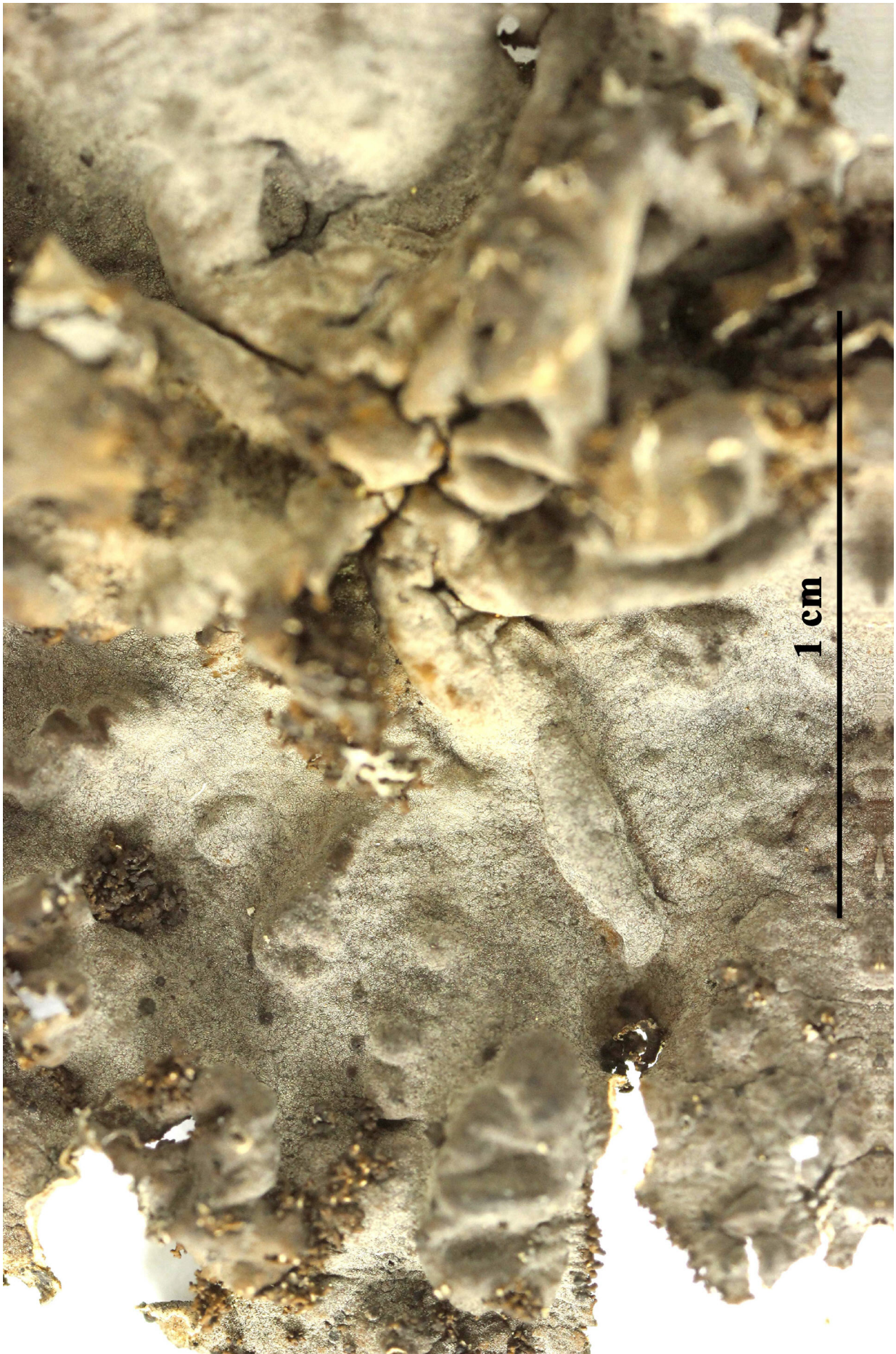
Inoderma nipponicum



Inoderma nipponicum

Lasallia asiae-orientalis Asahina, J. Jap. Bot. 35(4): 99 (1960)

[KU516], Japan. Honshu. Prov. Kai: Mitsuyama, Mt. Kumotori, Kita-Tsuru-gun. On rocks (chart), 1949 m. Leg. K. Yoshida (no. 4969), 24.5.1981, det H. Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIOERS ET CRITICI EXSICCATI NR. 516.



Lasallia asiae-orientalis



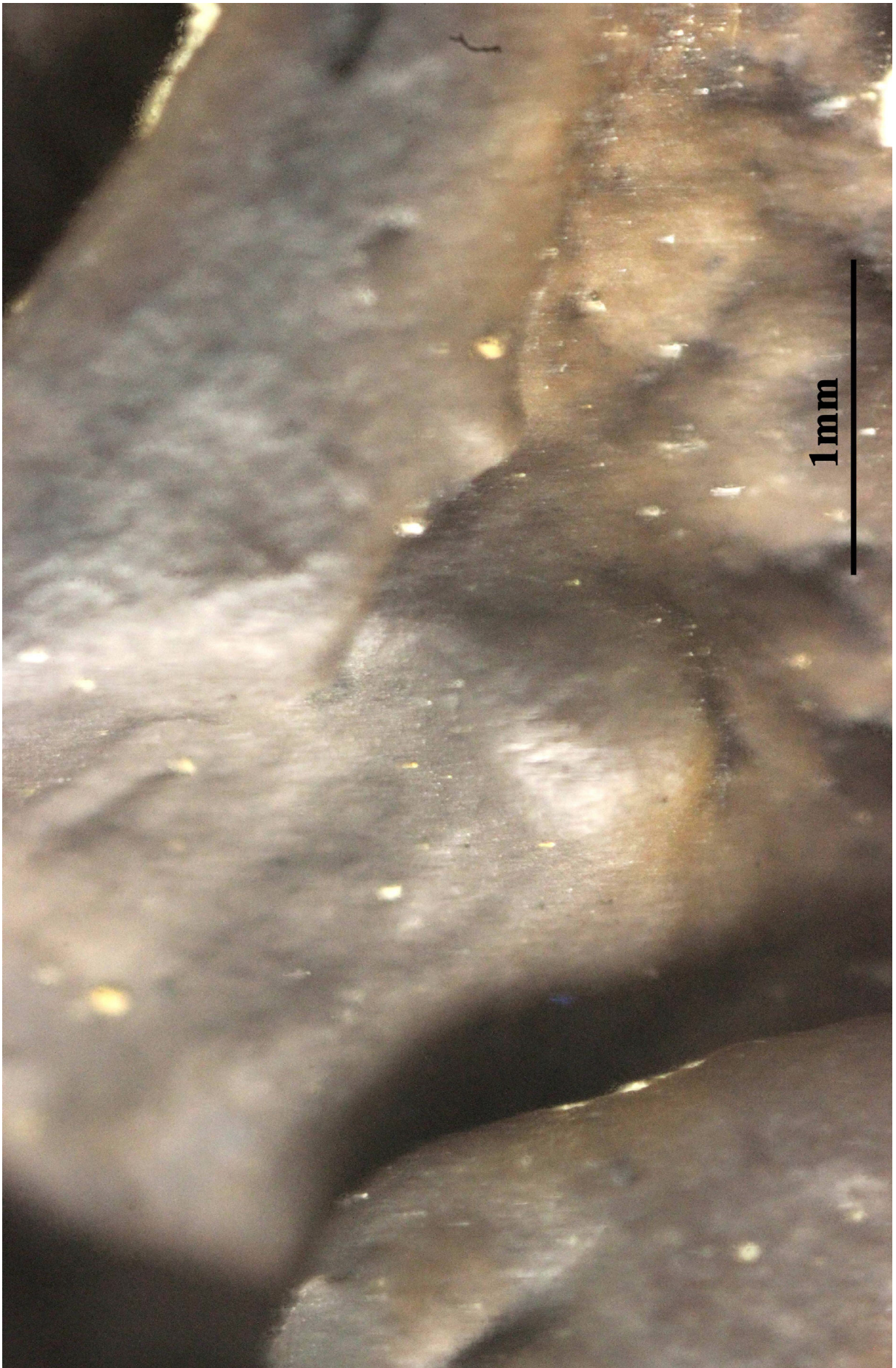
Lasallia asiae-orientalis

Lasallia caroliniana (Tuck.) Davydov, Peršoh & Rambold, Mycol. Progr. 9(2): 264 (2010)
= *Umbilicaria caroliniana* Tuck. 1877

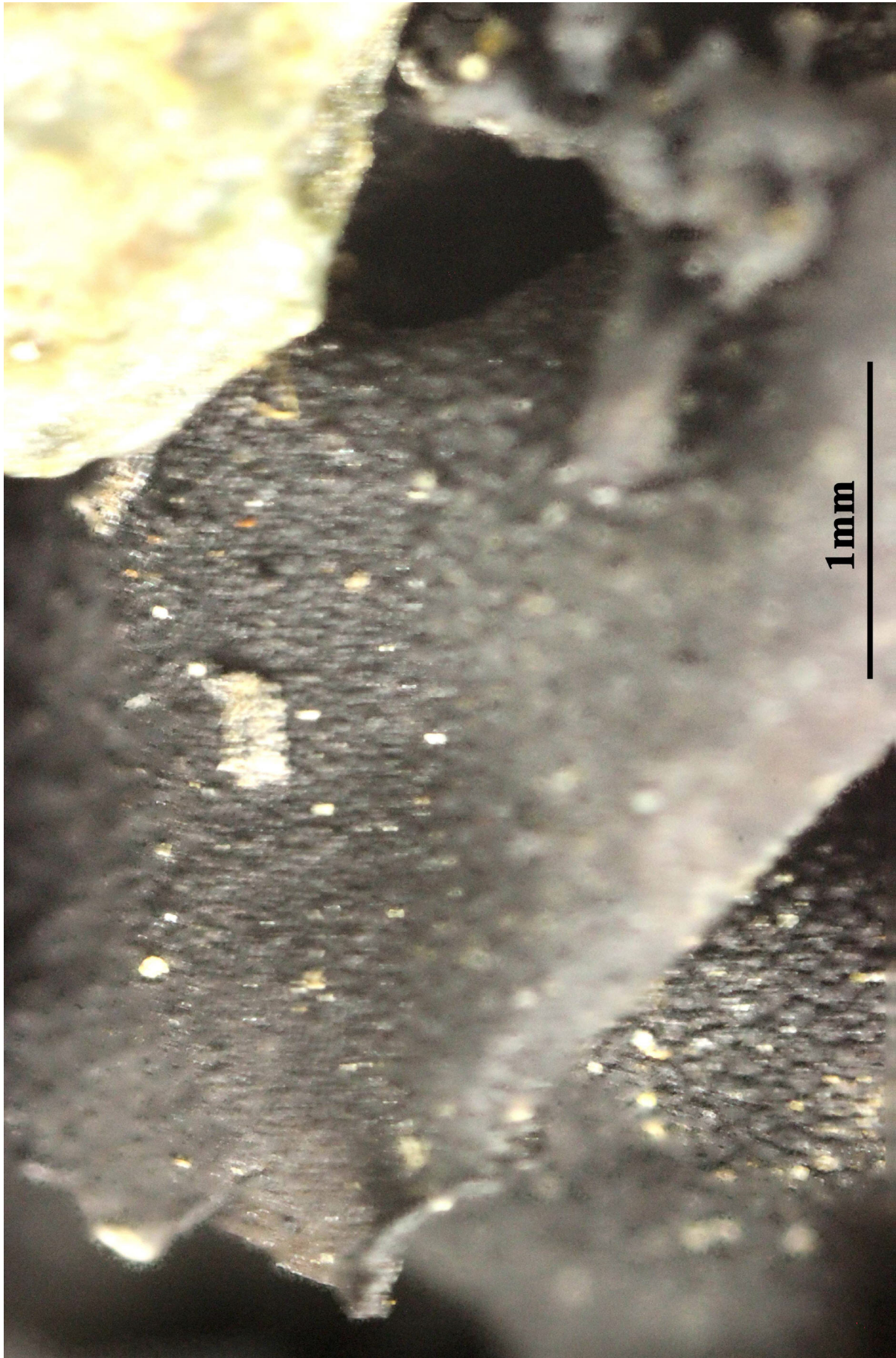
[OH558], Japan. Honshu. Prov. Kai (Pref. Yamanashi): near Kotarogoya Hut, Mt. Kita-dake. On rock, 3000 m. Leg. M. Togashi, 4.8.1967, det. Y. Asahina. Ex Y. Ohmura Lichenes Minus Cogniti Exsiccati Ne. 558.



Lasallia caroliniana



Lasallia caroliniana



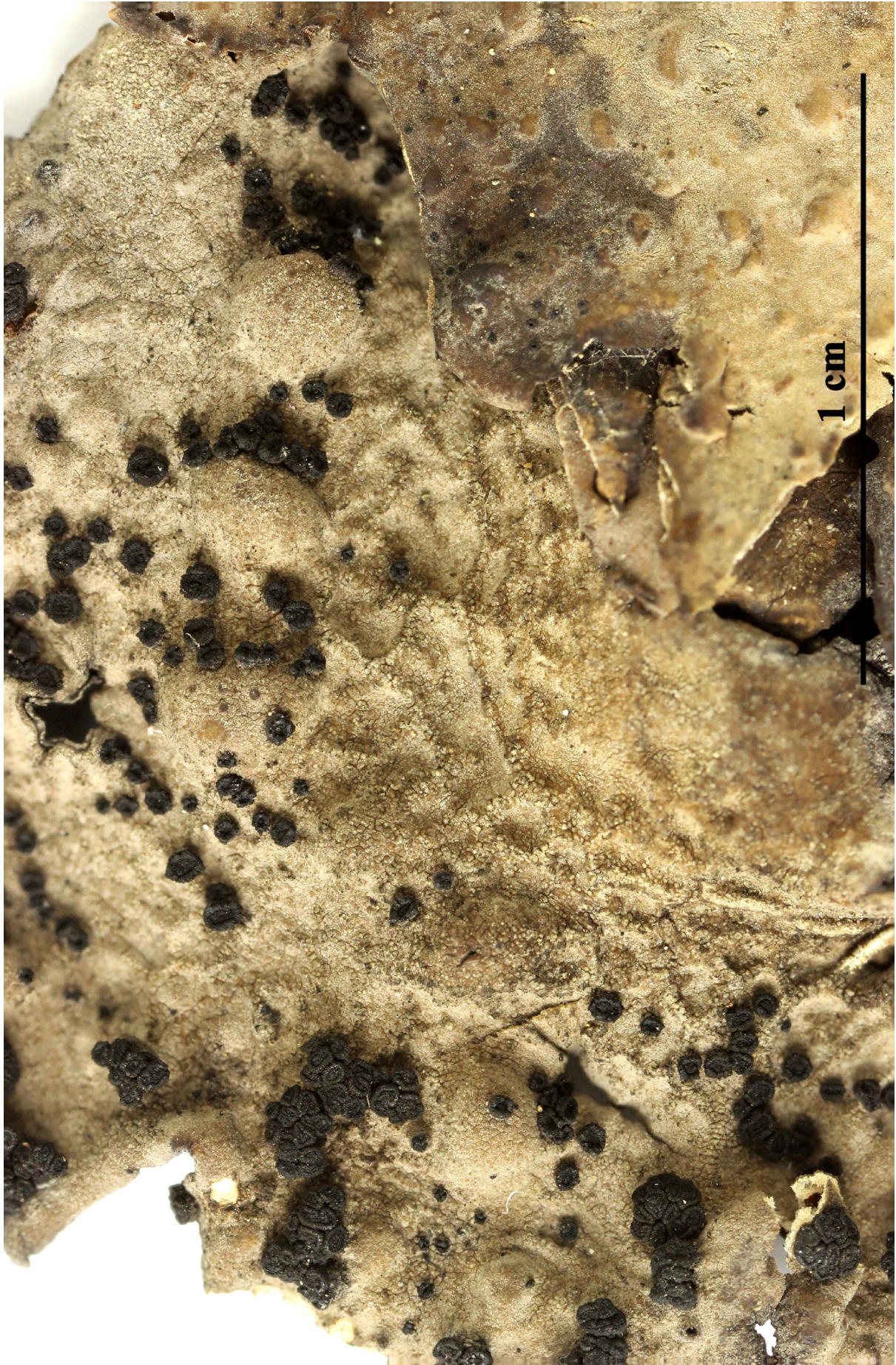
Lasallia caroliniana

Lasallia papulosa (Ach.) Llano, Monograph of the Lichen Family Umbilicariaceae in the Western Hemisphere: 32 (1950)
= *Gyrophora papulosa* Ach. 1810

[KU224], USA. Tennessee: Roan Mtn., Carter Co. 840 m. Leg. A. J. Sharp, M. Tatewaki, and I. Yoshimura (no 65104), 11.9.1965, det. I. Yoshimura. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 224.

Thallus 9-18 cm. in diameter, monophyllous, very rarely subpolyphyllous, thin to medium and fragile, orbicular, the margins entire to irregularly crenate or scalloped, pustules large to medium, in juvenile thalli finely blisterlike, occasionally crowded together or contorted with crebriform wrinkles or rugose veins, usually without a pattern, but more or less radiating from the umbo, smooth or occasionally reticulate between pustules, pustules sometimes fenestrate, or with tears or holes in thallus becoming lacerate marginally or with lobules developing over thallus, umbo moderately elevated with obscure folds, surface dull, deep mouse gray, buffy brown, cinnamon drab, rarely mahogany red, more or less pruinose; below naked, lacunose, umbilicus small to moderate, central, with occasional creases fading peripherally, smooth to papillose, color some shade of brown never black, avellaneous to wood brown, or clove brown, rarely stained with orange or light yellow, or pruinose. Thallus 165-250 μm thick, upper cortex about 20 μm thick, plechtenchymatous, brown with an overlying necral zone up to 10 μm , thick algal layer continuous, protococcoid, 30-40 μm thick, medulla loose, hyphae 7.2 μm in diameter, encrusted with opaque granules extending throughout the upper part of the medulla, about 70 μm thick, lower cortex scleroplechtenchymatous, about 50 μm , outer zone strongly dentate outline, brown. Apothecia 1-2.5 mm. in diameter, rarely absent, free and scattered over thallus almost to umbo, crowded between pustules, or depressed in pustules, frequently agglomerate when several appear as one, sessile to subpedicellate, disk plane or irregular, brown black or rarely mahogany red, with a proper, smooth to crenulate, margin; parathecium about 40 μm . thick, hypothecium about 99 μm , dark, irregular, thecium 115-150 μm deep, asci 52-100 x 20-50 μm , thin walled, elliptical-oblong, paraphyses 2.4 μm , expanding apically to about 4.8 long, slender, mostly branched, spores large, 49.5 - 99 x 39 μm broad, at first hyaline, becoming brown, muriform. . - This 3 species is as ubiquitous in North America as *L. pustulata* is in Europe;

like the latter species it shows variation throughout its range, with an almost corresponding terminology. Tuckerman (1882) described this species as a variety of *L. pustulata*, "thallus middling to large, darker, and often brownish, apothecia soon proliferous, " but with longer spores. His use of the word "proliferous" refers to the bunching arrangement frequently assumed by adjoining apothecia.



Lasallia papulosa



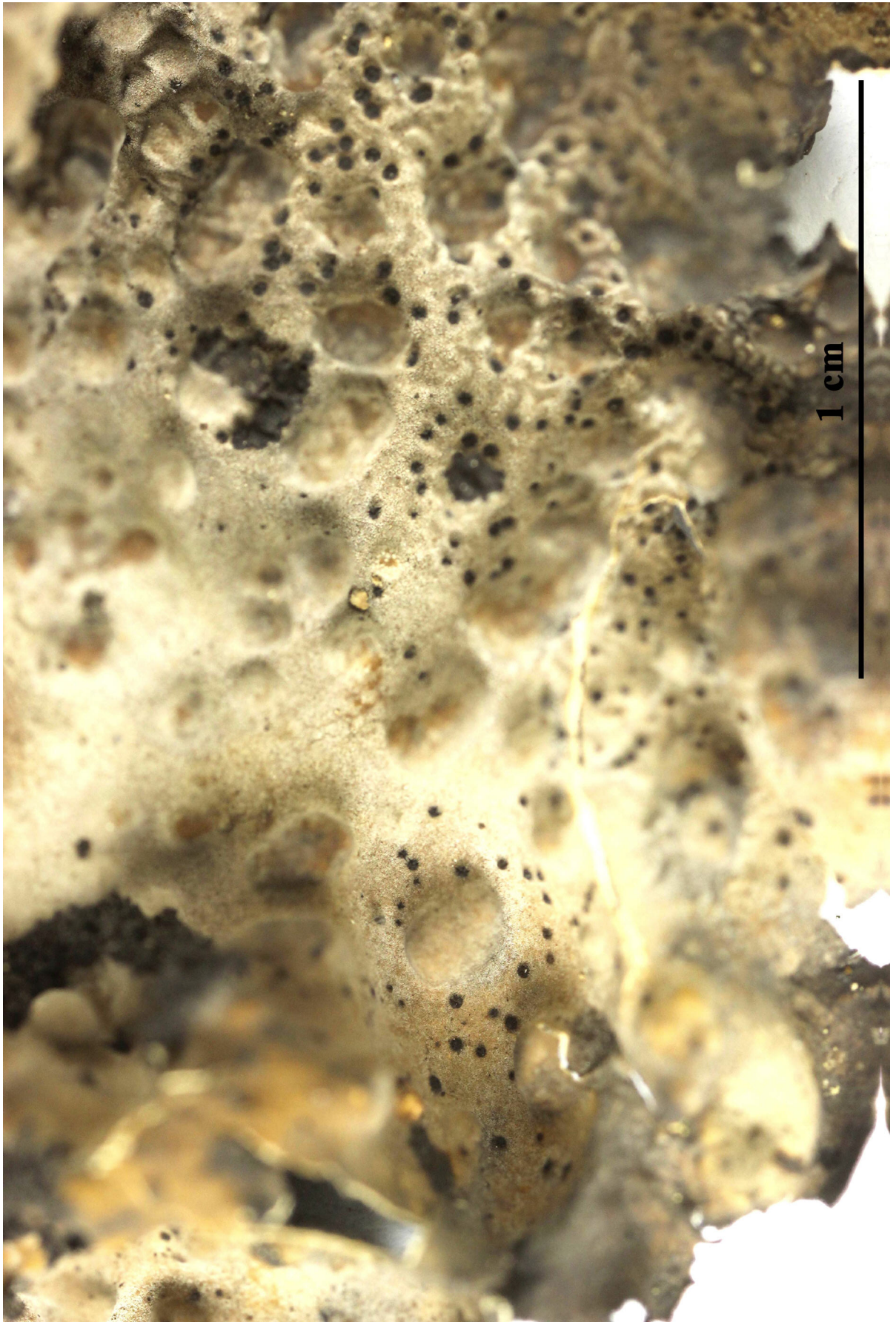
Lasallia papulosa

Lasallia pensylvanica (Hoffm.) Llano, Monograph of the Lichen Family Umbilicariaceae in the Western Hemisphere: 42 (1950)
= *Umbilicaria pensylvanica* Hoffm. 1801

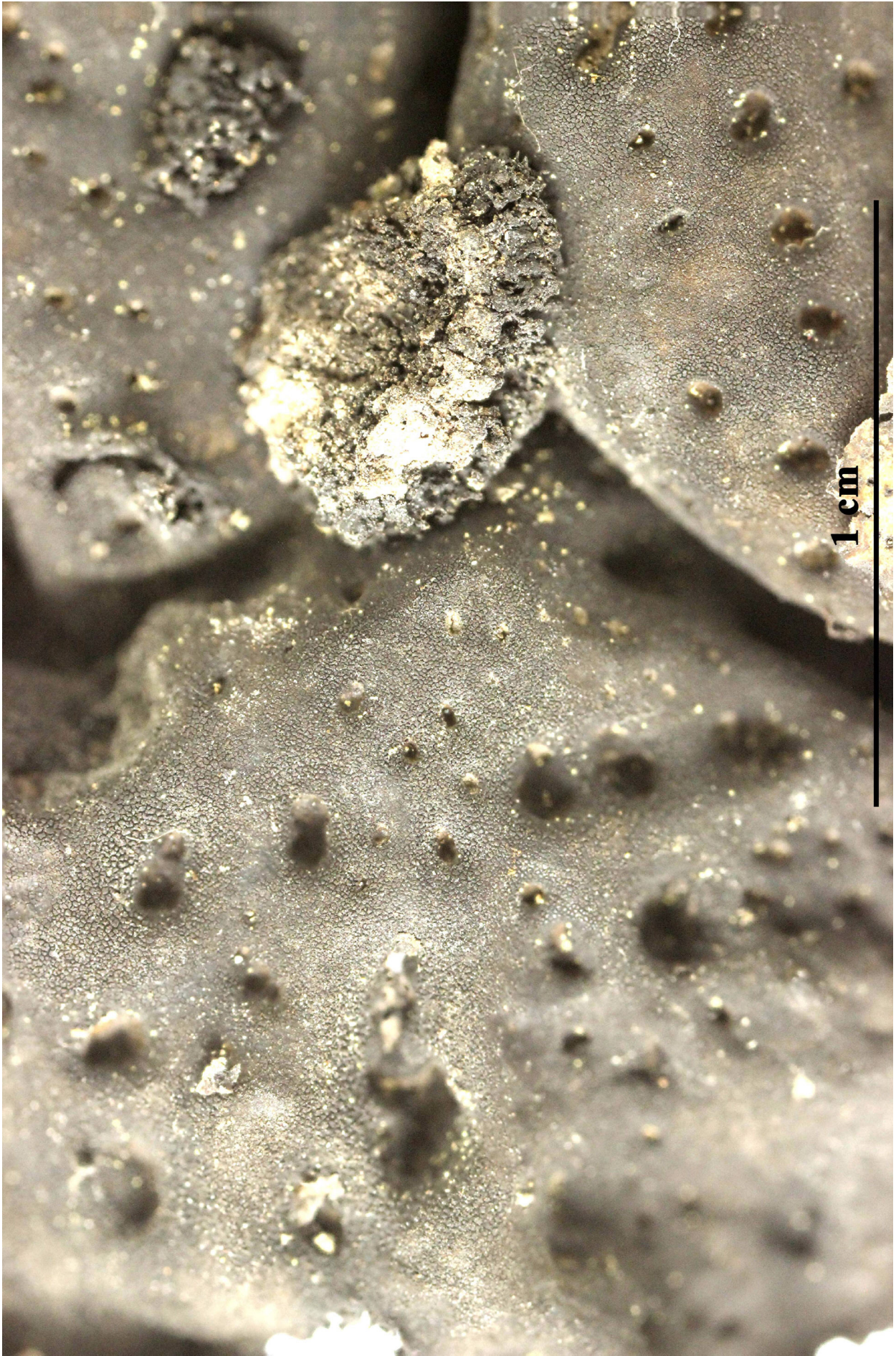
[OH538}, Japan. Hokkaido. Prov. Ishikari: Mt. Furano, (43°23' N, 142°38'). On rocks, 1770 m. Leg. S. Kurokawa (no. 65435), 22.8.1965, det. Y. Ohmura. EX Y.OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 538.

