F. Schumm & A. Aptroot

Images of the Lichen Genus Caloplaca

Volume 1

Caloplaca adelphoparasitica

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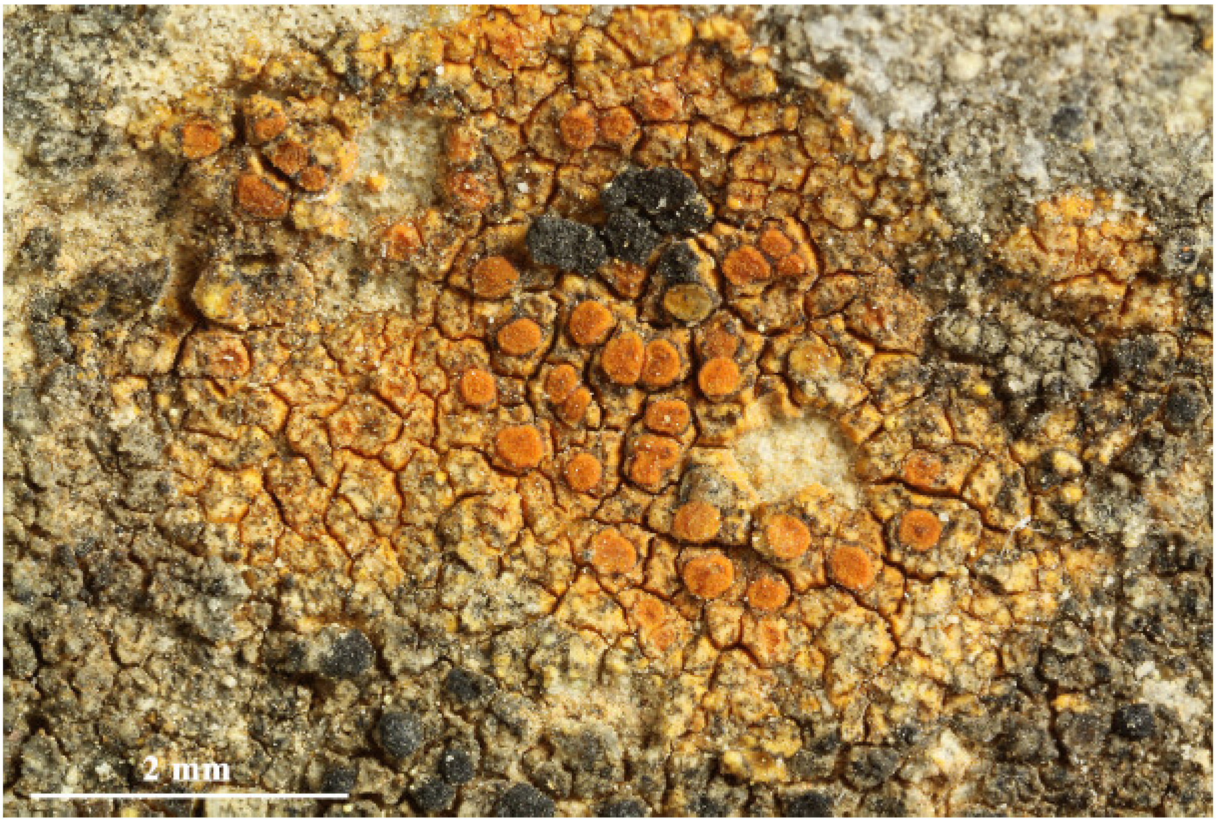
Caloplaca crenularia



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Caloplaca adelphoparasitica

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Caloplaca crenularia

Felix Schumm, Mozartstr. 9, 73117 Wangen, Germany.
Email: fschumm@online.de

André Aptroot, Laboratório de Botânica / Liquenologia, Instituto de Biociências, Universidade Federal de Mato Grosso do Sul, Avenida Costa e Silva s/n, Bairro Universitário, CEP 79070-900, Campo Grande, Matto Grosso do Sul, Brazil.
Email: andreaptroot@gmail.com

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Introduction

Teloschistaceae are a conspicuous group of lichens, especially in habitats frequented by nitrophytes. There is no monograph of the family, nor of any genus of it, and for identification one has to use local floras and occasional regional treatments of some groups. At the moment, about 700 species are accepted. Many are very local, but some others are apparently widespread. This book is made as a help for lichenologists who want to identify crustose Teloschistaceae. It illustrates all common and widespread species, and a selection of rare species. The key is meant to give easy access to these species.

Classification

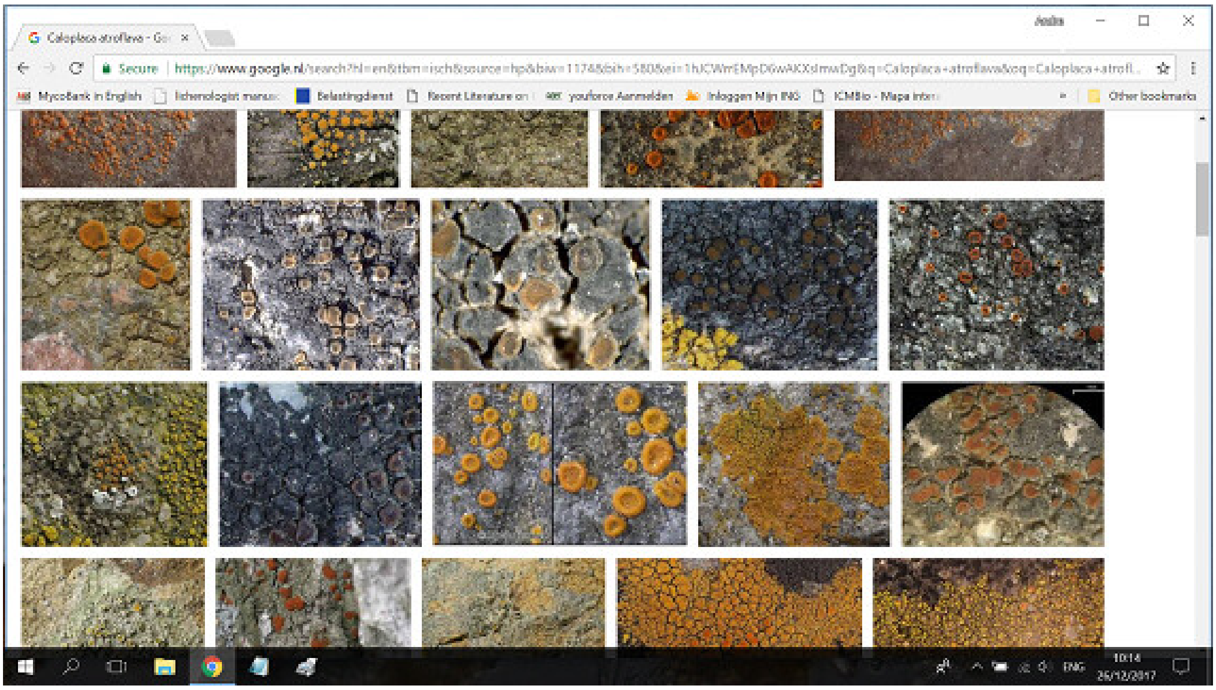
All species are classified in the genus *Caloplaca*, but alternative classifications are mentioned as synonyms. The reason for this is that the present classification into split genera is highly unstable at the moment, and no system has been as yet applied to all pertinent species. Currently, 127 genera have been described in the Teloschistaceae, and recent authors do not agree at all about how many and which are to be accepted. Arup et al. (2013) accept 39 genera; Wirth et al. (2013) only 7; Hafellner & Türk (2016) accept 9 for a very similar geographic area; Lücking et al. (2016) accept 51 genera. Most of the 127 genera have been proposed essentially for cladogram nodes, and the genera with more than one species are often scarcely morphologically characterized. Essentially the variation in the generic descriptions of e.g. even the non-related genera *Athallia* and *Calogaya* overlap in every aspect mentioned. They agree in all essential characters, even as given in the orignal description (Arup et al, 2013). Incidentally, some of the most aberrant species groups, like the tropical corticolous species with 2- or 3-septate ascospores, some of which also have a chemistry that is quite unique in the family (lichexanthone), have not been transferred to a separate genus and remain in all classifictions so far in *Caloplaca*. Even some of the most common European species like *Caloplaca albolutescens* and *C. ruderum* have not been transferred to an appropriate split genus yet, so that in floras and lists where the split genera are accepted (like the Dutch lichen flora), they are only provisionally placed in the appropriate genus.
Chemistry is highly significant in Teloschistaceae, as there are many differnt, characteristic colours. For instance, each of the lobate spacies that can be found side-by-side in lowland Europe has a different colour spectrum, without any real overlap. However, detailed chemical investigations fail to substantiate such differences, and lead to the

recognition of only three different chemosyndromes. These are not phylogenetically significant, and most of the genera with more than one species are even variable in this respect.
There is also a more fundamental rationale for retaining a classification with only a handful genera. Almost all known speciation processes are paraphyletic (internal parts of a population become isolated/divergent permanently and end up being effectively sexually isolated). That is, unless hybridization is the source of a new species (in which case the species is polyphyletic) or unless the species consists of clones (one clone is monophyletic, but a clonal species consists of identical clones that originated separately and its thus also polyphyletic). Thus, all species are paraphyletic (or polyphyletic), and as all classes, including that of genus, start as a species, all classes are paraphyletic. Taxonomists who claim to can detect monophyletic groups apparently never thought seriously about how such groups could originate. The emphasis on monophyly is caused by the computer programmers, who needed a simple, divergent system for their calculations; their programmes cannot cope with hybridization either. Any taxonomist who claims that monophyletic taxa exist in nature is just following suit without thinking and understanding. So, accepting the paraphyletic genus *Caloplaca* makes sense, both for practical reasons (not all species have been assigned somewhere else, genera continue to be split and reunited at a fast rate) and fundamental reasons (all taxa are paraphyletic). Various lineages gave rise to foliose taxa, some of which can be accepted or not. The genera *Rusavskia, Seirophora, Teloschistes, Xanthomendoza, Xanthoria* and a few others are available for those groups. They are not in this book, nor are species traditionally already placed in other crustose genera like *Cephalophysis, Fulgensia* and *Ioplaca*.

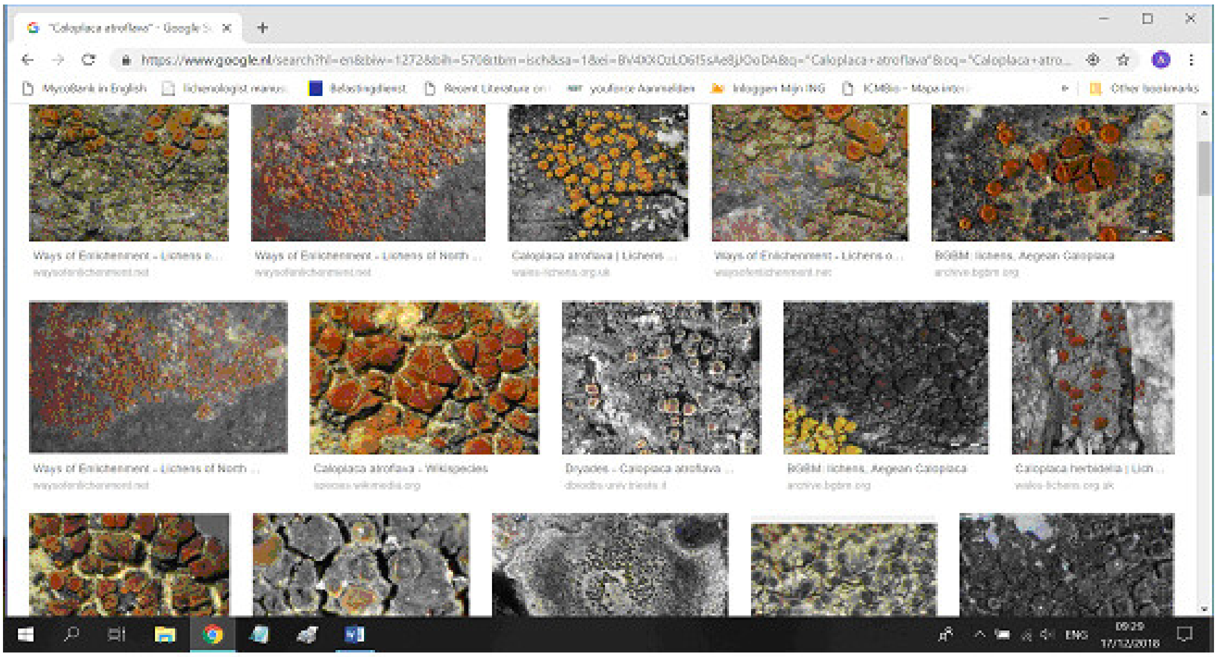
Why a book on *Caloplaca*?

Caloplaca species are beautiful (kalos means beautiful) and many people are taken by their beauty, and some of those like to know more about them. The name of a specimen is the primary entrance to further information about it (like chemistry, dstribution). The number of known species is too large for most people to oversee. In the last 25 years, much has been changed: over 100 new Theloschistaceae genera have been described, around 200 new species were described and around 400 new combinations made. On average, each species has 5 names, 4 of which are synonyms or varieties. This book is not made for the 3 or 4 world specialists of *Caloplaca*, but for non-specialists who like to identify their specimens. It is meant as an addition to the many existing papers, some of which contain keys to specific groups or the species of a geographical region.

And why a book?
Nowadays, identifications are often done by comparing specimens with illustrations on internet. This often gives acceptable results, but not so in the case of Caloplaca, for two reasons: 1) the number of species is simply too high so one should start with a few potential names and 2) the identification of many pictures on internet are wrong to start with. To illustrate this, the first pictures that are provided by google pictures when asking for *Caloplaca atroflava* (a common, well-known species) are given below. First, the situation ultimo 2017 (first 20 pictures), then



the situation ultimo 2018 (15 pictures). Almost a dozen different species are depicted, and not even the first is always well identified. If you do not already know what the species looks like (and what its colour variation maight be), you are not going to learn it from the internet. No major progress perceived either. Also, it is difficult to refer to a specific picture, and it may vanish one day from internet just like that. Therefore, we decide to print the pictures in a book, so that they can be referred to and discussed, also in case they are being percieved as uncharacteristic or even wrong. Colour pictures are a great help in identifying *Caloplaca* species, as the vast majority of the species has largely similar internal characters and mostly differs in outside morphology of apothecia and thallus. When the publication of colour pictures became in common use in lichenology, the study and



knowledge of *Caloplaca* boosted, and the interpretation of many species has been lastingly influenced by a single published picture (also in cases where it was wrongly identified). We have chosen to illustrate herbarium specimens, and no field pictures, so that the specimen can always still be studied. Also, in many instances, we give illustrations of more than one specimen so at to show the variation. This may include specimens that are less characteristic. We do illustrated identified specimens, but not preliminary type specimens; types are generally old, often not very beautiful, and mainly of interest for the specialists. Many illustrations of type specimens can by now be found on internet anyways

New species

We describe only very few new species here, only clearly distinct species from regions where we have ample material from. We could easily have described more, e.g. coastal species from the Galapagos seem mostly undescribed. If anything, there seem to be too many species described already, although with molecular methods it is often postulated that there are cryptic species with vicariant distributions.

Where the specimens are stored
We give for all images the herbar-numbers:
[........] Herbarium F. Schumm
[ABL .] Herbarium A. Aptroot
[B.......] Bot. Museum Berlin-Dahlem
[BR....] Herbarium Bot. Garden Meise, Belgium
[GZU..] Herbarium Bot. Inst. Graz, Austria
[LiAf..] Lichenotheca Afghanica, Herbarium Bot. Inst. Graz, Austria
[TSB...] Herbarium Universitatis Tergestinae, Trieste, Italia

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Key to *Caloplaca* s. lat. (crustose, squamulose, placodioid or subfruticose Teloschistaceae with polaricolocular ascosporus but without lower cortex, rhizines or cilia)

This key treats all species illustrated in this book, as well as some extra species that would key out at the same place. Distribution is not used as character, but ecology sometimes is. In many cases, the key leads to a group of several species. With these relatively few key steps it is more or less sure to arrive at the right group. Rather than trying to indicate the often subtle differences with words, the reader is encouraged to compare the illustrations of the treated species and take into account descriptions and distribution. In case that no satisfactory match is found, he could check the additional species mentioned in other literature. This would be rarely necessary, unless material is from e.g. Australasia, South America or East Asia. The same applies to key characters: when in doubt, compare pictures of species representing the different alternatives.

Key to groups

1a Thallus subfruticose (with fruticose lobes, not only vertical isidia on a crustose thallus). Group A
1b Thallus crustose, squamulose or placodioid.
  2a Thallus placodioid (with marginal lobes very different from central parts). Group B
  2b Thallus crustose (if margin different then not lobed) or squamulose or microsquamulose.
    3a Thallus squamulose or microsquamulose (when in doubt, check both). Group C
    3b Thallus crustose (continuous, rimose or areolate, often flat).
      4a Thallus with isidia or lobules breaking into schizidia. Group D
      4b Thallus without isidia or schizidia.
        5a Thallus with soredia or blastidia. Group E
        5b Thallus without soredia or blastidia.
          6a Thallus and apothecia without yellow, red or orange. Group F
          6b Thallus and/or apothecia with yellow, red or orange
            7a Littoral species dayly touched by waves. Group G
            7b Not littoral species.
              8a Growing on soil, moss or turf. Group H
              8b Growing on other substrata.

9a Growing on lichens. Group I
9b Growing on wood, rock or bark.
10a On bark. Group K
10b On rock. Group L
(on wood: check K & L)

Group A. Subfruticose species

1a Thallus gray. *C. insignis*
1b Thallus at least partly orange or yellow.
2a Thallus orange above, blackish below. *C. cladodes*
2b Thallus not blackish below, usually on maritime rock.
3a Thallus of mostly unbranched, densely appressed cylindrical lobes. *C. cribrosa, C. digitaurea, C. erecta, C. regalis*
3b Thallus of branched, relatively thin lobes with various orientation.
4a Thallus mostly orange, with pseudocyphellae. *C. bonae-spei, C. thamnodes*
4b Thallus yellow, without pseudocyphellae. *C. coralloides*

Group B. Placodioid lobate species

1a Thallus not yellow, orange or red.
2a Thallus pale greenish (usnic acid colour). *C. carphinea, C. scoriophila*
2b Thallus grey to brownish.
3a Thallus with isidioid soredia. *C. demissa*
3b Thallus without soredia or isidia. *C. amarkantakana, C. chrysophora, C. conglomerata*
1b Thallus yellow, orange or red.
4a Thallus with isidia.
5a Marginal lobes at least 10 mm long and hardly branched. *C. namibensis*
5b Marginal lobes shorter, often irregularly branched.
6a On maritime, mutrient enriched bird-perching rock. *C. craggyensis, C. isidiosa, C. verruculifera*
6b Not on maritime, mutrient enriched bird-perching rock.
7a Isidia mostly along the margins of the lobes. *C. brouardii, C. ochraceofulva*
7b isidia laminal.
8a Central thallus parts crustose. *C. granulosa*

8b Central thallus parts also lobate.
C. isidiosa, C. pergracilis

4b Thallus without isidia.

9a Thallus with soredia.

10a Thallus with irregular capitate to labiate soralia.
C. cirrochrooides, C. decipiens, C. soropelta, C. stellata

10b Thallus with punctiform soralia.

11a Thallus deep orange to red. *C. proteus*

11b Thallus yellow to pale orange.

12a On limestone. *C. cirrochroa*

12b On siliceous rock. *C. cirrochroopsis, C. decipioides, C. kiamae, C. lenae*

9b Thallus without soredia.

13a Littoral species. *C. brattiae, C. thallincola, C. scopularis, C. tomareeana, C. whinrayi*

13b Not littoral species.

14a Marginal lobes at least 10 mm long and hardly branched.
C. elegantissima

14b Marginal lobes shorter, often irregularly branched.

15a Thallus with thick lumpy cortex, mostly glossy.

16a Thallus with pseudocyphellae.
C. gomerana (incl. *C. gloriae*)

16b Thallus without pseudocyphellae. *C. chilensis, C. cribrosa, C. hookeri, C. lucens, C. scrobiculata, C. trachyphylla*

15b Thallus without thick lumpy cortex or pseudocyphellae.

17a Lobes mostly flat. *C. appressa, C. aurantia, C. brachyloba, C. ehrenbergii, C. eugyra, C. flavescens, C. galactophylla, C. impolita, C. tenuata, C. texana*

17b Lobes convex. *C. aegaea, C. ambitiosa, C. altoandina, C. anularis, C. arnoldii* (s. lat.)*, C. biatorina, C. cancarixiticola, C. dzhankoiensis, C. eudoxa, C. orthoclada, C. rugulosa, C. saxicola* (s. lat., incl. *C. pusilla , C. tegularis*), *C. squamosa, C. subsaxicola*

Group C. Squamulose and microsquamulose species

1a Thallus at least partly yellow, orange or red.
 2a Thallus without isidia, soredia or blastidia.
  3a Lichenicolous species (often difficult to assess). *C. inconnexa, C. rinodinae-albae, C. sororicida, C. tenuatula, C. wetmorei*
  3b Not lichenicolous.
   4a Lobes isolated or tiny rosettes, often convex. *C. amabilis, C. alcarum, C. approximata, C. bolacina, C. boulyi, C. canariensis, C. castellana, C. fuerteventurae, C. havaasii, C. interfulgens, C. lobulata, C. modesta, C. persica*
   4b Lobes crowded. *C. aurea, C. austromaritima, C. chapadensis, C. dakotensis, C. geophila, C. inconstans, C. micromera, C. ora, C. paulii, C. pruinosa, C. rexfilsonii, C. squamosa, C. stantonii, C. sublobulata, C. subsoluta*
 2b Thallus with isidia, soredia or blastidia.
  5a Thallus with isidia. *C. britannica, C. littorea, C. millegrana, C. parviloba*
  5b Thallus with soredia or blastidia. *C. blastidiomaritima, C. confusa, C. darbishirei, C. ferdinandmuelleri, C. flavocitrina, C. geleverjae, C. hallasanensis, C. microphyllina, C. microthallina, C. nigromarina, C. soropelta*

1b Thallus without yellow, orange or red colour.
 6a With soredia, blastidia or isidia. *C. chlorina, C. reptans, C. subalpina, C. thracopontica, C. xerica*
 6b Without soredia, blastidia or isidia. *C. areolata, C. blastenioides, C. boergesenii, C. bullata, C. chrysophora, C. conglomerata, C. congrediens, C. hueana, C. lecideina, C. molariformis, C. pellodella, C. phaeothamnos, C. rubina, C. sonorae, C. subsquamosa*

Group D. Isidiate or schizidiate, crustose species

1a Thallus and/or isidia at least partly yellow or orange.
 2a Saxicolous (or on saxicolous lichens), thallus and/or isidia orange or brownish-yellow.
  3a Thallus yellow to orange. *C. clavatoisidiata, C. coronata, C. isidioclada, C. thamnoblasta, C. wetmorei*
  3b Thallus yellowish grey, contrasting with orange isidia. *C. testudinea*
 2a Corticolous, thallus yellow, often only patchily.

4a Thallus with lobules that break into schizidia.
C. juniperi, C. oxneri
4b Thallus with isidia.
5a Isidia cylindical. *C. bassiae, C. coralliza, C. epiphora*
5b Isidia gnarled or granular. *C. erythrosticta, C. herbidella, C. kaernefeltii*

1b Thallus and isidia not yellow or orange.
6a Usually saxicolous. *C. archeri, C. isidiigera, C. squamuloisidiata*
6b Corticolous.
7a Ascospores with more than 2 locules (if sterile go to 5b).
8a Ascospores with 3 or 4 locules. *C. spadicea*
8a Ascospores with 4 locules. *C. lagunensis*
7b Ascospores with 2 locules.
9a Isidia granular. *C. elixii, C. fuscoblastidiata*, *C. furfuracea, C. yammeraensis*
9b Isidia becoming cylindrical or lobulate.
10a Thallus whitish, with lichexanthone. *C. amsterdamensis, C. sipmanii*
10b Thallus without lichexanthone. *C. aphanotripta, C. aseptatospora, C. gambiensis, C. viperae, C. wrightii* (incl. *C. hensseniana, C. neotropica*)

Group E. Sorediate or blastidiate, crustose species
1a Thallus entirely leprose/fine sorediate.
2a Thallus lemon yellow. *C. xantholyta*
2b Thallus mustard yellow. *C. borreri, C. chrysodeta*
1b Thallus not entirely leprose.
3a Thallus and/or soredia/blastidia not yellow, orange or red.
4a Saxicolous.
5a Thallus with thick, almost lobate margin. *C. teicholyta*
5b Thallus without thick margin. *C. albolutescens, C. concreticola, C. diplacioides, C. erodens, C. johnwhinrayi, C. lecapustulata, C. pratensis, C. soralifera*
4b Corticolous (if lignicolous check 4a and 4b).
6a Soredia crateriform. *C. ahtii, C. alstrupii, C. kalbiorum, C. obscurella, C. ulcerosa*
6b Soredia/blastidia raised. *C. hanneshertelii, C. lignicola, C. monacensis, C. pinicola, C. scythica, C. sorocarpa,*

C. sterilis, C. turkuensis, C. ulmorum, C. virescens
3a Thallus and/or soredia/blastidia yellow, orange or red.
7a Thallus entirely granular, not on a clear crust. *C. citrina, C. erichansenii, C. lutea, C. phlogina, C. tibellii, C. tominii, C. xanthostigmoidea*
7b Thallus forming a continuous or areolate/rimose crust.
8a Corticolous.
9a Soredia mostly bright yellow to orange. *C. burneyensis, C. chrysophthalma, C. granularis, C. laricina, C. persimilis, C. surediella, C. ussuriensis, C. wasseri, C. wilsonii*
9b Soredia ochraceous yellow. *C. filsoniorum, C. lucifuga, C. seawardii*
8b Saxicolous or terricolous (if lignicolous check 8a and 8b).
10a Thallus with thick, almost lobate margin. *C. arcis, C. arcisproxima, C. kantvilasii, C. phyllidizans*
10b Thallus without thick margin.
11a Soralia crateriform. *C. cupulifera, C. obliterans*
11b Soralia raised. *C. austrocitrina, C. bryochrysion, C. chejuensis, C. dichroa, C. flavogranulosa, C. limonia, C. obliterans*, *C. streimannii*

Group F. Crustose species with apothecia, without yellow, orange or red in thallus and/or apothecia

1a On mosses or soil. *C. friesii, C. lewis-smithii*
1b On other substrata.
2a Apothecia lecanorine, with brown disc and grey margin containing algae.
3a On bark.
4a Ascospores with 3 or 4 locules. *C. homologa, C. quadrilocularis, C. trilocularis*
4b Ascospores with 2 locules. *C. camptidia, C. diphasia, C. epiborya, C. marchantiorum, C. michelagoensis, C. patwolseleyae, C. pulicarioides, C. rubens, C. tomnashii, C. trassii*
3b On rock.
5a Ascospores with 3 or 4 locules. *C. araguana, C. tetramera, C. trilocularis*
5b Ascospores with 2 locules. *C. albovariegata, C. brasiliensis, C. diphyodes, C. lecanorocarpa,*

C. paulsenii, C. peliophylla, C. pseudisteroides, C. subconcilians, C. transcaspica, C. variabilis (s. lat.)

2b Apothecia lecideine to biatorine, with margin colour similar to disc.

6a On bark. *C. atrosanguinea, C.brunneola, C. floridana, C. pollinii, C. rinodinopsis, C. suspiciosa*

6b On rock. *C. alociza, C. ameliensis, C. badioreagens, C. brittonii, C. chalybaea, C. circumalbata, C. conversa, C. cretensis, C. diplacia* (s. lat.), *C. exsecuta, C. interveniens, C. ivanpisutii, C. variabilis* (s. lat.)

Group G. Littoral crustose species with apothecia and with yellow, orange or red colour

Note: Lately, many species have been described that fall witin the variation of *C. marina* in the old sense, especially in Australasia; it remains to be seen which of these locally often common morphs are indeed species.

1a Apothecium margin almost black, contrasting with yellow disc. *C. litoricola*

1b Apothecium disc and margin more or less concolorous.

2a Thallus yellow or orange.

3a Apothecia and thallus yellow. *C. bartletii, C. circumlutosa, C. conranii, C. eos, C. feuereri, C. gintarasii, C. inconspecta, C. jackelixii, C. loekoesii, C. maritima, C. rosei, C. sol, C. subscopularis*

3b Apothecia and thallus orange. *C. bermaguiana, C. gallowayii, C. marina, C. ora*

2b Thallus whitish. *C. acheila, C. allanii, C. aquensis, C. egeana, C. navasiana*

Group H. Muscicolous or terricolous species with apothecia

1a Thallus yellow, orange or red. *C. approximata, C. arandensis, C. borysthenica* (incl. *C. epigaea*), *C. marchantii, C. schistidii*

1a Thallus not yellow, orange or red.

2a Apothecia yellow to orange. *C. athallina, C. fulvolutea, C. phaeothamnos, C. raesaenenii* (incl. *C. thuringiaca*), *C. saxifragarum, C. stillicidiorum, C. tiroliensis*

2b Apothecia rust red to almost brown or black. *C. ammiospila, C. caesiorufella, C. friesii, C. jungermanniae, C. lewis-smithii, C. livida, C. nivalis, C. phaeocarpella, C. sinapisperma,* *C. siphonospora, C. tetraspora, C. tornoensis*

Group I. Lichenicolous species with apothecia
Note: Many species are rare; some may be accidentally lichenicolous.

1a Thallus yellow, orange or red.
  2a Thallus essentially squamulose (often difficult to assess).
    C. inconnexa, C. kudratovii, C. rinodinae-albae, C. sororicida, C. tenuata, C. tenuatula, C. wetmorei
  2b Thallus areolate but not squamulose. *C. adelphoparasitica, C. adnexa, C. anchon-phoeniceon, C. insularis, C. infestans, C. intrudens, C. invadens, C. lecidellae, C. necator, C. nubigena, C. oasis, C. phoenicopta, C. polycarpa, C. rinodinae*
1b Thallus not yellow, orange or red, or absent. *C. buelliae, C. endodermia, C. epithallina, C. furax, C. grimmiae, C. interna, C. keissleri, C. magni-filii, C. psoromatis, C. sauronii, C. vitellinaria*

Group K. Corticolous crustose species with apothecia and with yellow, orange or red colour
1a Apothecia with margin colour similar to disc (could be paler or darker).
  2a Disc yellow to orange.
    3a Ascospores with 2 locules. *C. alnetorum, C. arizonica, C. borealis, C. cerinella, C. cerinelloides, C. crocina, C. dahlii, C. flavorubescens, C. holocarpa, C. hopetounensis, C. juniperina, C. luteoalba, C. maccarthyi, C. mooreae, C. norfolkensis, C. phaeocincta, C. polycarpoides, C. sibirica, C. sconensis, C. suaedae, C. subluteoalba, C. subpyraceella, C. yarraensis*
    3b Ascospores with 3 or 4 locules. *C. bellemerei, C. hafellneri, C. kauaiensis, C. seppeltii*
  2b Disc red to brown.
    4a Ascospores with 2 locules. *C. aegatica, C. asserigena, C. borealis, C. cliffwetmorei, C. ferruginea, C. ferrugineoides, C. haematommona, C. hnatiukii, C. hungarica, C. kiewkaensis, C. letrouitioides, C. occidentalis, C. pyracea, C. rheinigera, C. skii, C. spitsbergensis, C. subathallina*

4b Ascospores with 3 or 4 locules. *C. oahuensis*

1b Apothecia with margin of thallus colour or with two-coloured margin.

5a Ascospores with 2 locules. *C. bastowii, C. beaugleholei, C. californica, C. cerina, C. erythrantha, C. filsonii, C. fraserensis, C. gyalectoides, C. haematites, C. magnetensis, C. ochrolechioides, C. renatae, C. stanfordensis, C. stewartensis, C. stipitata*

5b Ascospores with 3 locules. *C. aurantipruinosa, C. brebissonii, C. crocea* (s. lat.), *C. dorrigoensis, C. erythroleuca, C. erythroleucoides, C. jatolensis, C. subdecadens, C. vainioi, C. zavattarii*

Group L. Saxicolous, non-littoral crustose species with apothecia and with yellow, orange or red colour

1a Thallus without yellow, orange or red colour.

2a Apothecia with grey to black margin. *C. aetnensis, C. agrata, C. aractina (incl. C. fuscoatra, viridirufa), C. cerinoides, C. festivella, C. hertelii, C. isabellina, C. kamczatica, C. kilcundaensis, C. leptozona, C. queenslandica, C. pellodella, C. poliotera, C. puiggarii, C. sideritis, C. spodoplaca, C. subleptozona, C. tropica*

2b Apothecia with margin yellow, orange or red. *C. arenaria, C. atroflava, C. begaensis, C. bicolor, C. ceracea, C. concilians, C. crenularia* (incl. *C. germanica*), *C. erythrocarpa, C. fraudens, C. fuscoatroides, C. ludificans, C. limitosa, C. luteominia, C. marmorata, C. neotaurica, C. oxfordensis, C. percrocata, C. perileuca, C. scotoplaca, C. subpallida, C. tavaresiana*

1b Thallus with yellow, orange or red colour.

3a Thallus relatively thick, often verrucose.

4a Thallus ochraceous to beige or rose. *C. aliciae, C. astonii, C. australiensis, C. fernandeziana, C. montisfracti, C. rubelliana*, *C. volkii*

4b Thallus yellow, orange or red.

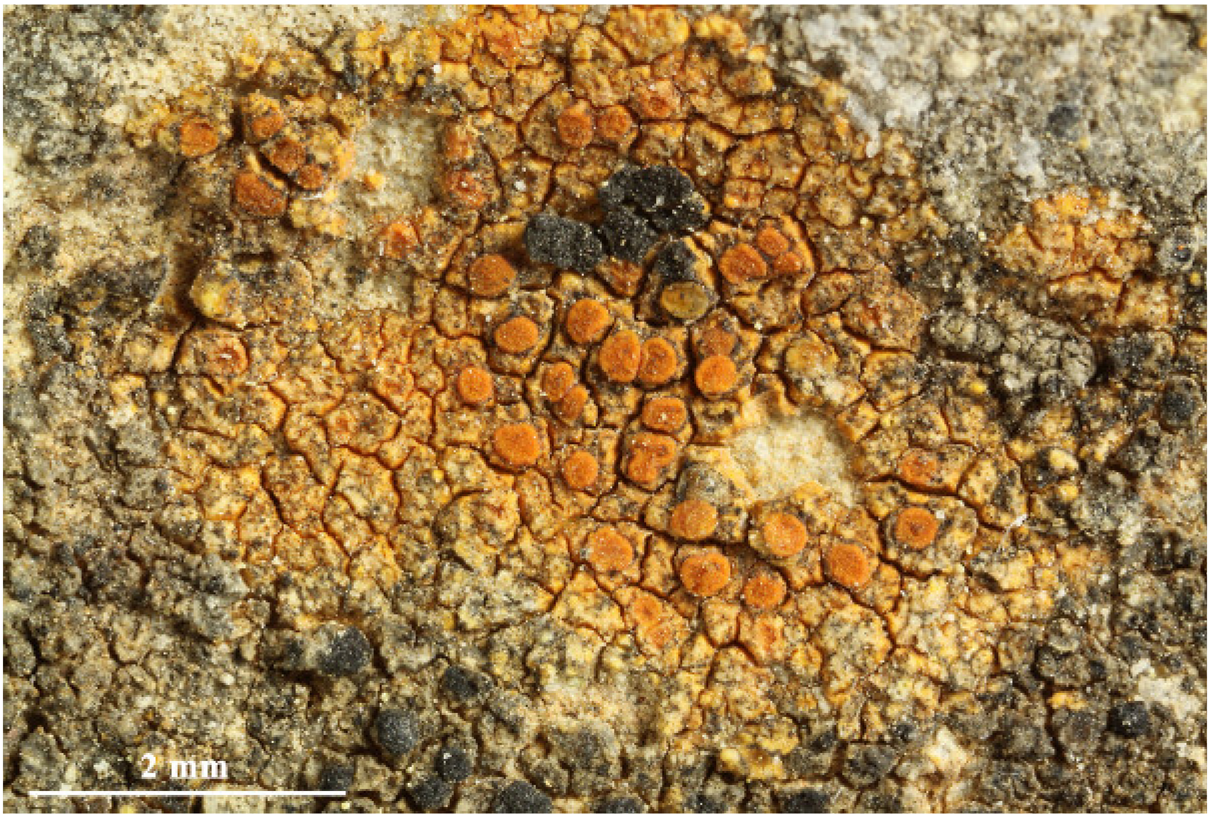
5a Thallus orange or red. *C. aequata* (incl. *C. brownlieae*), *C. almbornii, C. cinnabarina, C. haematodes, C. selkirkii, C. subochracea, C. subrubelliana*

5b Thallus yellow. *C. baueri, C. communis, C. crenulatella, C. dalmatica, C. diffusa, C. havaasii, C. ruderum, C. subvitellina*

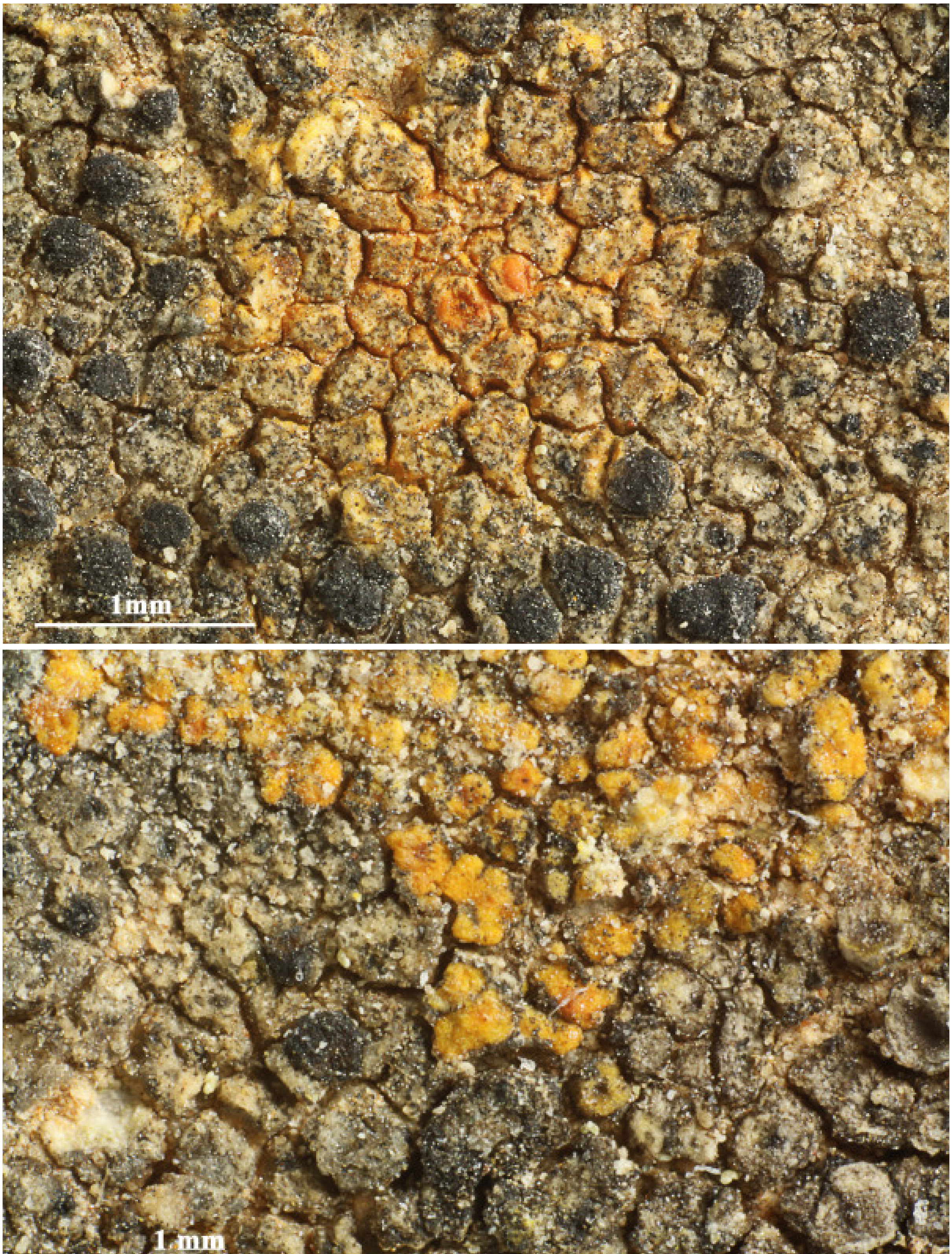
3b Thallus thin, often smooth or partly immersed.
6a Apothecia reddish. *C. brachyspora, C. lacteoides, C. marmorata, C. mereschkowskiana, C. subaurantiaca, C. subochracea* var. *luteococcinea, C. tavaresiana, C. veneris*
6b Apothecia yellow to orange. *C. adriatica, C. cacuminum, C. calcitrapa* (incl. *C. itiana*), *C. coccinea, C. coreana, C. crenulatella, C. feracissima, C. ferrarii, C. flavovirescens, C. glomerata, C. holocarpa* (incl. *C. vitellinula*), *C. johnstonii, C. lactea, C. latzelii, C. luteominia, C. magnussoniana, C. nashii, C. oasis, C. ochracea, C. ochrochroa, C. polycarpa, C. praeruptorum, C. sarda, C. scarlatina, C. schofieldii, C. subunicolor, C. wallabyensis, C. yorkensis*

Caloplaca adelphoparasitica Nimis & Poelt, ISOTYPE, in Nimis, Poelt, Tretiach, Ottonello, Puntillo & Vězda, Bull. Soc. linn. Provence 45: 250 (1994)

[TSB_18656], Italy, Sicily, Égadi Islands, Island of Marettimo, loc. Passo del Bue, 12° E, 38° N, c. 50 m, on limestone, parasitic on *Caloplaca cretensis*. Leg. P.L. Nimis, 24-31-03.1991.



Caloplaca adelphoparasitica



Caloplaca adelphoparasitica

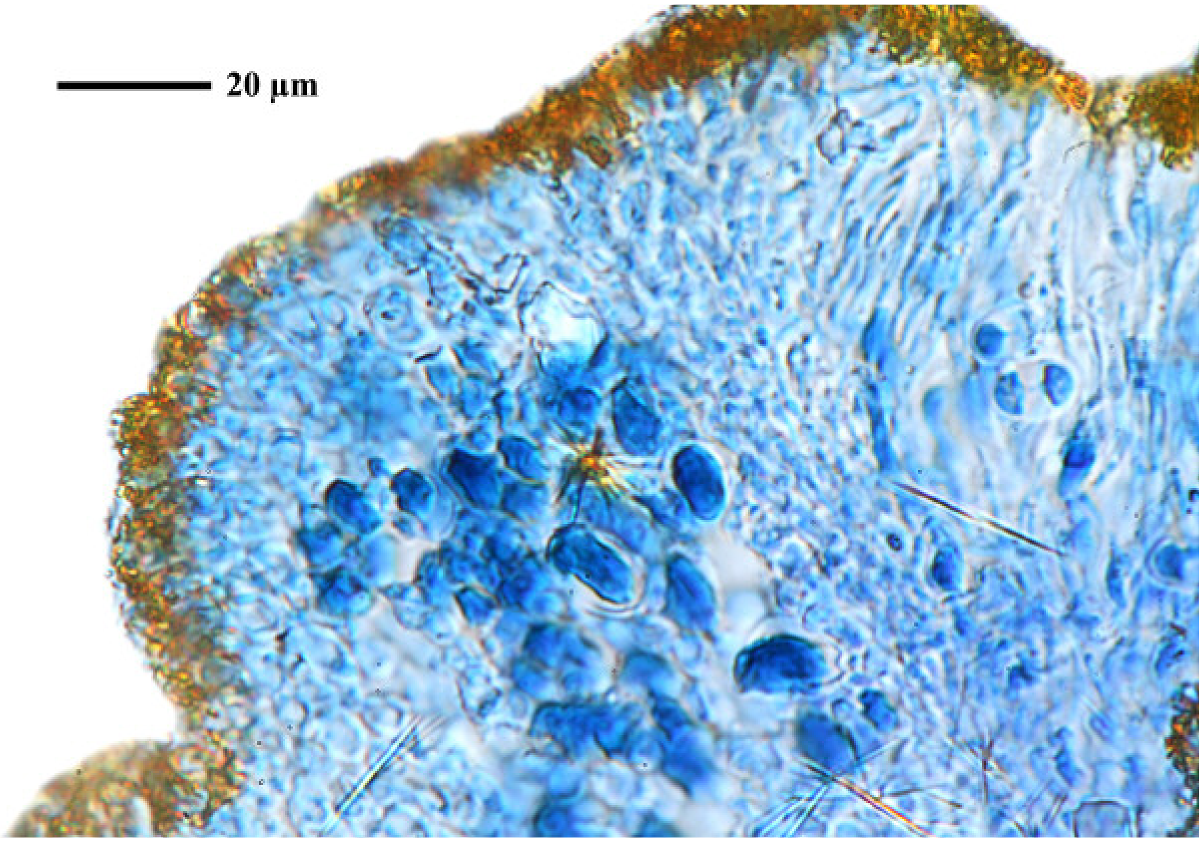
Caloplaca adnexa Vězda

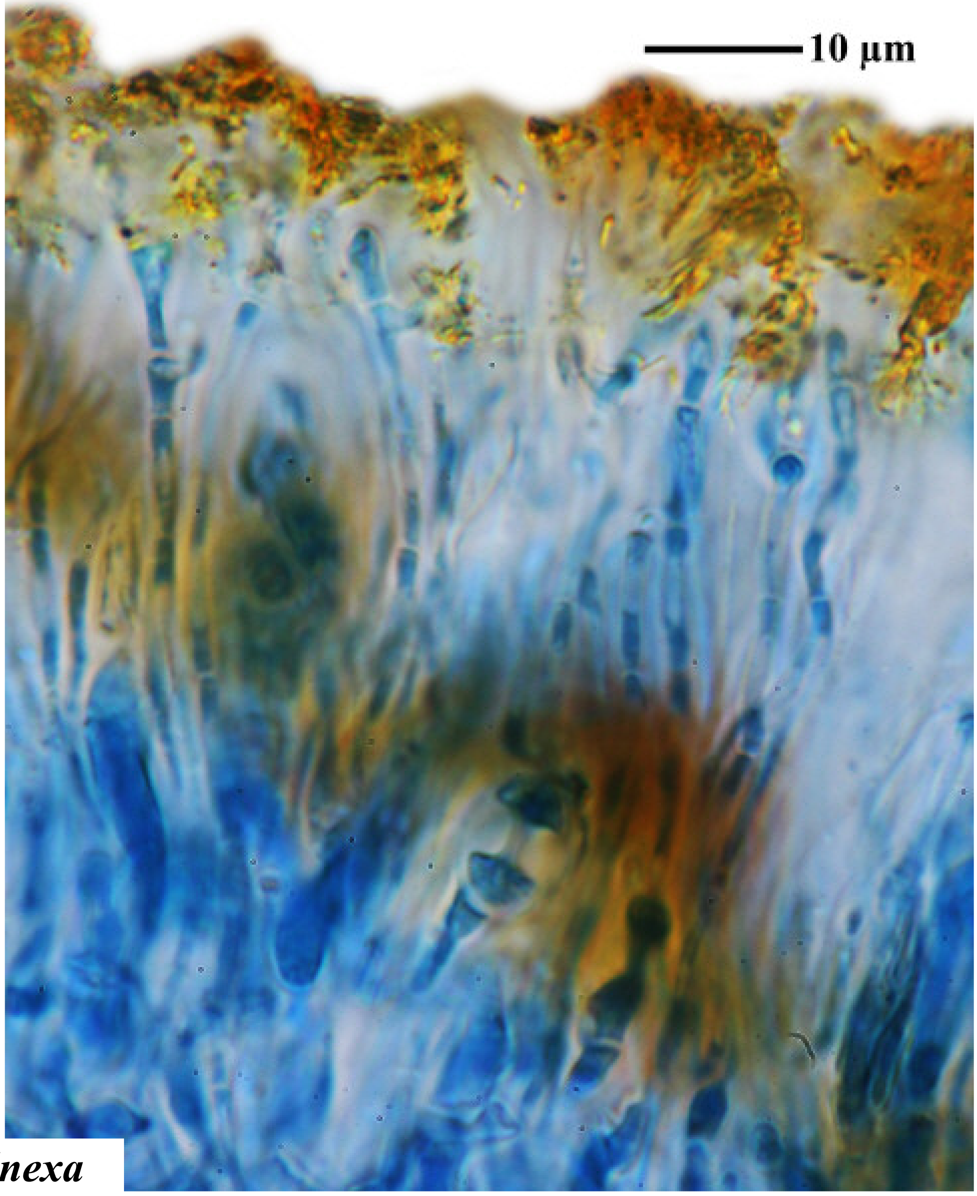
on rocks. Spores 9.3-11 x 6-7 µm, septum 3.2-3.4 µm (FS)

[19563], Jugoslavia, Macedonia, Tetovo, Sar planina, in monte Popova Sapka, alt. 2000 m, ad saxa schistosa (Holotypus in herb. Vezda, Brno). Leg. A. Vězda, 14.07.1975. VĚZDA: LICHENES SELECTI EXSICCATI NR. 1471. (DIAGN. IN EXSICCATUM).