Thallus 9-25 an. in diameter, orbicular, monophyllous, membranaceous to rigid, margins undulating to crenate or subcrenate, frequently lacinate or irregularly incisedtorn, sometimes fenestrate, upper surface pustulate up to 2.5 cm. large, cortex smooth, umbo elevated, more or less areolate-papillate or dermatoid, or with obscure vermiform pattern or veined, occasionally cracked, or with few weak folds extending radially from umbo, occasionally with lacinae on margins of holes and tears, or rarely in clusters on upper surface, surface dull to shiny, warm buff, wood brown, or Prout's brown over umbo, fading into fuscous black or light brownish olive, dark olive buff, or olive citrine margins, with a more or less persistent pruina; lower surface uniformly black with coarse papillae which may become lighter peripherally appearing as a light-edged zone (Japanese specimens deep mouse gray) umbilicus medium to compact or fasciate, becoming shaggy, stipe-like, or eroded, papillae in vicinity of umbilicus less regular, charred, interior of lacunae light brown and devoid of papillae, lower surface uneven. Thallus 250-300 µm thick, upper cortex brown, paraplechtenchymatous, 6-14 µm, with a thin evanescent necral zone 9.9 µm high, occasionally developing into palisadeplechtenchymatous tissue 80 µm high; algal layer continuous, protococcoid, about 33 µm deep; medulla loose, about 135 µm, of mesodermate hyphae 6.6 µm, in diameter, densely impregnated with a granular zone below the algal layer; lower cortex about 120 µm, scleroplechtenchymatous with a strong, black dentate outline. Apothecia 1-2 mm. in diameter, common, free or grouped, mostly marginal, black, sessile to subpedicellate, rarely adnate but occurring in shallow depressions, disk plane to subconcave, exciple prominent, parathecium of isodiametric cells 66-82.5 µm, hypothecium 66-140 µm, brown, irregular, thecium 99 µm, with a dark brown to black epithecium, paraphyses agglutinate, simple, rarely forked, brown tipped, septate, 1.4-3. 4 µm in diameter, asci 68 x 22 µm, 1-spored 3 asoospores muriform, light to dark brown, 36-60 x 14.4-28.8 µm,

spermogonia moderately protruding above thallus surface, spherical 210 x 210 μm , with dark brown walls 14 μm thick, spermatophores branched, spermatia rod shaped 2.4-4.5 x 1.5 μm . - This common North American species extends throughout the north temperate zone into Asia and eastern Europe.



Lasallia pensylvanica



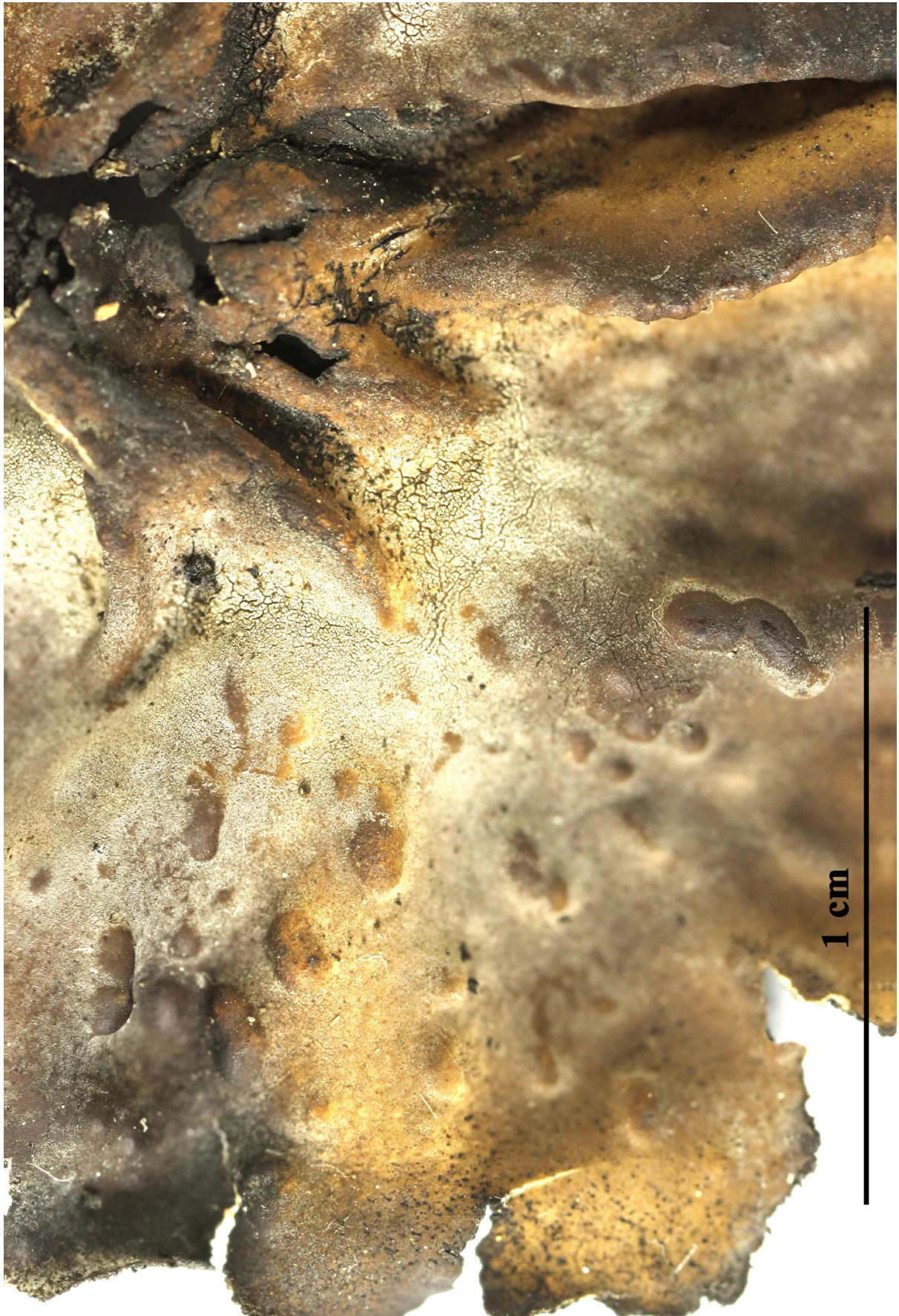
Lasallia pennsylvanica

Lasallia pensylvanica (Hoffm.) Llano, Monograph of the Lichen Family Umbilicariaceae in the Western Hemisphere: 42 (1950)
= *Umbilicaria pensylvanica* Hoffm. 1801

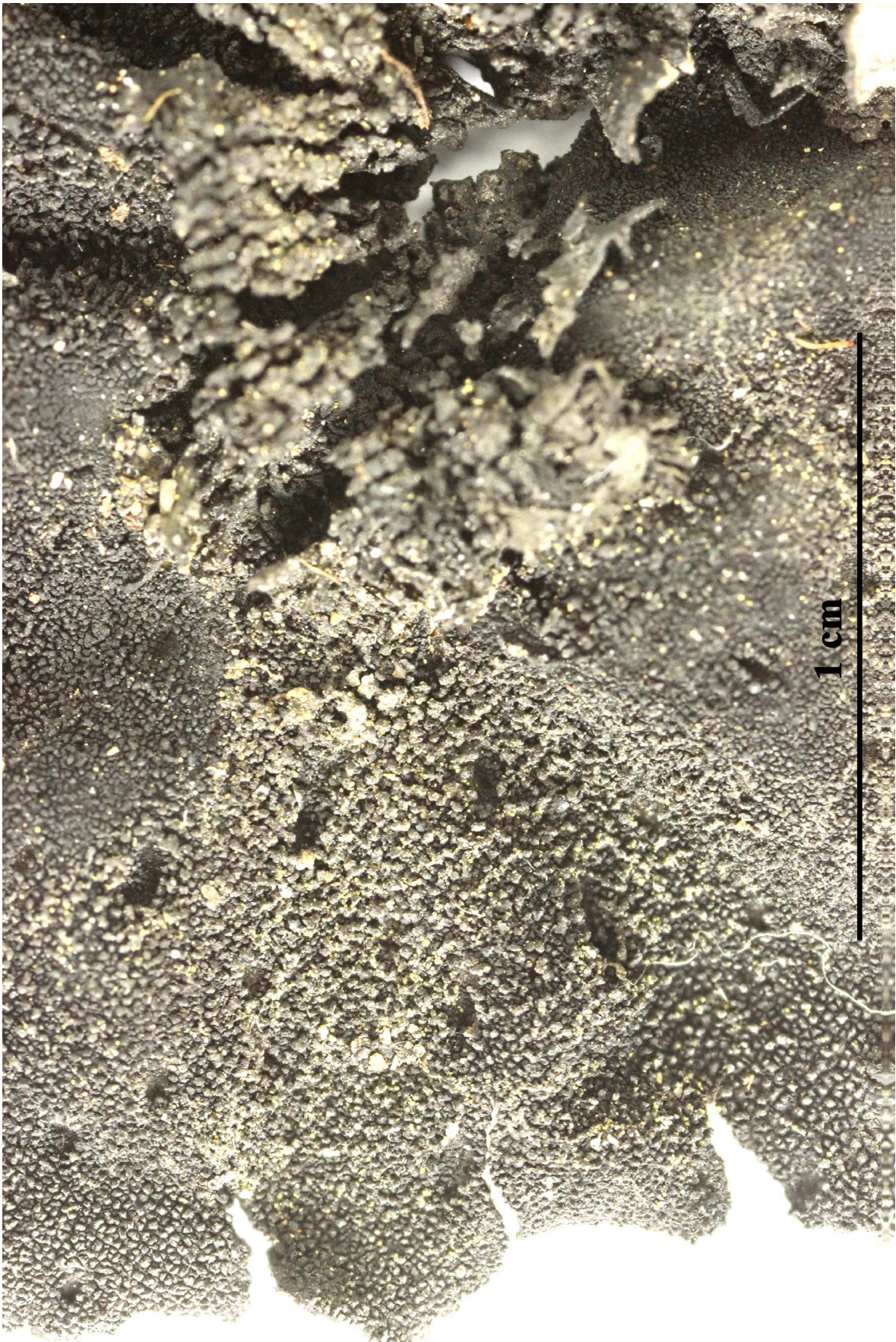
[KU317], Japan. Honshu. Prov. Musashi: Mt. Ohyama, Chichibu-gun. On rocks, 2200 m. Leg. K. Yoshida, 8.10.1974, det. H. Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 317.

Thallus 9-25 an. in diameter, orbicular, monophyllous, membranaceous to rigid, margins undulating to crenate or subcrenate, frequently lacinate or irregularly incisedtorn, sometimes fenestrate, upper surface pustulate up to 2.5 cm. large, cortex smooth, umbo elevated, more or less areolate-papillate or dermatoid, or with obscure vermiform pattern or veined, occasionally cracked, or with few weak folds extending radially from umbo, occasionally with lacinae on margins of holes and tears, or rarely in clusters on upper surface, surface dull to shiny, warm buff, wood brown, or Prout's brown over umbo, fading into fuscous black or light brownish olive, dark olive buff, or olive citrine margins, with a more or less persistent pruina; lower surface uniformly black with coarse papillae which may become lighter peripherally appearing as a light-edged zone (Japanese specimens deep mouse gray) umbilicus medium to compact or fasciate, becoming shaggy, stipe-like, or eroded, papillae in vicinity of umbilicus less regular, charred, interior of lacunae light brown and devoid of papillae, lower surface uneven. Thallus 250-300 μm thick, upper cortex brown, paraplechtenchymatous, 6-14 μm , with a thin evanescent necral zone 9.9 μm high, occasionally developing into palisadeplechtenchymatous tissue 80 μm high; algal layer continuous, protococcoid, about 33 μm deep; medulla loose, about 135 μm , of mesodermate hyphae 6.6 μm , in diameter, densely impregnated with a granular zone below the algal layer; lower cortex about 120 μm , scleroplechtenchymatous with a strong, black dentate outline. Apothecia 1-2 mm. in diameter, common, free or grouped, mostly marginal, black, sessile to subpedicellate, rarely adnate but occurring in shallow depressions, disk plane to subconcave, exciple prominent, parathecium of isodiametric cells 66-82.5 μm , hypothecium 66-140 μm , brown, irregular, thecium 99 μm , with a dark brown to black epithecium, paraphyses agglutinate, simple, rarely forked, brown tipped, septate, 1.4-3. 4 μm in diameter, asci 68 x 22 μm , 1-spored 3 asoospores muriform, light to dark brown, 36-60 x 14.4-28.8 μm ,

spermogonia moderately protruding above thallus surface, spherical 210 x 210 μm , with dark brown walls 14 μm thick, spermatophores branched, spermatia rod shaped 2.4-4.5 x 1.5 μm . - This common North American species extends throughout the north temperate zone into Asia and eastern Europe.



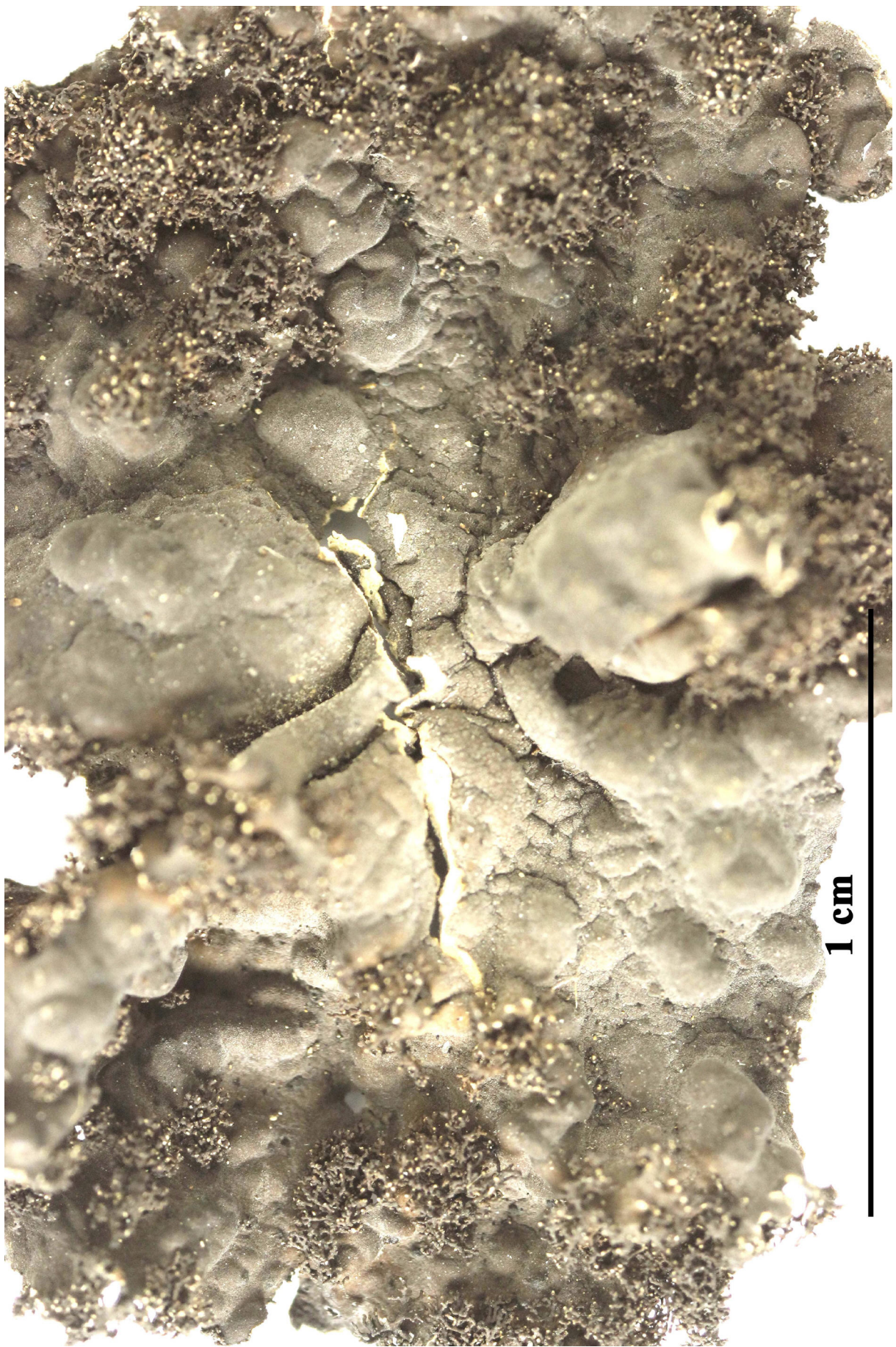
Lasallia pensylvanica



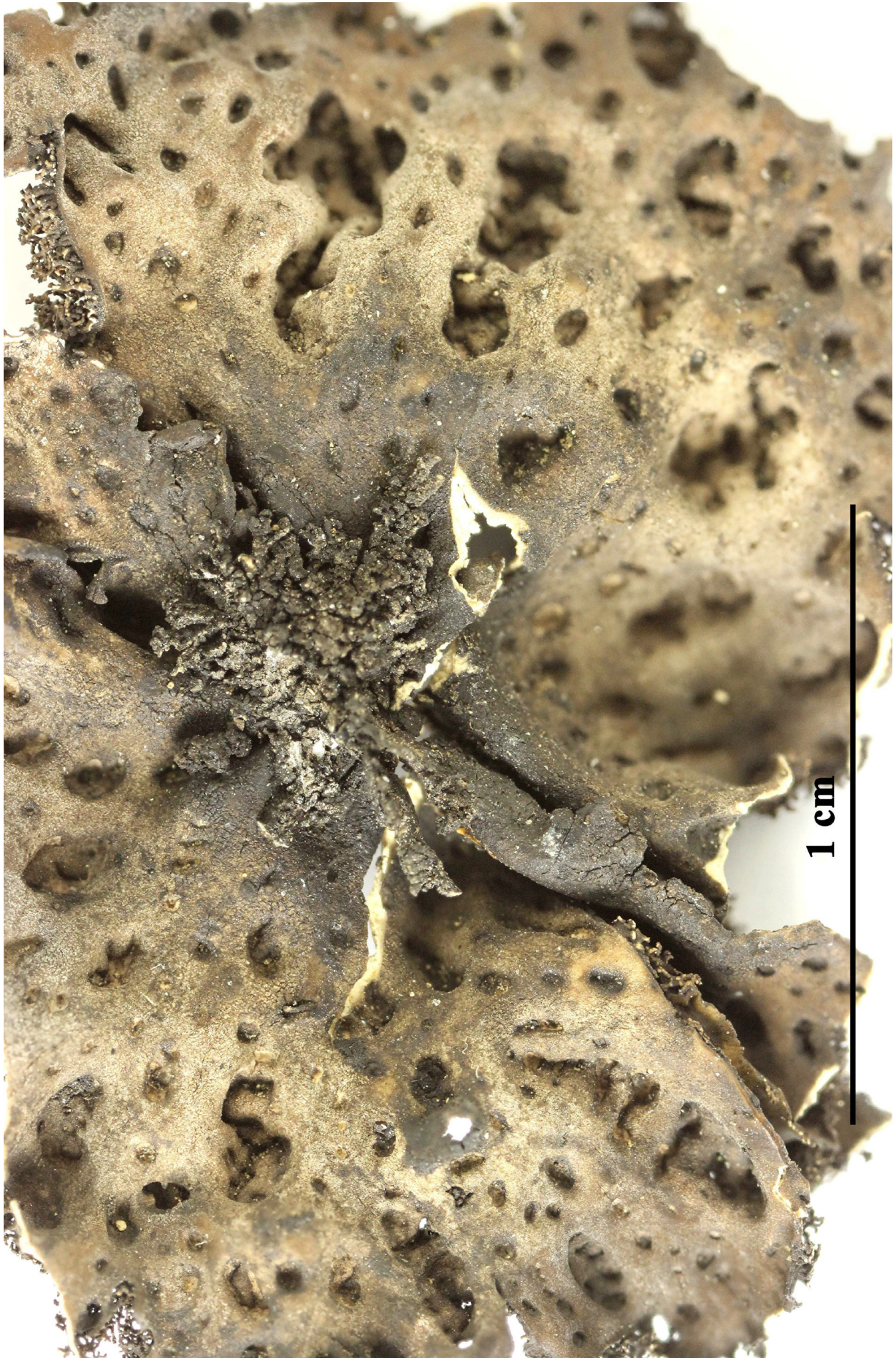
Lasallia pensylvanica

Lasallia sinorientalis J.C. Wei, Acta Mycol. Sin. 1(1): 23 (1982)
= *Umbilicaria sinorientalis* (J.C. Wei) Davydov, Peršoh & Rambold,
Taxon 67(1): 221 (2018)

[OH483], Japan. Shikoku. Prov. Awa (Pref. Tokushima): Mt. Tsurugi.
On rock. Leg. F. Fujikawa, 20.8.1934, det. Y. Ohmura. EX Y. OHMURA
LICHENES MINUS COGNITI NEXSICCATI NR. 483.



Lasallia sinorientalis



Lasallia sinorientalis

Lecanora chionocarpa Hue, Nouv. Arch. Mus. Hist. Nat., Paris, 4 sér. 8: 242 (1906)

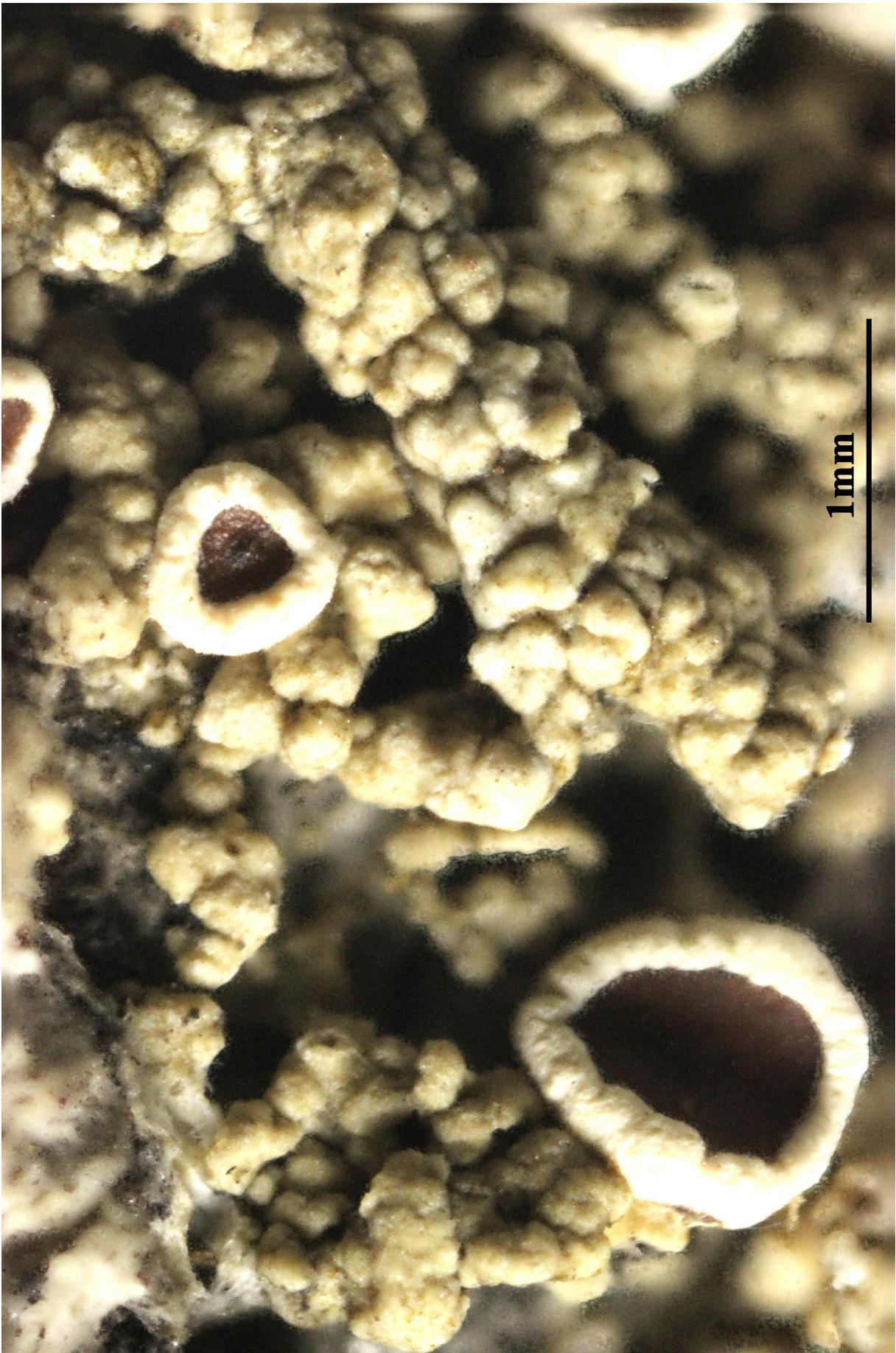
[OH382], Japan. Honshu. Prov. Ugo (Pref. Akita): Mitzusawa Hot Springs, Senboku-city. On bark of *Quercus mandschurica* var. *sieboldiana*, 580 m. Leg. Y. Ohmura (no. 5976), 24.5.2008, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 382.