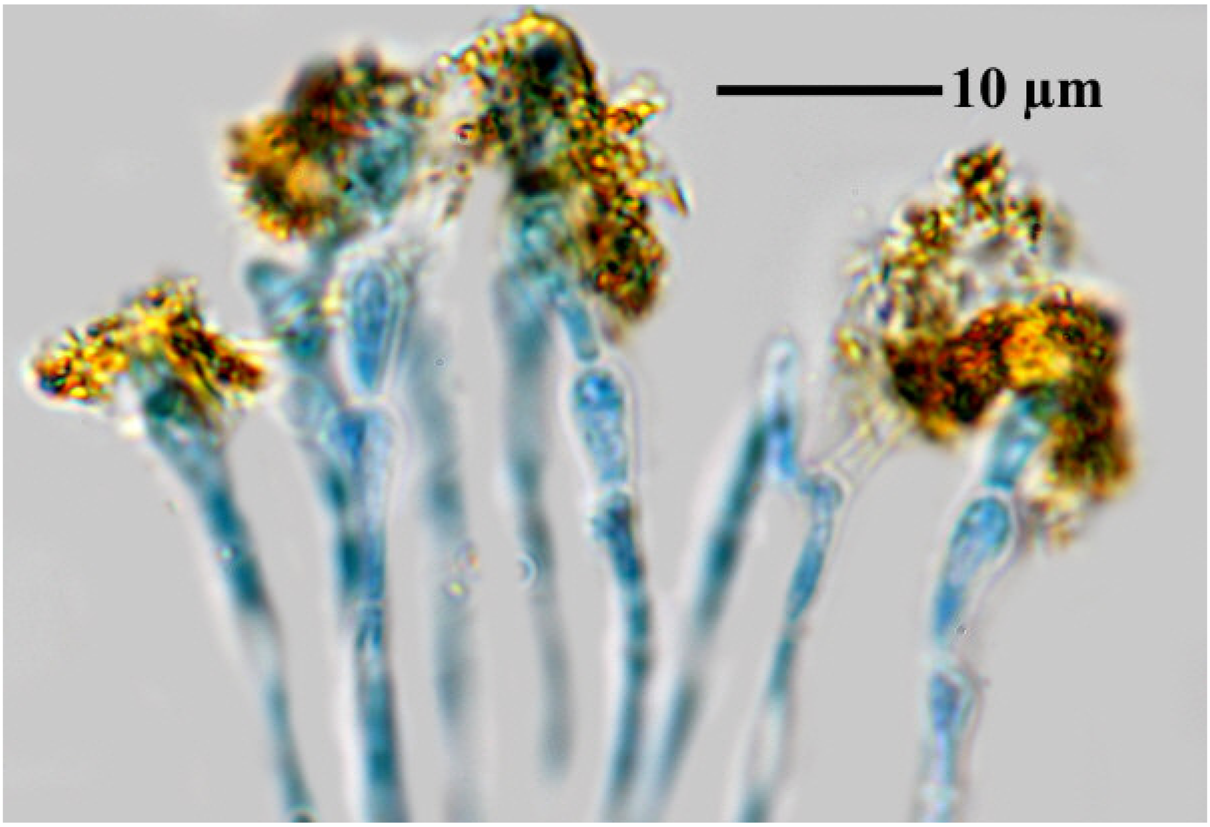
Thallus aurantiacus, lobulatus, lobulis ca. 0.5 mm in diam., primum in rimis thalli areolati lichenis alieni (*Rhizicarpon disporum*) vigentibus, areolas hospitis demum destruentibus. Apothecia 0.5-0.8 mm lata, margine crasso aurantiaco, dico plano vel leviter convexo, atroaurantiaco. Hymenium circ. 120 µm altum. Sporae biloculares, loculis rotundatis, septis mediis ab initio tenuibus (circ. 2 µm, in centro valde attenuatis), 12-14 x 7-8 µm.

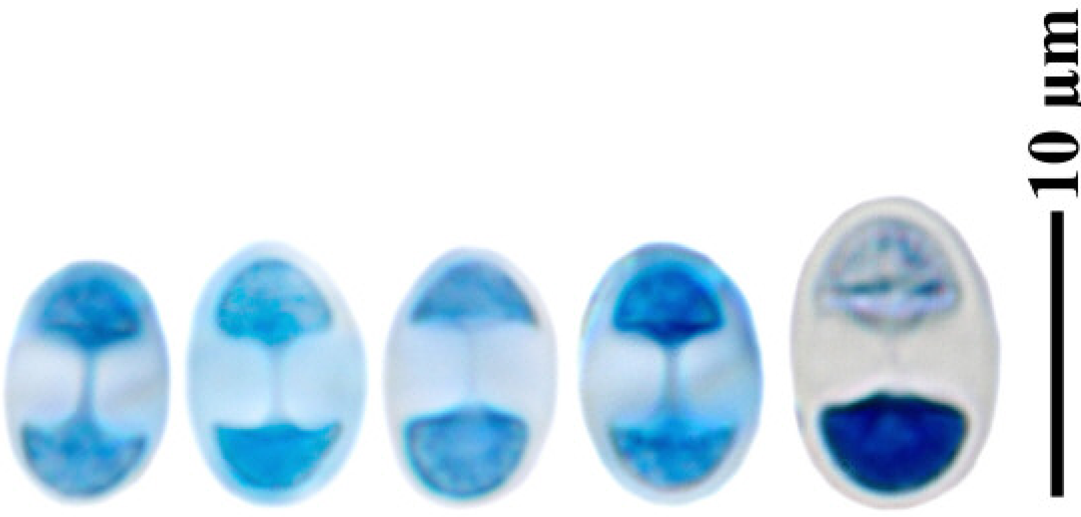
Caloplaca adnexa

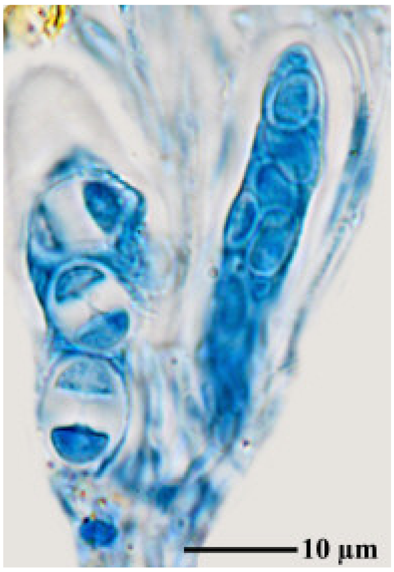




Caloplaca adnexa





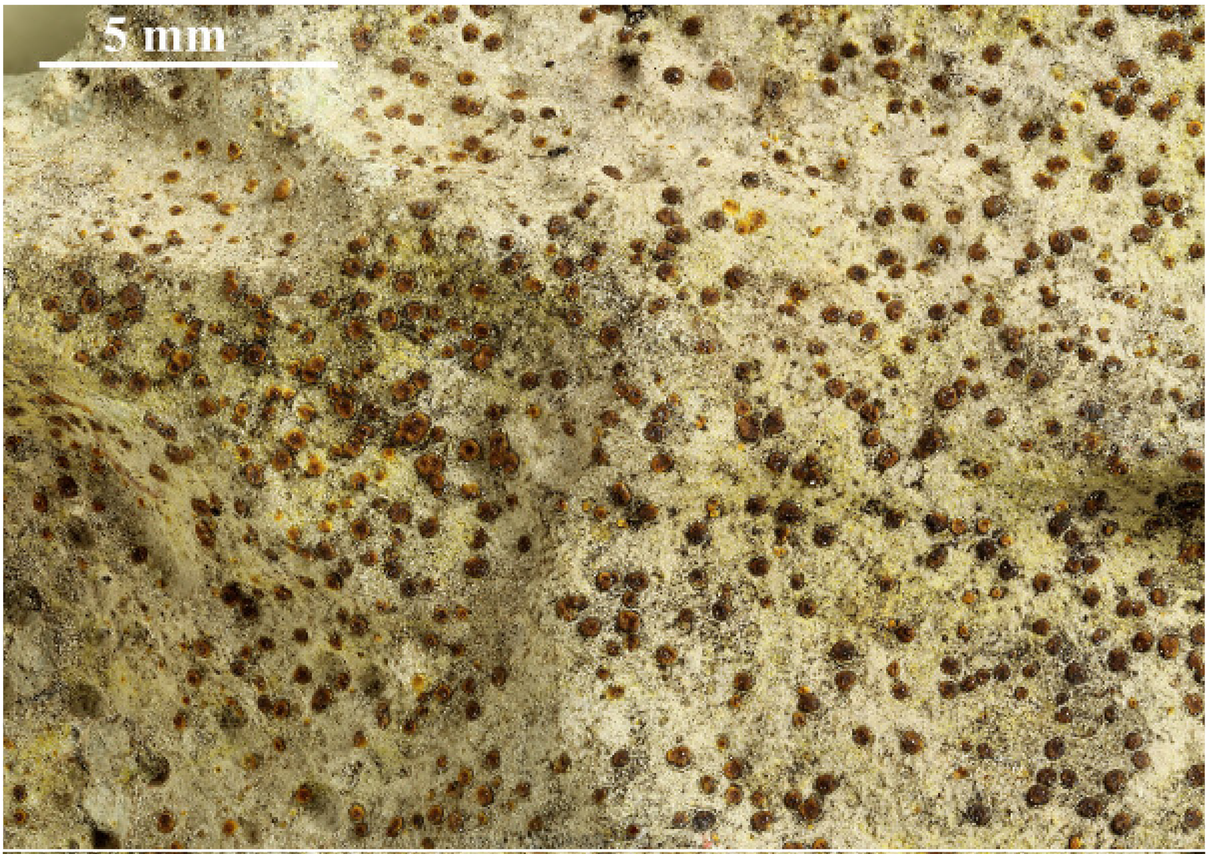


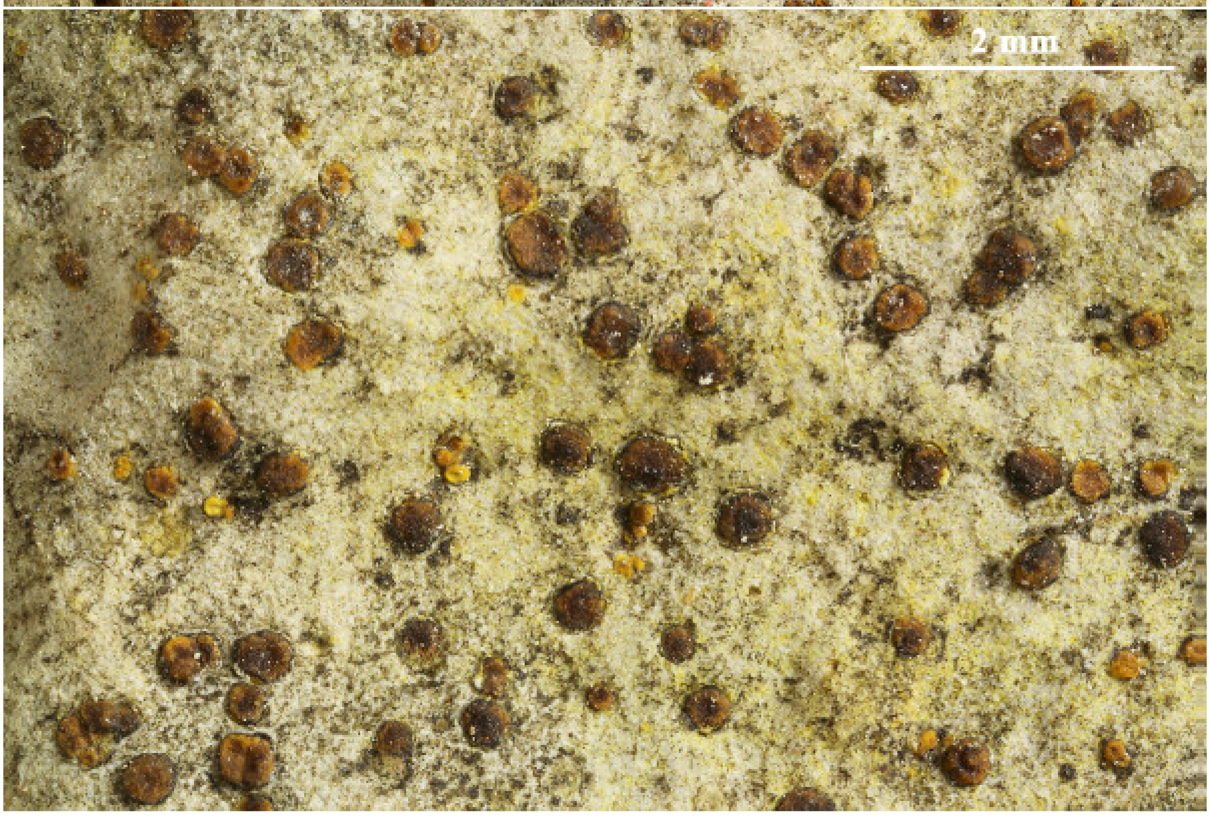
Caloplaca adnexa

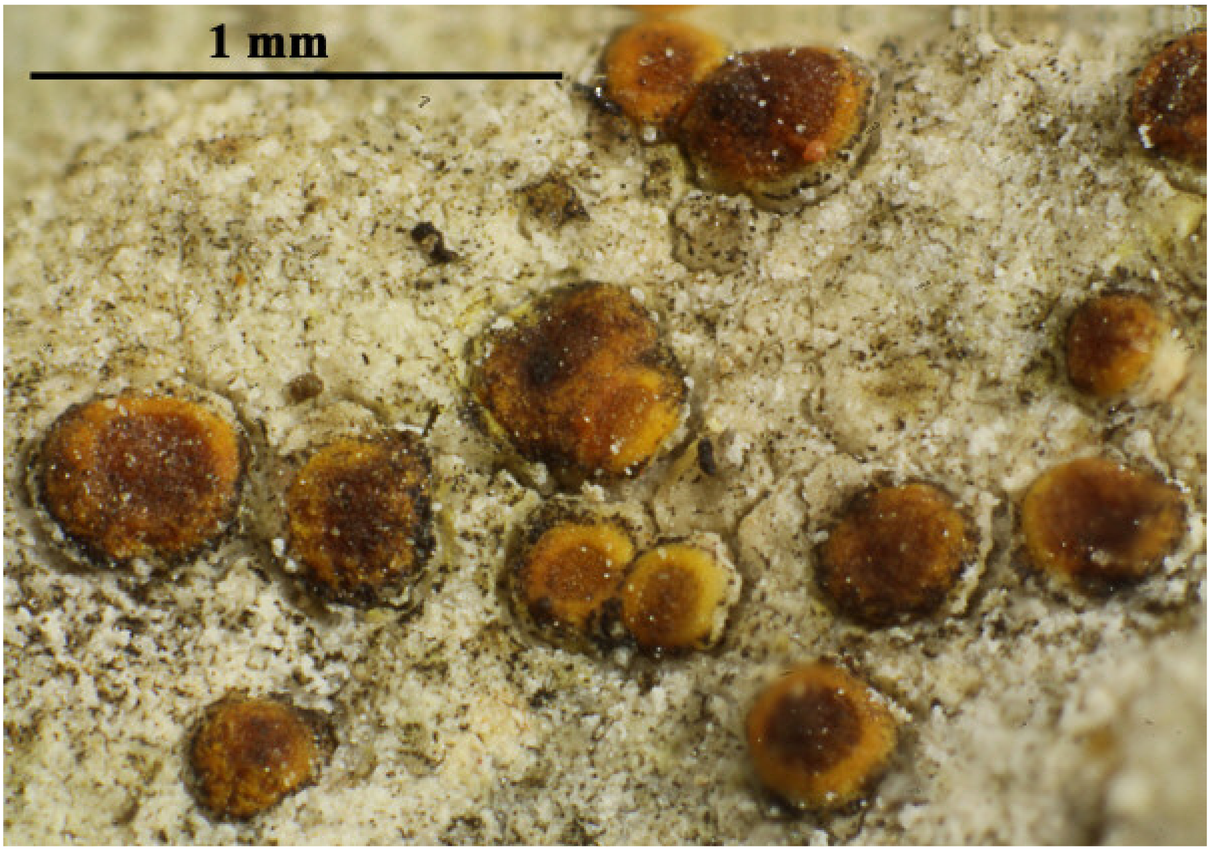
Caloplaca adriatica (Zahlbr.) Servit

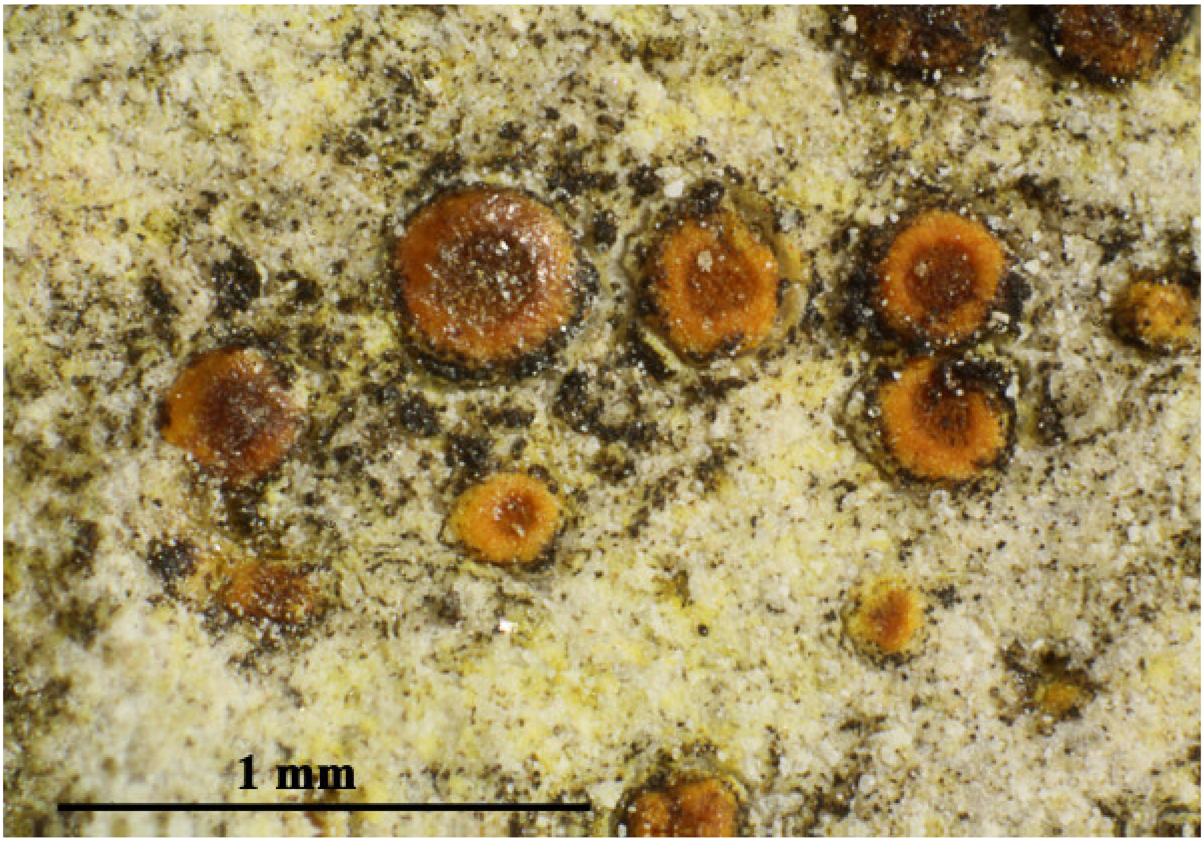
On calcareous rocks. Lit. Servit in Hedwigia 71:275 (1931)

[19564], Gallia, Vaucluse, Lafare, in praerupta La Salle dicta, alt. 400 m, ad parietem altum rupis calcareae. Leg. G. Clauzade et Cl. Roux, 8.01.1976. VĕZDA: LICHENES SELECTI EXSICCATI NR. 1419.

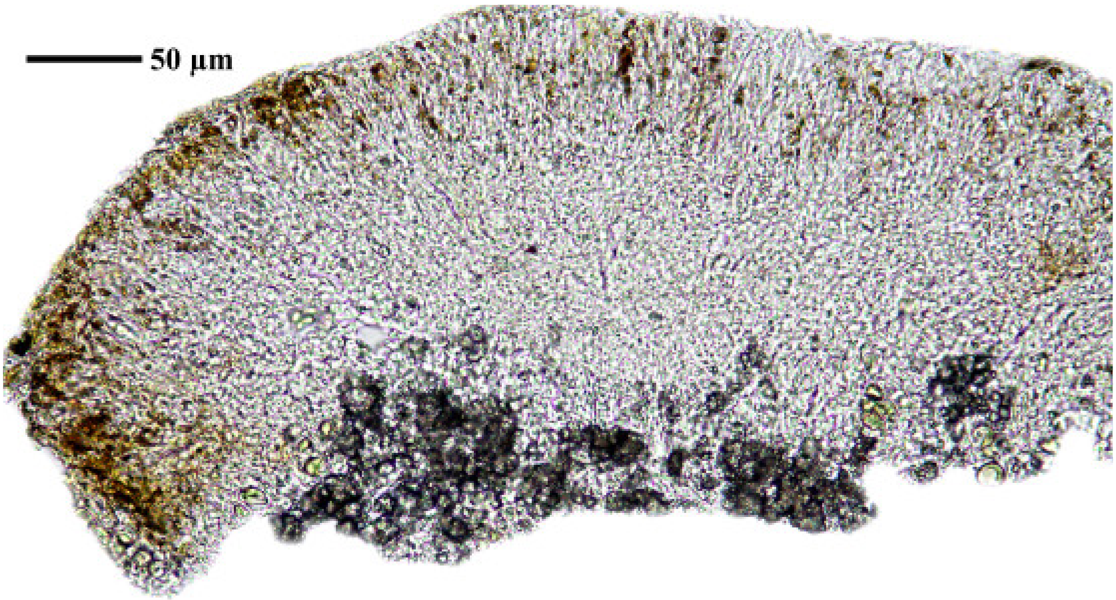


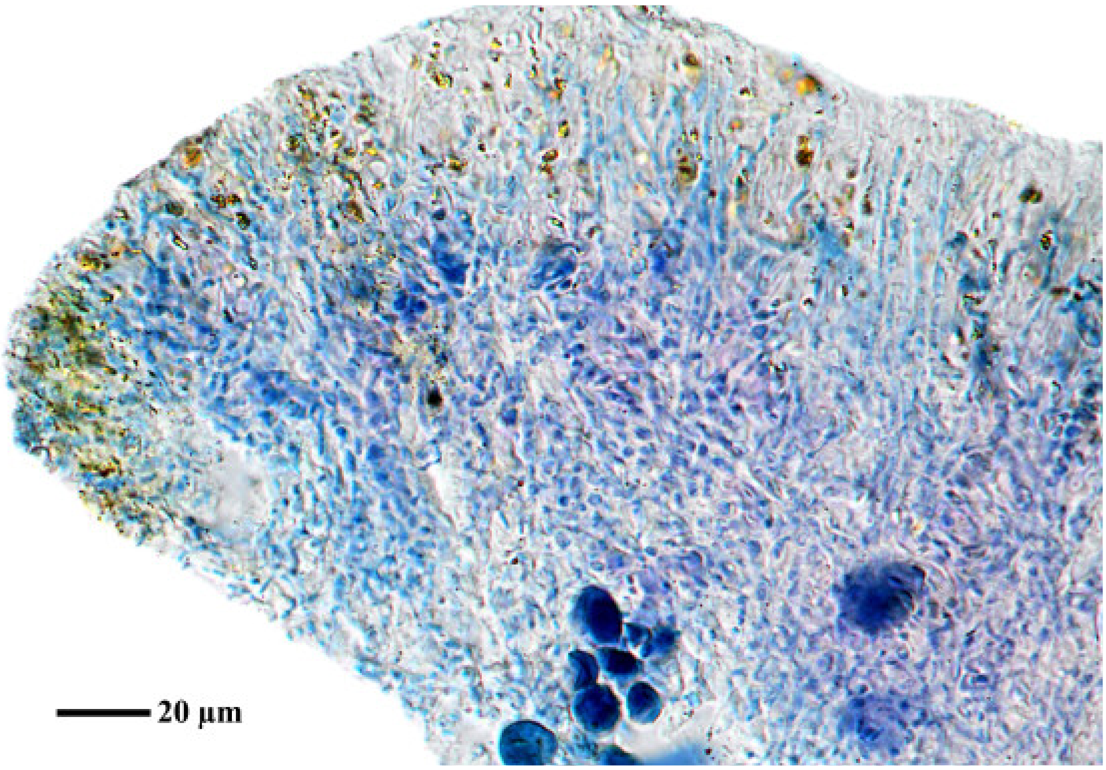


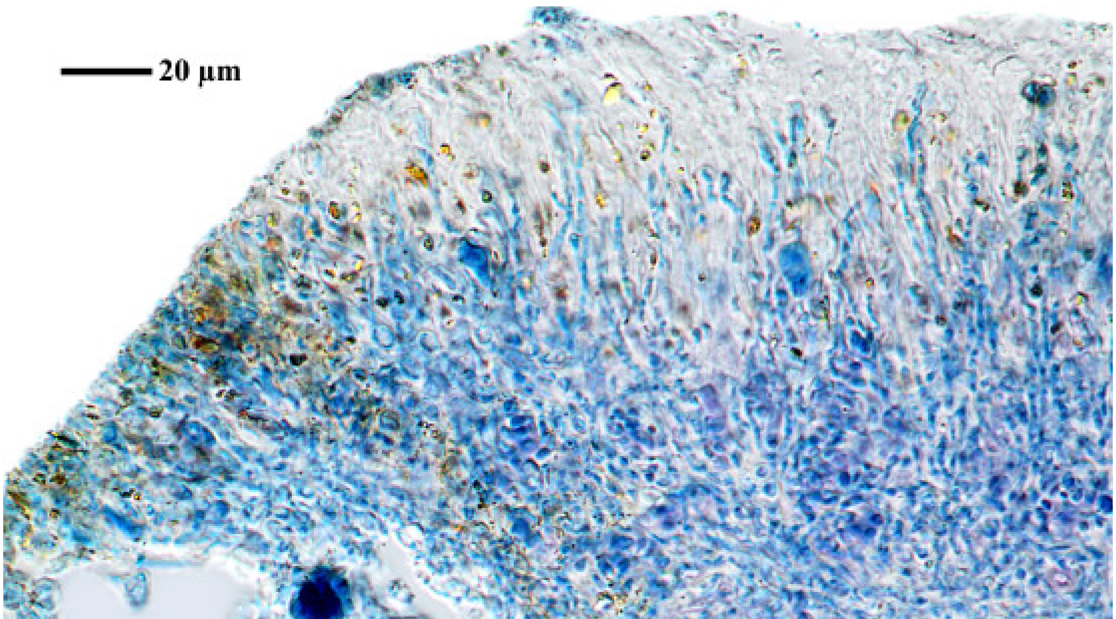




Caloplaca adriatica







Caloplaca adriatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[5219], Spanien, Gran Canaria, ca. 1,5 km südlich La Culata, felsiger trockener Nordhang, lückig mit Pinus canariensis bewachsen, an Pinus canariensis, 27°57.848' N, 15°36.136' W, Höhe 1570 m. Leg. F. Schumm & U. Schwarz 25.12.1998, det. H. Sipmann 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.
Thallus graugrün, zusammenhängend, warzig uneben. Apothecien sitzend, 0.4-0.8 mm, Scheibe orange. Rand ca. 0.03 mm, gleich hoch wie die Scheibe, später verschwindend, hellgelb oder zweifarbig weiß-gelb. Hymenium hell, 68 µm. Algenschicht unten durchgehend. Sp. mit dickem (2/3) Septum, (13-14,2) x (6,5-7,6) µm

[5429], Spanien, Gran Canaria, Barranco de Los Tilos südlich Moya, 28°04.766' N, 15°35.935' W, Höhe 620 m. Leg. F. Schumm & U. Schwarz 28.12.1998, det. A. Aptroot 2016.

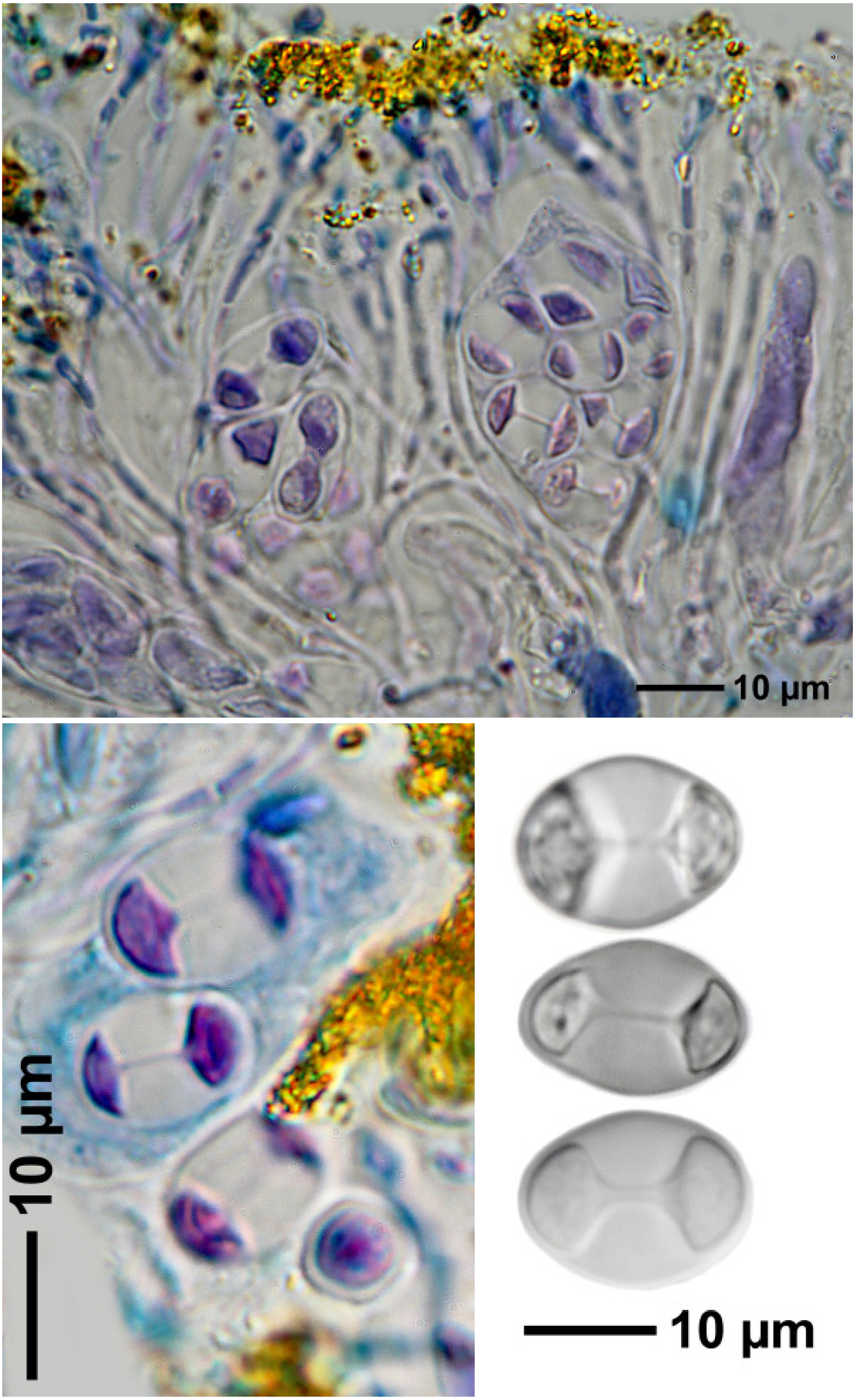
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

Spores polarilocular, hyaline, 8/ascus, 13-17.5 x 10.5-13 µm, septum 7-8.5 µm. On bark.

[6894], Spanien, Kanarische Inseln, Gran Canaria; an der Strasse von El Tablero zum Embalse de Chira oberhalb Cercados de Espinas; nordexponierter steiler Felshang; 27°52.165' N, 15°38.905' W, Höhe 850 m. Leg. F. Schumm & U. Schwarz 05.01.2000, det. H. Sipmann 2016.

Caloplaca aegatica

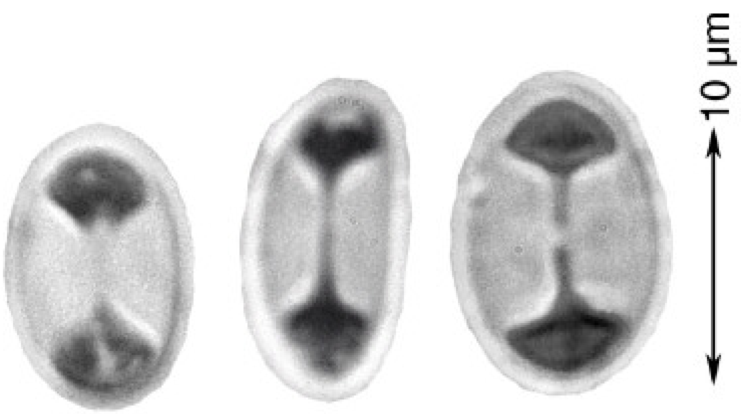


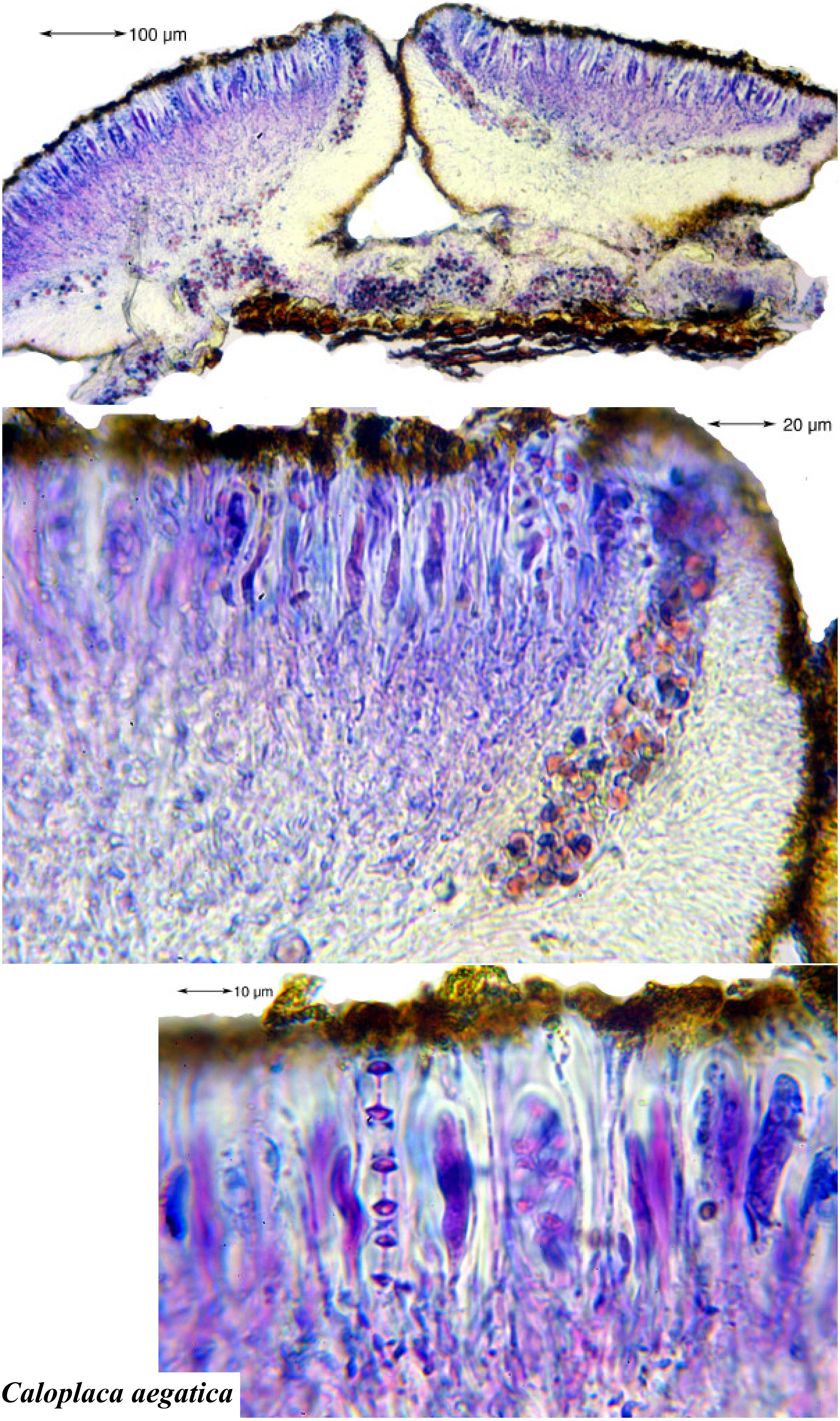
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

Thallus grau bis hellgrau, K-, dünnkrustig (ca. 100 µm), zusammenhängend, schwach körnig-warzig. Apothecien 0,4-0,7 mm, aufsitzend, am Grunde verengt; Scheibe orange, K+ rot, flach bleibend; Rand gelb, heller als die Scheibe, dauerhaft, ca. 0,06 mm dünn; Hymenium ca. 70 µm; durchgehende, bis in den Rand reichende Algenzone unter dem Hypothecium. Sporen polar-2-zellig, ellipsoidisch, 10-12 x 6-8 µm, Septum 4-6,5 µm, nicht nach außen aufgetrieben. Pyknidien schwarz, einzige corticole Art mit schwarzen Pyknidien. Chemie: Anthrachinone. Corticol.

[7193], Spanien, Kanarische Inseln, Teneriffa, Teno Gebirge, Im Barranco de las Cuevas Negras, Lorbeerwaldreste, auf Laubbaum. Leg. Schumm 20.03.1978, det. Sipman 2009.



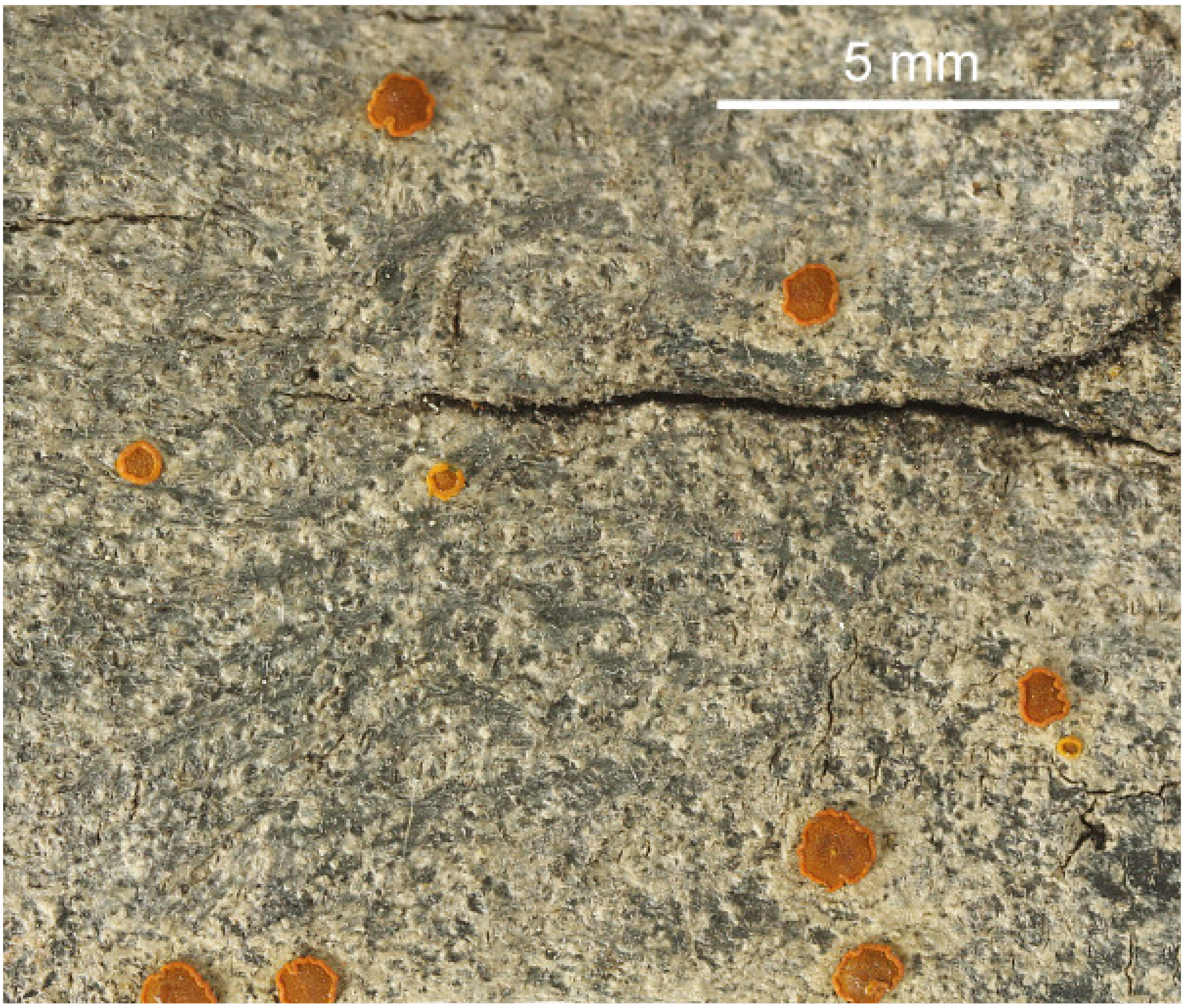


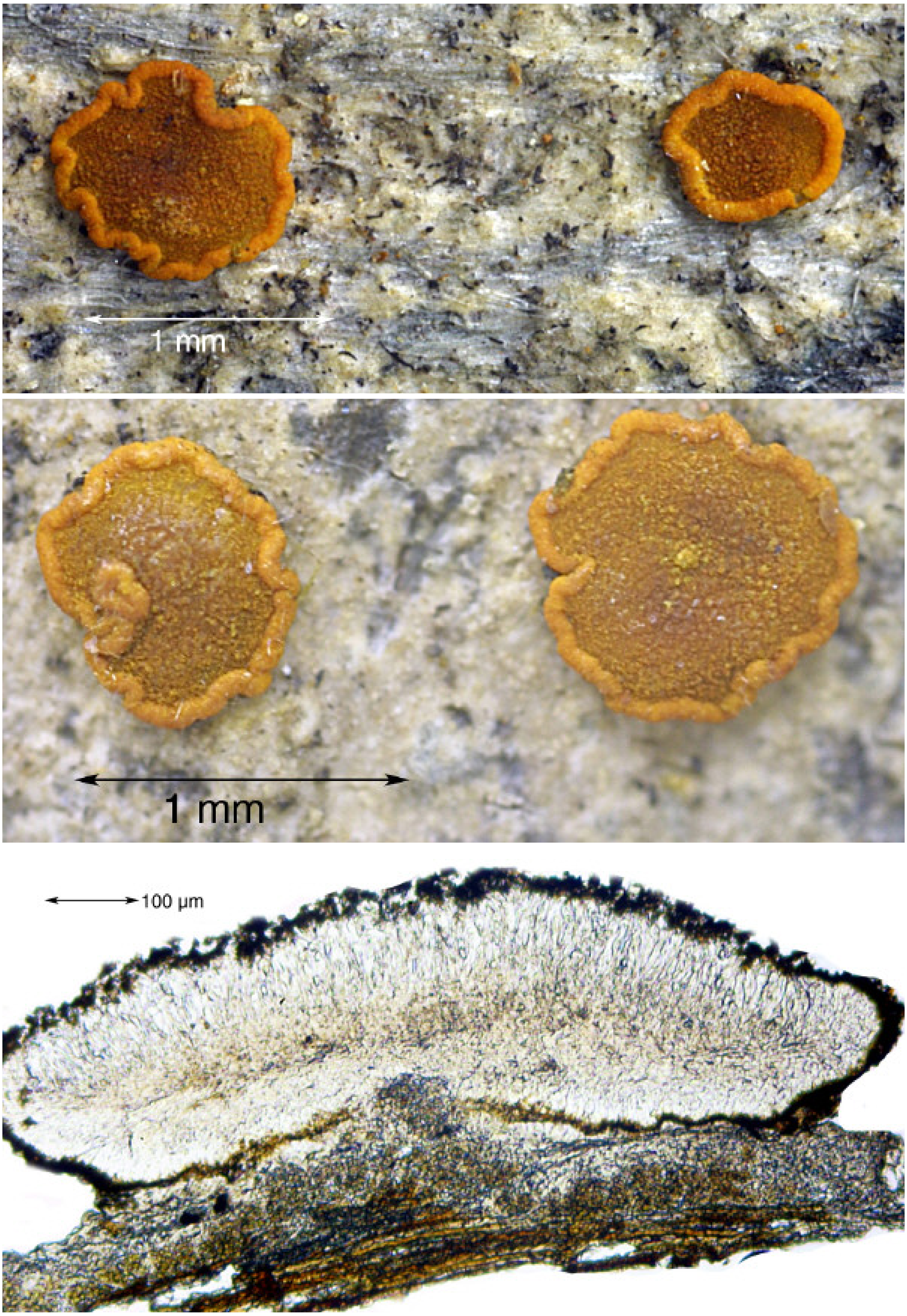
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt.

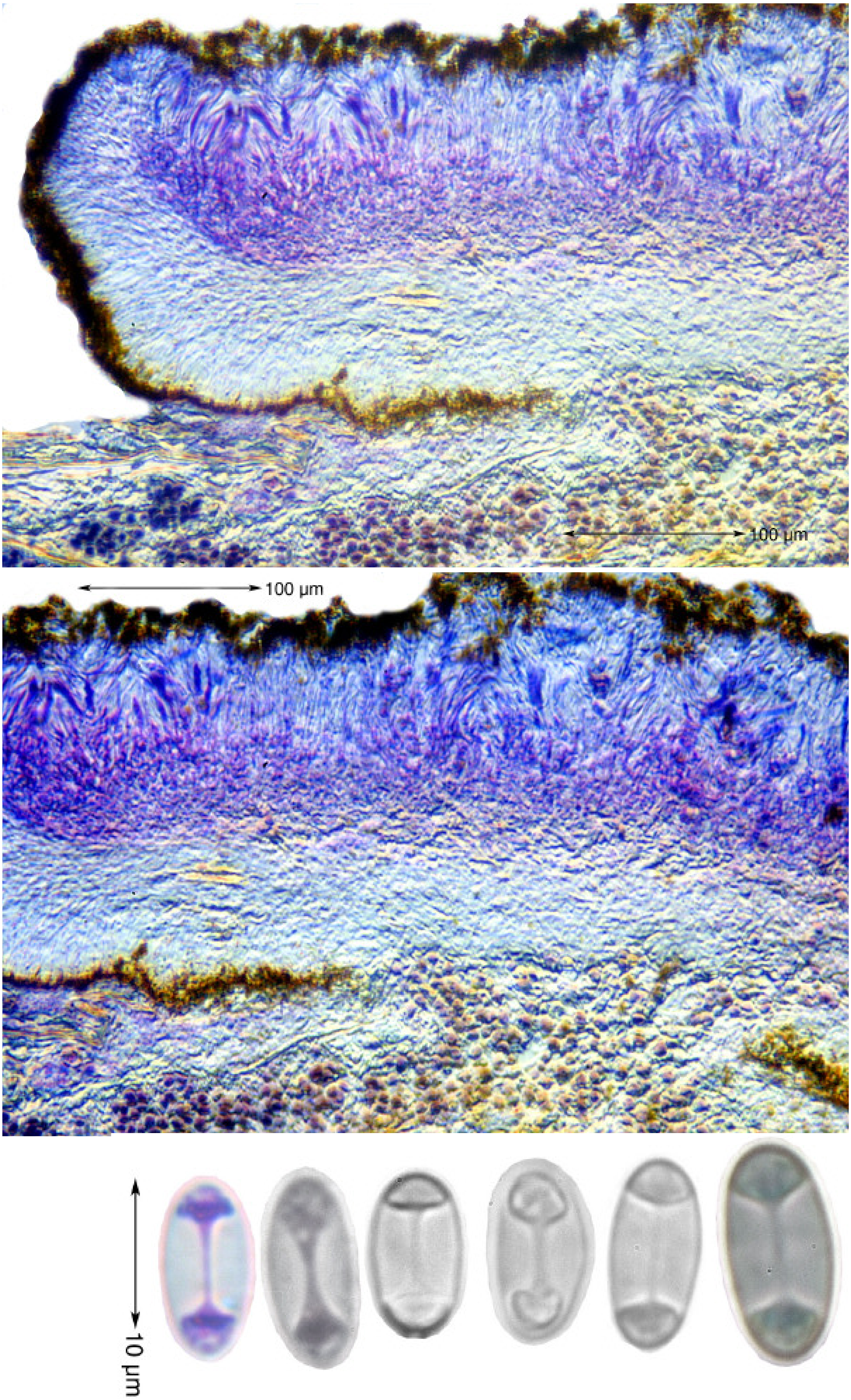
Thallus grau, K-, dünnhäutig, teils verschwindend, ca. 100 µm dick; obere Rinde ca. 20 µm dick; Algenzone ca. 50 mm dick. Isidien und Sorale fehlen. Apothecien auffallend entfernt stehend, 0,7-1 mm, aufsitzend, am Grund stark verengt; Scheiben dunkelorange, K+ rot, eben bis schwach konvex; Rand heller orange, stark wellig, etwas höher als die Scheibe, 0,06 mm breit; Hymenium 100-110 µm; Rand und Zone unter dem Hypothecium ohne Algen, Algen nur im schmalen Stil vom Thallus her eindringend. Sporen polar-2-zellig, ellipsoidisch, 12-13 x 6-7 µm; Septum 5-7 µm lang, seitlich nicht aufgetrieben. Chemie: Anthrachinone. Corticol.