Lit.: *Lecanora chionocarpa* Hue, *Ann. Mycol.* 5: 89. 1907. Pl. 2A

Chemistry: atranorin, zeorin; other unidentified substances also sometimes present. Distribution: *L. chionocarpa* has been reported from Japan, Korea and China. - Remarks: The species is characterized by the cottony appearance of its thallus, white fibrous prothallus, non-granular epihymenium, and abundant production of zeorin.



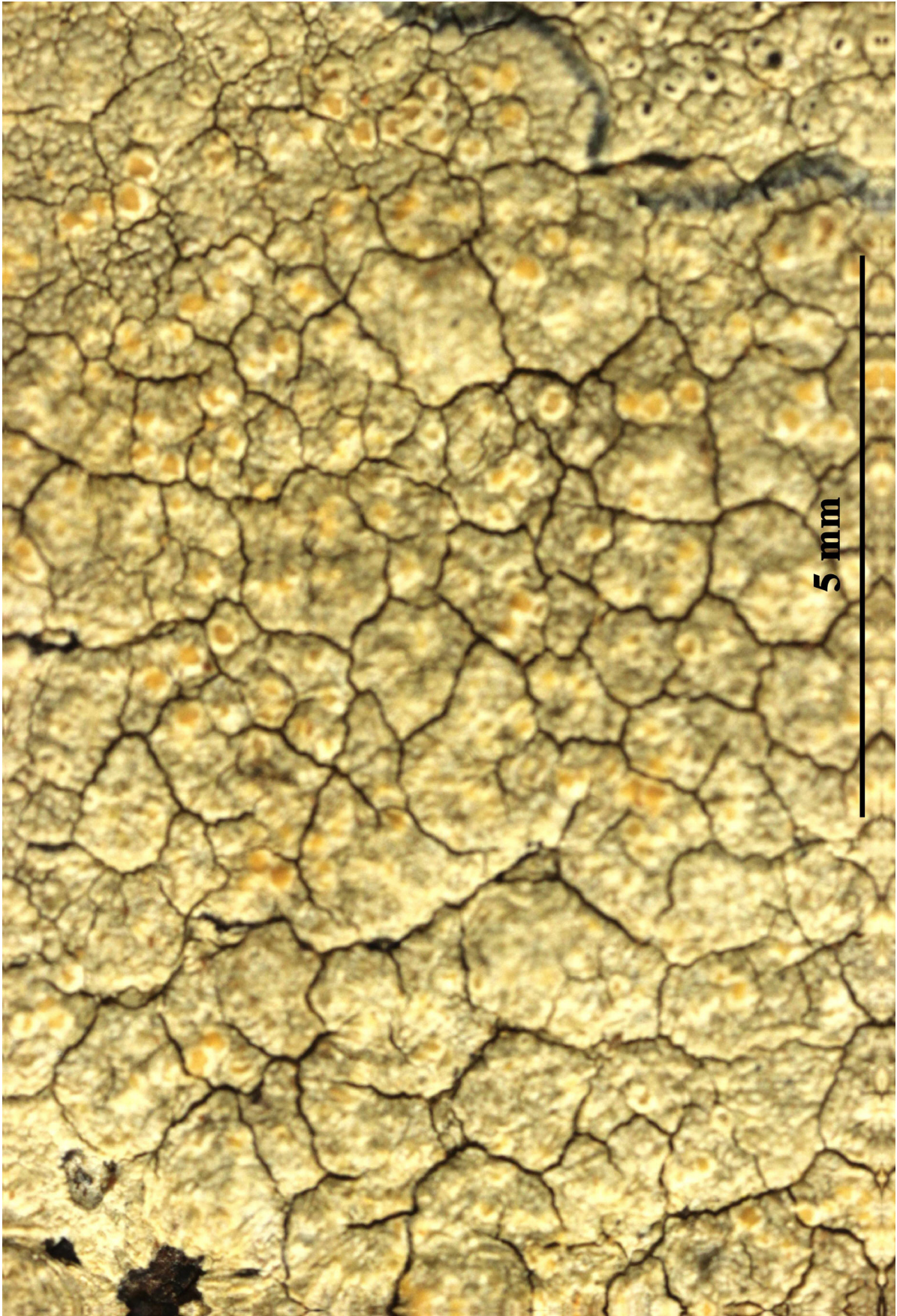
Lecanora chionocarpa



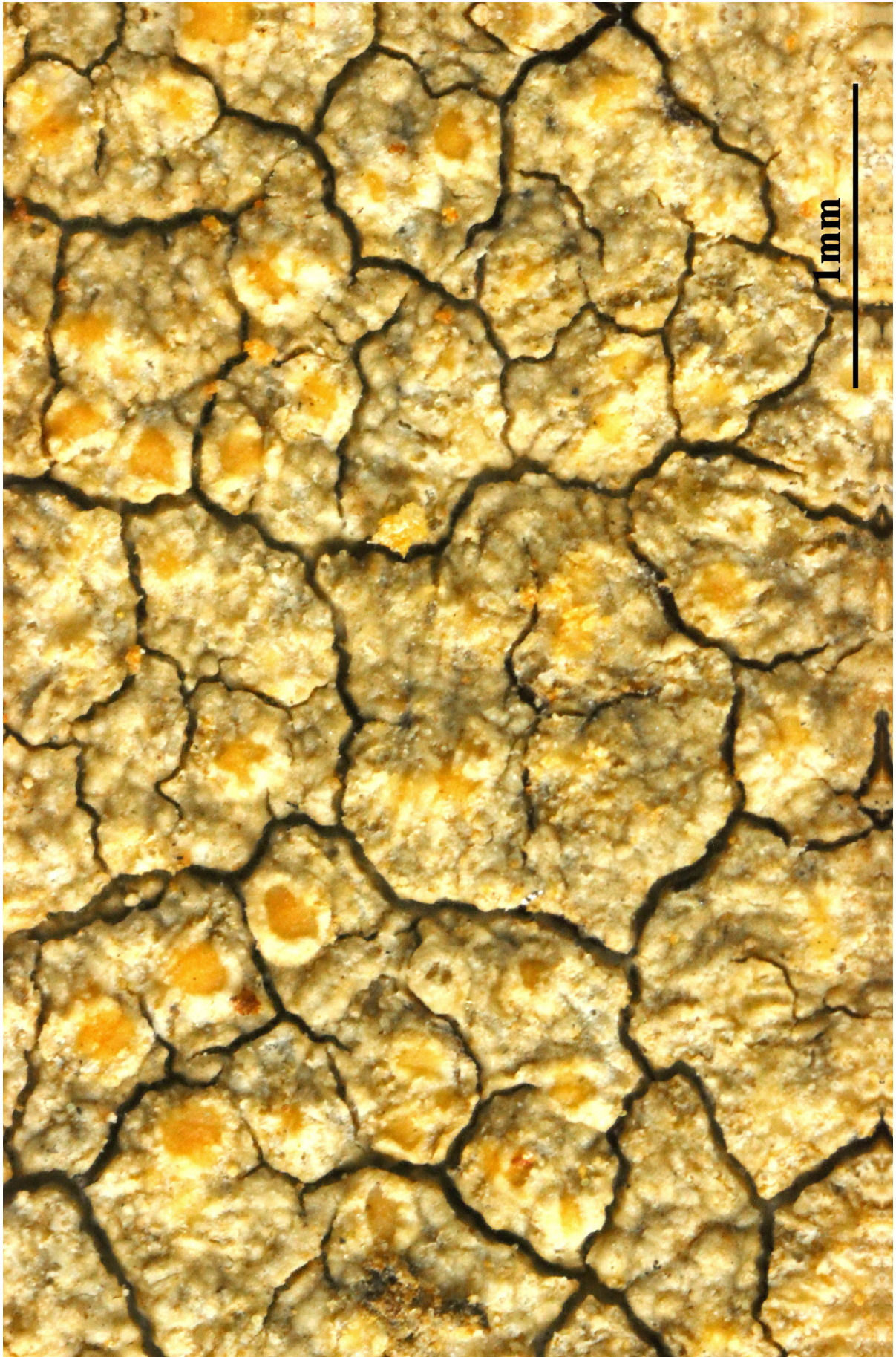
Lecanora chionocarpa

Lecanora leprosa Fée, Essai Crypt. Exot. (Paris): 118 (1825) [1824]

[OH633], Japan. Honshu. Prov. Hitachi (Ibaraki Pref): Amakubo, Tsukuba-city (36°06'11" N, 140°05'25" E). On bark of *Zelkova serrata*, 20m. Leg. Y. Ohmura (no. 12453), 9.3.2019, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR. 633.



Lecanora leprosa

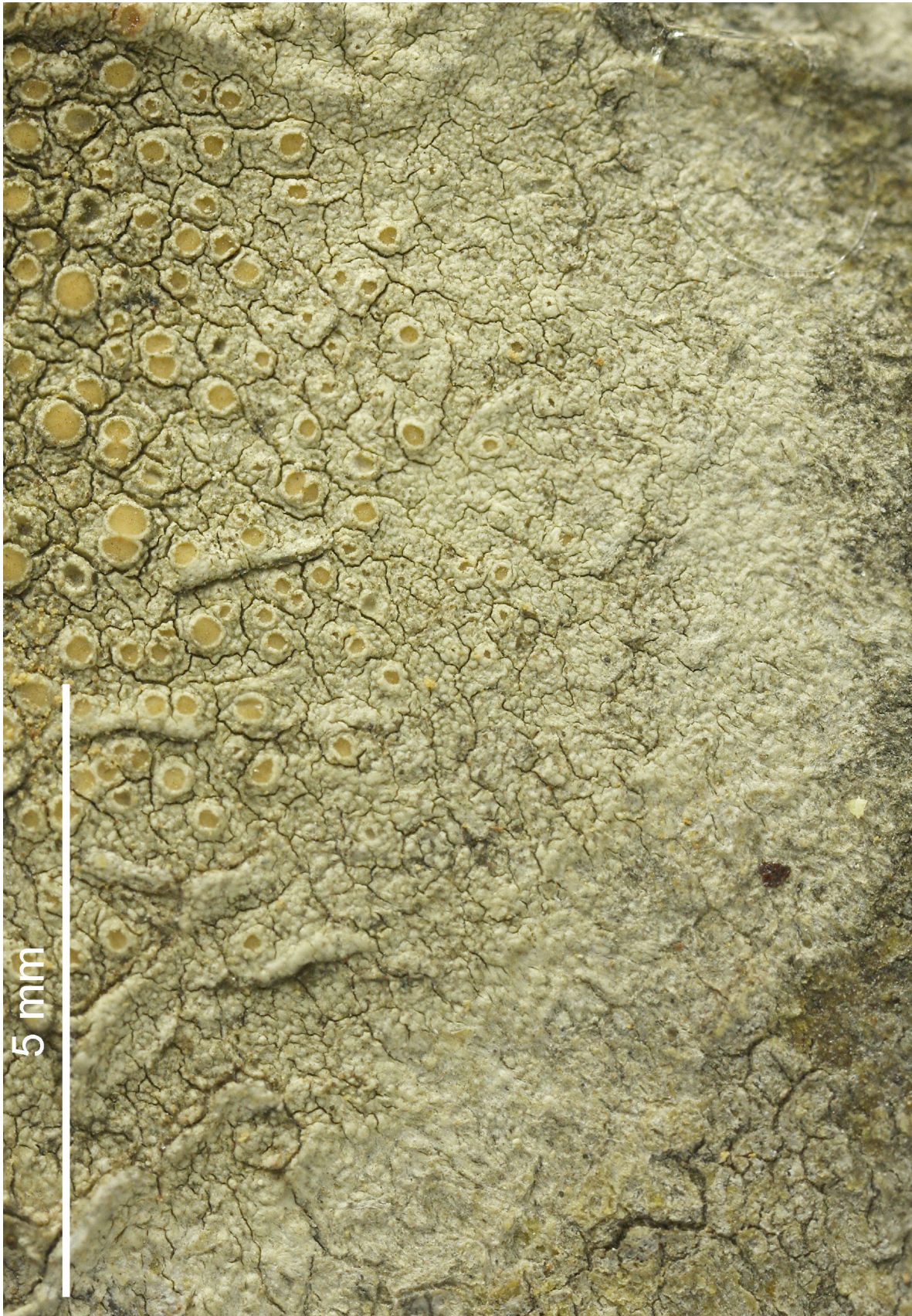


Lecanora leprosa

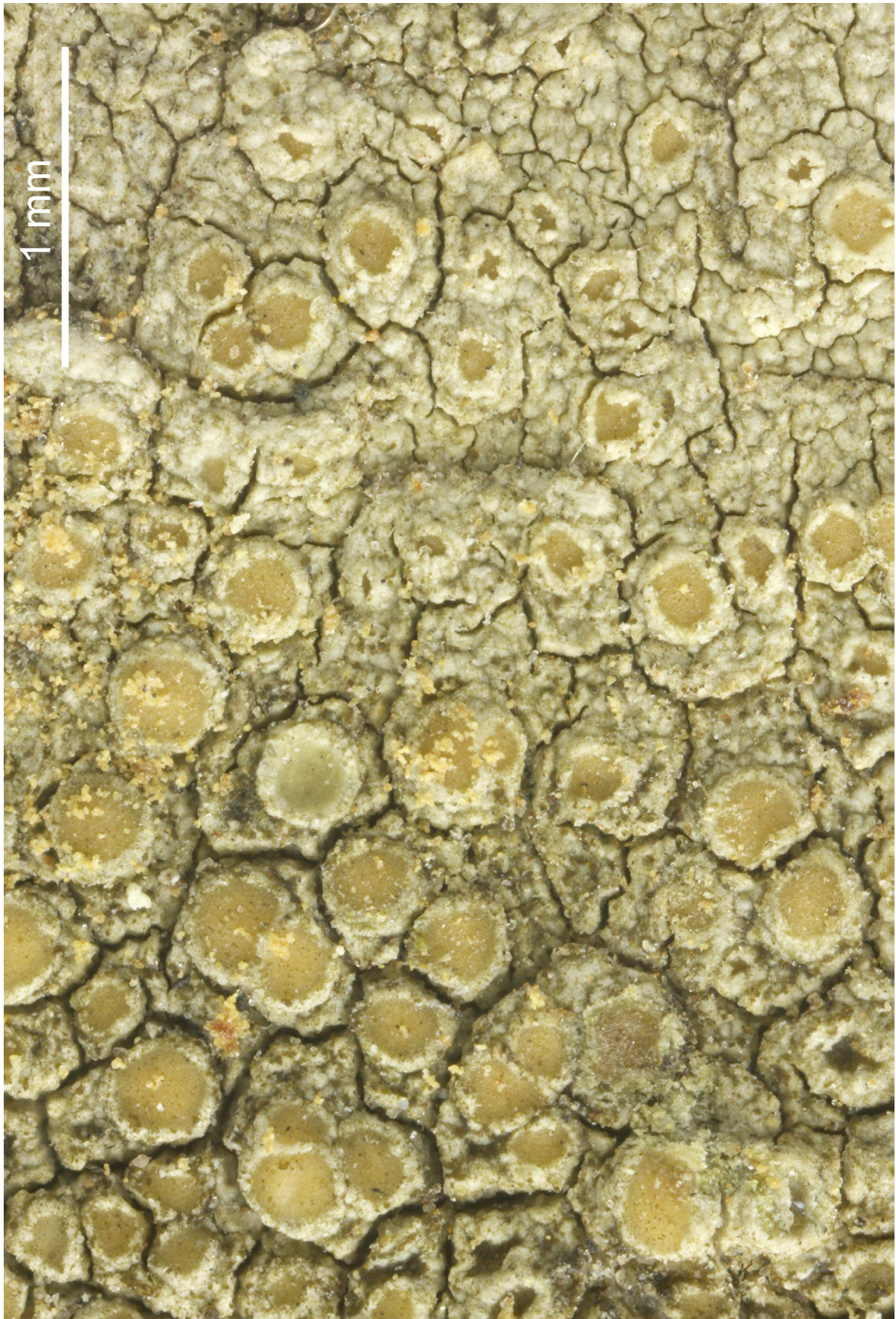
Lecanora leprosa Fée, Essai Crypt. Exot. (Paris): 118 (1825) [1824]

[9542], Thailand, Tempelanlage von Sukhothai. 17°01.019' N, 99°42.273 E, 78 m, corticol. Leg. F. Schumm 29.03.2002, det. A. Aptroot, 2009. EX HERBARIO F. SCHUMM NR.9542.

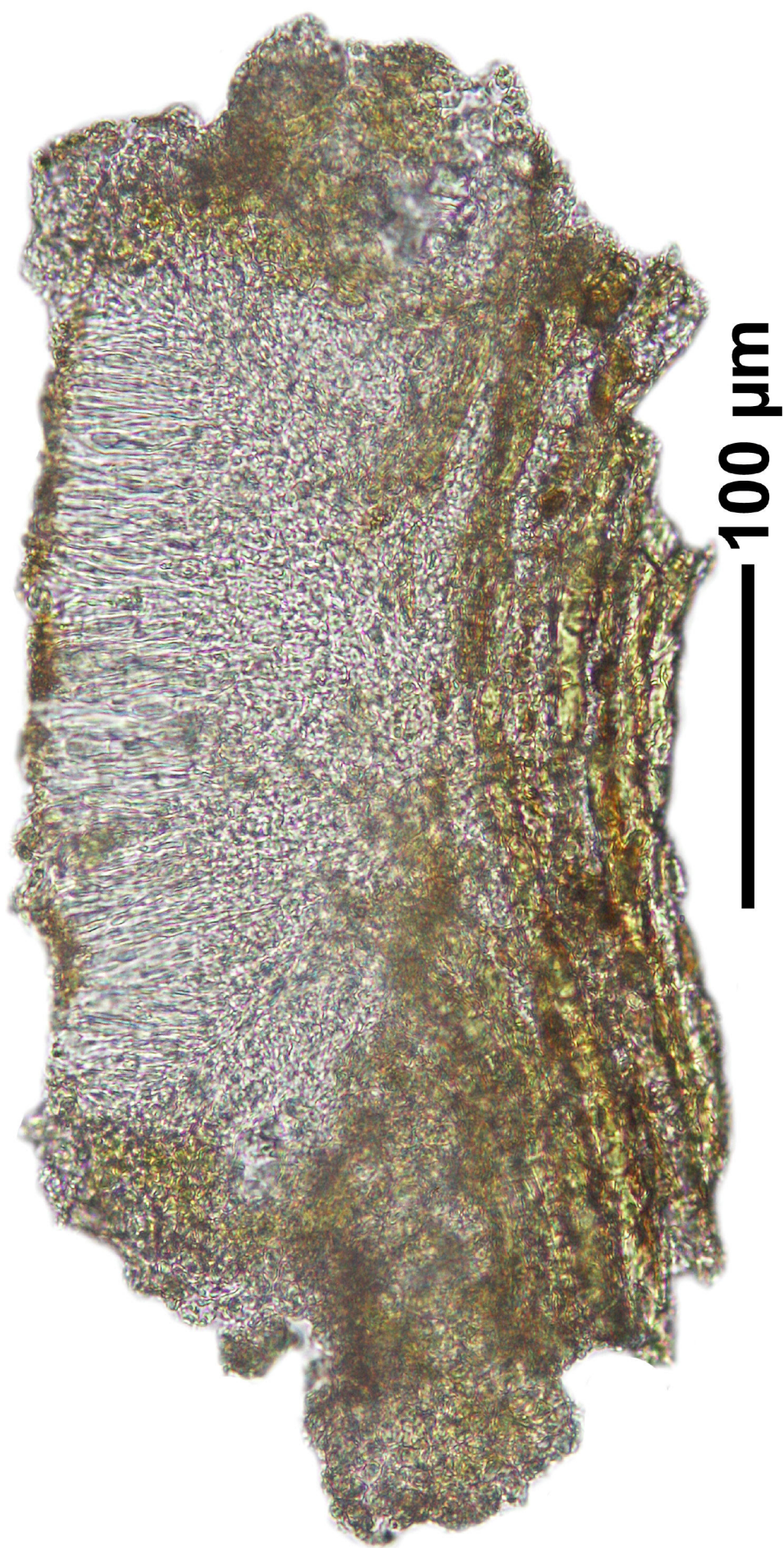
Thallus corticolous, yellowish, warty, without soredia. Prothallus absent or whitish grey. Apothecia 0.2-1.1 mm, first sunken then sessile. Disc orange to yellowish brown. Margins' first warty, later thin or disappearing. Amphithecium and parathecium with crystals. Hypothecium colourless to yellowish. Paraphyses appr. 1.5 µm thick, tips branched. Ascospores hyaline, 1-cellular, 7-14 x 3-7 µm. Chemistry: atranorin, gangaleidin, chloroatranorin (min), norgangaleidin (min), chlorolecideidin (tr), leoidin (tr). Lit.: Lumbsch et al. (1993, Tropical Bryology 7: 71-75).