[8634], Portugal, Madeira, an der Straße bei Portela, 32°44,812' N, W 16°49,623' W, 575 m, an Zeder. Leg. et det. Schumm 15.04.2001,
Bem.: 2009 von H. Sipman mir als ***Caloplaca ferruginea*** (Huds.) Th.Fr. bestätig, 2016 jedoch zu ***Caloplaca aegatica*** korrigiert, welche in Makaronesien weitaus häufiger ist als *C. ferruginea*. Dafür ist *C. ferruginea* in der Nordägäis sehr verbreitet (H. Sipmann brieflich).

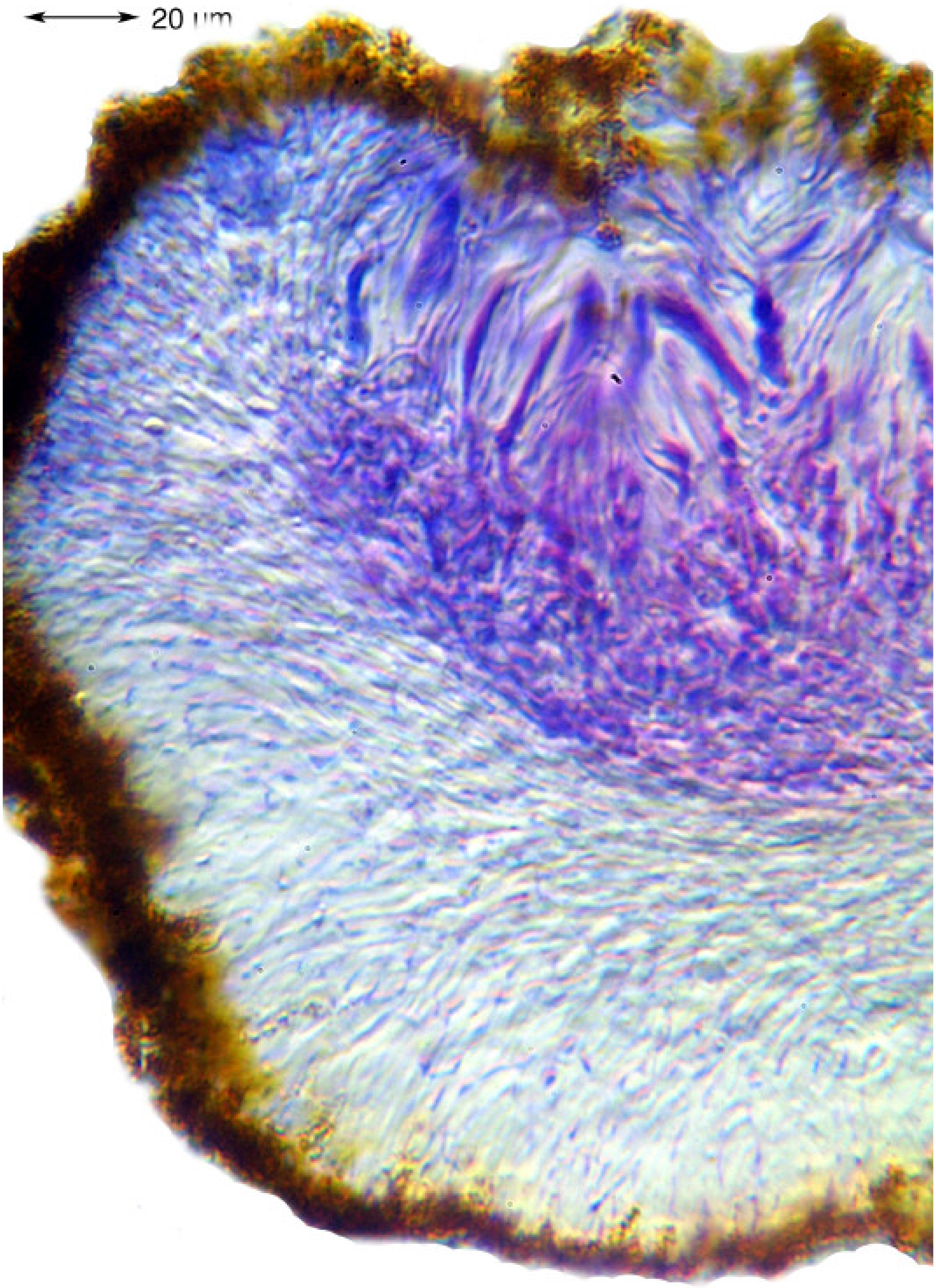


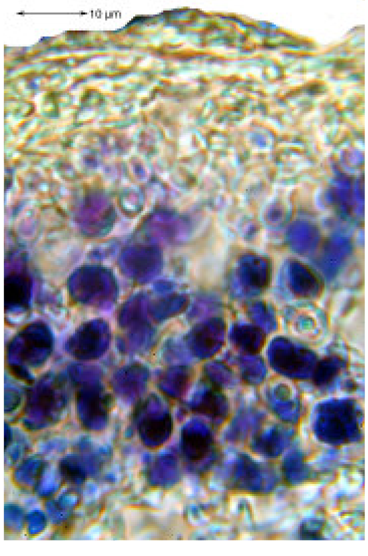


Caloplaca aegatica



Caloplaca aegatica





Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[9152], Spanien, Kanaren, La Gomera: Chorros de Epina, zwischen Arure und Vallehermoso, im Lorbeer-Erica Wald, 28°09.830' N, 17°17.852 W, 750-850 m, an Ästen. Leg. F. Schumm, 10.02.2002, det. A. Aptroot 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[9397], Spanien, Kanaren, La Gomera, bei Arure an der Straße nach Las Hayas, trockener Abhang mit Felsblöcken und *Euphorbia*. 28°07.895 N, 17°18.983 W, 870 m, an *Euphorbia*. Leg. F. Schumm, 14.02.2002, det. A. Aptroot 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[10455], Spanien, Kanaren, La Gomera: Zwischen Arure und Vallehermoso bei Chorros de Epina, 28°09.830' N, 17°17.852' W, 750-850 m, Lorbeerwald (mit *Ramalina thrausta*, *Lecanora*, *Ochrolechia*). Leg. F. Schumm & U. Kirschbaum, 19.04.2003, det. A. Aptroot 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[12371], Griechenland, N-Samos, südlich Avlakia an der Straße oberhalb Vourliotes nördlich des Bergmassivs Lazarou, 37°48' N, 26°51' E, ca. 776 m. Leg. F. Schumm, R. Düll & Maier, 03.05.2006, det A. Aptroot 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[12932], Spanien, Kanaren, La Palma (NE), westlich von Los Sauces, auf dem Weg vom Centro de Visitanjes Los Tilos (28°47.565' N, 17°48.009' W, ca. 500 m) zum Mirador Espigon Atravesado (754 m); Lorbeerwald, on bark. Leg. F. Schumm 15.01.2007, det. A. Aptroot. 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[13020], Spanien, Kanaren, La Palma (NE), südwestlich von Santa Cruz beim Mirador de la Cumbre am Straßenrand der Straße LP-2; 28°39.547' N, 17°48.796' W, ca. 920 m. Leg. F. Schumm,18.01.2007, det. A. Aptroot 2016.

Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[13110], Spanien, Kanaren, La Palma (NE), Lorbeer-Erica-Wald an der Straße von San Pedro zum Refugio El Pilar oberhalb San Isidro, on bark, 28°37.784' N, 17°48.743' W, ca 700 m. Leg. F. Schumm, 23.01.2007, det. A. Aptroot 2016.

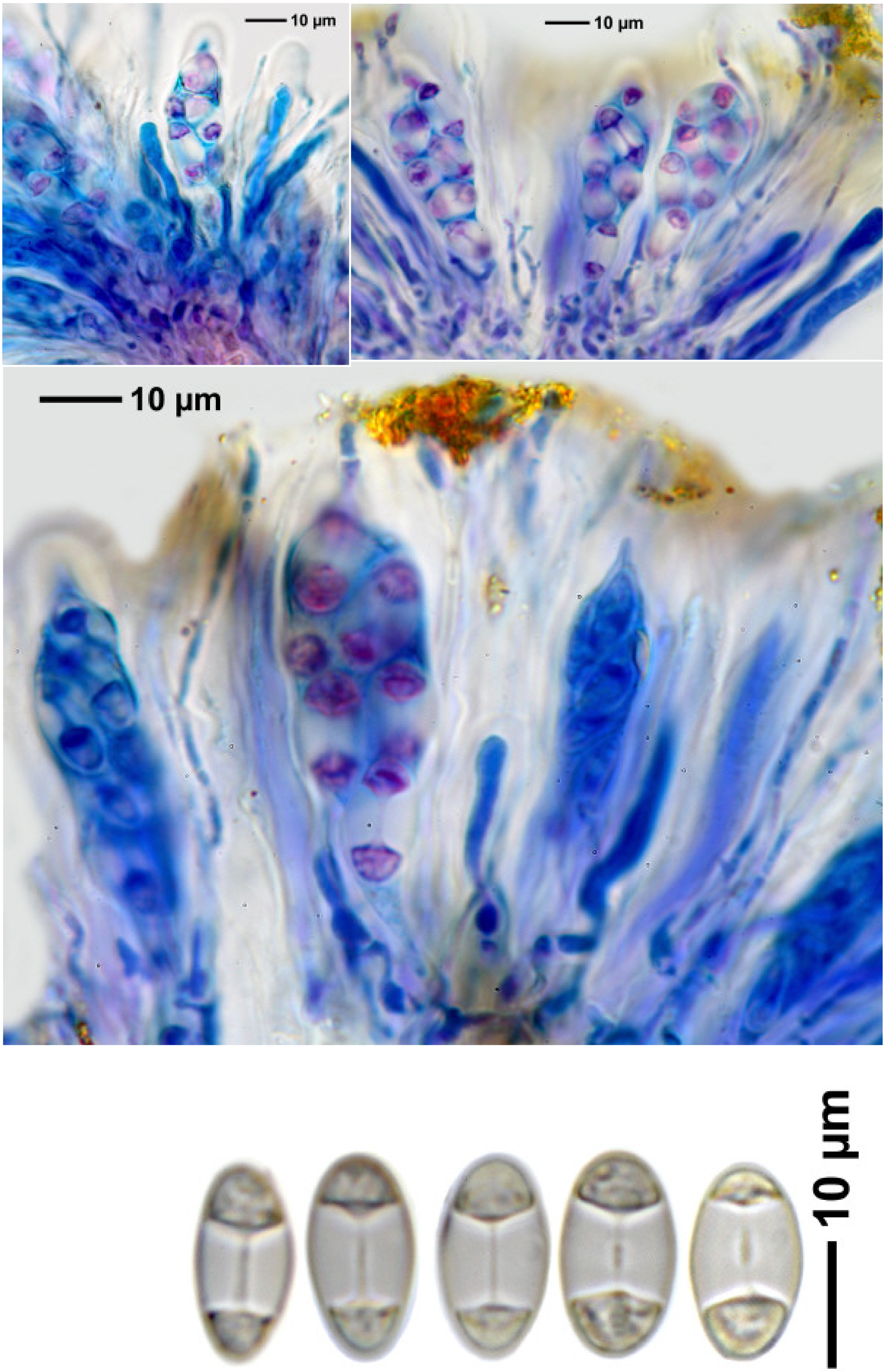
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

Spores polarilocular, hyaline, 8/ascus, 16-17 x 8-9 µm, septum 7-8 µm. On bark.

[13896], Griechenland, NW-Samos: zwischen Kosmadei und Kakoperato, 37°44.998' N, 26°39.195' E, 623 m, an *Pinus brutea*. Leg F. Schumm & R. Düll, 17.05.2008, det. A. Aptroot 2016.

Caloplaca aegatica



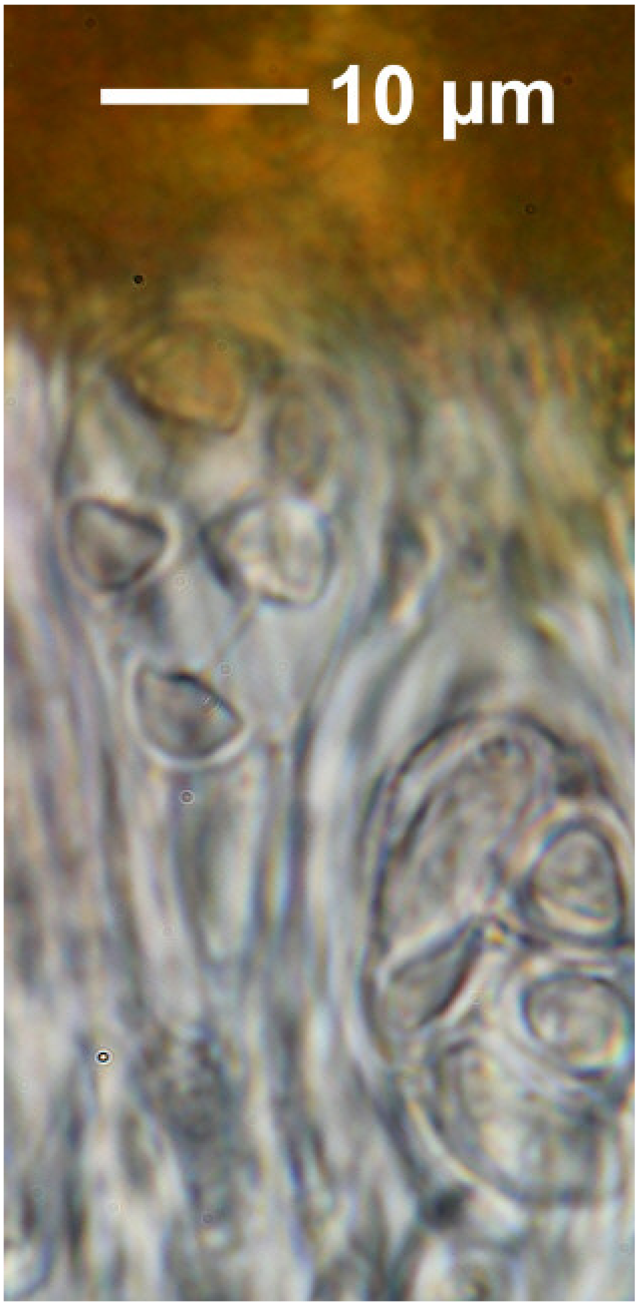
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

Spores polarilocular, 8/ascus, 13.5-14.5 x 8 µm, septum 3.3-9 µm. On bark.

[13974], Griechenland, N-Samos, nördlich des Mt. Lazarou oberhalb Monasterio Vronda, 37°45.836' N, 26°51.012' E, 850 m. Leg. F. Schumm & R. Düll, 20.05.2008, det. A. Aptroot 2016.

Caloplaca aegatica



Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

On bark.

[16359], Mallorca (Süd): Nationalpark; 39.34322° N, 3.16764° E, 40 m. Leg. F. Schumm, J.-P. Frahm & M. Lüth, 12.03.2010, det. A. Aptroot 2016.

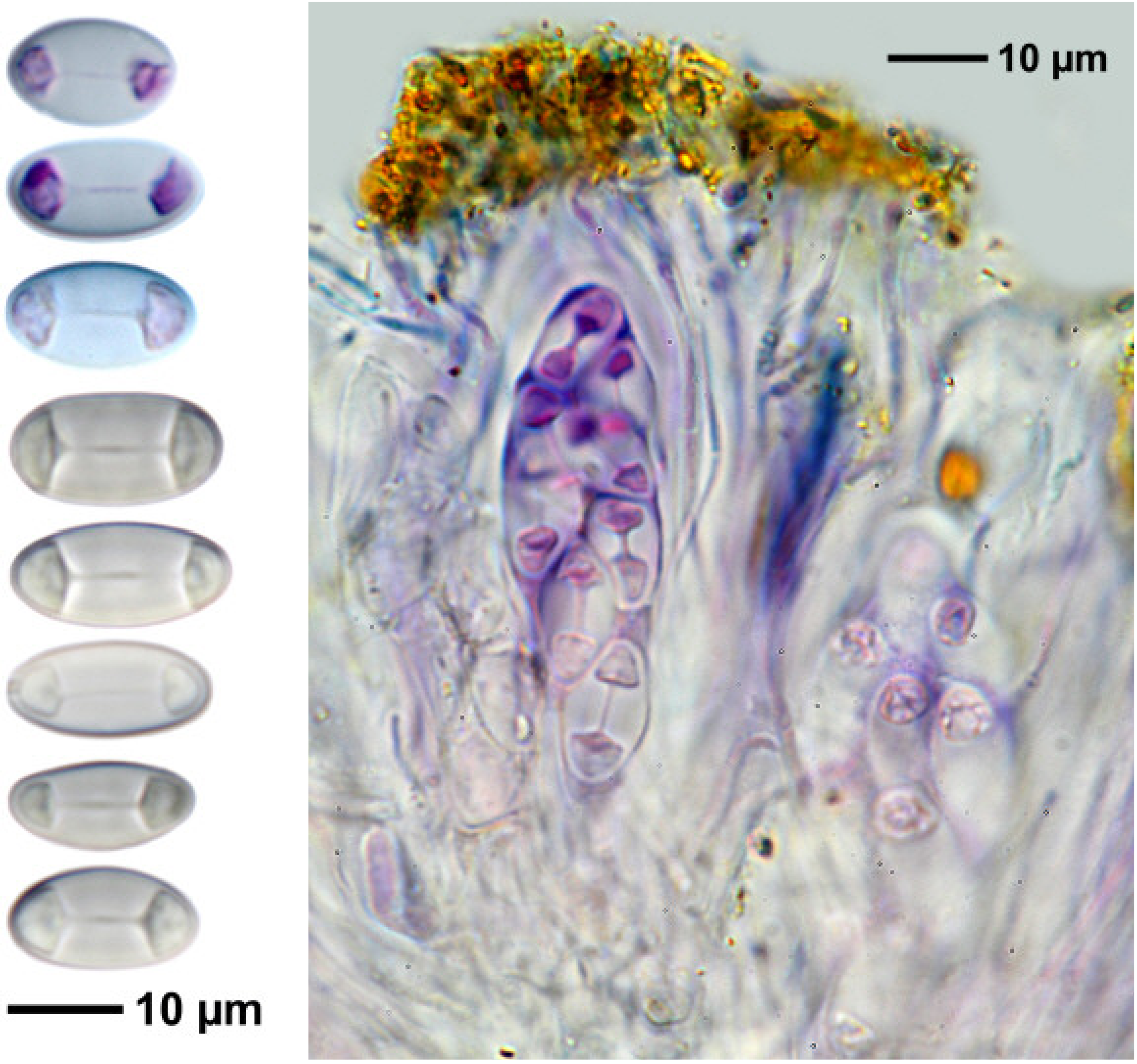
Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt

Spores, polarilocular, hyaline, 8/ascus, 16-19 x 8-9 µm, septum 8-11 µm. On bark.

[17331], Portugal, Azoren, Sao Miguel, Ufer des Lagoa Azul, 37.87493° N, 25.79012° W, 260 m, an *Cryptomeria japonica*. Leg. F. Schumm & J.-P- Frahm, 19.09.2011, det. A. Aptroot 2016.

Caloplaca aegatica



Caloplaca aegatica

Caloplaca aegatica Giralt, Nimis & Poelt, Cryptog. Bryol.-Lichénol. 13(3): 263 (1992)

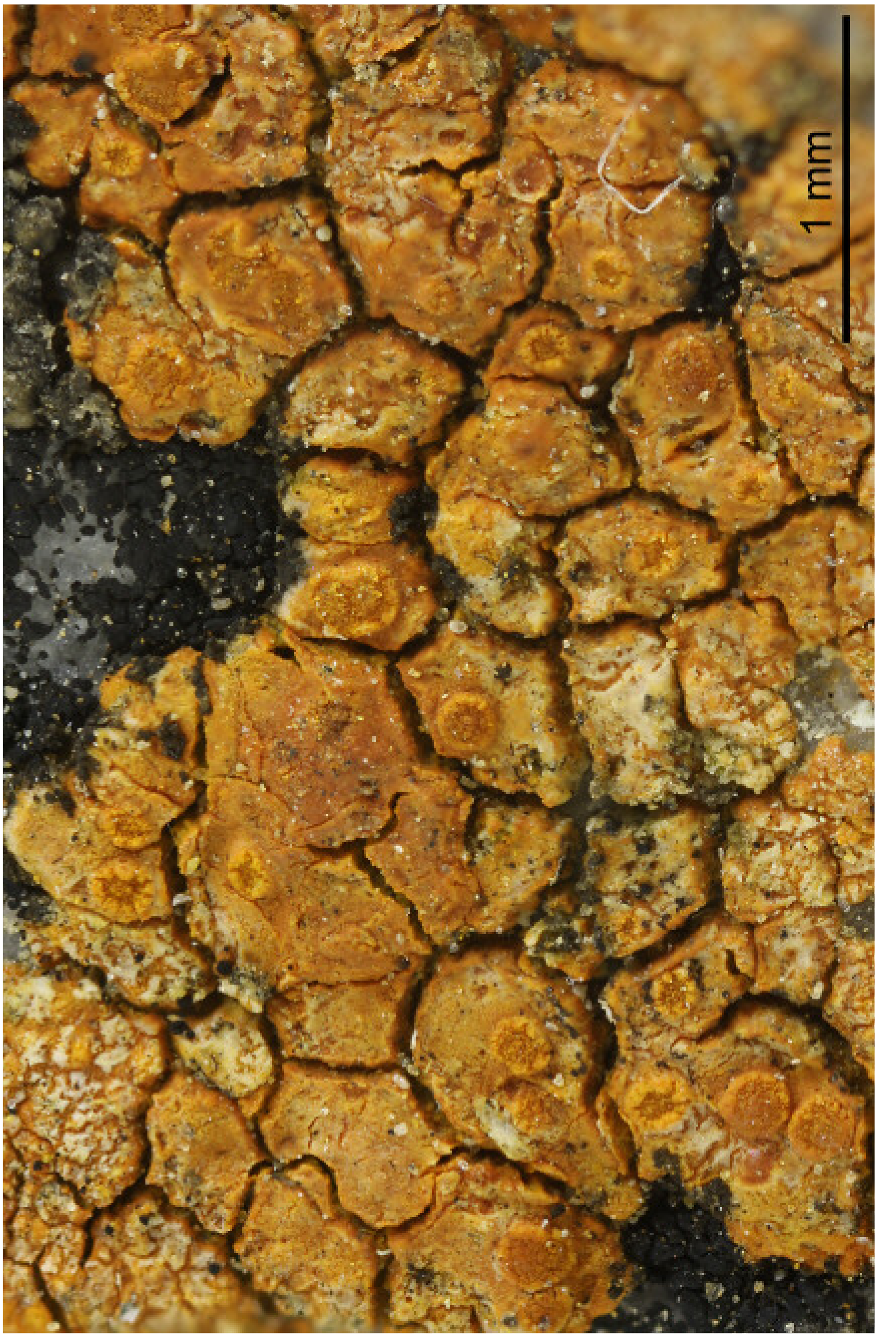
[TSB_31446], Spain, Canary Islands, Tenerife, Teno-mountains, W of Teno Alto, 28°20'35" N, 16°52'40" W, 700-750 m, on dead twigs of *Chamaecytisus proliferus*. Leg. et det. J. Hafellner, 16.12-1998. OBERMAYER, LICHENOTHECA GRAECENSIS FASC. 7-8, NR. 126.