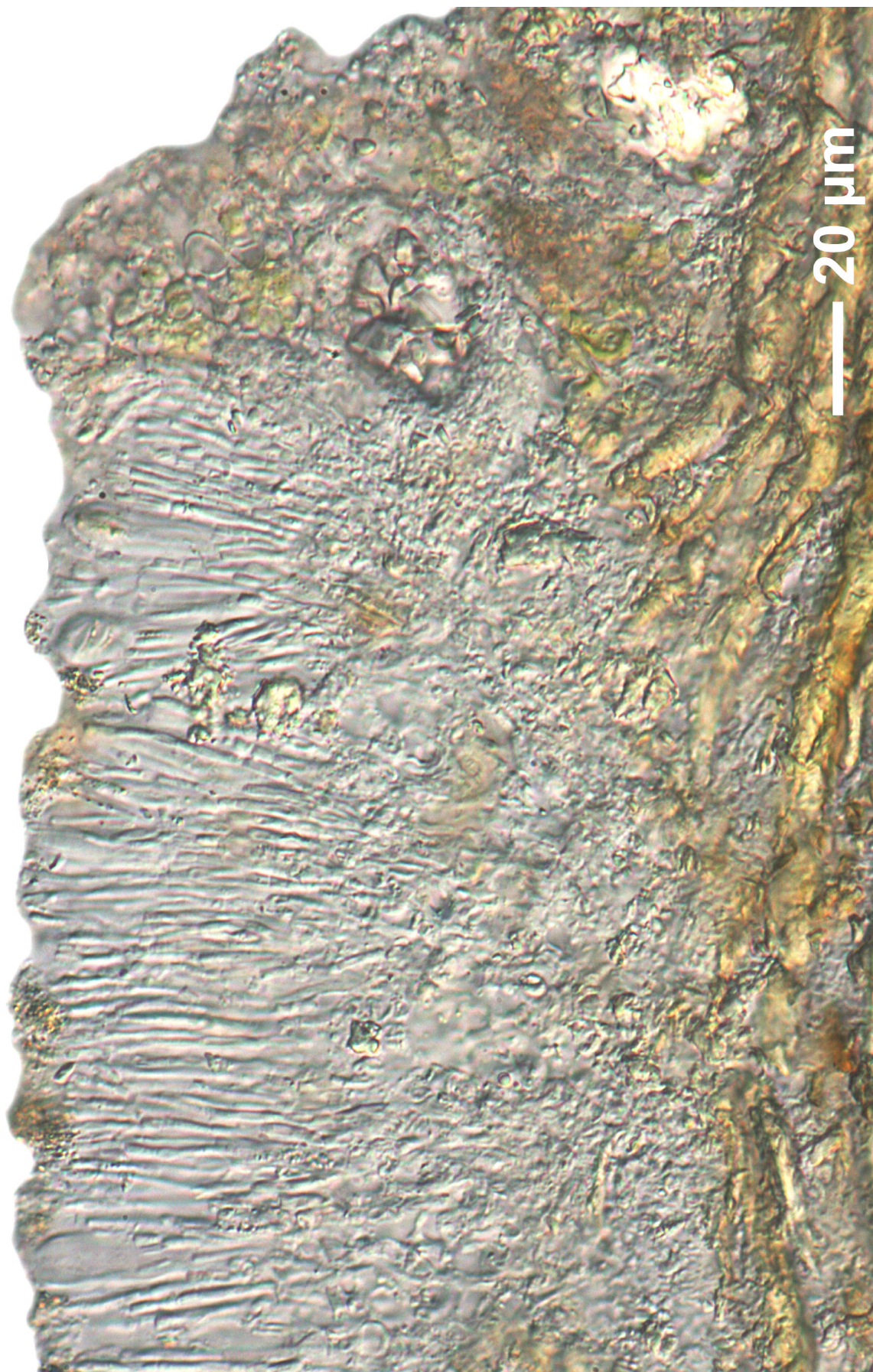
Lecanora leprosa



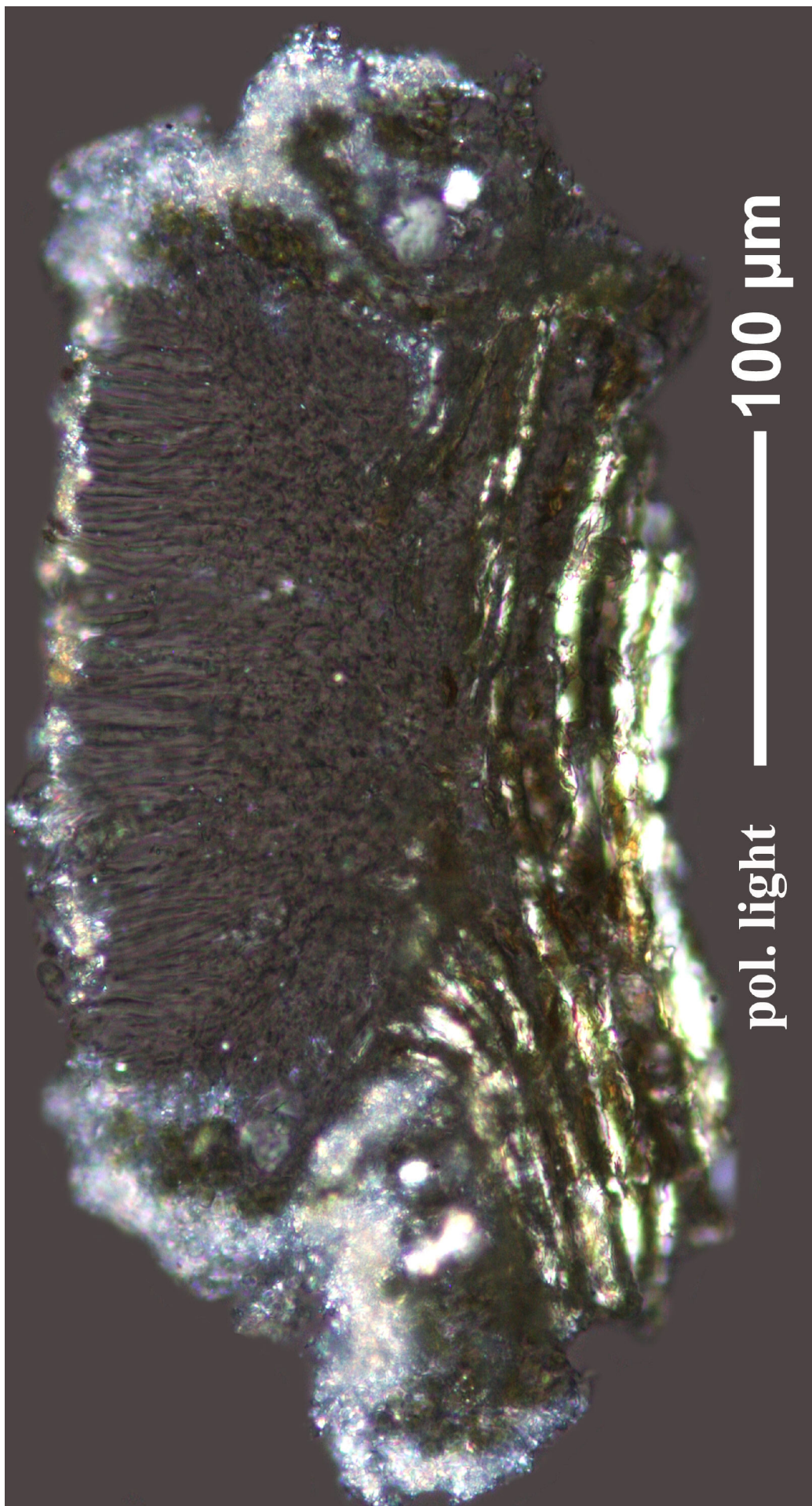
Lecanora leprosa



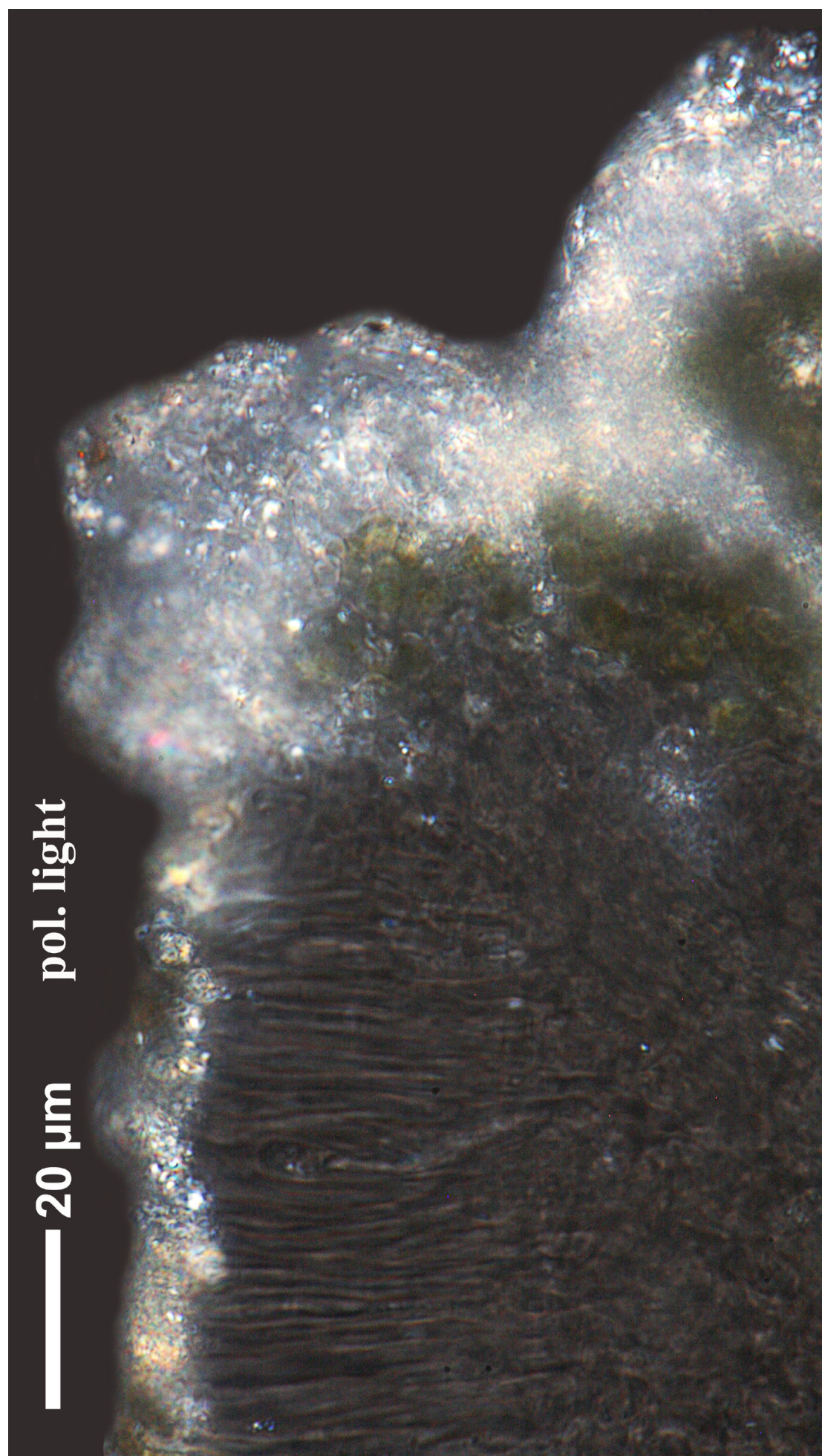
Lecanora leprosa



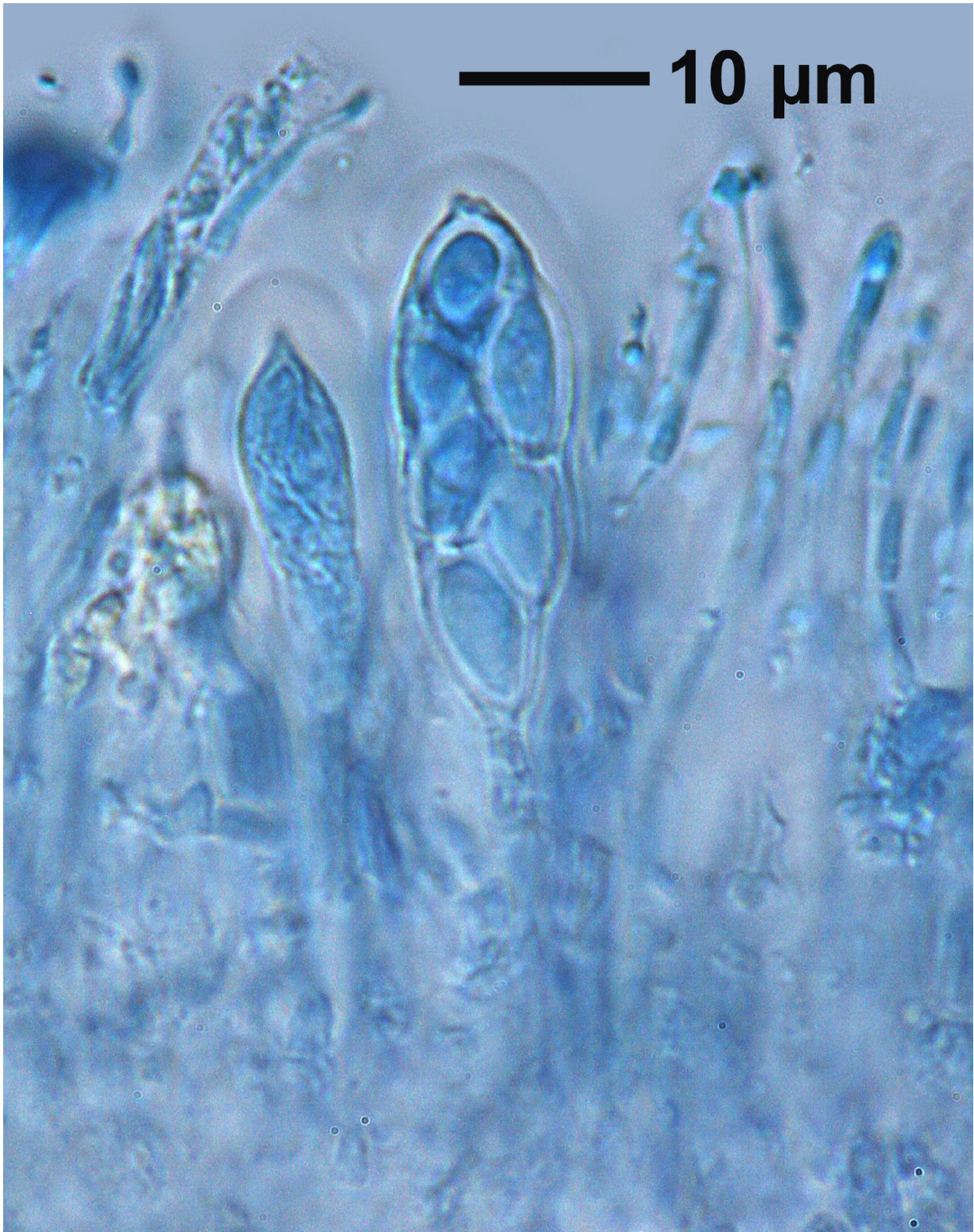
Lecanora leprosa



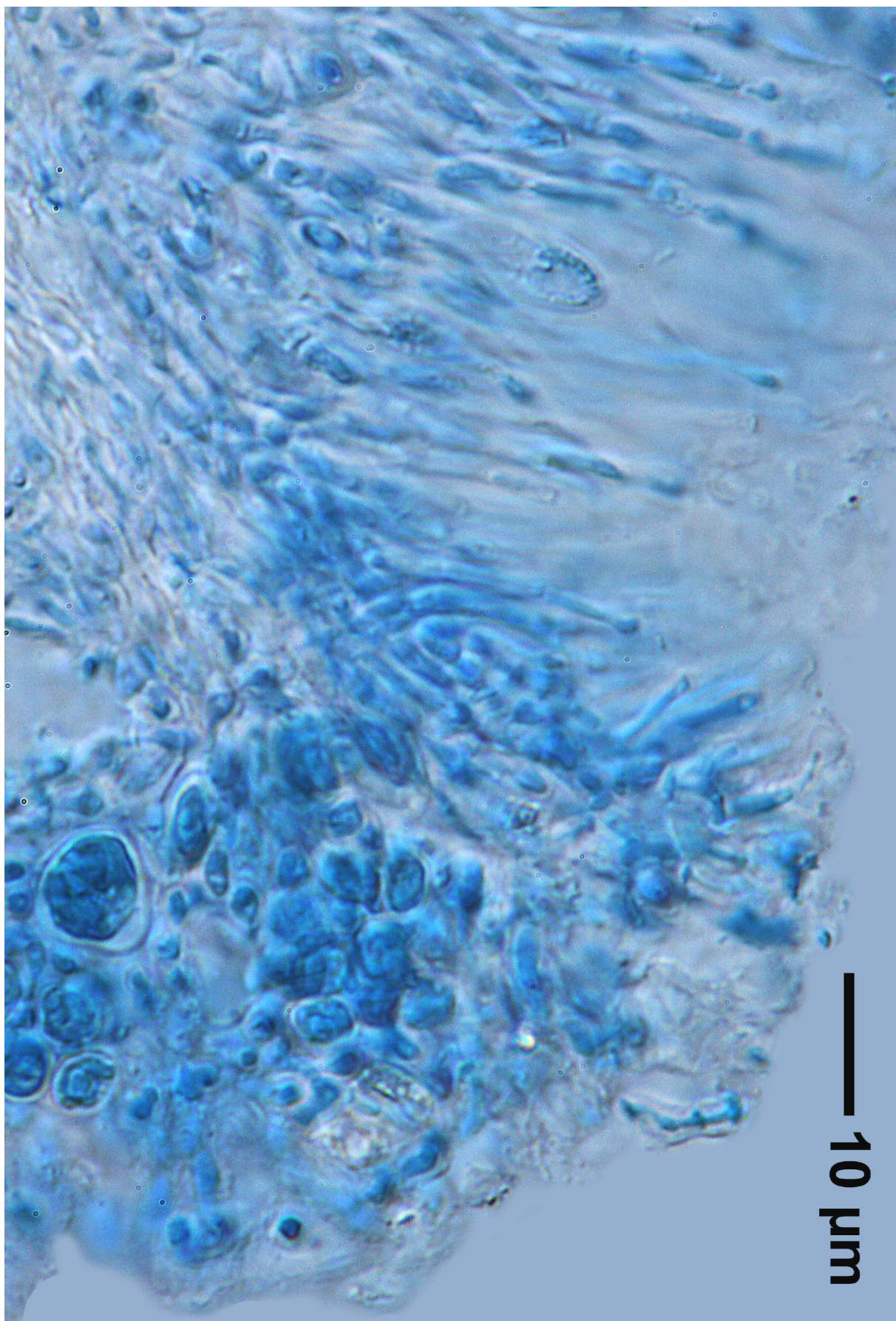
Lecanora leprosa

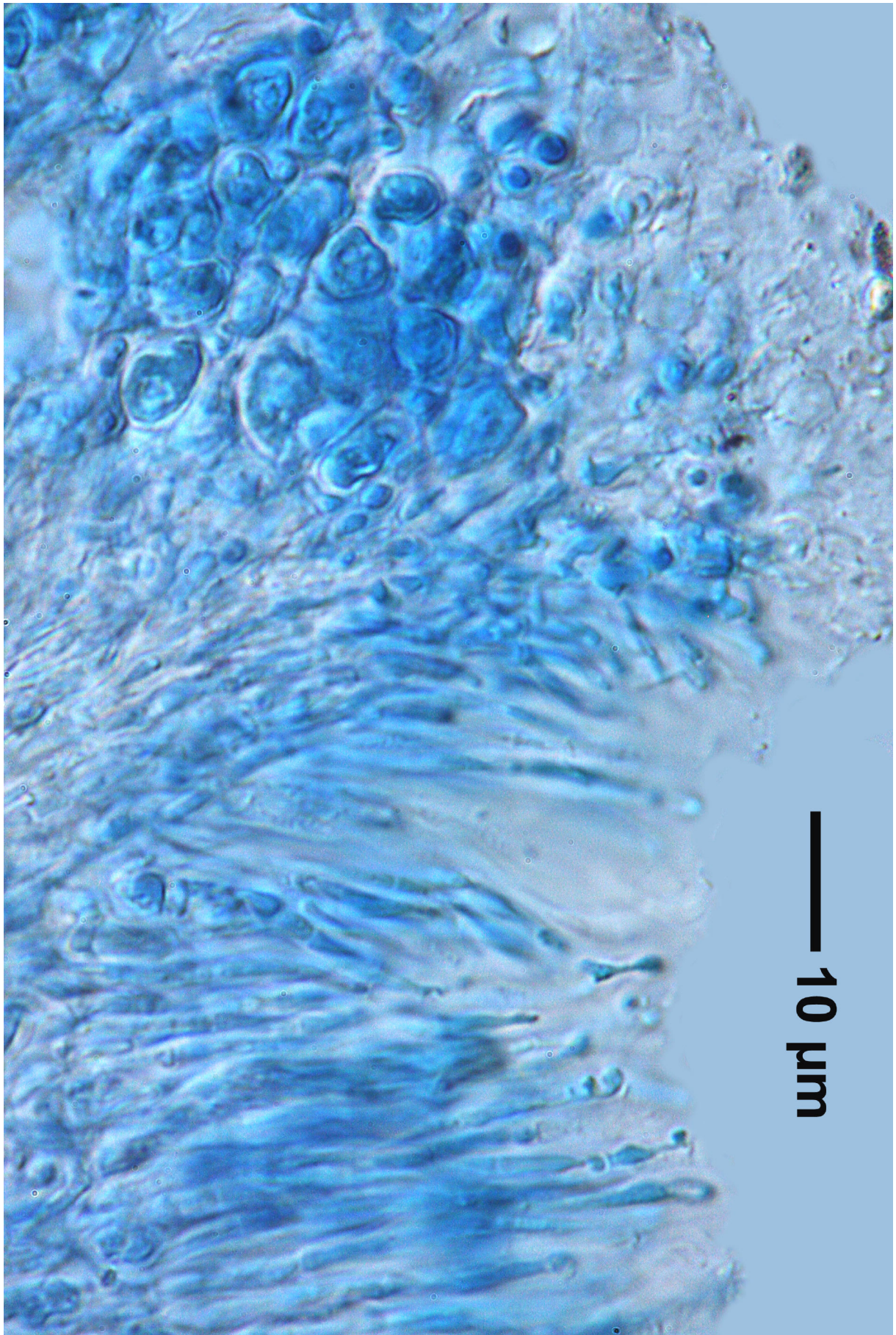


Lecanora leprosa



Lecanora leprosa



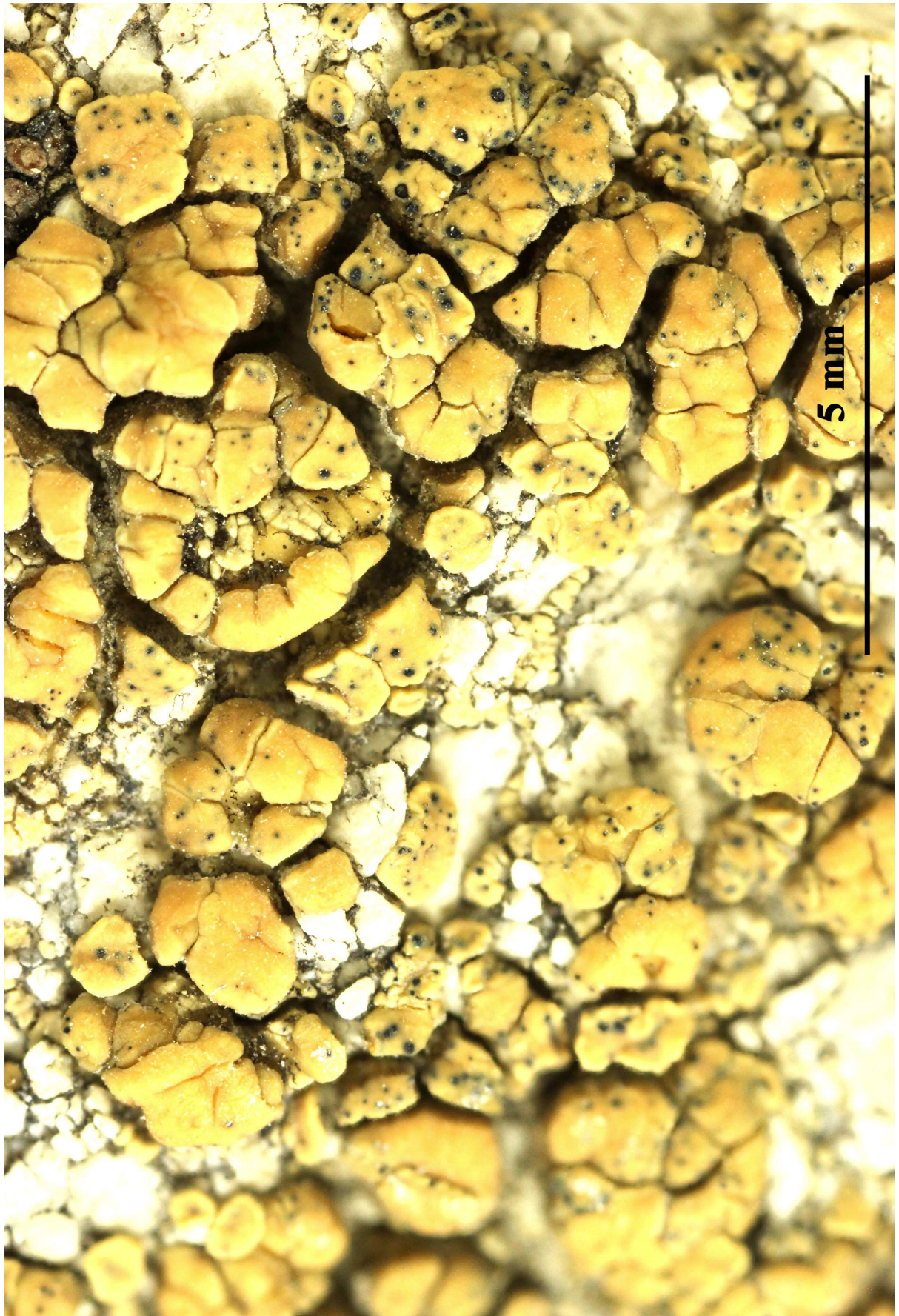


Lecanora leprosa

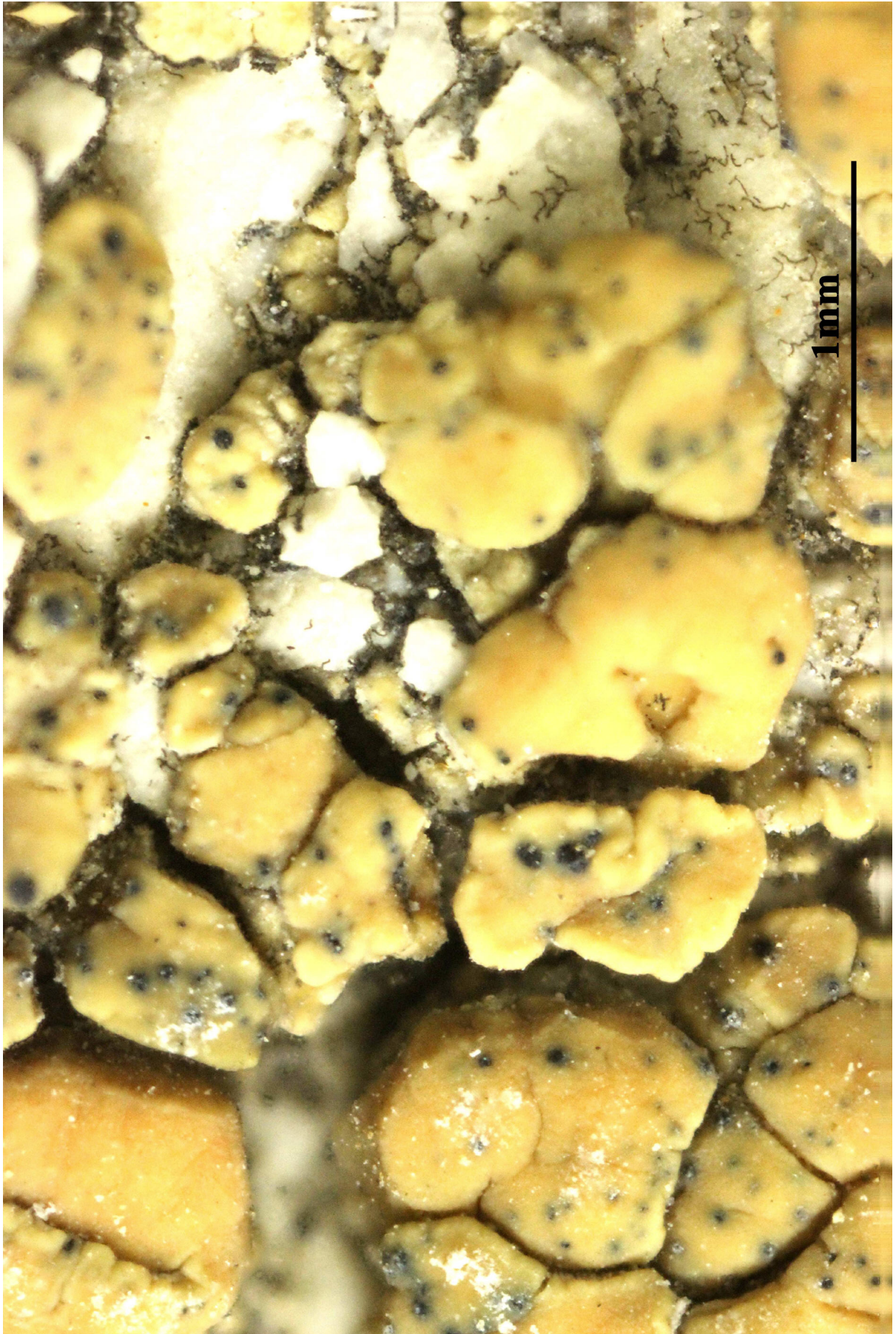
Lecanora polytropa (Hoffm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 37 (1845)
= *Verrucaria polytropa* Hoffm. 1796

[KA333], Japan. Hokkaido. Prov. Ishikari: Beside the trail between Bogakudai and Fukiage Spa (43°26' N, 142°39' E). On rocks, 1090 m. Leg. A. Shimizu (no. 3101-3135), 10.8.2006, det. A. Shimizu. EX H. KASHIWADANI LICHENES MINUS COGNITI EXSICCATI NR. 333.