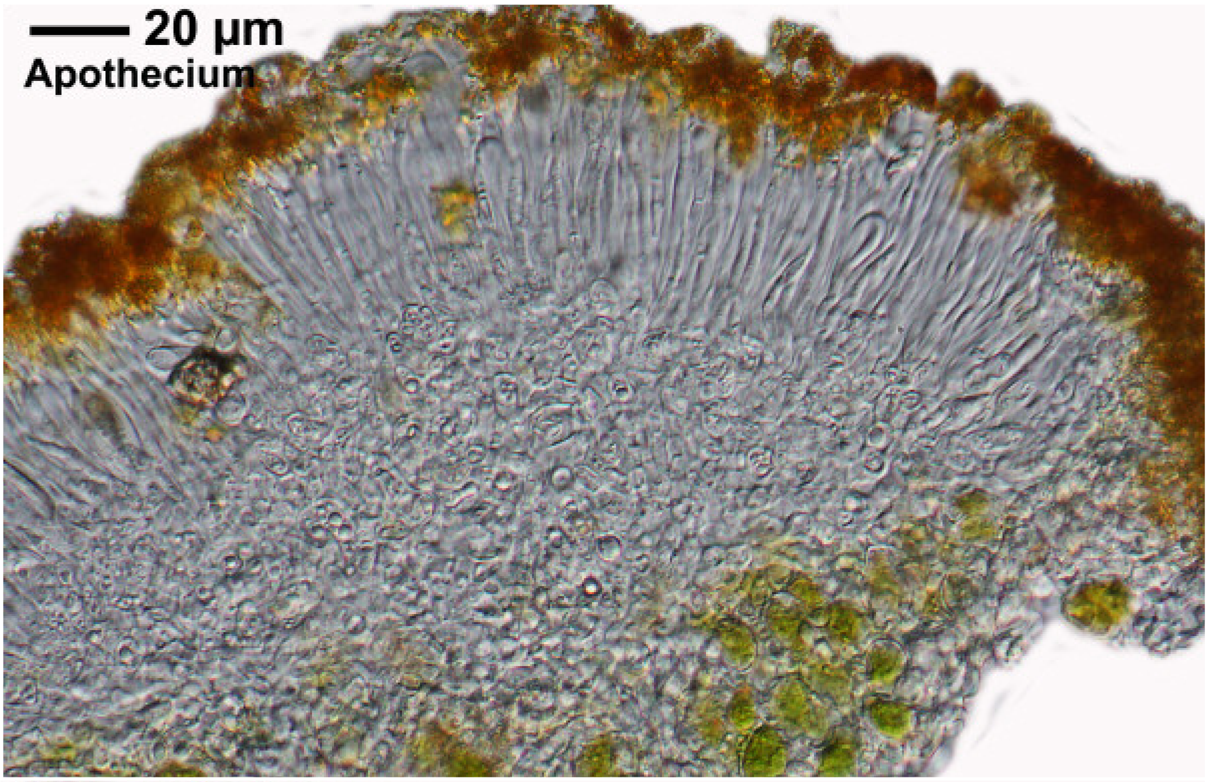
Caloplaca aegatica

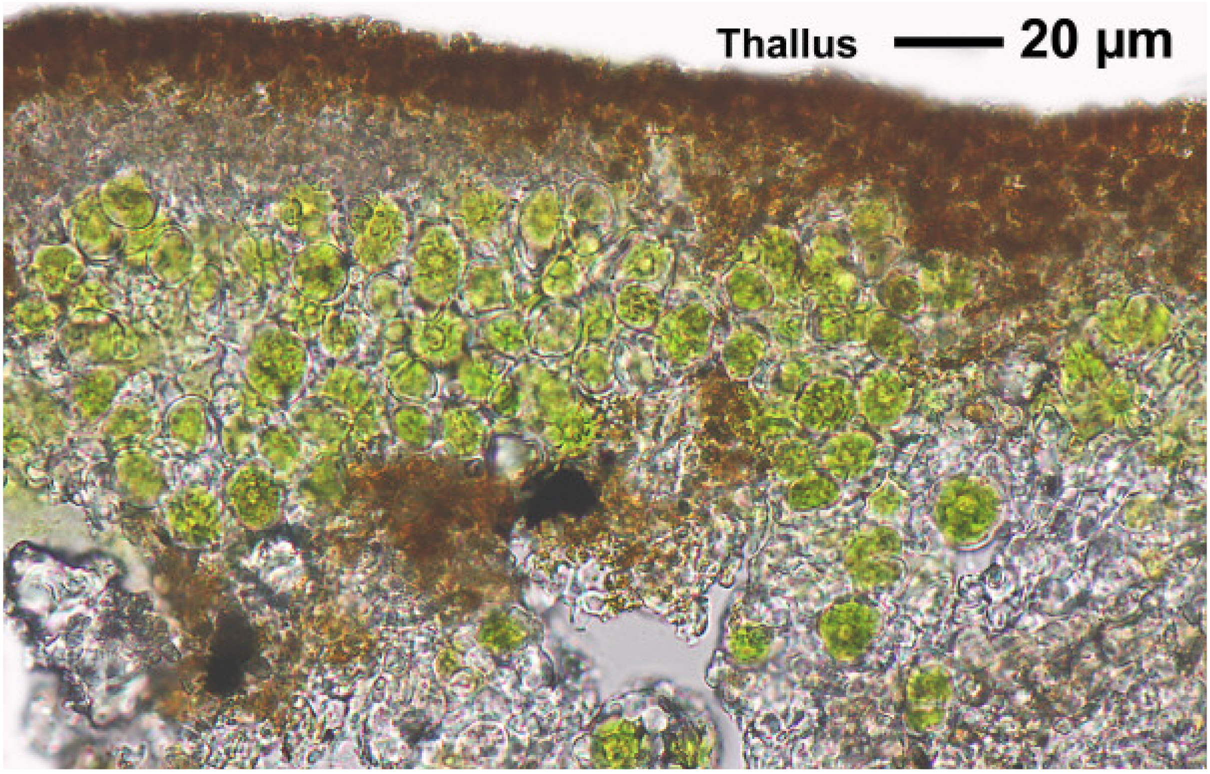
Caloplaca aequata (Nyl.) Zahlbr.
[= *Brownliella aequata* (Hue) S.Y. Kondr., Kärnefelt, Elix, A. Thell & Hur]
[= *Caloplaca brownlieae* S.Y. Kondr., Elix & Kärnefelt, in Lumbsch et al. Phytotaxa 18: 28 (2011)]

Thallus orange, rimose areolate. Areolae 0,5-0,8 mm wide, angulose in parts, flat to slightly wrinkled, partly blotchy whitish pruinose. Apothecia sessile to slightly immersed, margin of disc thin or dissolving into granules. Disc and margin of the same color as the thallus. Spores hyaline, 8/ascus, polarilocular, 10 x 4.6 µm, septum 3.3 µm long.

[16018], Australia, Australian Capital Territory, Black Mountains Reserve, 35.276° S, 149.094° E, 760 m. Leg. J.A. Elix, F. Schumm & E. Stocker-Wörgötter, 07.11.2009, det. J.A. Elix.



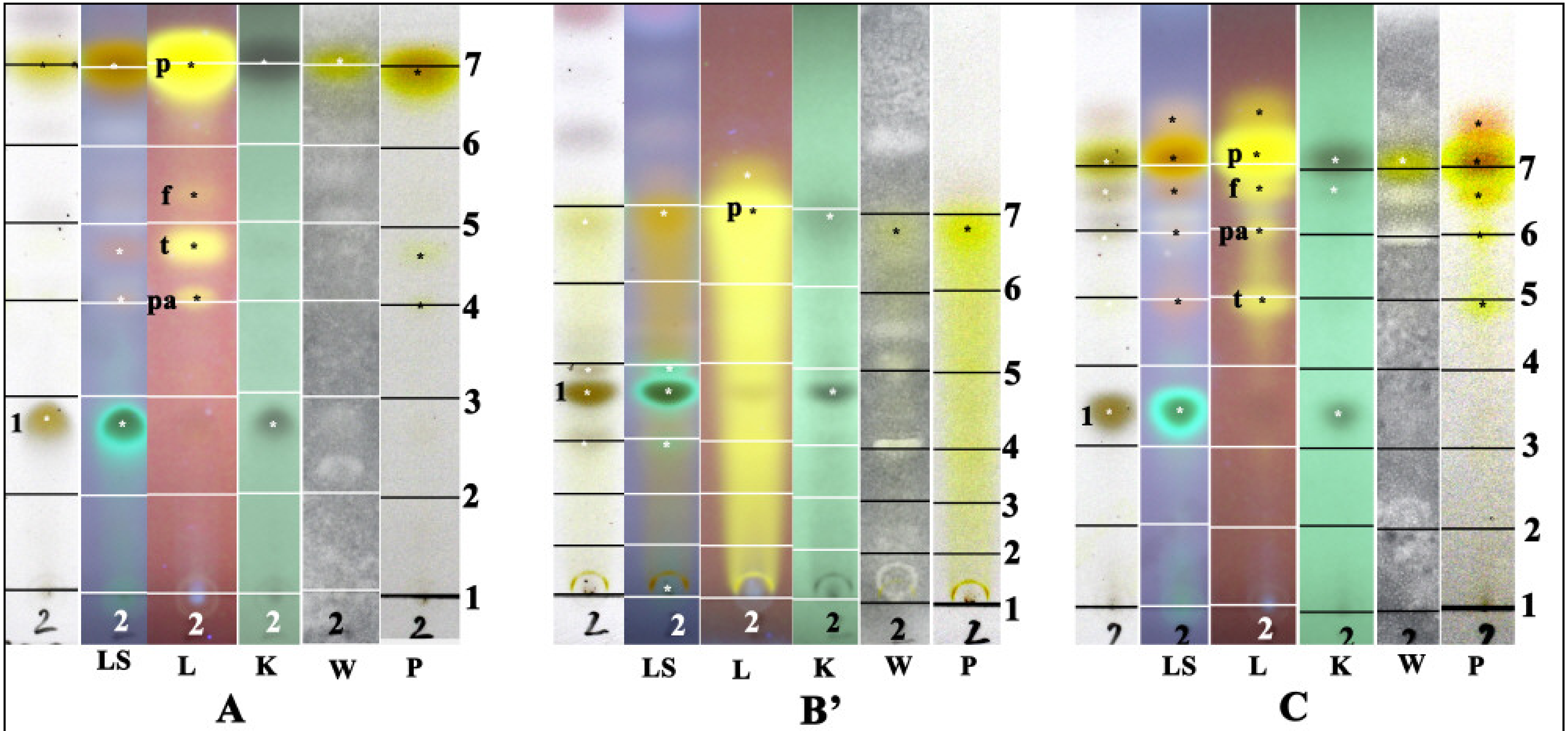




Caloplaca aequata

Caloplaca aequata

Caloplaca aequata



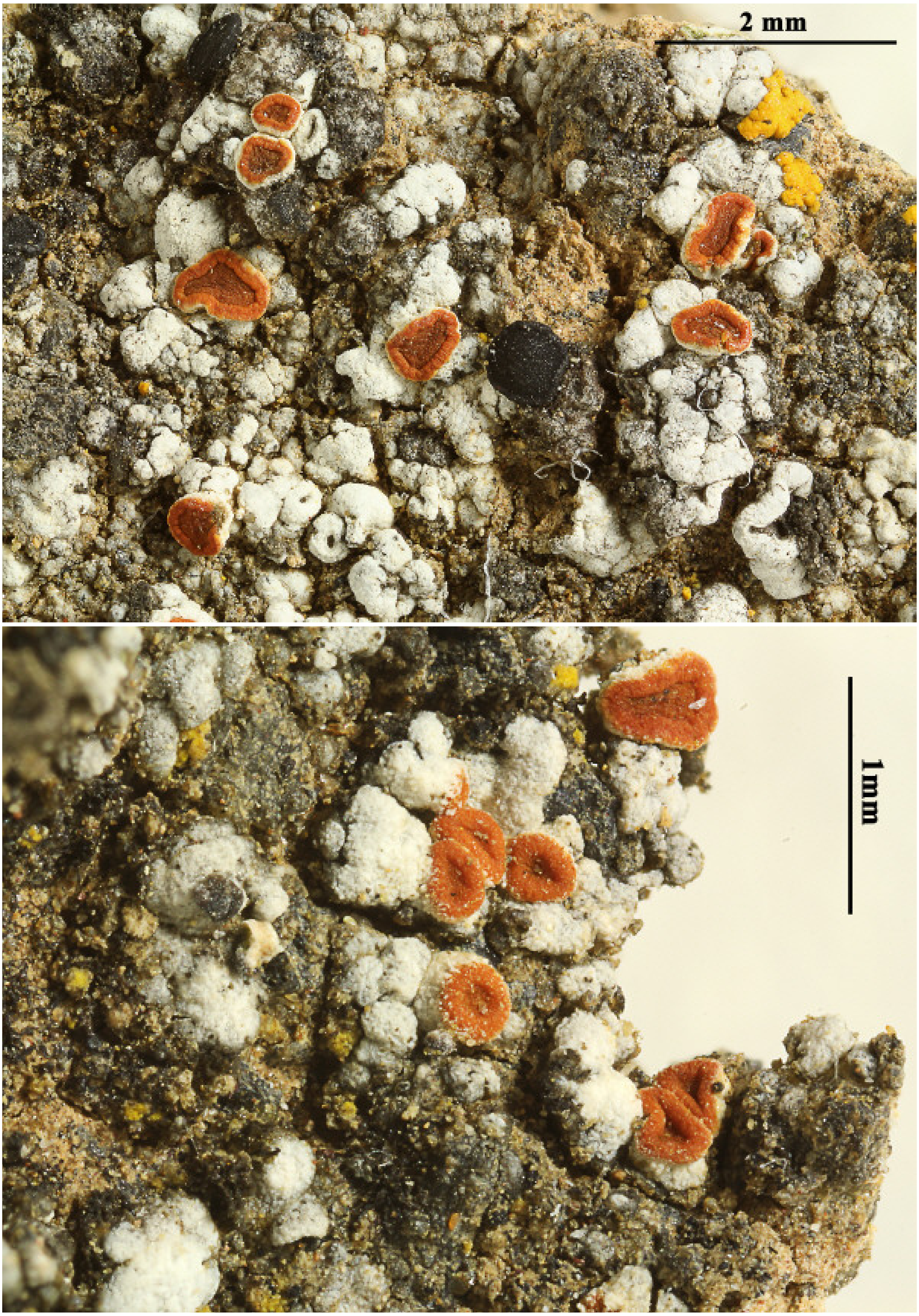
[16018], p330/2

p: parietin, pa: parietinic acid, f: fallacinal, t: teloschistin, 1: gyrophoric acid

Caloplaca aetnensis B.de Lesd.

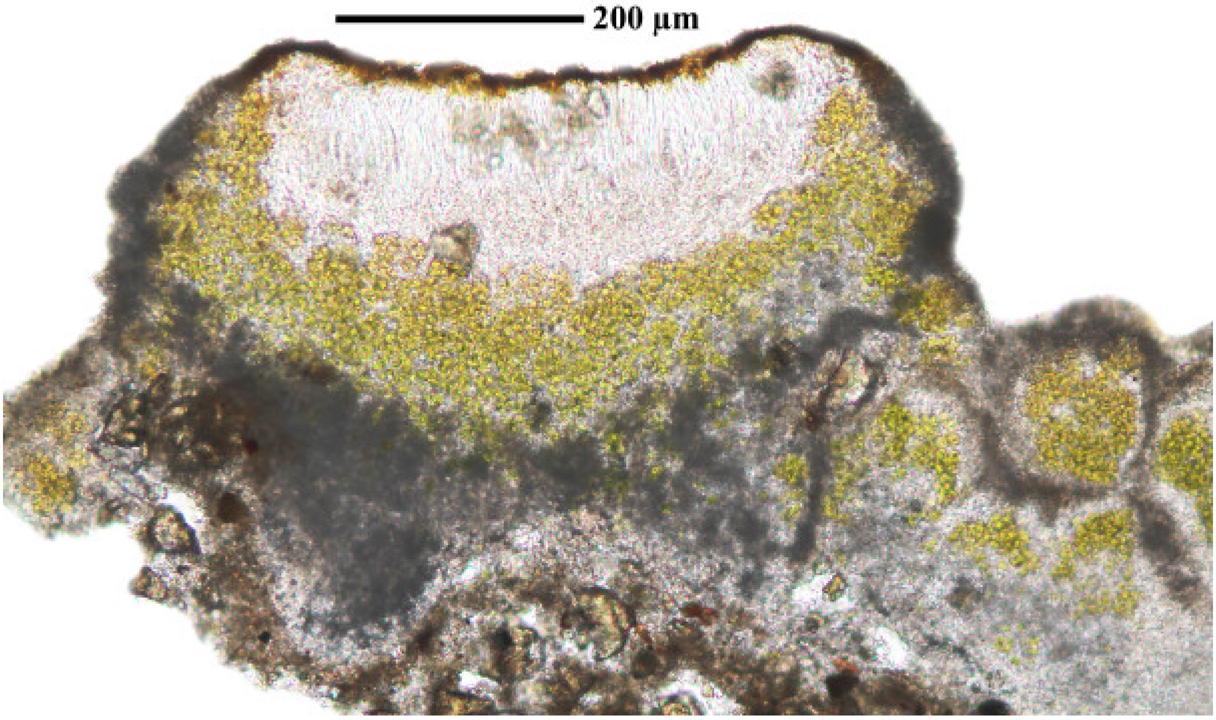
On non-calcareous rocks. Lit. Bouly de Lesdain, Bull. Soc. Bot. France 82: 317 (1935)

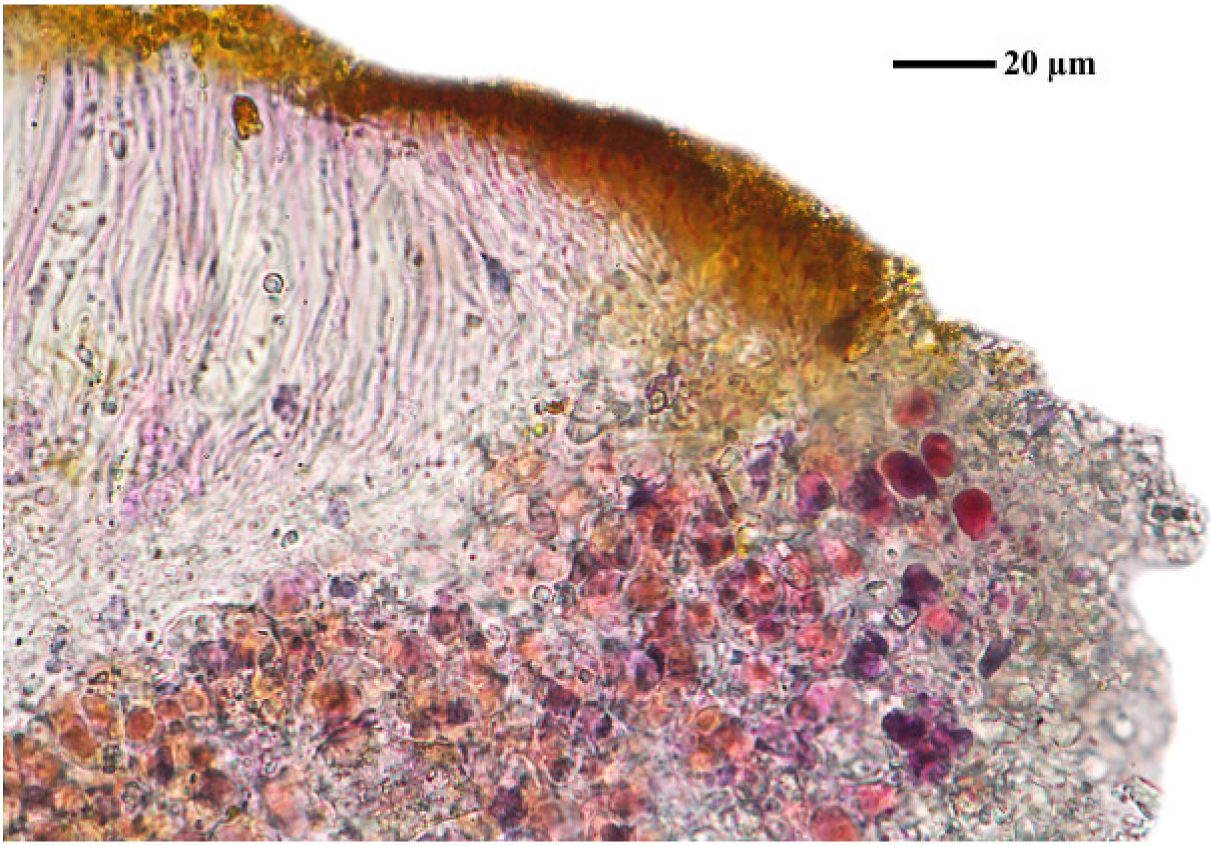
[19548], Italia, Pelagiae insulae, insula Limosa, in pede collis "Bandiera", alt. 25 m, ad saxa eruptiva mollia secus viam. Leg. Gloria Bolognini & J. Poelt, 16.04.1992. VĚZDA: LICHENES RARIORES EXSICCATI NR. 33.



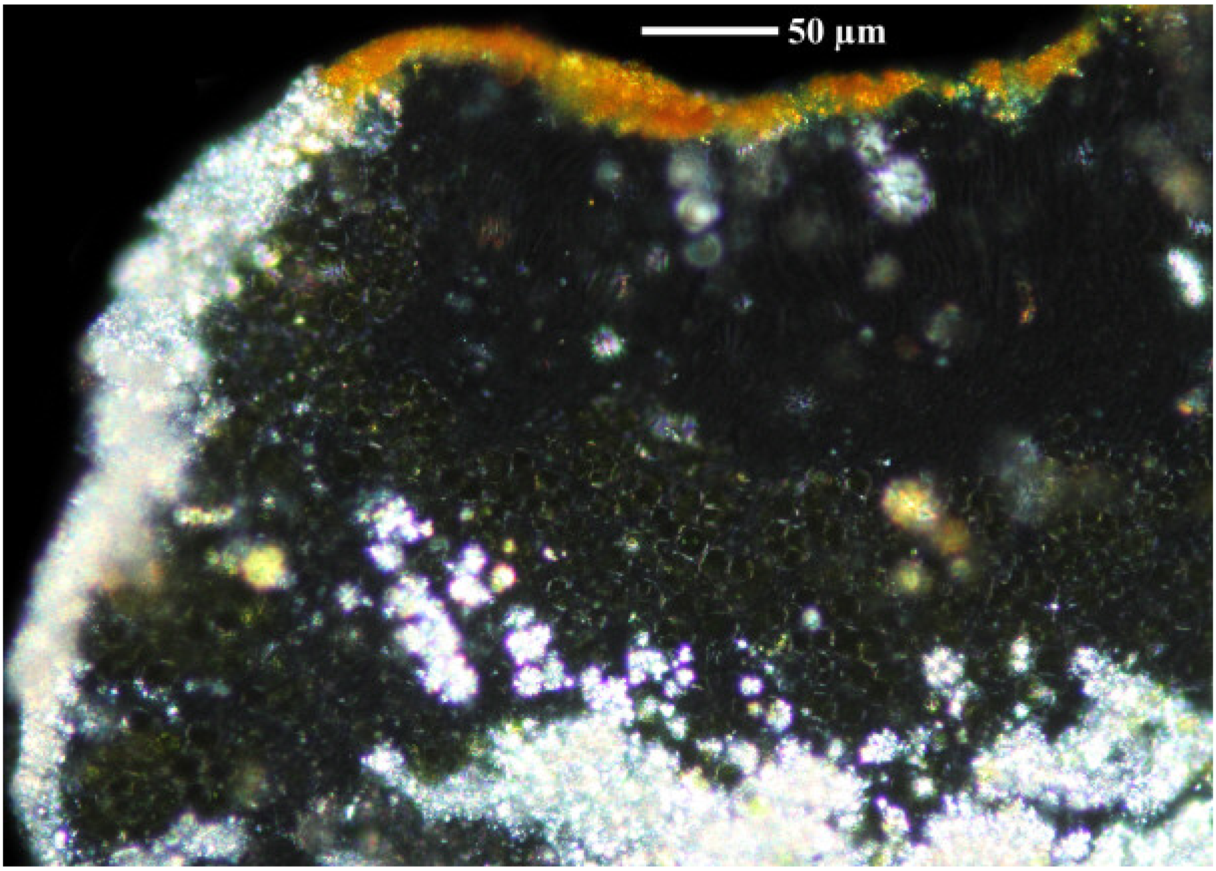
Caloplaca aetnensis

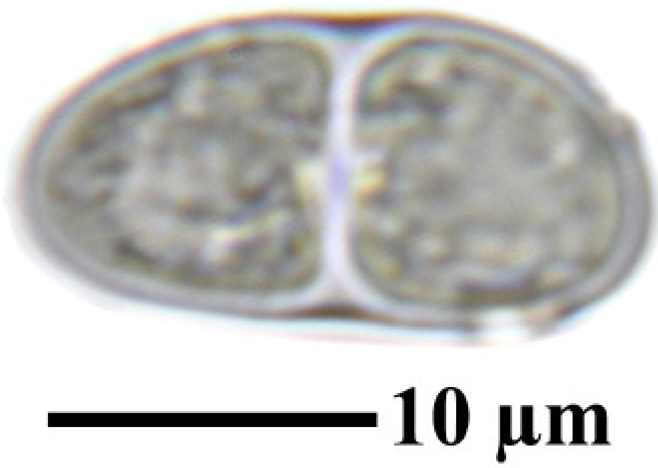
Caloplaca aetnensis





Caloplaca aetnensis



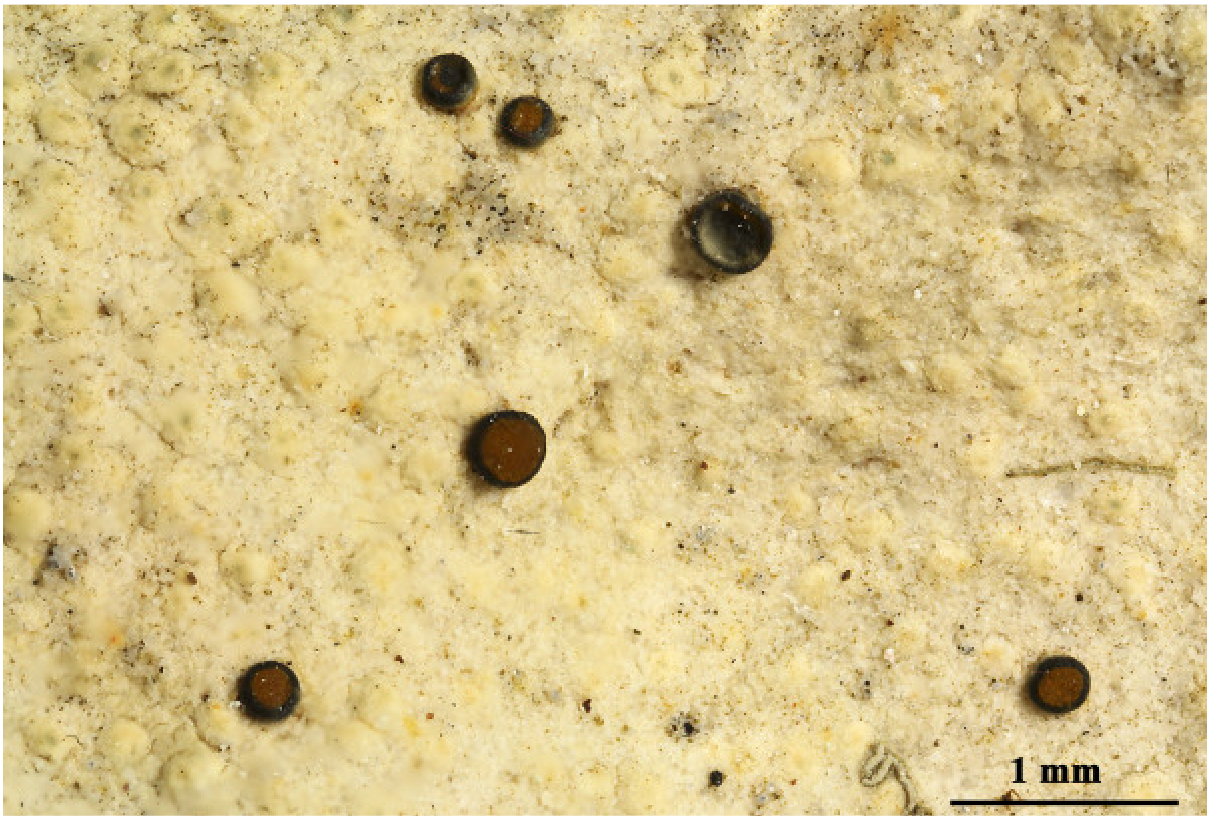


Caloplaca aetnensis

Caloplaca agrata (Vain.) Zahlbr.

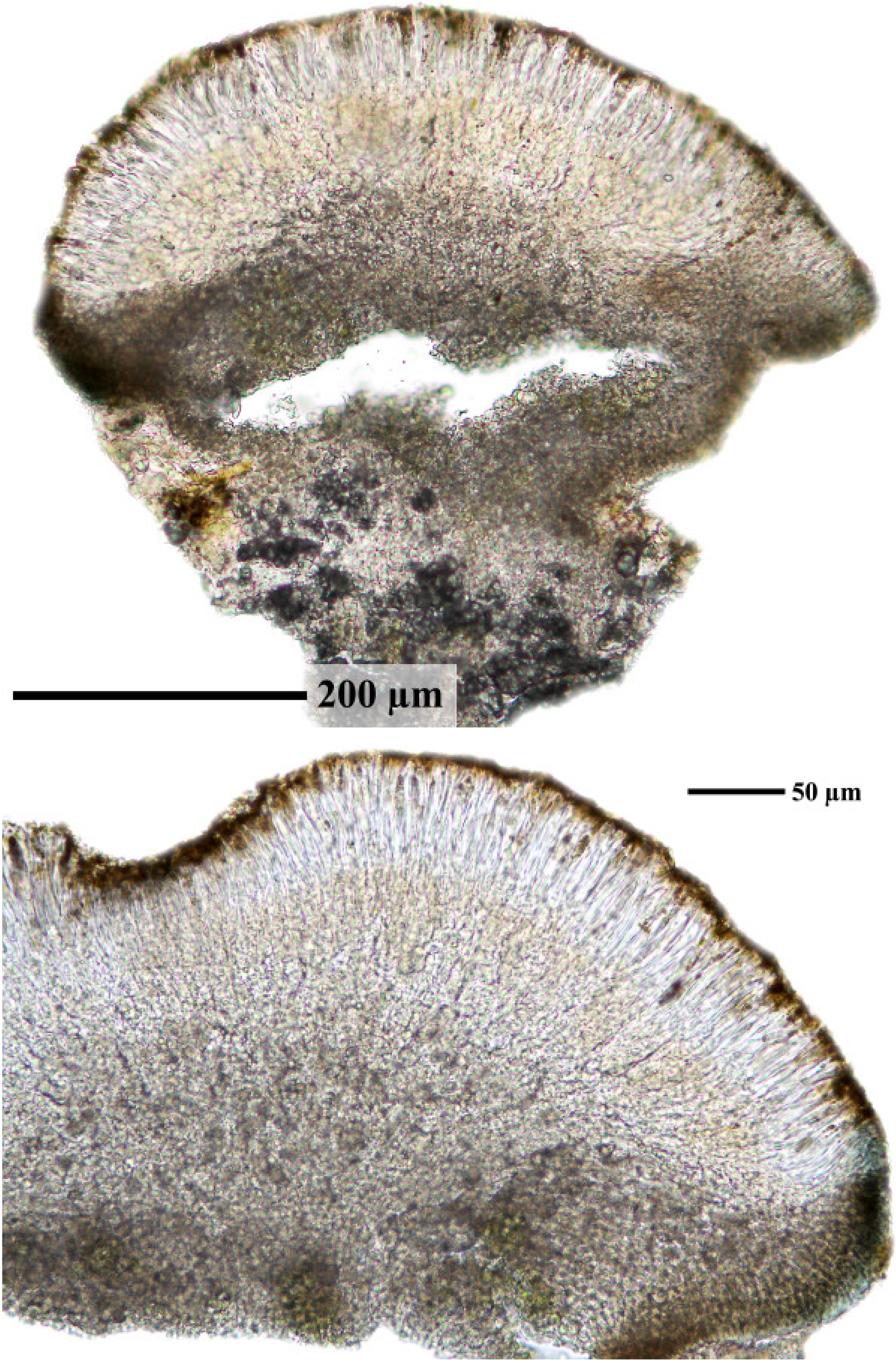
Spores, 8.8-10.5 x 3.7-5,1 µm, septum 4.7-5.1 µm, 8/ascus, hyalin.

[BR5030028195650], Puerto Rico, Distr. Ponce, Reserva forestal de Guanica, road 333, km 9.5 dry scub forest near Punto Ballena, on limestone. 18°57' N, 66°53' W, 5 m. Leg. A. & M. Aptroot (25828), 21-31. May 1989, det. A. Aptroot 1989.