Thallus crustose, poorly evident to thinly rimose-areolate and in this case usually reduced to scattered granules or areoles around the apothecia, yellowish green to pale grey-green, without a distinct prothallus. Cortex with a thin epinecral layer of dead cells and crystals, and a thicker paraplectenchymatous layer which in upper part contains small yellowish crystals and somehow larger colourless crystals partially soluble in N, totally soluble in K. Apothecia lecanorine, sessile, constricted at base, round to irregular in outline, 0.3-2.5(-3) mm across, with a pale yellow-brown or pale yellow-green (turning brownish in the herbarium), concave to finally convex disc and a thin, entire to more or less crenulate, finally often excluded thalline margin. Cortex of thalline exciple with an outer layer of granules, strongly gelatinized; epithecium colourless to pale reddish brown, with granular crystals soluble in K; hymenium colourless, 45-60(-80) μm high; paraphyses sparingly branched and anastomosing, 1.2-2 μm thick in lower part, slightly thickened at apex; hypothecium pale yellowish brown. Asci 8-spored, clavate, Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, (8-)10-13(-14.5) $\times$ (4-)5-6.5(-7) μm . Pycnidia immersed, with a pale yellow-brown ostiole, Conidia acicular to arcuate, (12-)18-22(-25) $\times$ c. 1 μm . Photobiont chlorococcoid. Spot tests: thallus K- or K+ indistinctly yellow, C-, KC+ yellow, P-. Chemistry: usnic acid, rangiformic acid, zeorin. - Note: a cool-temperate to arctic-alpine, circumpolar, ecologically wide-ranging lichen found on siliceous rocks wetted by rain, with a wide altitudinal range but most frequent near and above treeline.



Lecanora polytropa



Lecanora polytropa

Lecanora polytropa (Hoffm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 37 (1845)
= *Verrucaria polytropa* Hoffm. 1796

[14284], Österreich, Vorarlberg, Verwall-Gruppe, Silbertal ca. 7 km E von Schruns, zwischen dem Teufelsbach Wasserfall und dem Gasthof Fellimännle, 47°05' N, 10°00' E, ca 900-1100 m, an Silikatfelsen im koniferenreichen Mischwald in Bachnähe. Leg. F. Schumm & Schönbrodt (BLAM-Exkursion), 30.08.2008, det F. Schumm, 2008. EX HERBARIO F. SCHUMM NR. 14284.

Thallus fehlend oder grünlichgrau, zerstreute, 0,1-0,2 mm große, konvexe, glatte, Feldchen. Isidien fehlen; Sorale fehlen. Apothecien 0,4-0,5 mm, breit aufsitzend, flach bis konkav; Scheibe graugrünlich; Rand 0,07 mm, heller als die Scheibe; Epithecium 9 µm, mit kleinen gelbbraunen Körnchen inspers; Hymenium 55 µm; Hypothecium hyalin; Excipulum voll mit kleinen in polarisiertem Licht aufleuchtenden Kristallen. Sporen 11-12 x 5-6 µm, hyalin, einzellig, zu 8 im Ascus. Chemie: ± Rangiformsäure, ± Zeorin, ± Eulecanoral. K-, C-, KC± gelblich. Saxicol, auf Silikatgestein.

Thallus crustose, poorly evident to thinly rimose-areolate and in this case usually reduced to scattered granules or areoles around the apothecia, yellowish green to pale grey-green, without a distinct prothallus. Cortex with a thin epinecral layer of dead cells and crystals, and a thicker paraplectenchymatous layer which in upper part contains small yellowish crystals and somehow larger colourless crystals partially soluble in N, totally soluble in K. Apothecia lecanorine, sessile, constricted at base, round to irregular in outline, 0.3-2.5(-3) mm across, with a pale yellow-brown or pale yellow-green (turning brownish in the herbarium), concave to finally convex disc and a thin, entire to more or less crenulate, finally often excluded thalline margin. Cortex of thalline exciple with an outer layer of granules, strongly gelatinized; epithecium colourless to pale reddish brown, with granular crystals soluble in K; hymenium colourless, 45-60(-80) µm high; paraphyses sparingly branched and anastomosing, 1.2-2 µm thick in lower part, slightly thickened at apex; hypothecium pale yellowish brown. Asci 8-spored, clavate, Lecanora-type. Ascospores 1-celled, hyaline, ellipsoid, (8-)10-13(-14.5) x (4-)5-6.5(-7) µm. Pycnidia immersed, with a pale yellow-brown ostiole, Conidia acicular to arcuate, (12-)18-22(-25) x c. 1 µm. Photo-

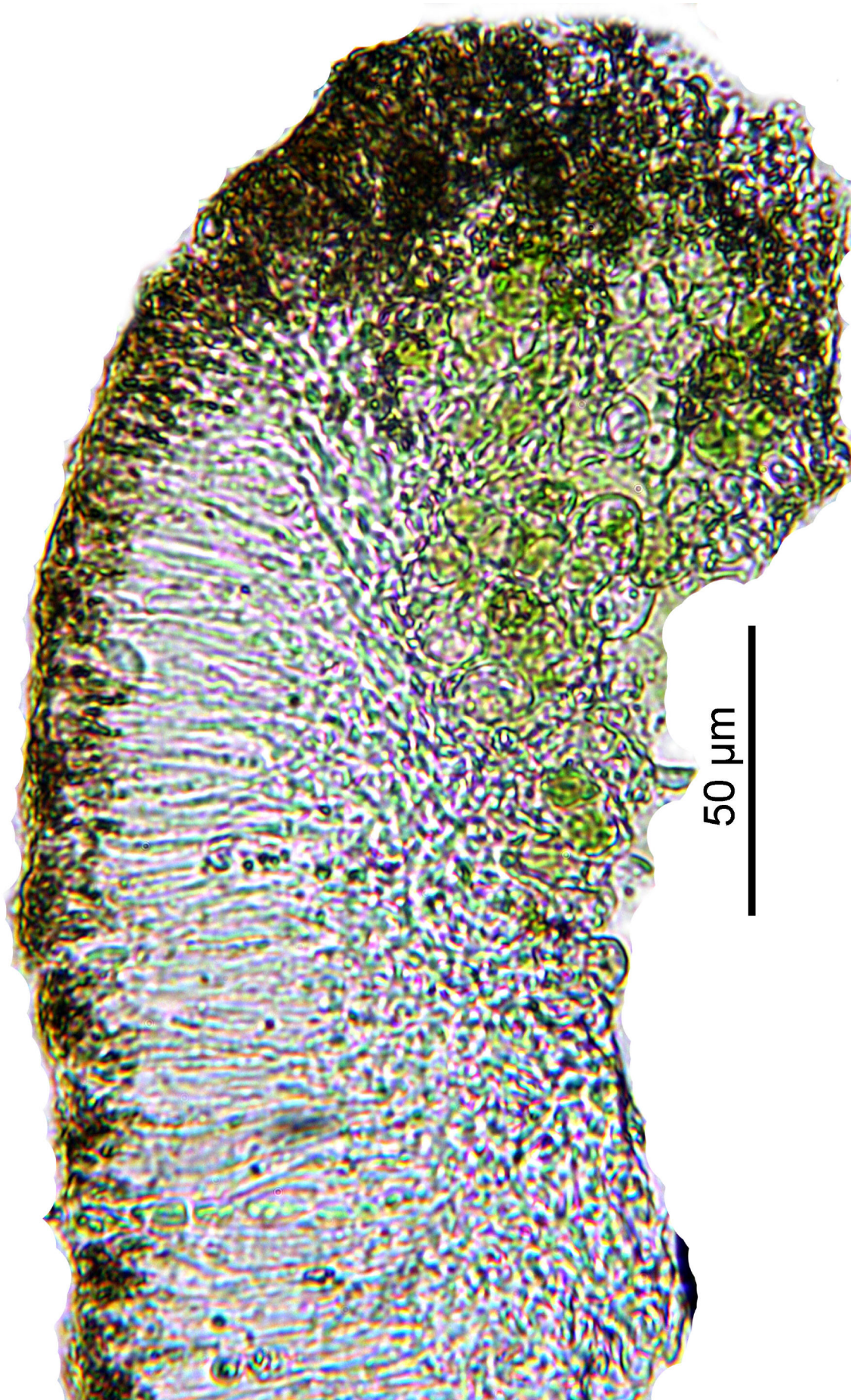
biont chlorococcoid. Spot tests: thallus K- or K+ indistinctly yellow, C-, KC+ yellow, P-. Chemistry: usnic acid, rangiformic acid, zeorin. - Note: a cool-temperate to arctic-alpine, circumpolar, ecologically wide-ranging lichen found on siliceous rocks wetted by rain, with a wide altitudinal range but most frequent near and above treeline.



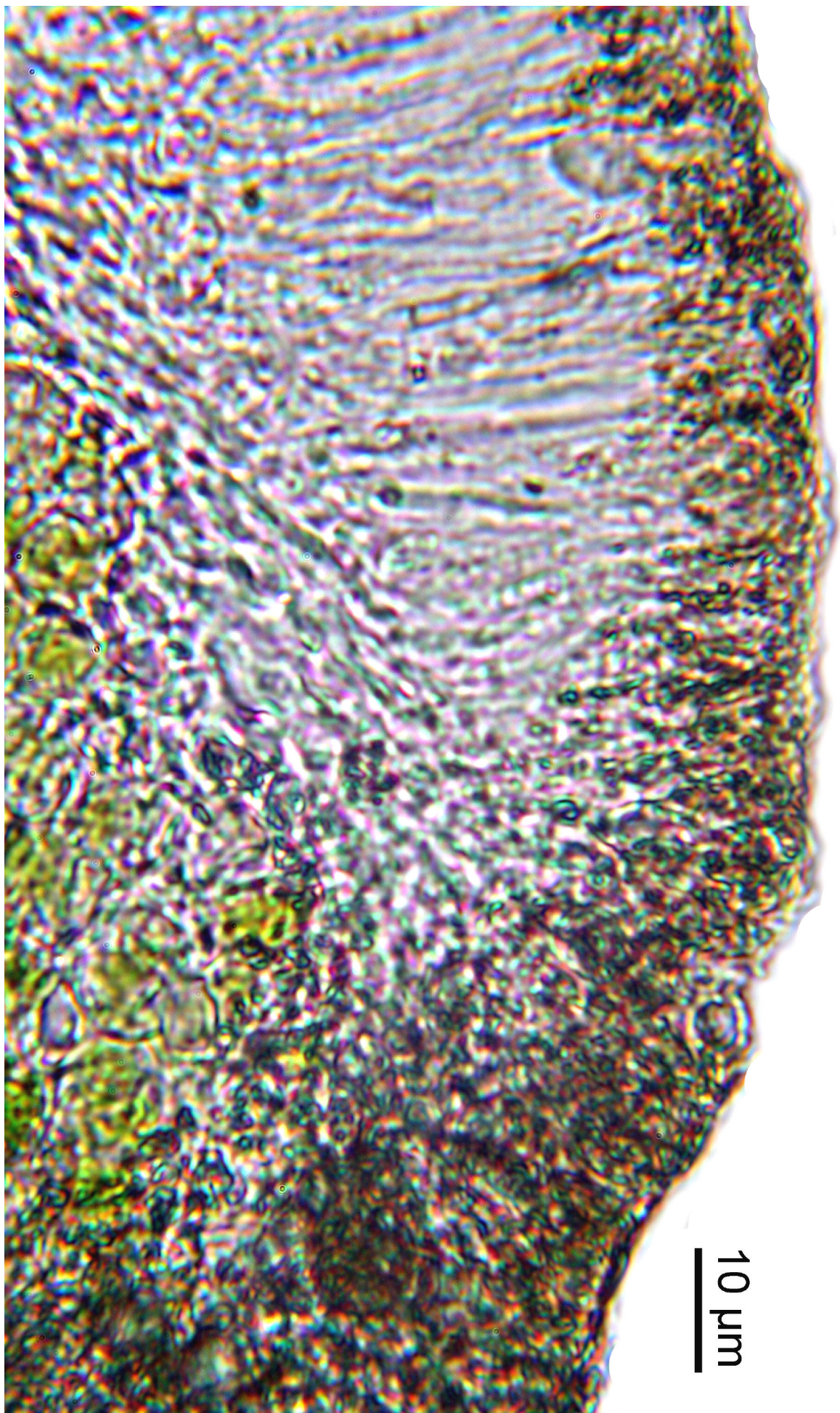
Lecanora polytropa



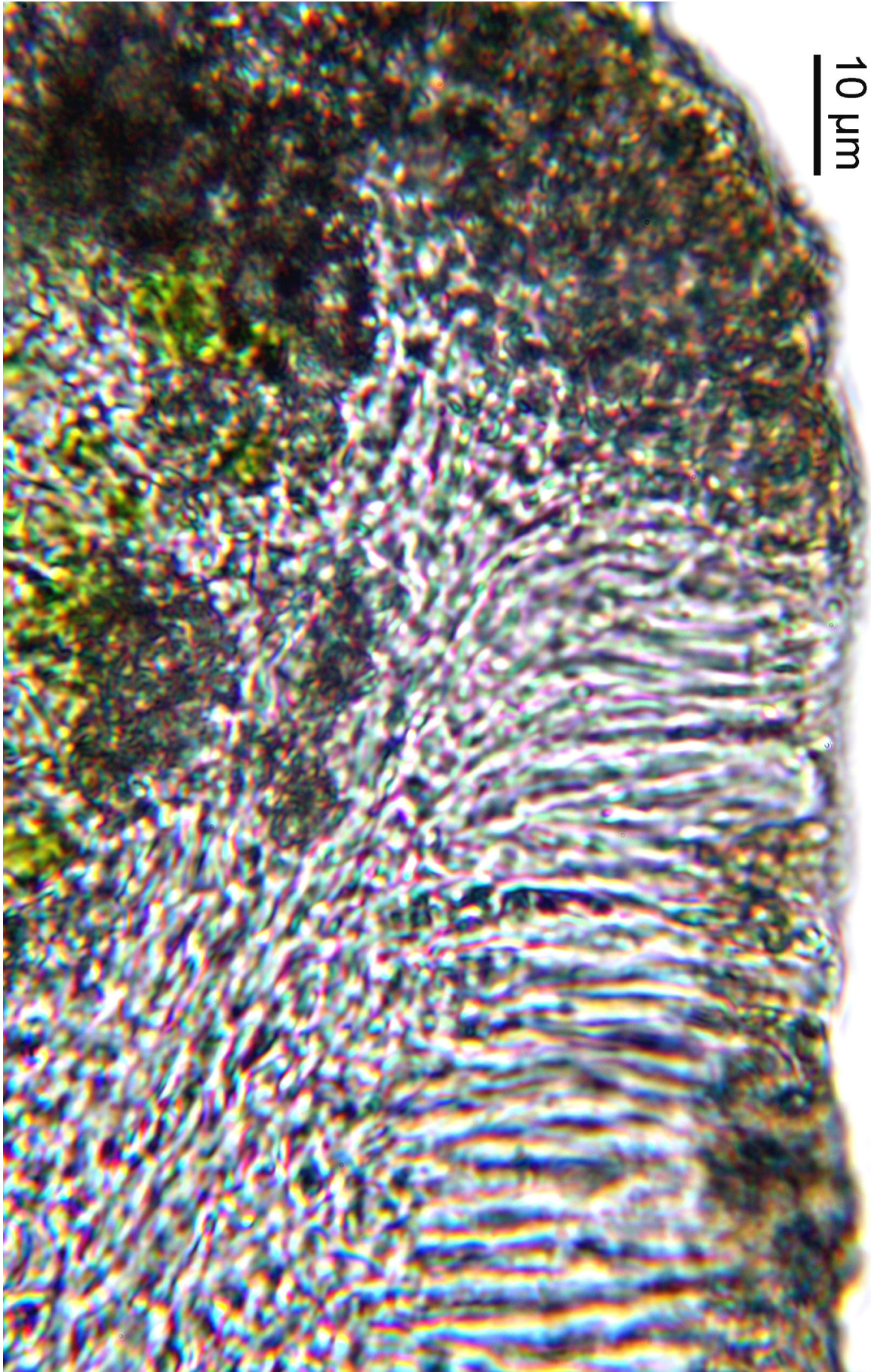
Lecanora polytropa



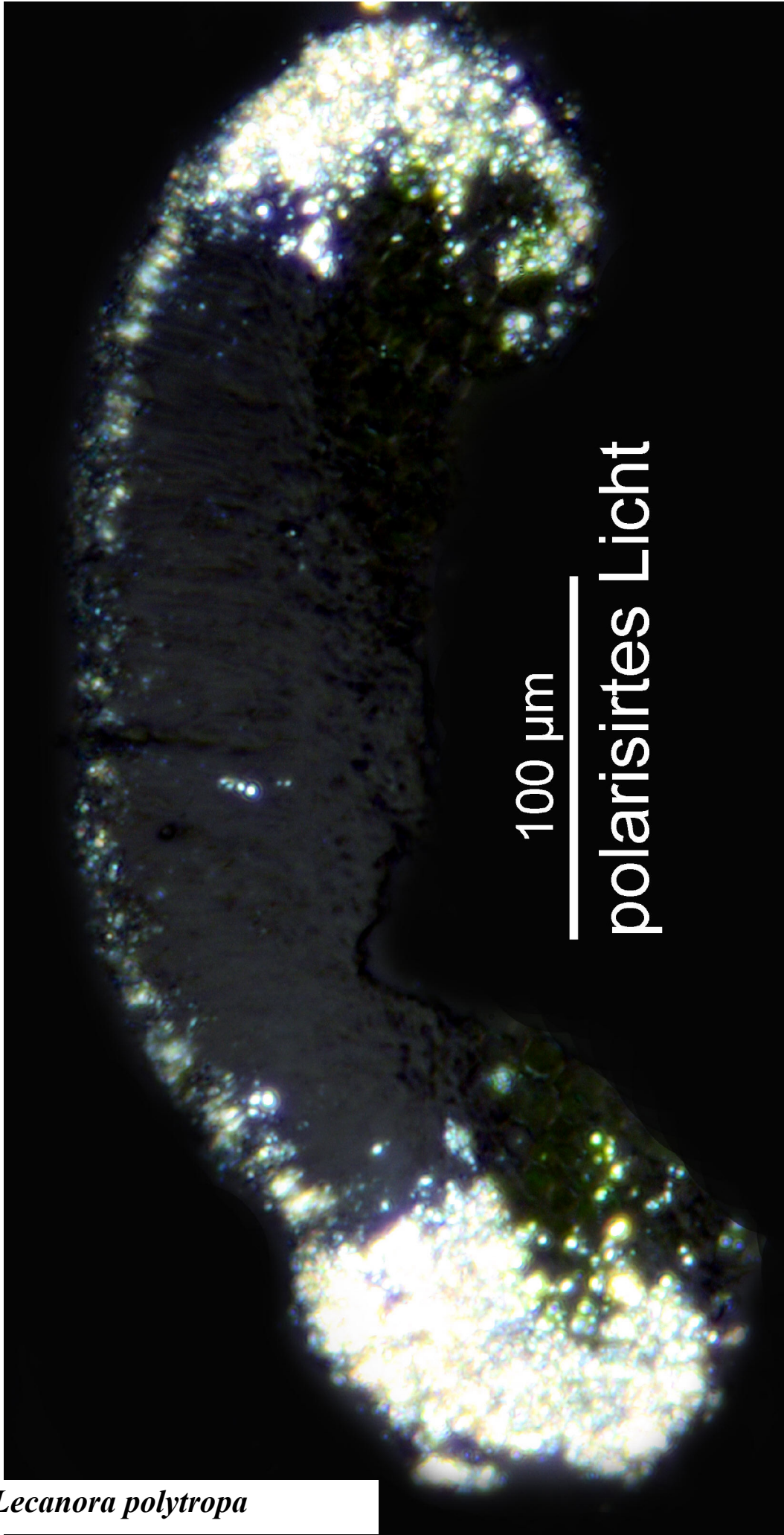
Lecanora polytropa



Lecanora polytropa

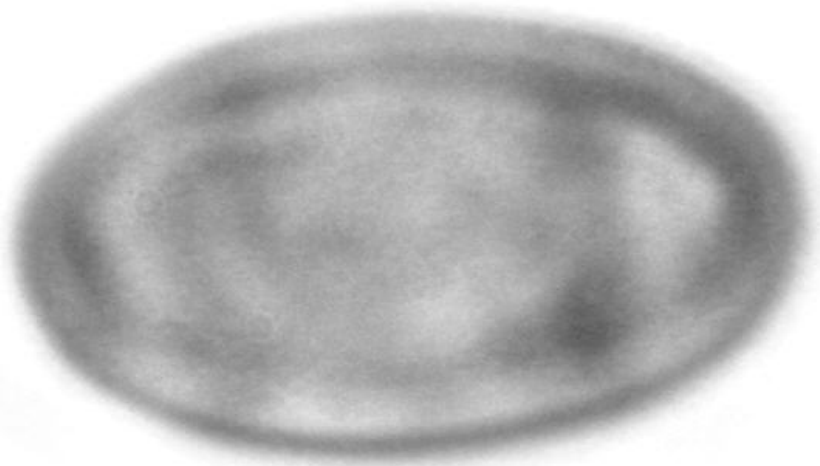


Lecanora polytropa



Lecanora polytropa

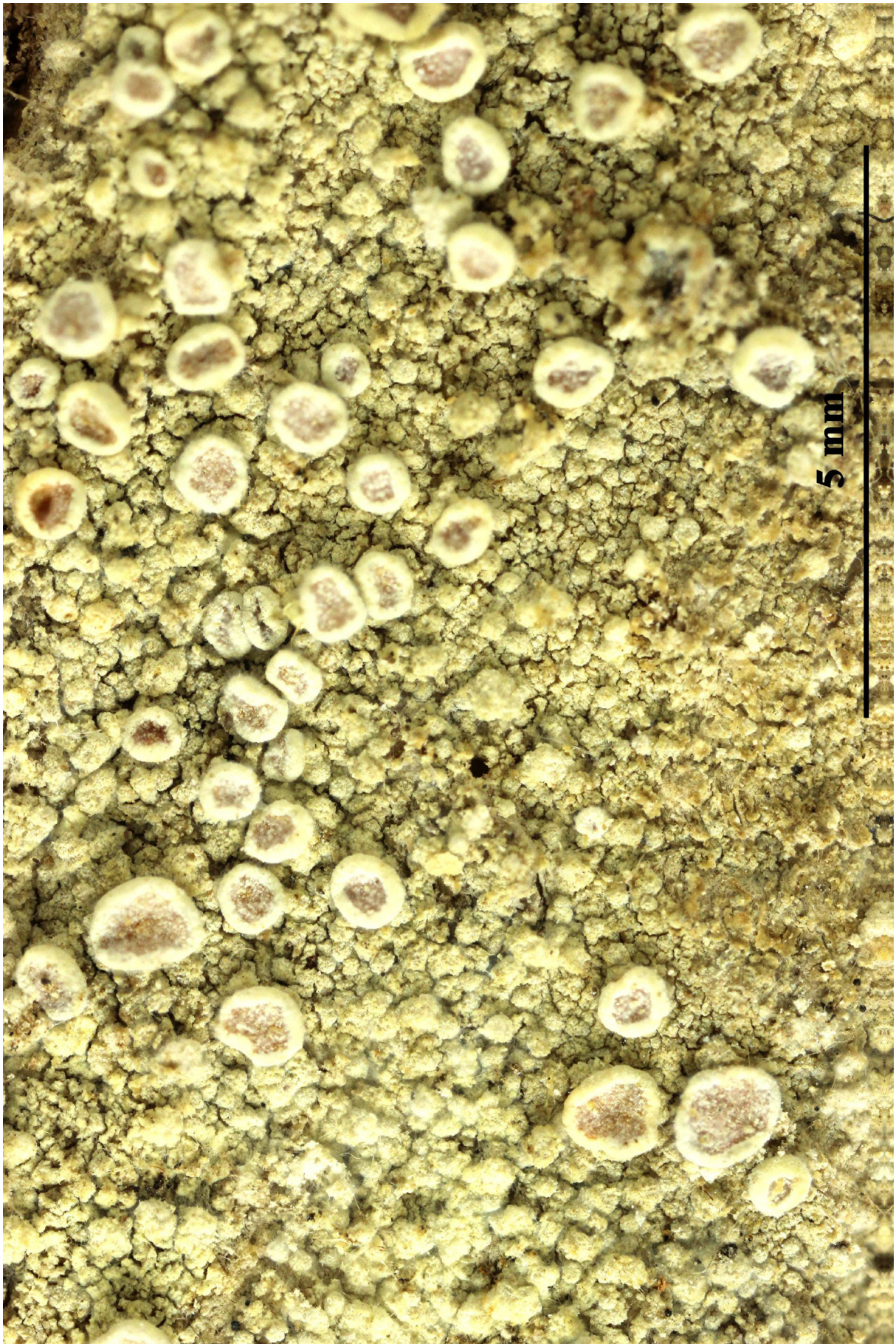
10 μm



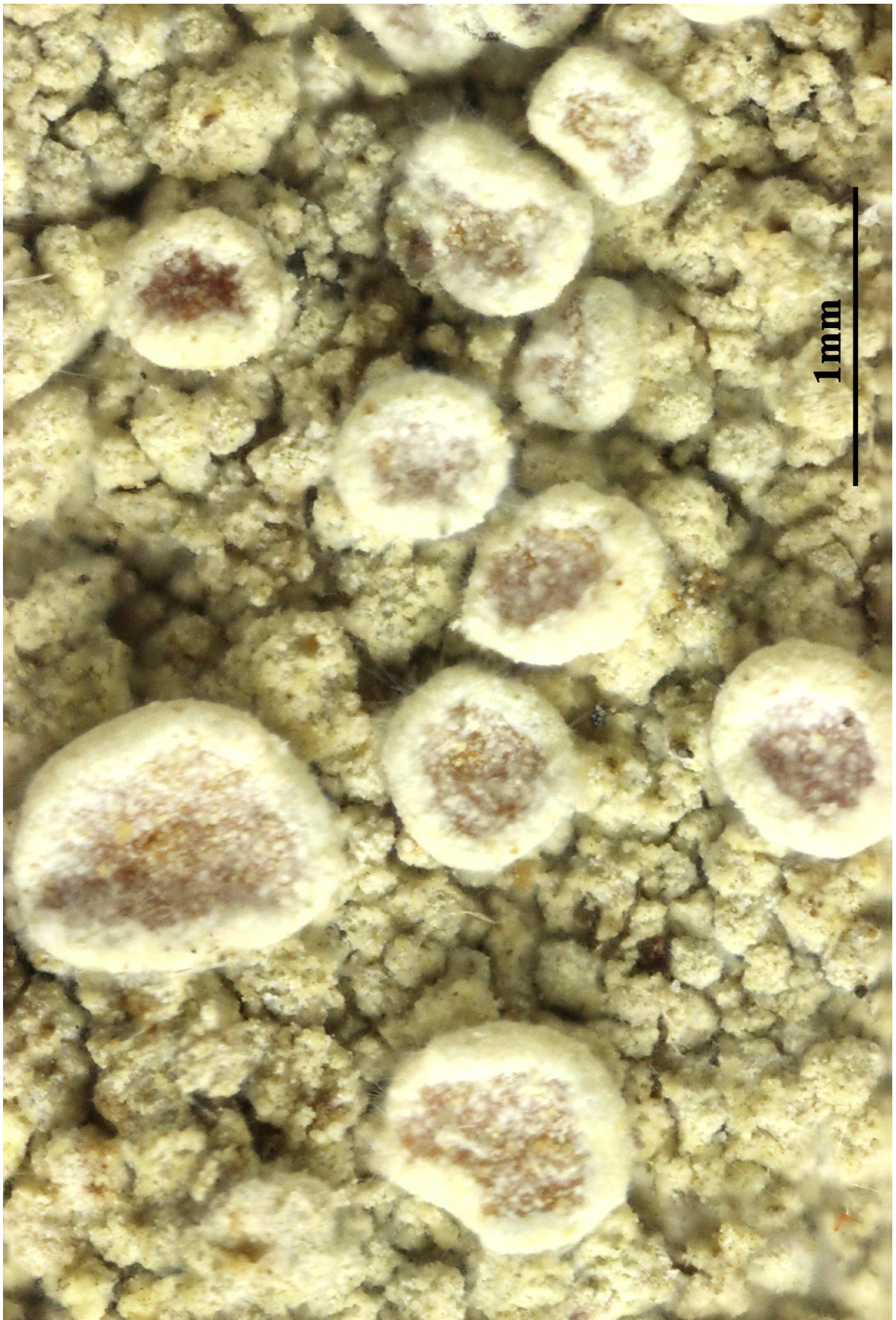
Lecanora polytropa

Lecanora sibirica Müll. Arg., Flora, Regensburg 71: 205 (1888)

[383], Japan. Honshu. Prov. Kai (Pref. Yamanashi): Nishizawa Valley, Mitomi-Kawaura. Yamanashi-city. On bark of *Alnus hirsuta*, 1160 m. Leg. Y. Ohmura (no. 6304), A. Crespo & P. K. Divakar, 8.2.2009, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR. 383.



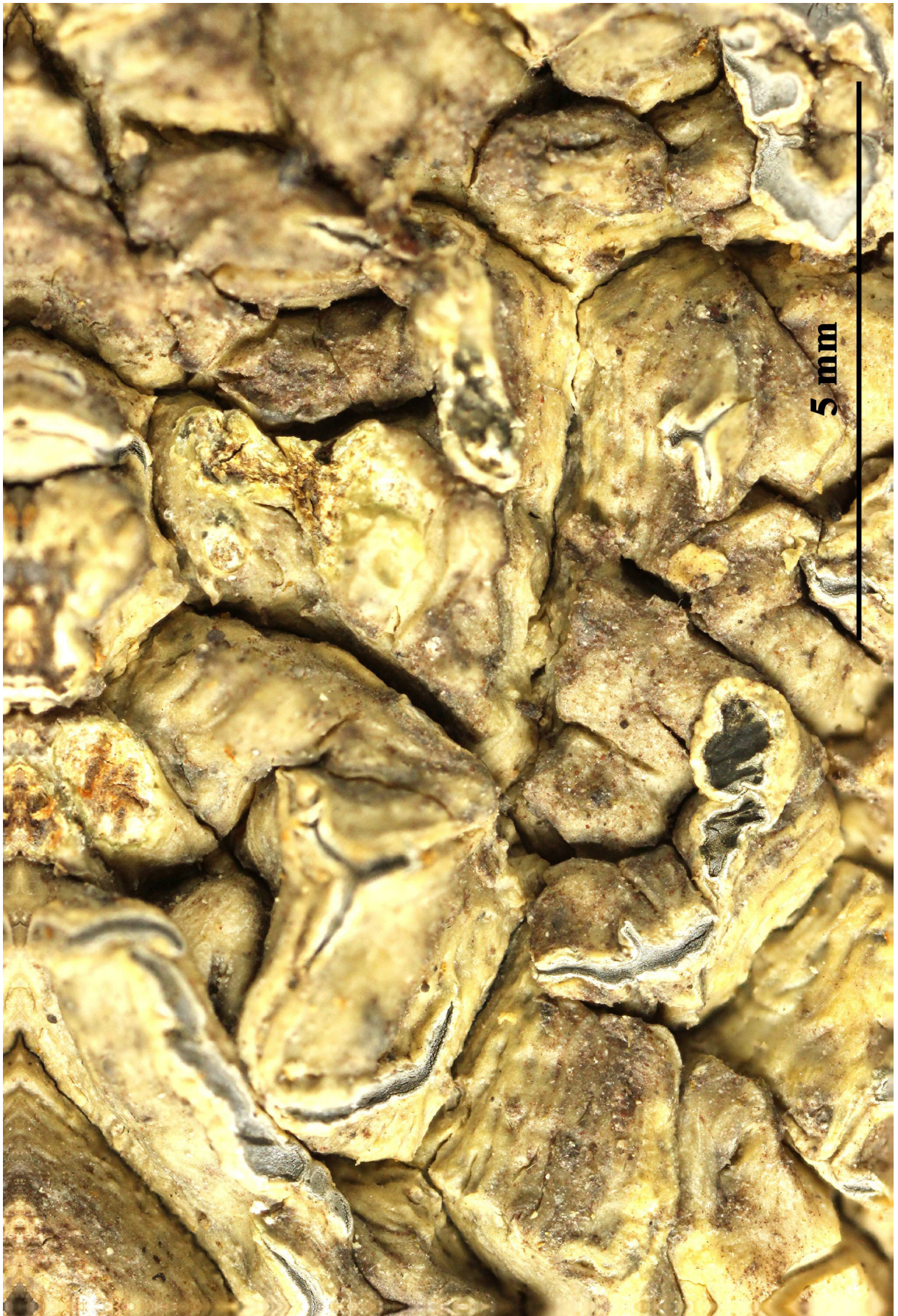
Lecanora sibirica



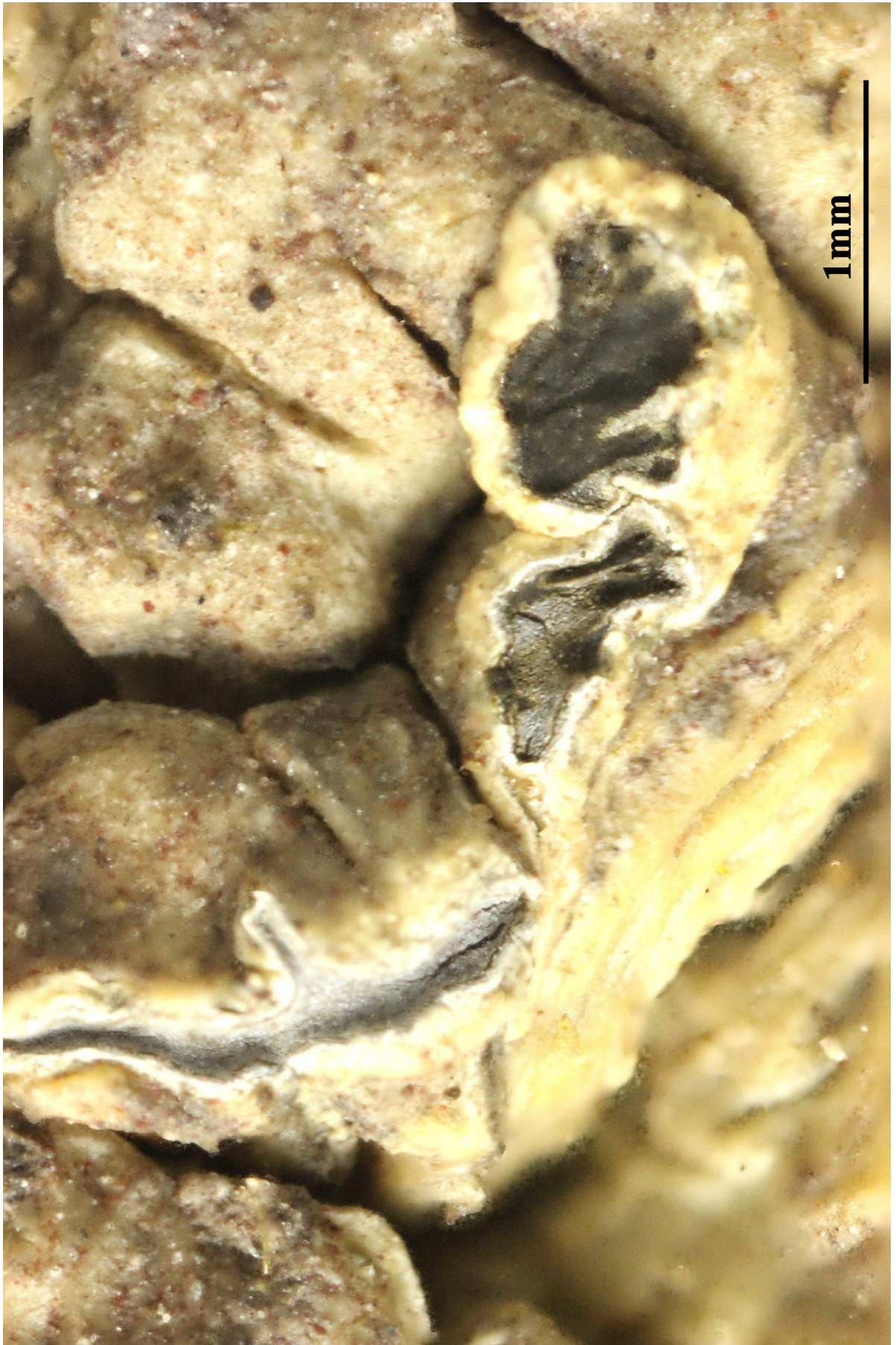
Lecanora sibirica

Leiorreuma exaltatum (Mont. & Bosch) Staiger, Biblioth. Lichenol. 85:
298 (2002)
= *Lecanactis exaltata* Mont. & Bosch 1856

[OH539], Japan. Kyushu. Prov. Hyuga (Pref. Miyazaku): Ohkawauchi,
Shiiba Research Forest, Kyushu University, Shiiba-son, Higashi-usuki-
gun, (32°32'45" N, 131°11'21" E). On bark of *Fagus crenata*, 1180 m.
Leg. Y. Ohmura (no. 11069), 13.11.1014, det. Y. Ohmura. EX Y. OHMU-
RA LICHENES MINUS COGNITI NR. 539.



Leiorreuma exaltatum



Leiorreuma exaltatum

Lepraria arbuscula (Nyl.) Lendemer & B.P. Hodk., Mycologia 105(4): 1005 (2013)
= *Stereocaulon nanum subsp. arbuscula* Nyl. 1860

[OH540], Japan. Kyushu. Prov. Hyuga (Pref. Miyazaki): Ohkawauchi, Shiiba Research Forest, Kyushu University, Shiiba-son, Higashi-usukigun (32°23'45" N, 131°11'09" E). On trunk of *Fagus crenata*, 1140 m. Leg. Y. Ohmura (no. 11054), 13.11.2014, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 540.

Pseudopodetia in small, scattered groups or tufts, profusely dendroid-branched, distinctly dorsiventral, normally attached by a holdfast, or dying at base and then $\pm$ decumbent, flattened, branching dichotomous in one plane, soft and fragile, 1-2 cm tall and 0.4 mm thick towards base, upper branches much finer, to 0.15 mm thick, whitish, glaucous greyish-white or pale glaucous green, matt, tomentose or velvety, main branches glabrous, terminal branchlets very fine, coralloid. Phyllocladial granules on terminal branchlets, scarce to absent on ventral side, crowded, minute (to 0.1 mm diam.), softly pulverulent, often dissolving into smaller granules. Photobiont in irregular groups on surface of pseudopodetia and in powdery granules, loosely enveloped with hyphae. Chemistry: Two chemodemes are known, (i) Atranorin, protocetraric, grayanic and didymic acids and two unidentified compounds. (ii) Atranorin, protocetraric and physodalic acids. Several acid-deficient phases also occur in each chemodeme.



Lepraria arbuscula



Lepraria arbuscula

Lepraria arbuscula (Nyl.) Lendemer & B.P. Hodk., Mycologia 105(4): 1005 (2013)
= *Stereocaulon nanum subsp. arbuscula* Nyl. 1860

[OH559], China. Jiang Ci Sang: Shuiko, Jing Gang Shan Nature Reserve, Jing Gang Shan. On humus, 870-900 m. Leg. H. Kashiwadani (no. 39030), 11.7.1995, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI NR. 559.

Pseudopodetia in small, scattered groups or tufts, profusely dendroid-branched, distinctly dorsiventral, normally attached by a holdfast, or dying at base and then $\pm$ decumbent, flattened, branching dichotomous in one plane, soft and fragile, 1-2 cm tall and 0.4 mm thick towards base, upper branches much finer, to 0.15 mm thick, whitish, glaucous greyish-white or pale glaucous green, matt, tomentose or velvety, main branches glabrous, terminal branchlets very fine, coralloid. Phyllocladial granules on terminal branchlets, scarce to absent on ventral side, crowded, minute (to 0.1 mm diam.), softly pulverulent, often dissolving into smaller granules. Photobiont in irregular groups on surface of pseudopodetia and in powdery granules, loosely enveloped with hyphae. Chemistry: Two chemodemes are known, (i) Atranorin, protocetraric, grayanic and didymic acids and two unidentified compounds. (ii) Atranorin, protocetraric and physodalic acids. Several acid-deficient phases also occur in each chemodeme.



Lepraria arbuscula



Lepraria arbuscula

Lepraria cupressicola (Hue) J.R. Laundon, Lichenologist 40(5): 412 (2008)
= *Crocynia cupressicola* Hue 1924

[OH461], Japan. Honshu. Prov. Awa (Pref. Chiba): Kotadai, Ohtakimachi, Isumi-gun. On bark of *Cryptomeria japonica*, 170 m. Leg. Y. Ohmura (no. 7942), 4.9.2010, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 461.

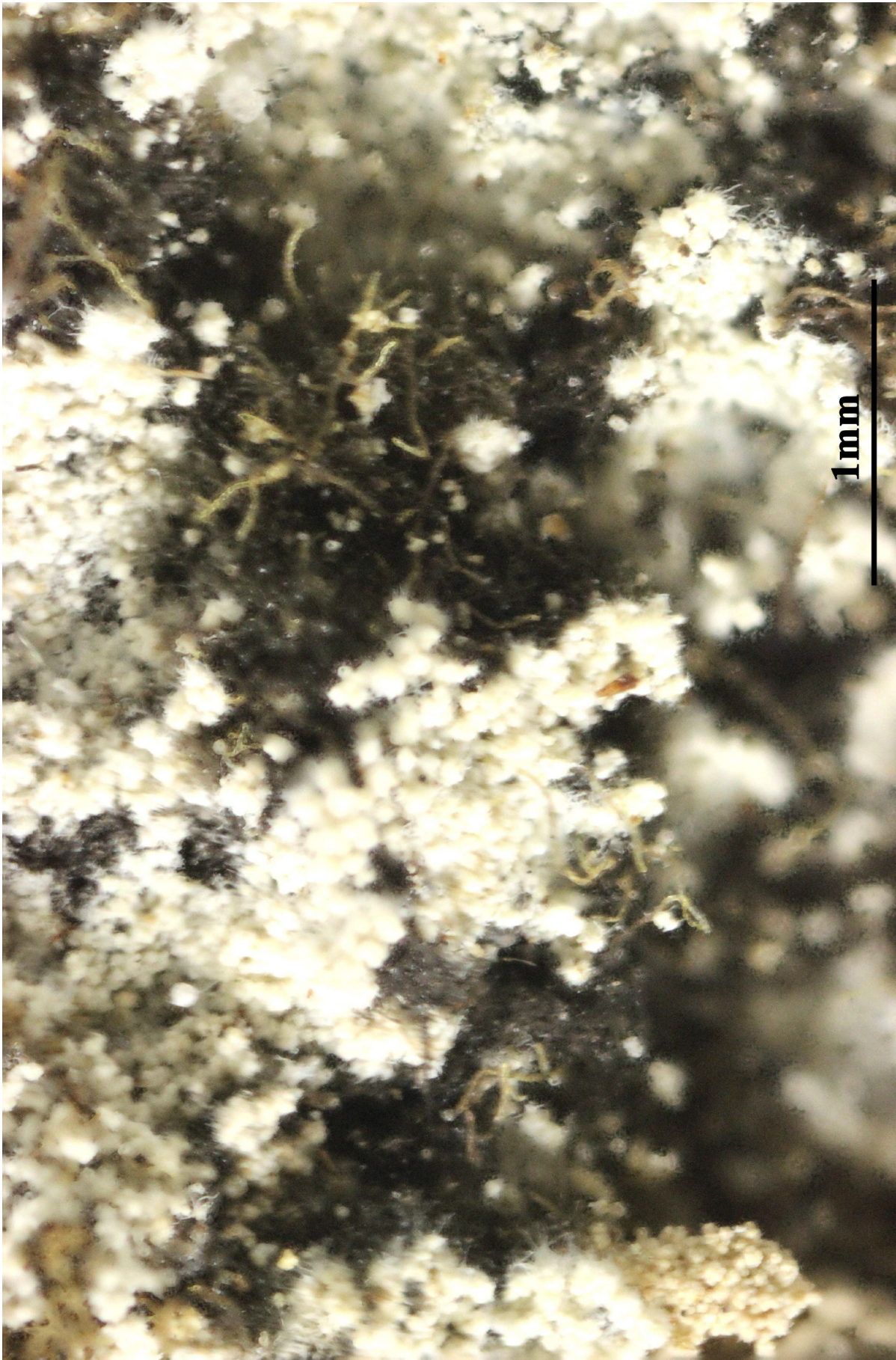
Thallus leprose, diffuse, sometimes with marginal lobes, of a mass of powdery spherical granules, up to 0.1 mm diam., with projecting hyphae, forming a powdery crust, pale bluish-grey. Medulla undifferentiated. Dark hyphae are frequently produced from the underside of the thalline granules. Thallus C+ pink or red, K+ faint yellow, P $\square$. Contains atranorin, lecanoric acid, and zeorin. A well-defined species readily identified by its bluish-tinged dull thallus, with an undifferentiated medulla, frequently on a mass of black hyphae, the granules reacting C+ pink or red. Superficially it bears some resemblance to *Lepraria incana* (L.) Ach. Goran Thor (in letter dated 27 August 1995) stated that the “species is easily recognized in the field by the bluish tint of the thallus and it is one of the most common and widespread *Lepraria* species in Japan. It is resistant to air pollution and can still be found in downtown Tokyo. The positive reaction with bleach is due to the presence of lecanoric acid. *Lepraria atrotomentosa* is identical and is therefore a synonym of *L. cupressicola*.



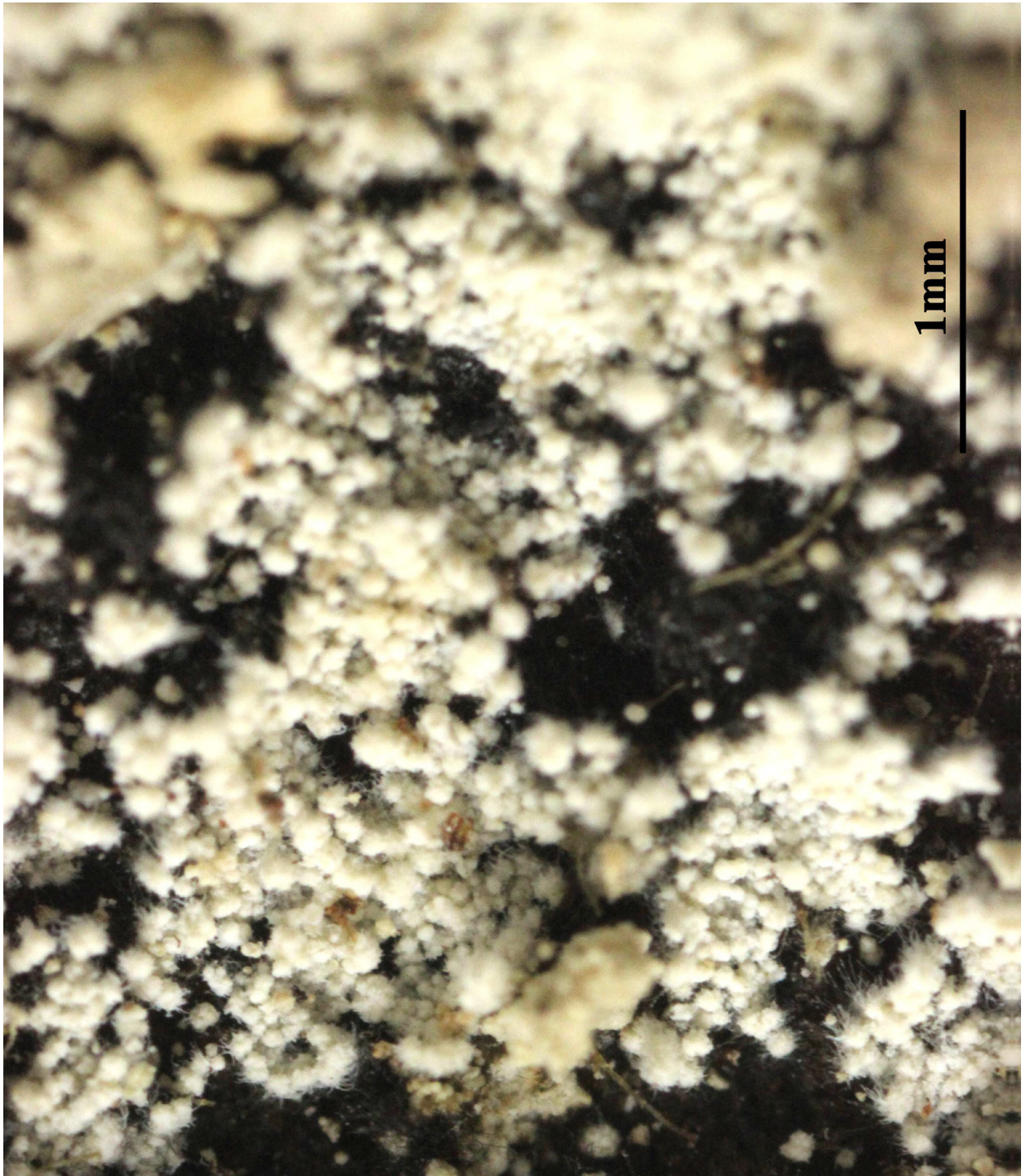
Lepraria cupressicola



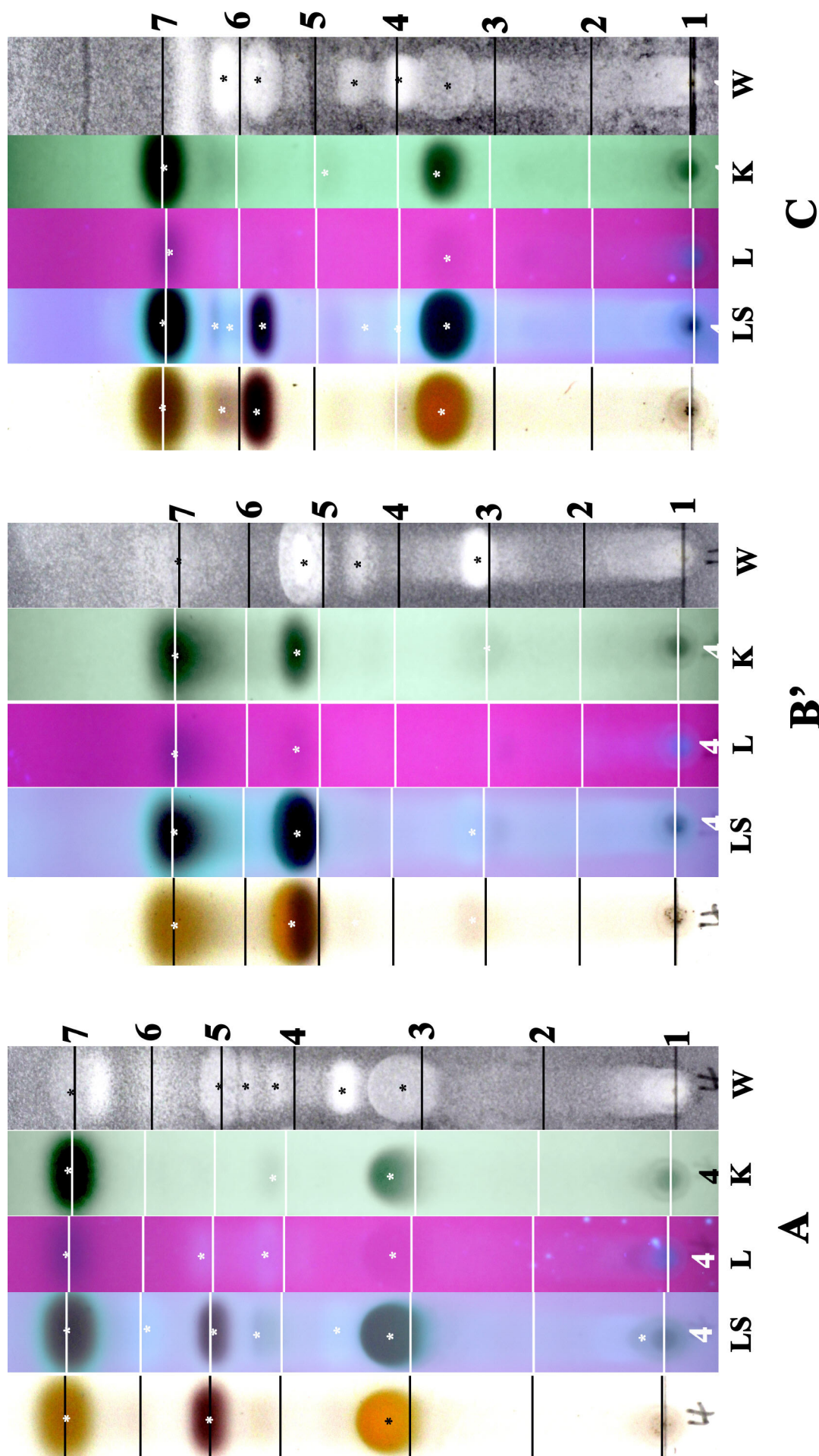
Lepraria cupressicola



Lepraria cupressicola



Lepraria cupressicola



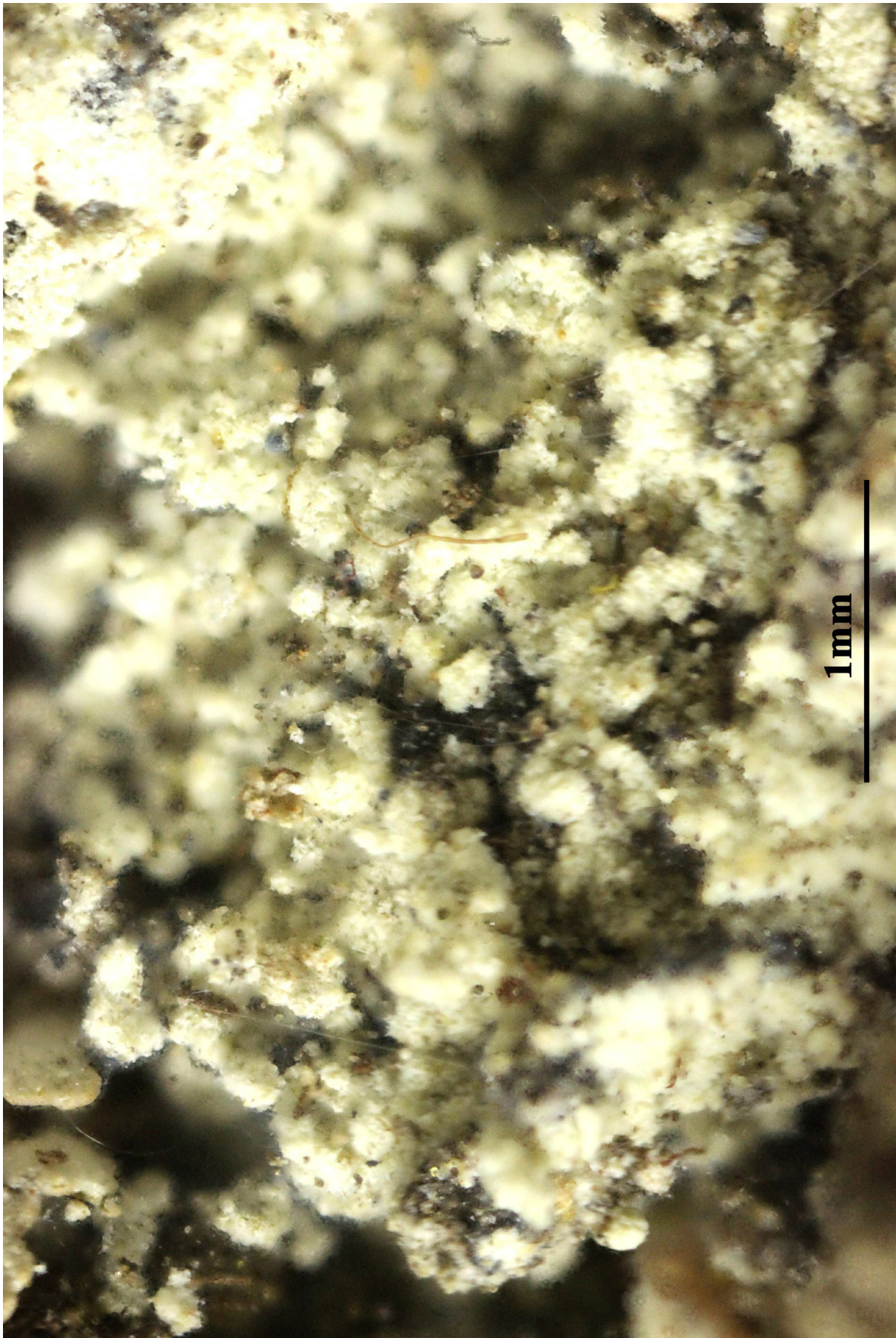
Lepraria finkii (B. de Lesd.) R.C. Harris, Evansia 2(3): 45 (1985)

= *Crocynia finkii* B. de Lesd. 1924

= *Lepraria lobificans* Nyl., Flora, Regensburg 56(13): 196 (1873)

[OH612], Japan. Honshu. Prov Izu (Pref. Shizuoka): Miyagahara, Nishiizu-cho, Kamo-gun (34°49'57" N, 138°51'09" E). On rock, 450 m. Leg. M. Sugimoto (no. 564), Y. Ohmura & H. Kashiwadani, 15.3.2019, det. Y. Ohmura. EX Y. OHMURA LICHENES MINUS COGNITI EXSICCATI NR. 612.

Thallus corticolous, rarely saxicolous, foliicolous or terricolous; placodioid leprose, i.e., developing upon a common, shared hypothallus, delimited by a byssoid arachnoid, ‘cottony’ prothallus forming an irregular to ±indistinctly lobed margin, but always lacking a distinct lip, not ‘crisped’ (finkii-type sensu Lendemer 2011a); surface greenish gray to bluish green, in the herbarium fading to a pale yellowish green; hypothallus well developed, loose, ‘fluffy’, ‘cottony’; rhizohyphae sparse or absent; granules ecorticate, ill-defined, mealy (25–)60–80(–120) µm in diam., fairly even in size but often aggregating in larger clusters (up to 200 µm)], generally loosely packed, typically with abundantly tests and chemistry: P+ orange, K+ yellow, KC-, C-, UV- (pale); atranorin, zeorin, stictic, cryptostictic, and constictic acids. - Cosmopolitan; widespread throughout the tropics (Flakus & Kukwa 2007, Kukwa & Flakus 2009, Flakus et al. 2011).



Cladonia graciliformis



Cladonia graciliformis

Nephroma arcticum (L.) Torss., Enum. Lich. Byssac. Scandin. (Upsaliae): 7
(1843)
= *Lichen arcticus* L. 1753

[KU179], Japan. Hokkaido. Prov. Nemuro: Mt. Rausu, Shiretoko Peninsula. Over mosses under *Pinus pumila*, 1500 m. Leg. M. Togashi, 5.7.1970, det. Y. Asahina. EX S. KUROKAWA LICHENES RARIORES ET CRITICI EXSICCATI NR. 179.

Thallus 6–8 cm diam., forming rosettes or fragmented and irregularly spreading; lobes c. 15 mm broad, $\pm$ rounded, the margins entire, undulate, rarely crenulate; upper surface yellow-green when wet, strawcoloured when dry, smooth to partly wavy, glabrous, with convex cephalodial warts; medulla white; lower surface pale brown-white at the margins, with a conspicuous brownish black tomentum towards the centre; photobiont green in the medulla, blue-green in cephalodia. Apothecia to 20 (–30) mm diam., rufous-brown; thalline margin $\pm$ raised. Ascospores $23\text{--}27 \times 4\text{--}6 \mu\text{m}$, 3-septate, subfusiform. Pycnidia rare, marginal; conidia $3\text{--}4 \times 1\text{--}2 \mu\text{m}$. Thallus C–, K+ yellowish, KC+yellow, Pd+ yellow; medulla UV+ (nephroarctin, phenarctin, zeorin, $\pm$ usnic acid). - Characterized by the yellow-green, large-lobed thallus, absence of soralia and the dark tomentose lower surface. Distinguished from *Peltigera* spp. by the presence of a smooth lower cortex and absence of a network of veins and rhizines.



Nephroma arcticum



Nephroma arcticum



Nephroma arcticum

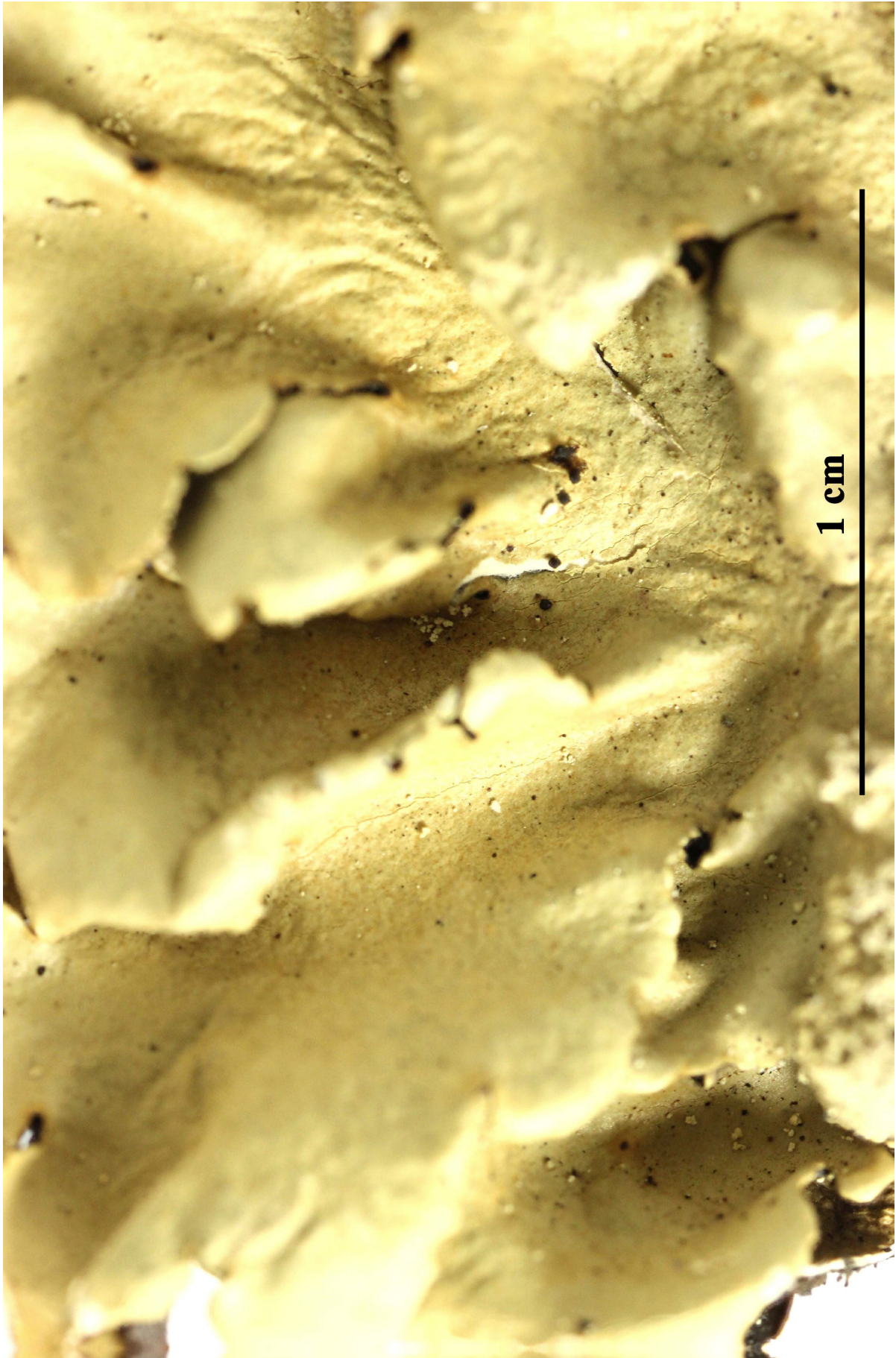
Parmelia caperata (L.) Ach., Methodus qua omnes detectos Lichenes
Secundum Organa Carpomorpha ad Genera, Species et Varietates
Redigere atque Observationibus Illustrare Tentavit Erik Acharius:
216 (1803)

= *Lichen caperatus* L. 1753

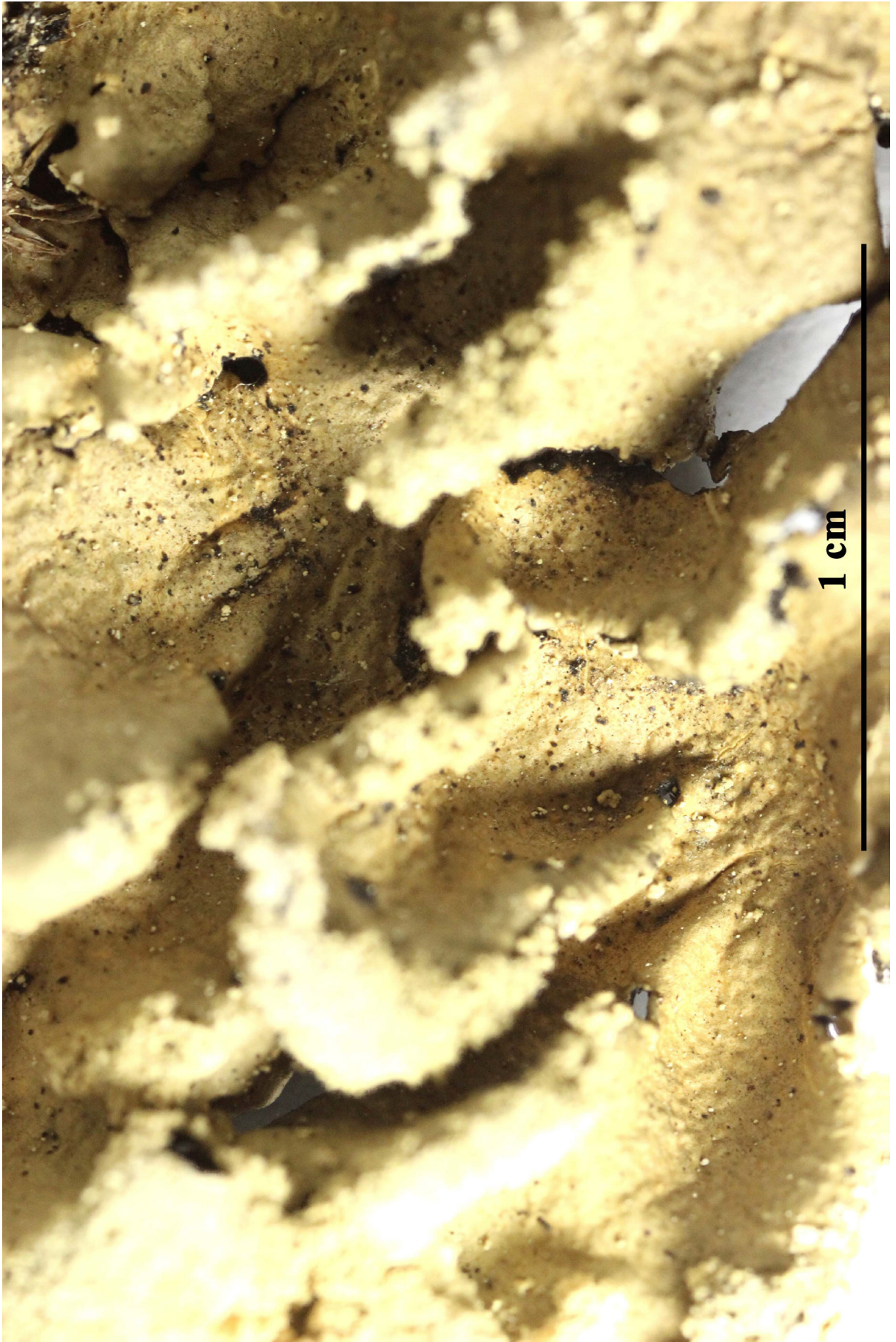
= *Flavoparmelia caperata* (L.) Hale, Mycotaxon 25(2): 604 (1986)

[KU520], Japan. Honshu. Prov. Musashi: Mt. Mitake, Ohme-city. On
rocks, 300 m. Leg. H. Kashiwadani (no. 16988), 29.4.1877, det. H.
Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES
RARIORES ET CRITICI EXSICCATI NR. 520.

Thallus foliose, heteromorous, dorsiventral, broad-lobed, adnate to
loosely adnate, forming regular, 5-25 cm wide rosettes, the individual
thalli sometimes coalescing to cover extensive areas. Lobes elongate,
flat to slightly convex, 5-15 mm wide, contiguous, with rounded apices,
yellowish green, smooth but soon becoming strongly rugose and folded
in central parts, emaculate, with laminal, granular to wart-like, pustu-
late soredia often covering the whole thallus centre. Lower surface
black centrally, brown peripherally, with simple rhizines. Upper cortex
of tightly packed, anticlinally oriented hyphae, with a thin pored epicor-
tex, the cell walls with isolichenan; medulla white; algal layer continuo-
us; lower cortex paraplectenchymatous. Apothecia rare, lecanorine to 1
cm across, with a brown, imperforate disc and a sorediate thalline
margin. Epithecium brownish; hymenium and hypothecium colourless.
Asci 8-spored, clavate, the K/I+ blue tholus penetrated by a faintly
amyloid apical cushion with parallel or diverging flanks, the wall K/I-
surrounded by a K/I+ blue outer layer, Lecanora-type. Ascospores
1-celled, hyaline, ellipsoid, 15-19(-24) x (8-)9-11(-13) µm. Pycnidia
laminal, semi-immersed, black. Conidia spindle-shaped, 5-7 x c. 1 µm.
Photobiont chlorococcoid. Spot tests: upper cortex K-, C-, KC- or KC+
yellowish, P-; medulla K+ dirty yellow, C-, KC- or KC+ reddish, P+
orange-red, UV-. Chemistry: upper cortex with usnic acid (major);
medulla with protocetraric acid (major) and caperatic acid (minor). -
Note: a mild-temperate lichen found on isolated deciduous, more rarely
evergreen trees, only exceptionally on rocks (e.g. on north-exposed
faces of basic siliceous rocks in dry-continental Alpine valleys).



Parmelia caperata



Parmelia caperata

Parmelia soledica Nyl., Bull. Soc. linn. Normandie, sér. 2 6(2): 316 (1873)
[1872]

= *Flavopunctelia soledica* (Nyl.) Hale Mycotaxon, 20: 682, 1984.

= *Parmelia soledica* Nyl. - Flora, 68: 605, 1885.

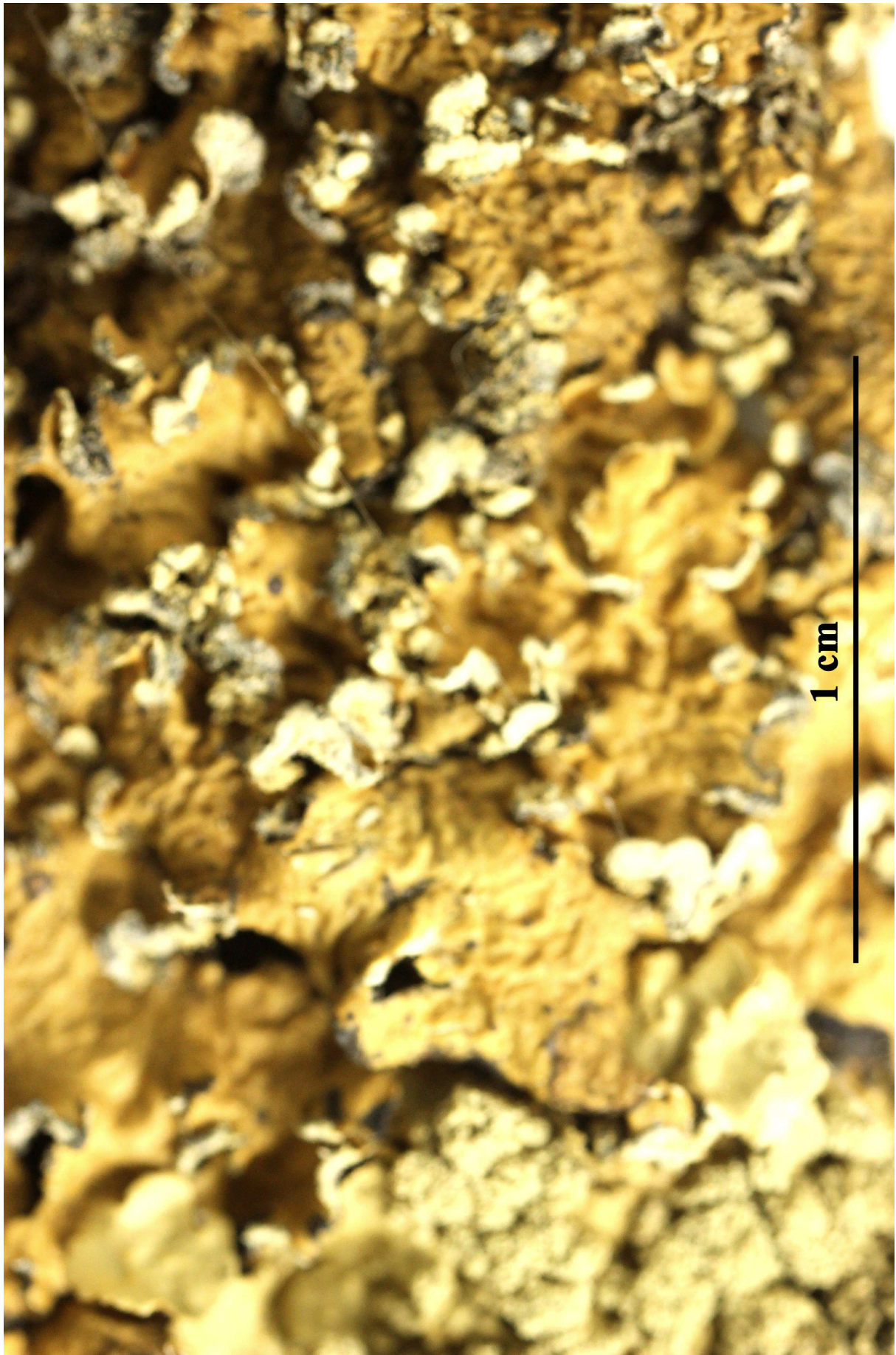
= *Parmelia manshurica* Asahina

= *Parmelia ulophyllodes* (Vain.) Savicz

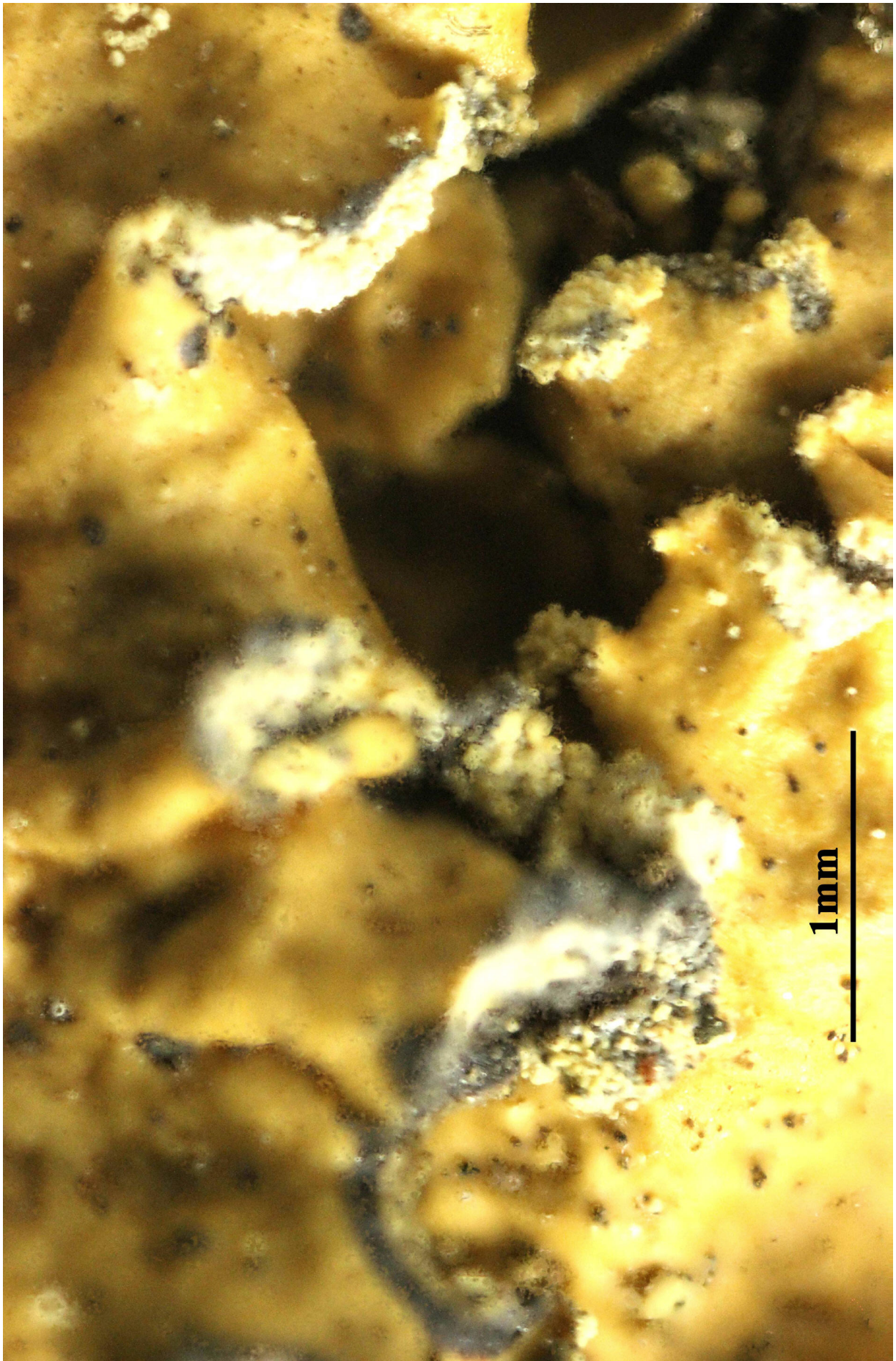
= *Punctelia soledica* (Nyl.) Krog

[KU582], Japan. Honshu. Prov. Shinano: Hawahke, Kawakami-mura, Minamisaku-gun. On bark of *Pinus densiflora*, 1300 m. Leg. H. Kashiwadani (no. 19869), K. Yoshida & M. Mineta, 14.6.1983, det. H. Kashiwadani. EX S. KUROKAWA AND H. KASHIWADANI LICHENES RARIORES ET CRITICI EXSICCATI NR. 582.

Thallus foliose, heteromorous, dorsiventral, appressed to tightly adnate, forming up to 10(-12) cm wide rosettes. Lobes contiguous, flat, 3-8(-10) mm wide, with rounded apices. Upper surface yellowish green, turning brownish in the herbarium, smooth to weakly wrinkled, frequently white-maculate but rarely with true, very small, punctiform pseudocyphellae. Soredia white, farinose to granular, arranged into crescent- to lip-shaped soralia along the reflexed, wavy lobe margins, rarely also laminal. Lower surface smooth to finely wrinkled, dark brown at margin, black in central parts, with simple or rarely forked, short, dark rhizines which usually lack in a narrow marginal zone. Upper cortex paraplectenchymatous, with a non-pored epicortex, the cell walls with an intermediate type of lichenan; medulla white; algal layer continuous; lower cortex paraplectenchymatous. Apothecia rare, lecanorine, with a brown disc and an often sorediate thalline margin. Epithecium brownish; hymenium and hypothecium colourless. Asci 8-spored, clavate, Lecanora- type. Ascospores 1-celled, hyaline, ellipsoid, 9-12 x 5-7 μ m. Pycnidia rare, black. Conidia straight, bifusiform or almost thread-like, 7-11 μ m long. Photobiont chlorococcoid. Spot tests: upper cortex K⁺ yellowish, KC⁻ or KC⁺ pale yellow, C⁻, P⁻; medulla K⁻, C⁺ red, KC⁺ red, P⁻. Chemistry: upper cortex with usnic acid; medulla with lecanoric acid (major) and 5-chlorolecanoric acid (minor or trace). - Note: a mainly epiphytic species, restricted to Alpine valleys with a continental climate, certainly very rare in Italy.



Parmelia soledica



Parmelia soledica

Leiorreuma exaltatum (Mont. & Bosch) Staiger, Biblioth. Lichenol. 85: 298 (2002)
= *Lecanactis exaltata* Mont. & Bosch 1856

[15201], La Reunion, Picknickplatz Col de Bellevue, südwestlich La Plaine des Palmistes, nebelfeuchter Wald mit Baumfarnen; 21,16580°S, 55,5903°E, 1610 m. Leg. F. Schumm & J.-P. Frahm, 09.09.2009 (7), det. R. Lücking, 2015. Ex Herbario F. Schumm Nr.15201.

(*Ex B. Steiger*)

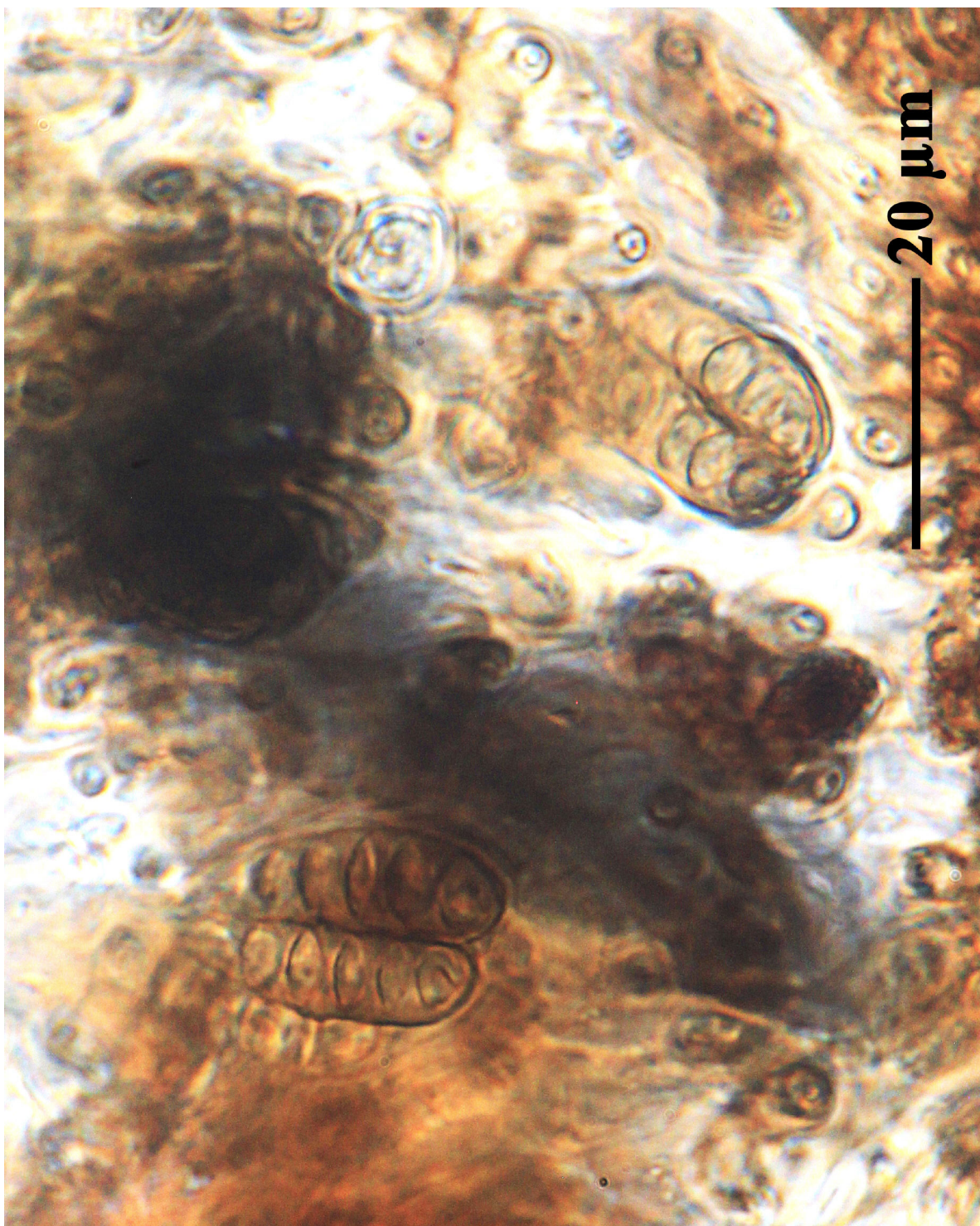
Thallus: Ockerfarben-bräunlich, etwas grünlich, glatt, mit wachsiger Oberfläche oder hellgrau-weißlich mit körniger oder kleinwarziger Oberfläche. Fruchtkörper: Ältere Lirellen deutlich, jüngere wenig oder gar nicht vom Thallus abgehoben, zum Teil etwas eingeschnürt. Rundlich-ovale, ± lobige oder langgestreckte Fruchtkörper mit meist abgerundeten Enden; z. T. dicht gedrängt, 1-2 mm Durchmesser (Typus) bzw. 0,5-5 × 0,5-1 mm. Eigenränder schmal, schwarzbraun, Thallusrand ausgebildet, beim Typus ± wulstig und teils abgebröselt. Scheiben weit offen, braunschwarz, weißlich bereift, zum Teil mit tiefen Querrissen. Excipulum: Vollständig verkohlt; die Basis kann über 100 µm hoch sein, Hypothecium deutlich verkohlend. Laterales Excipulum schmal, außen vom Thallusrand mit teilweise großen Kristallkomplexen umgeben. Hymenium: Ca. 90-130 µm hoch, stark inspersion, I-. Ascosporen: 8/Ascus, bräunlich, querseptiert, 6-9-locular, 20-34 × 6-9 µm, I+ rotbraun. Chemie: Nil.



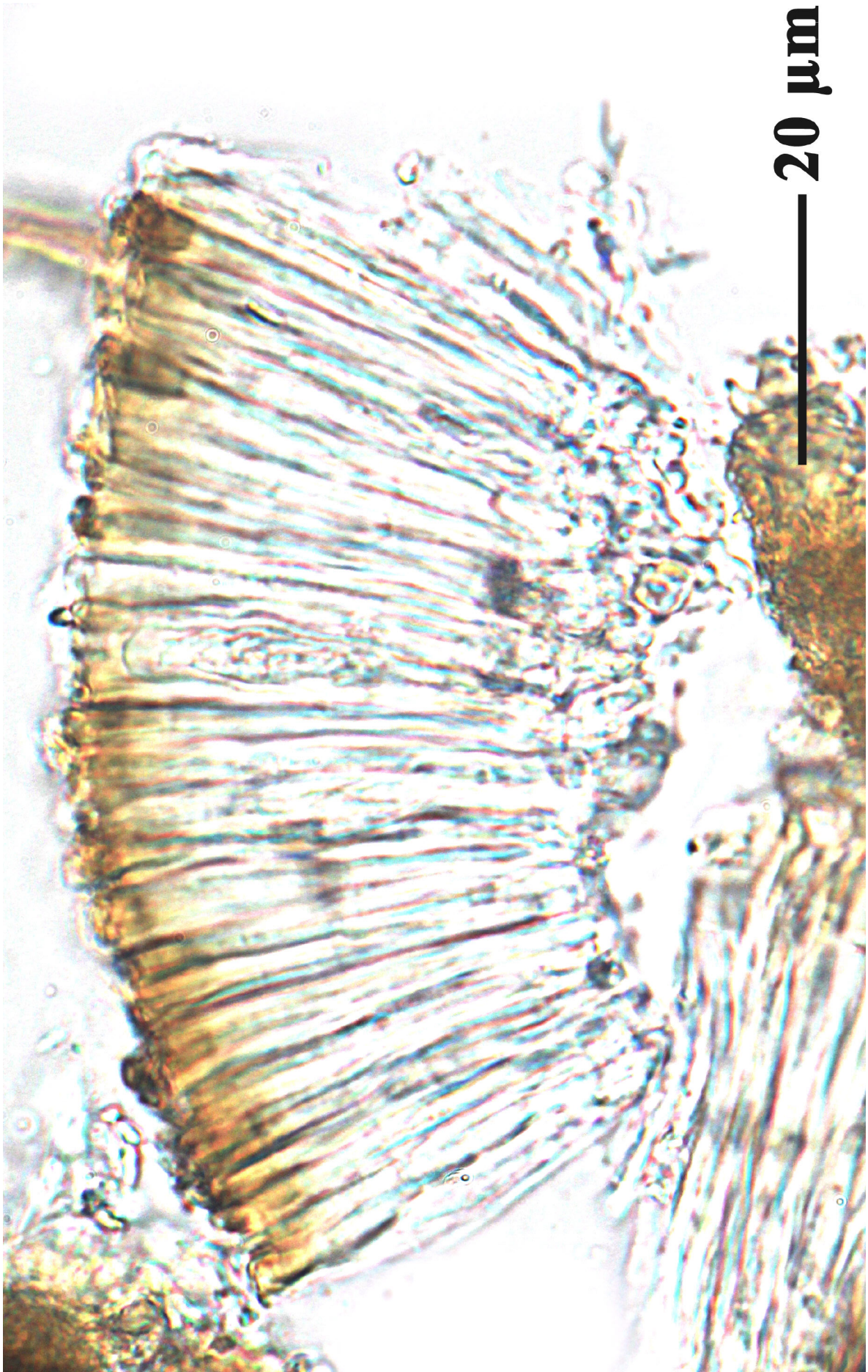
Leiorreuma exaltatum



Leiorreuma exaltatum



Leiorreuma exaltatum



Leiorreuma exaltatum

Lichens of Japan 05

A

<i>Allocetraria cucullata</i> (Bellardi) Randlane & Saag.....	8
<i>Allographa acharii</i> (Fée) Lücking & Kalb.....	91
<i>Allographa cognata</i> (Müll. Arg.) Lücking & Kalb.....	97
<i>Allographa parallela</i> (Müll. Arg.) Lücking & Kalb.....	100
<i>Anaptychia dentritica</i> var. <i>japonica</i>	138
<i>Anaptychia hypoleuca</i> (Ach.) A. Massal.....	2
<i>Anaptychia hypoleuca</i> var. <i>microphylla</i> Kurok.....	141
<i>Anaptychia neoleucomelaena</i> Kurok.....	5

B

<i>Baeomyces arcuatus</i> Stirt.....	17
<i>Biatora ochrophaea</i> Tuck.....	128

C

<i>Cetraria cucullata</i> (Bellardi) Ach.....	8
<i>Cetraria nivalis</i> (L.) Ach.....	11, 14
<i>Crocynia cupressicola</i> Hue.....	255
<i>Crocynia finkii</i> B. de Lesd.....	261

D

<i>Dibaeis arcuata</i> (Stirt.) Kalb & Gierl.....	17
<i>Dibaeis sorediata</i> Kalb & Gierl.....	20
<i>Diorygma hieroglyphicum</i> (Pers.) Staiger & Kalb.....	23

E

<i>Elixia flexella</i> (Ach.) Lumbsch.....	26
<i>Enterographa hutchinsiae</i> (Leight.) A. Massal.....	29
<i>Evernia esorediosa</i> (Müll. Arg.) Du Rietz.....	32, 36
<i>Evernia mesomorpha</i> f. <i>esorediosa</i> Müll. Arg.....	32, 36, 42
<i>Evernia mesomorpha</i> Nyl.....	39

F

<i>Fellhanera bouteillei</i> (Desm.) Vězda.....	45, 48
<i>Fissurina rufula</i> (Mont.) Staiger.....	103
<i>Flakea papillata</i> O.E. Erikss.....	58
<i>Flavocetraria cucullata</i> (Bellardi) Kärnefelt & A. Thell.....	8, 61
<i>Flavocetraria nivalis</i> (L.) Kärnefelt & A. Thell.....	64
<i>Flavoparmelia caperata</i> (L.) Hale.....	67, 70, 268
<i>Flavopunctelia flaventior</i> (Stirt.) Hale.....	73
<i>Flavopunctelia soredica</i> (Nyl.) Hale.....	76, 271
<i>Foveolaria nivalis</i> (L.) Chesnokov, Prokopiev, Konoreva & Davydov 11, 14, 64	
<i>Fuscidea verruciformis</i> Mas. Inoue.....	79, 82
<i>Fuscopannaria protensa</i> (Hue) P.M. Jørg.....	85

G	
Glossodium japonicum Zahlbr.....	187
Graphina alpestris Zahlbr.....	88
Graphis acharii Fée.....	91
Graphis alpestris (Zahlbr.) Staiger.....	88
Graphis cervina Müll. Arg.....	94
Graphis cognata Müll. Arg.....	97
Graphis parallela Müll. Arg.....	100
Graphis rufula Mont.....	103
Graphis scripta (L.) Ach.....	106, 109
Gymnoderma insulare Yoshim. & Sharp.....	117
Gyrophora papulosa Ach.....	200
H	
Haematomma fauriei Zahlbr.....	120, 123
Haematomma ochrophaeum (Tuck.) A. Massal.....	128
Heterodermia isidiophora (Nyl.) D.D. Awasthi.....	131, 135
Heterodermia japonica (M. Satô) Swinscow & Krog.....	138
Heterodermia microphylla (Kurok.) Skorepa.....	141
Heterodermia neoleucomelaena (Kurok.) Follmann & Redón.....	5
Himantormia lugubris (Hue) I.M. Lamb.....	145
Hypogymnia hokkaidensis Kurok.....	148
Hypogymnia hypotrypella (Asahina) Rass.....	151
Hypogymnia mundata f. solediosa (Bitter) Rass.....	155
Hypogymnia nikkoensis (Zahlbr.) Rass.....	159
Hypogymnia pseudophysodes (Asahina) Rass.....	162, 165
Hypogymnia pulverata Elix.....	155, 168
Hypogymnia stricta (Hillmann) K. Yoshida.....	171
Hypogymnia vittata (Ach.) Parrique.....	174
I	
Icmadophila ericetorum (L.) Zahlbr.....	177, 180
Icmadophila japonica (Zahlbr.) Rambold & Hertel.....	187
Inoderma nipponicum Frisch, Y. Ohmura & G. Thor.....	190
L	
Lasallia asiae-orientalis Asahina.....	193
Lasallia caroliniana (Tuck.) Davydov, Peršoh & Rambold.....	196
Lasallia papulosa (Ach.) Llano.....	200
Lasallia pensylvanica (Hoffm.) Llano.....	204, 208
Lasallia sinorientalis J.C. Wei.....	212
Lecanactis exaltata Mont. & Bosch.....	246, 274
Lecanora chionocarpa Hue.....	215
Lecanora leprosa Fée.....	218, 221

<i>Lecanora polytropa</i> (Hoffm.) Rabenh.....	231, 234
<i>Lecanora sibirica</i> Müll. Arg.....	243
<i>Leiorreuma exaltatum</i> (Mont. & Bosch) Staiger.....	246, 274
<i>Lepraria arbuscula</i> (Nyl.) Lendemer & B.P. Hodk.....	249, 252
<i>Lepraria cupressicola</i> (Hue) J.R. Laundon.....	255
<i>Lepraria finkii</i> (B. de Lesd.) R.C. Harris.....	261
<i>Lepraria lobificans</i> Nyl.....	261
<i>Lichen arcticus</i> L.....	264
<i>Lichen caperatus</i> L.....	67, 70, 268
<i>Lichen cucullatus</i> Bellardi.....	8, 61
<i>Lichen ericetorum</i> L.....	177, 180
<i>Lichen nivalis</i> L.....	11, 14, 64
<i>Lichen scriptus</i> L.....	106, 109
<i>Limboria flexella</i> Ach.....	26
<i>Loxospora ochrophaea</i> (Tuck.) R.C. Harris.....	128
N	
<i>Nephroma arcticum</i> (L.) Torss.....	264
<i>Nephromopsis cucullata</i> (Bellardi) Divakar, A. Crespo & Lumbsch	8, 61
O	
<i>Opegrapha hieroglyphica</i> Pers.....	23
P	
<i>Pannaria protensa</i> Hue.....	85
<i>Parmelia bouteillei</i> Desm.....	45, 48
<i>Parmelia caperata</i> (L.) Ach.....	268
<i>Parmelia elongata</i> var. <i>stricta</i> Hillmann.....	171
<i>Parmelia flaventior</i> Stirt.....	73
<i>Parmelia hypotrypella</i> Asahina.....	151
<i>Parmelia manshurica</i> Asahina.....	271
<i>Parmelia mundata</i> f. <i>sorediosa</i> Bitter.....	155
<i>Parmelia nikkoensis</i> Zahlbr.....	159
<i>Parmelia physodes</i> var. <i>vittata</i> Ach.....	174
<i>Parmelia pseudophysodes</i> Asahina.....	162, 165
<i>Parmelia soredica</i> Nyl.....	76, 271
<i>Parmelia speciosa</i> f. <i>hypoleuca</i> Ach.....	2
<i>Parmelia ulophyllodes</i> (Vain.) Savicz.....	271
<i>Physcia speciosa</i> f. <i>isidiophora</i> Nyl.....	131, 135
<i>Platygramma hutchinsiae</i> Leight.....	29
<i>Polyblastidium hypoleucum</i> (Ach.) Kalb.....	2
<i>Polyblastidium japonicum</i> (M. Satô) Kalb.....	138
<i>Polyblastidium microphyllum</i> (Kurok.) Kalb.....	141

Punctelia soledica (Nyl.) Krog.....	271
R	
Ramalina lugubris Hue.....	145
S	
Stereocaulon nanum subsp. arbuscula Nyl.....	249, 252
U	
Umbilicaria caroliniana Tuck.....	196
Umbilicaria pensylvanica Hoffm.....	204, 208
Umbilicaria sinorientalis (J.C. Wei) Davydov, Peršoh & Rambold.	212
V	
Verrucaria polytropa Hoffm.....	231, 234