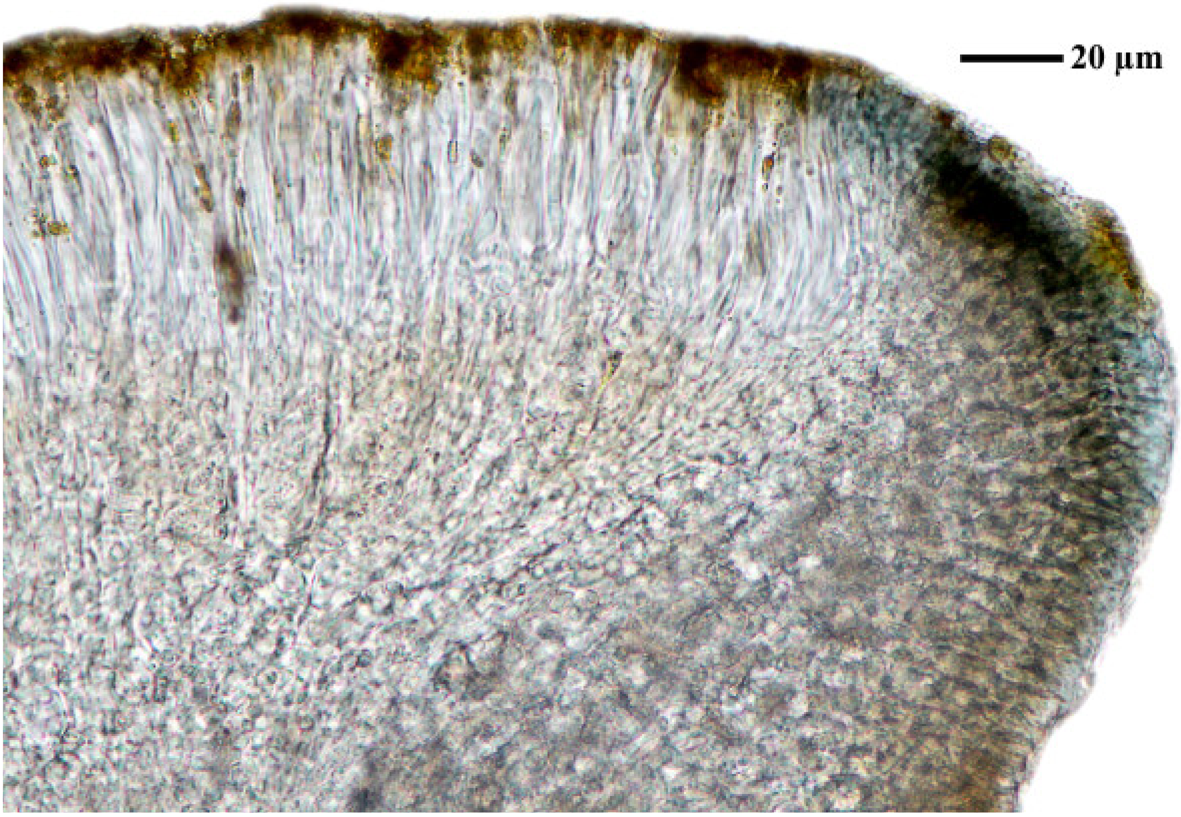


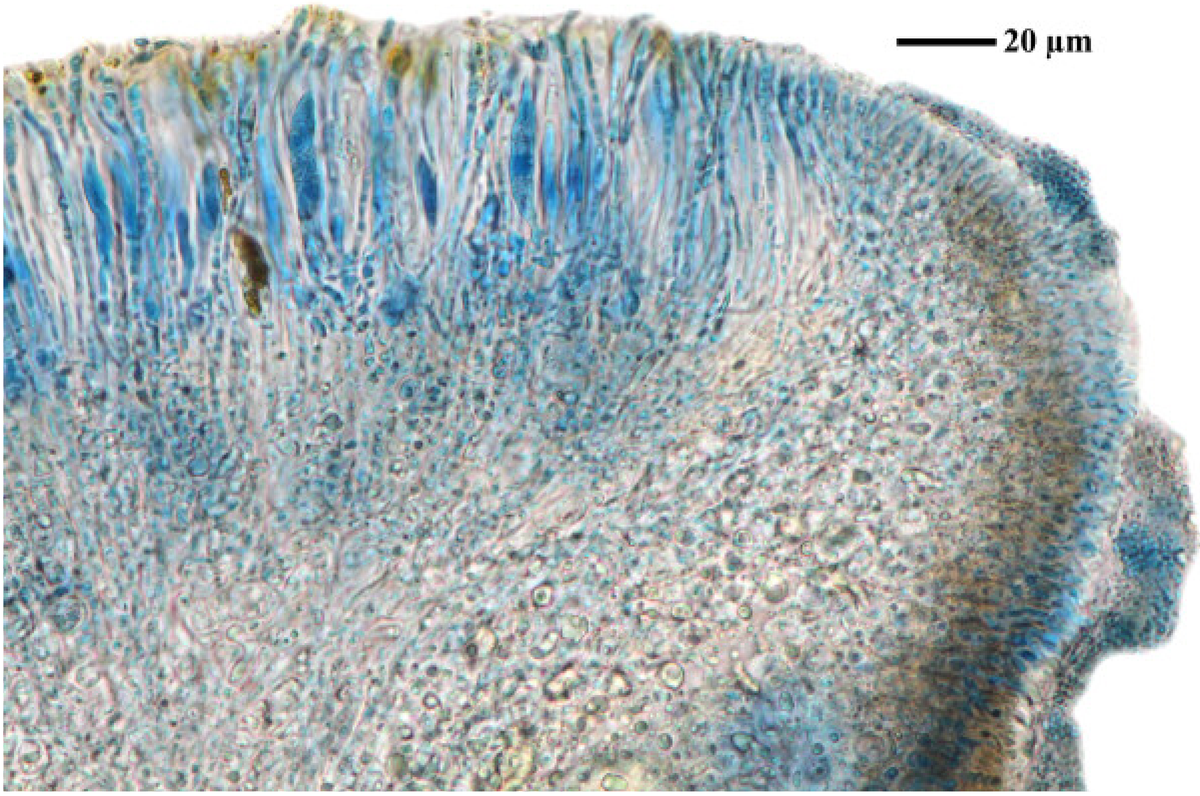
Caloplaca agrata

Caloplaca agrata

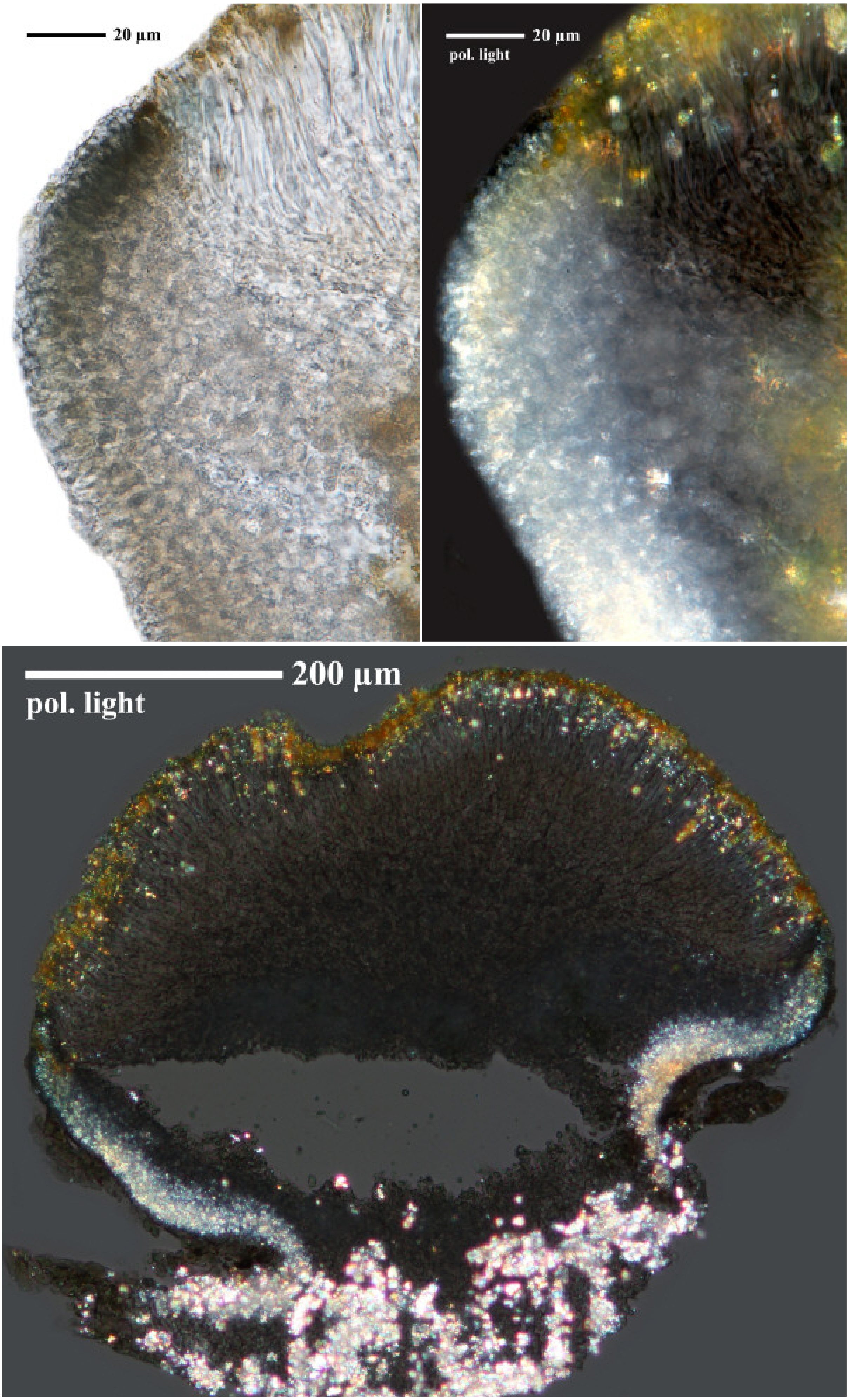


Caloplaca agrata

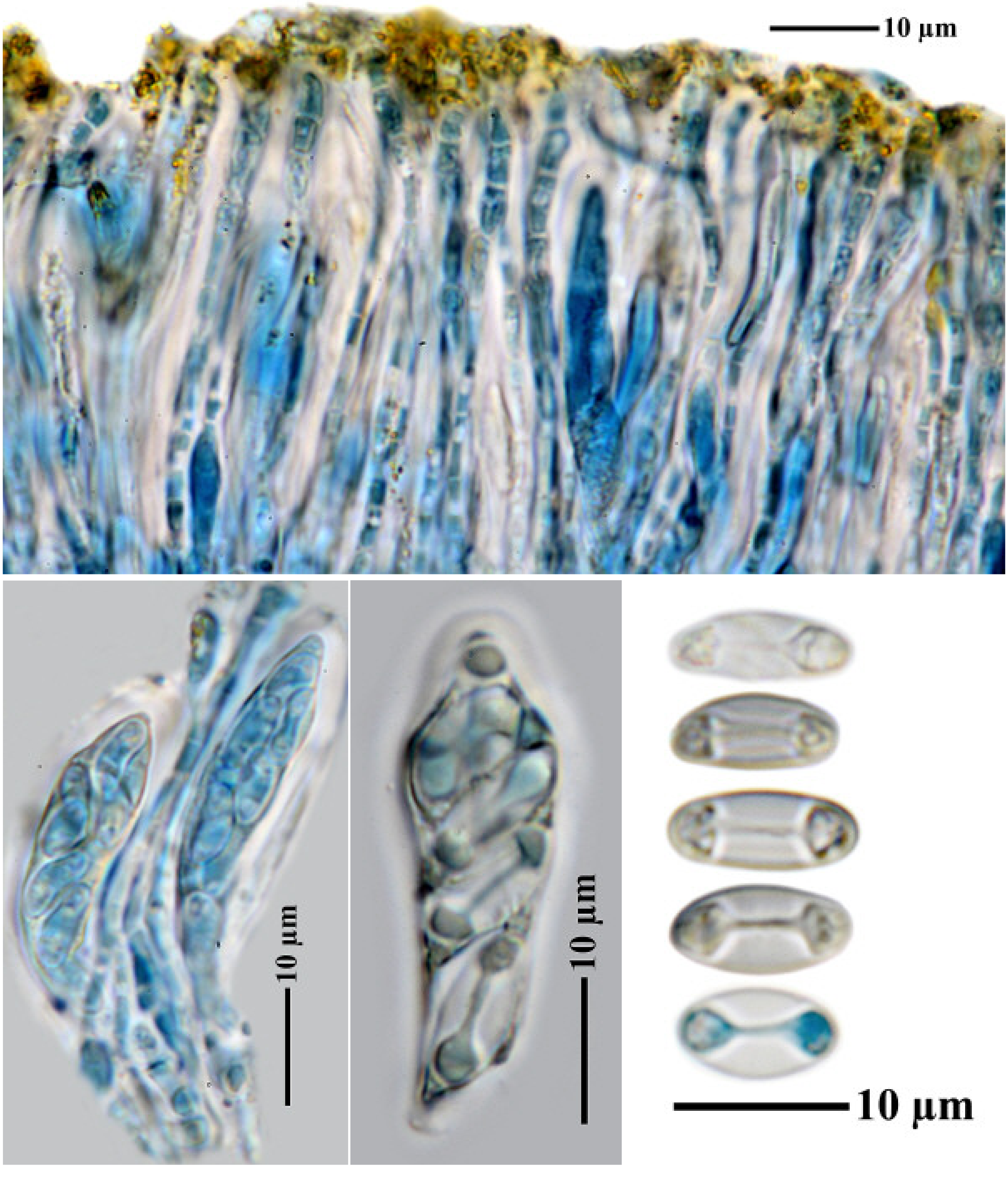




Caloplaca agrata



Caloplaca agrata

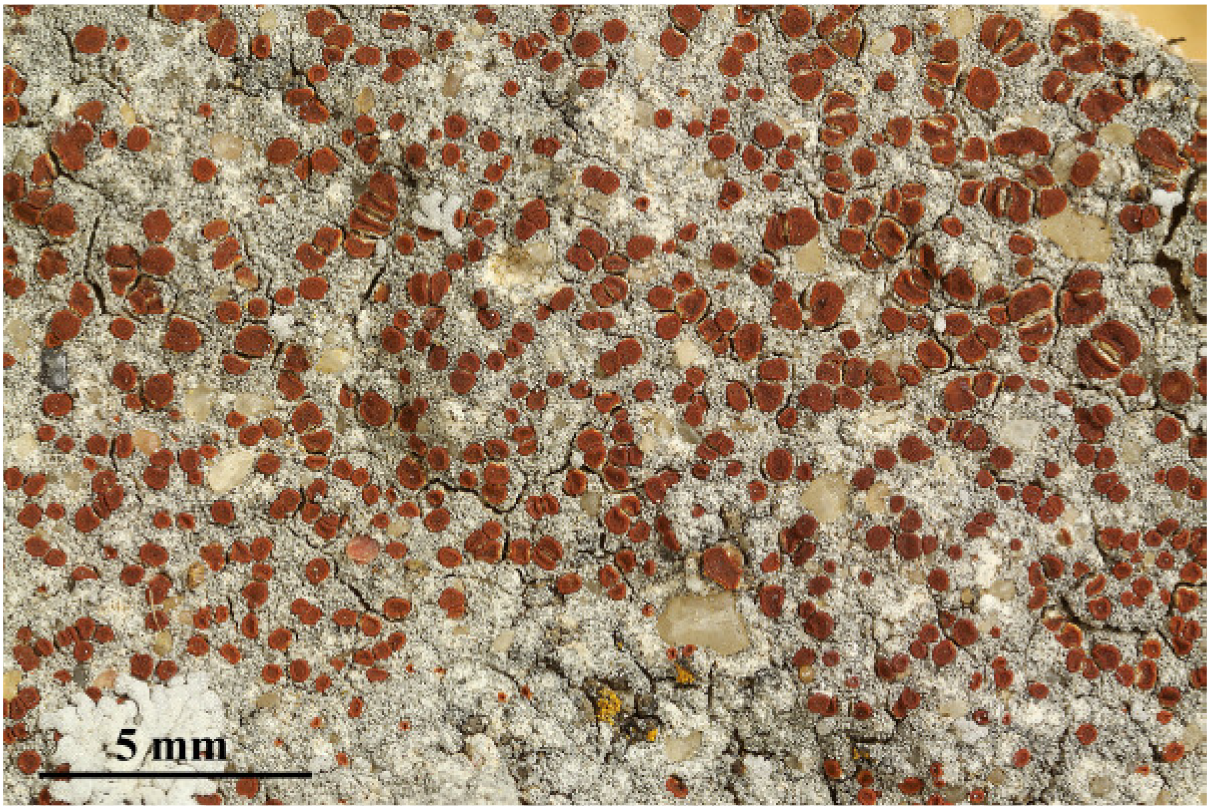


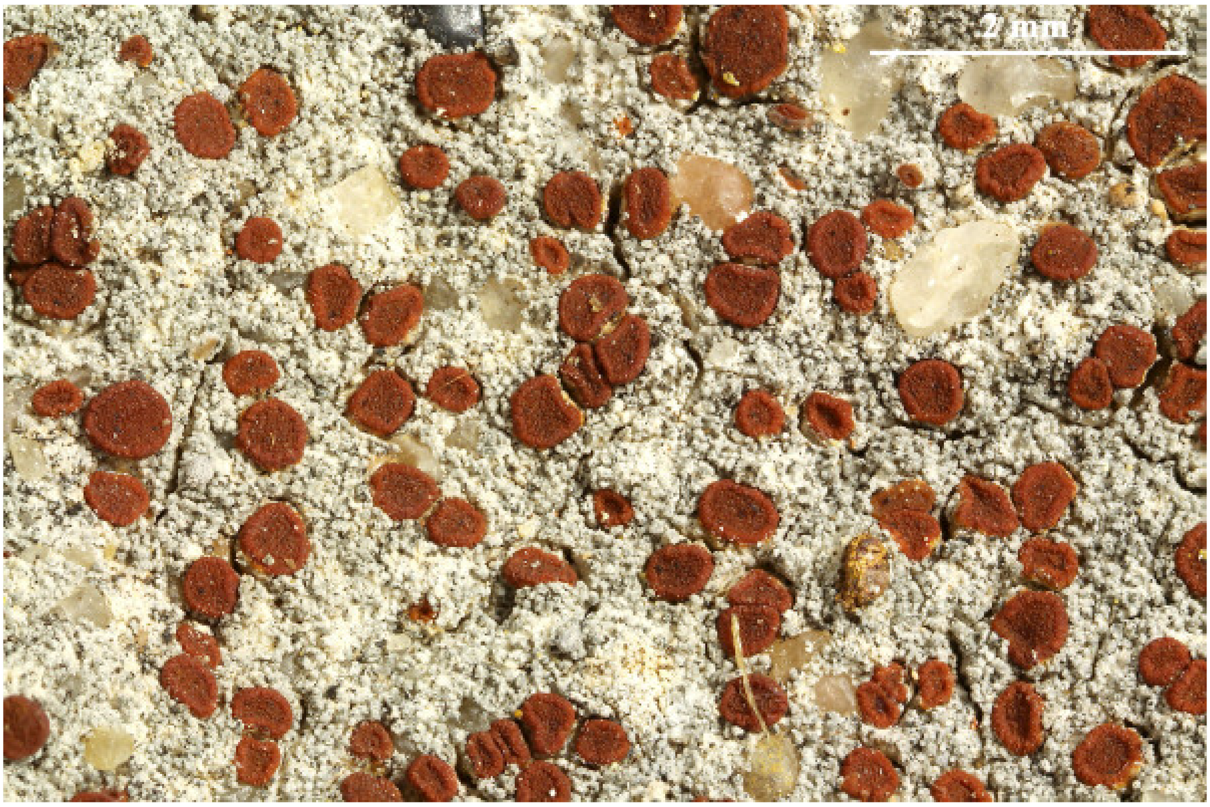
Caloplaca agrata

Caloplaca albolutescens (Nyl.) H. Olivier

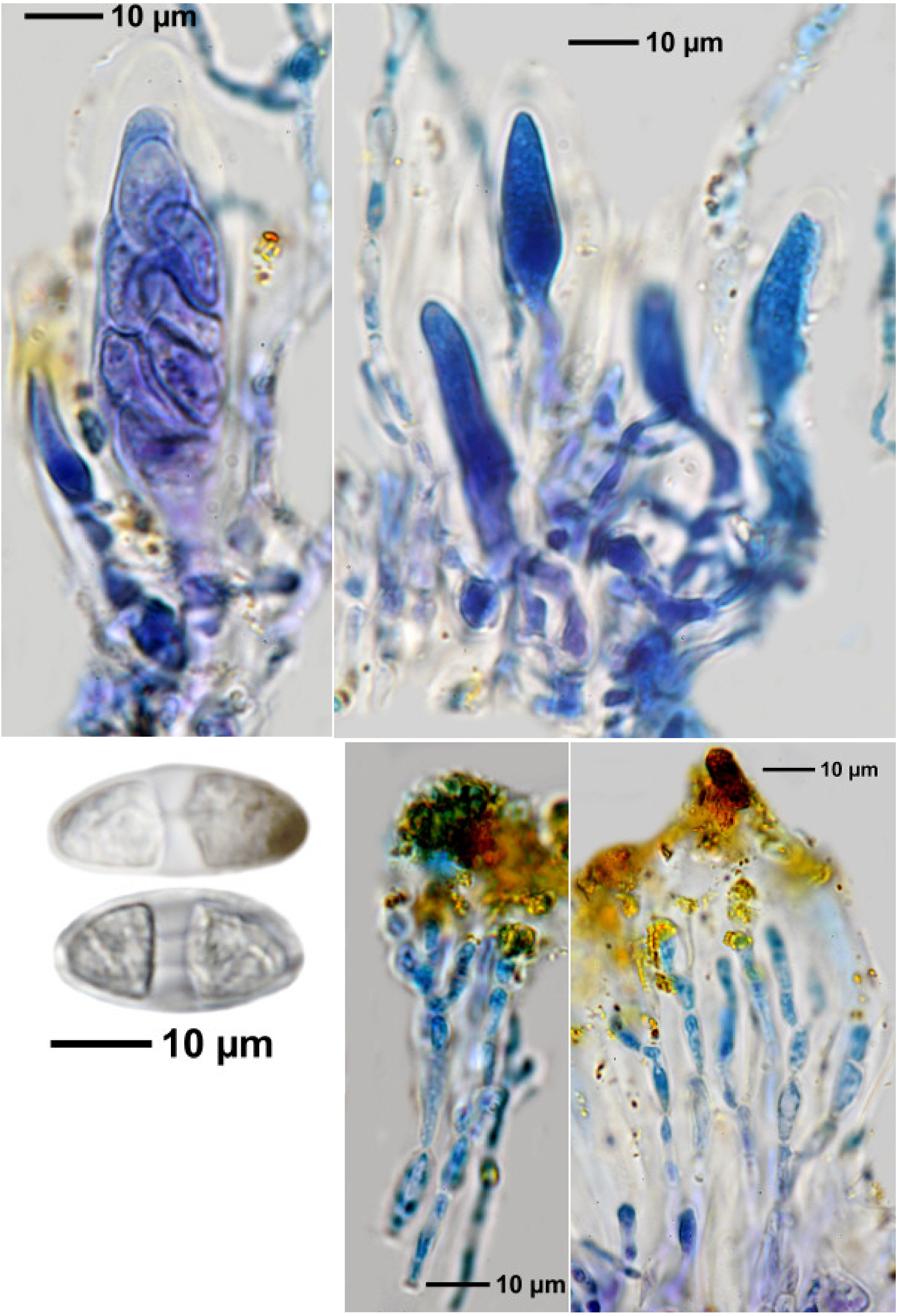
Spores polarilocular, hyaline, 8/ascus, 24-26 x 11-13 µm, septum 3.3-3.7 µm. On stone walls.

[19546], Tunesien, Karthago, an Mauern der Thermen des Antonius Pius. Leg. F. Schumm 11.03.1973, det. A. Aptroot 2016.





Caloplaca albolutescens



Caloplaca albolutescens

Caloplaca almbornii Kärnefelt

[BR5030035736402], South Africa, Natal, Bergville District, Royal Natal National Park, mountain path to Mont-aux-Sources from entrance gate at the end of mountain road from Phuthadijhaba, on sandstone rocks, 3000 m. Leg. et det. I, Kärnefelt (862620), 21. Jan. 1986. LICHENES AFRICANI NO. 103.

Caloplaca almbornii

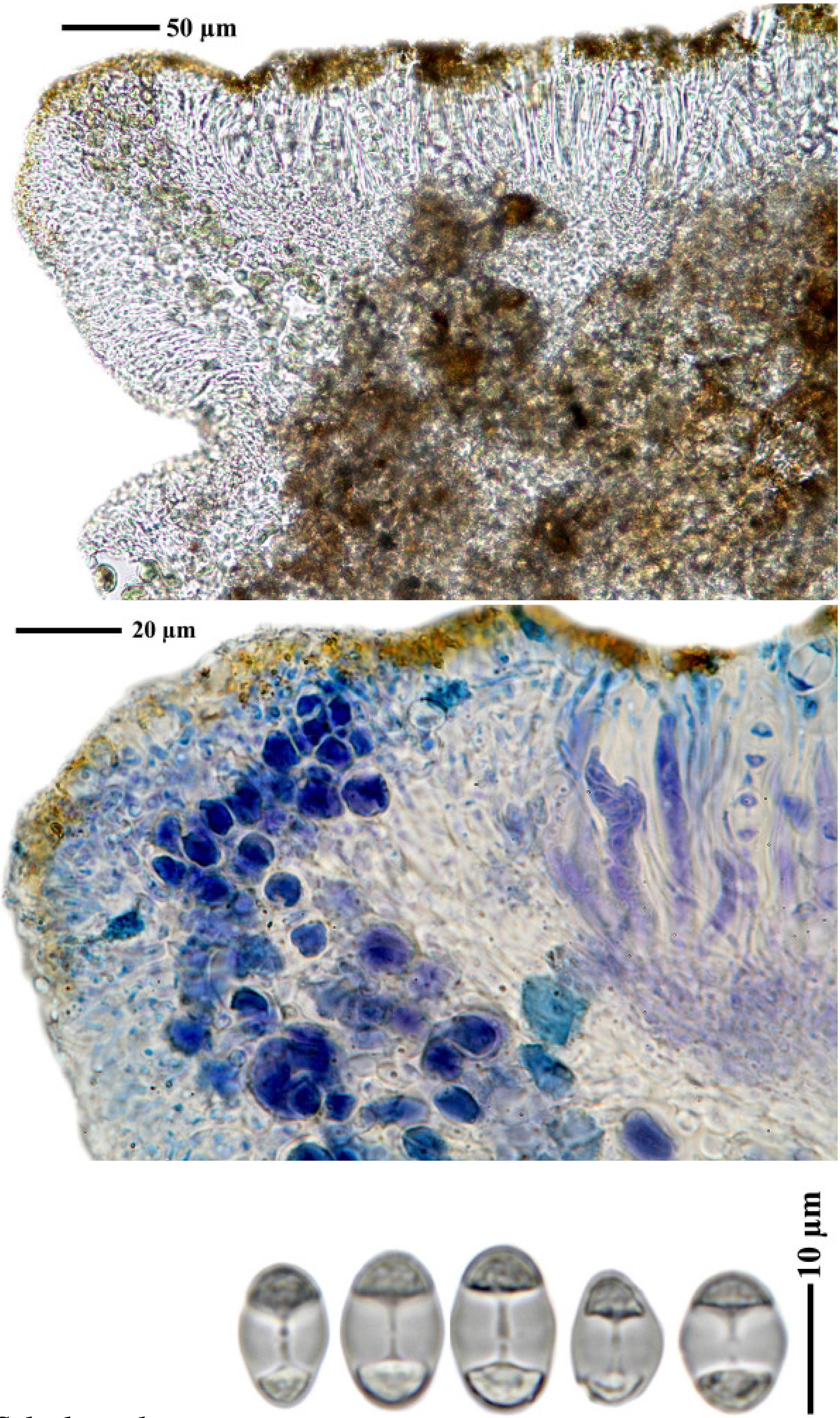
Caloplaca alnetorum Giralt, Nimis & Poelt
[= *Athallia alnetorum* (Giralt, Nimis & Poelt) Arup, Frödén & Søchting
]

Spores 11-12.5 x 6.5-8 µm, septum 5.3-5.9 µµ

[BR5030066882703], Cyprus, Zentrales Tróodos-Gebirge, Tródos, im Ort an Roibinien auf dem Kinderspielplatz, 1720 m. Leg. Schäfer-Verwimp & Verwimp (22876/A), 26. Mai 2002, det. A. Aptroot.

Caloplaca alnetorum

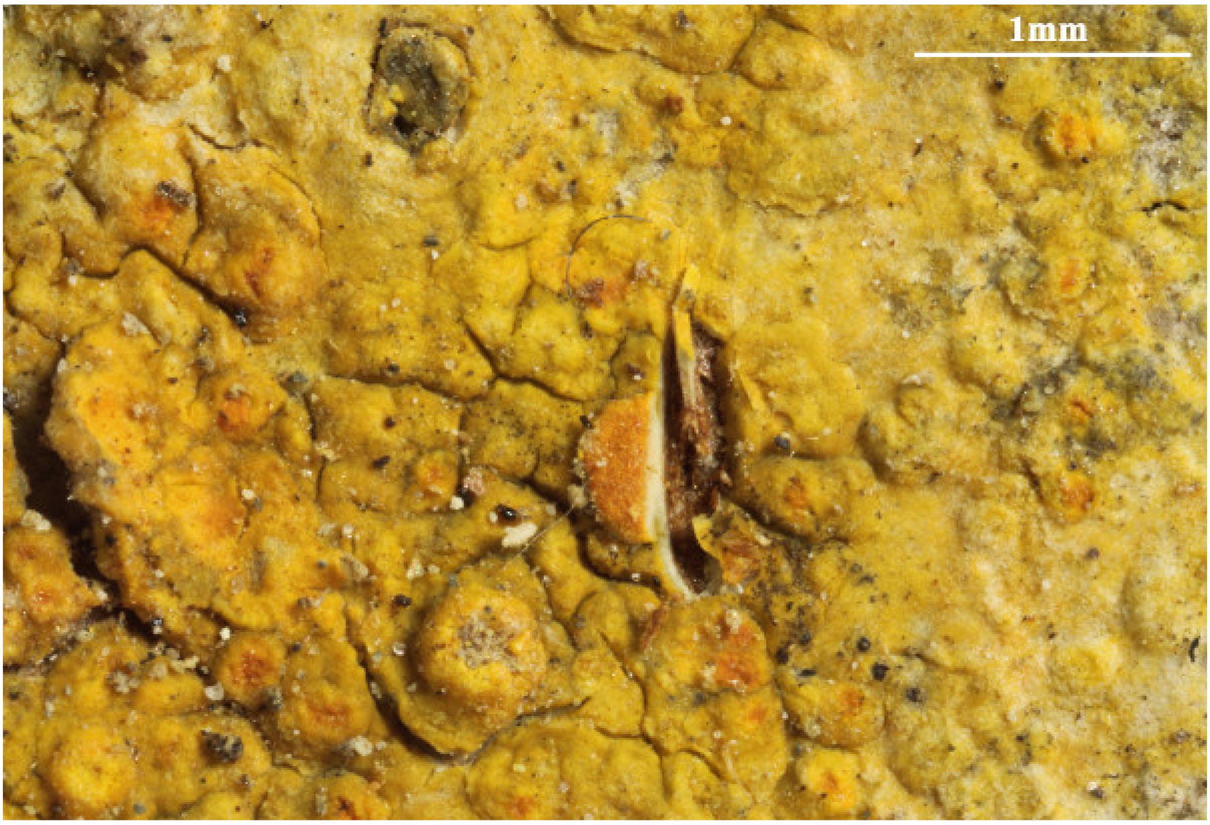
Caloplaca alnetorum



Caloplaca alnetorum

Caloplaca alnetorum Giralt, Nimis & Poelt, Cryptog. Bryol.-Lichénol. 13(3): 269 (1992)
[= *Athallia alnetorum* (Giralt, Nimis & Poelt) Arup, Frödén & Søchting , Nordic Jl Bot. 31(1): 36 (2013)]

[TSB_36979], Italy, Tuscany, Passo dell'Abetone along the road, loc. La Regina, c. 1350 m. Leg. M. Tretiach, 31.05.2002.



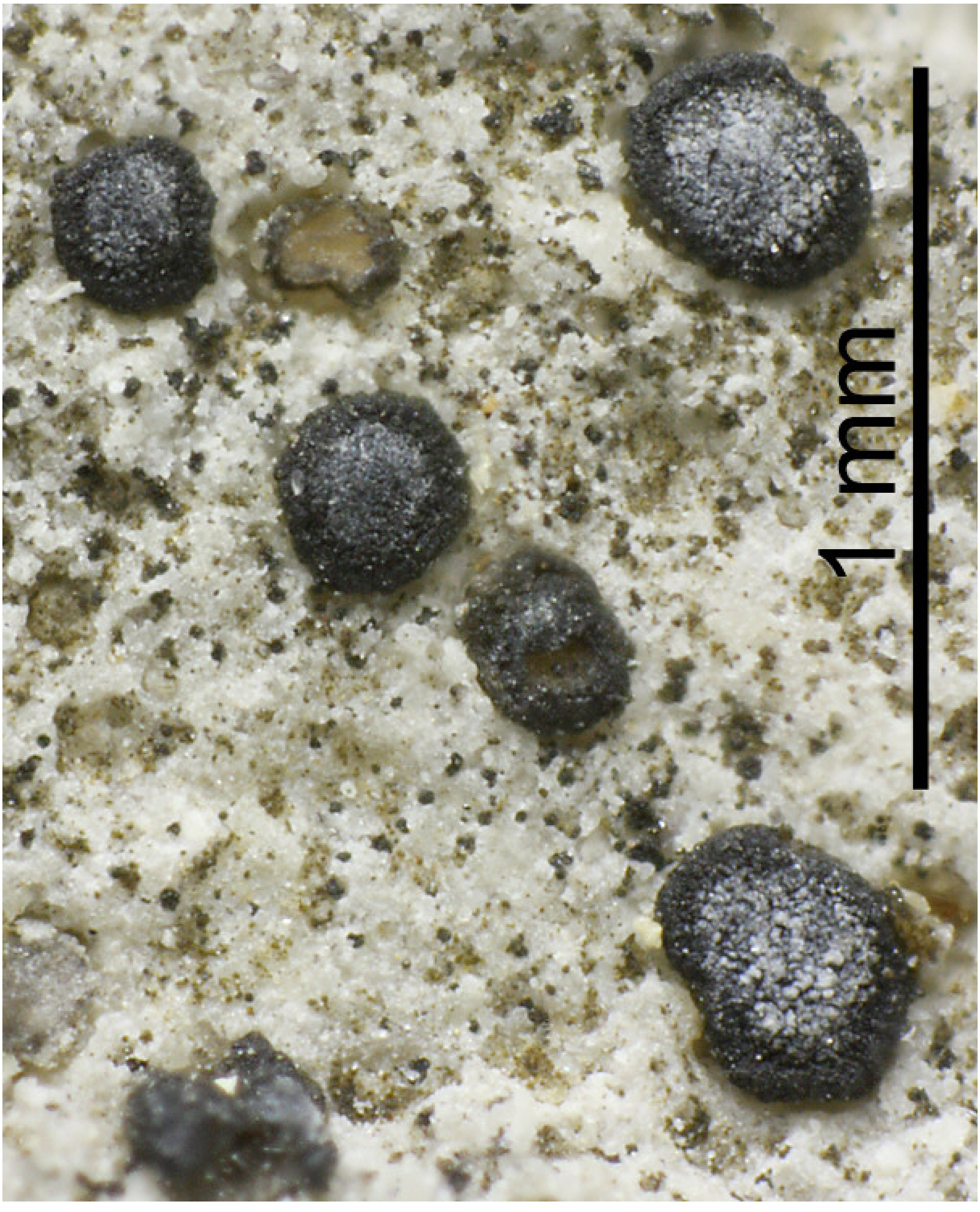
Caloplaca alnetorum

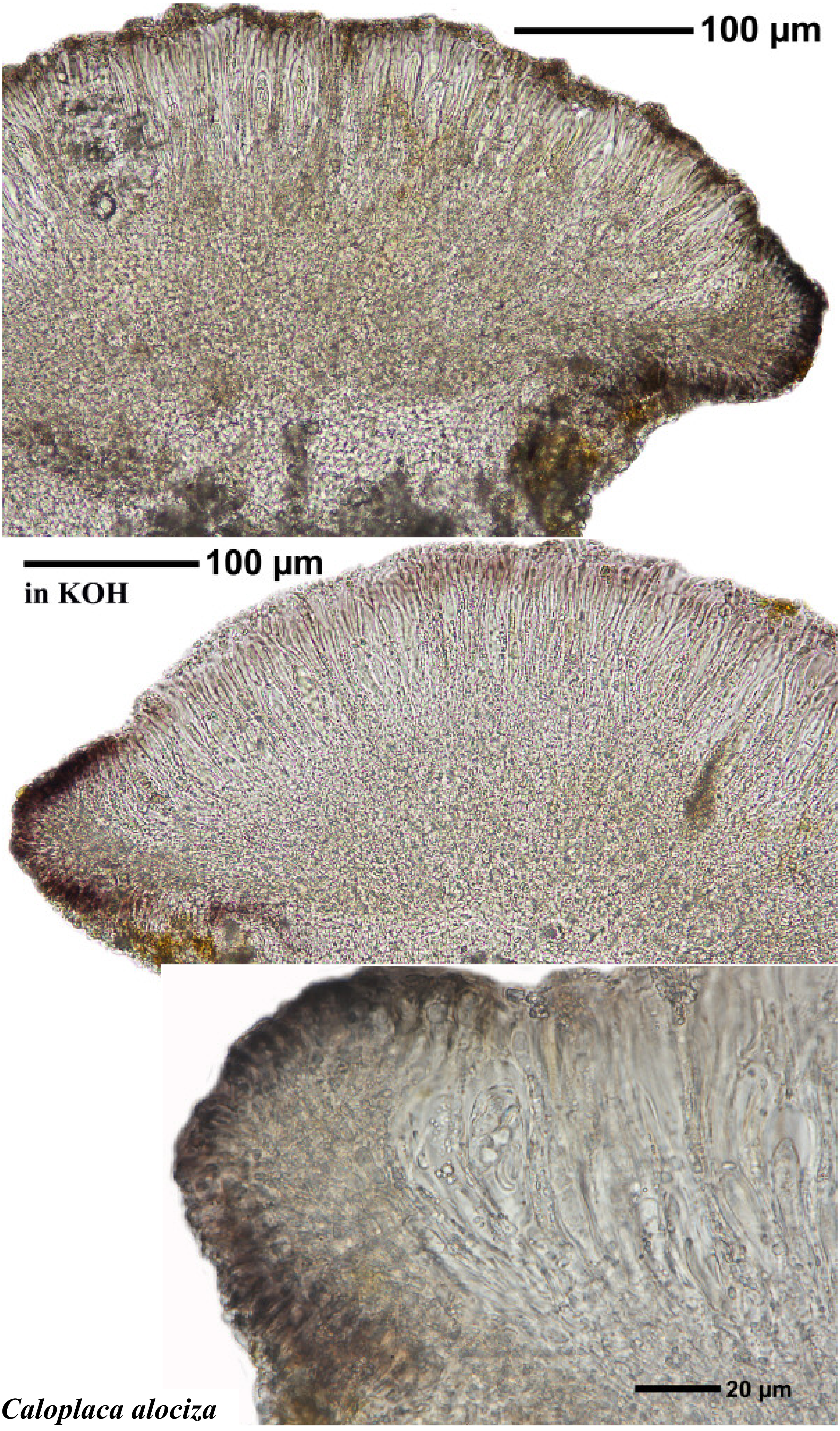
Caloplaca alnetorum

Caloplaca alociza (A.Massal.) Migula

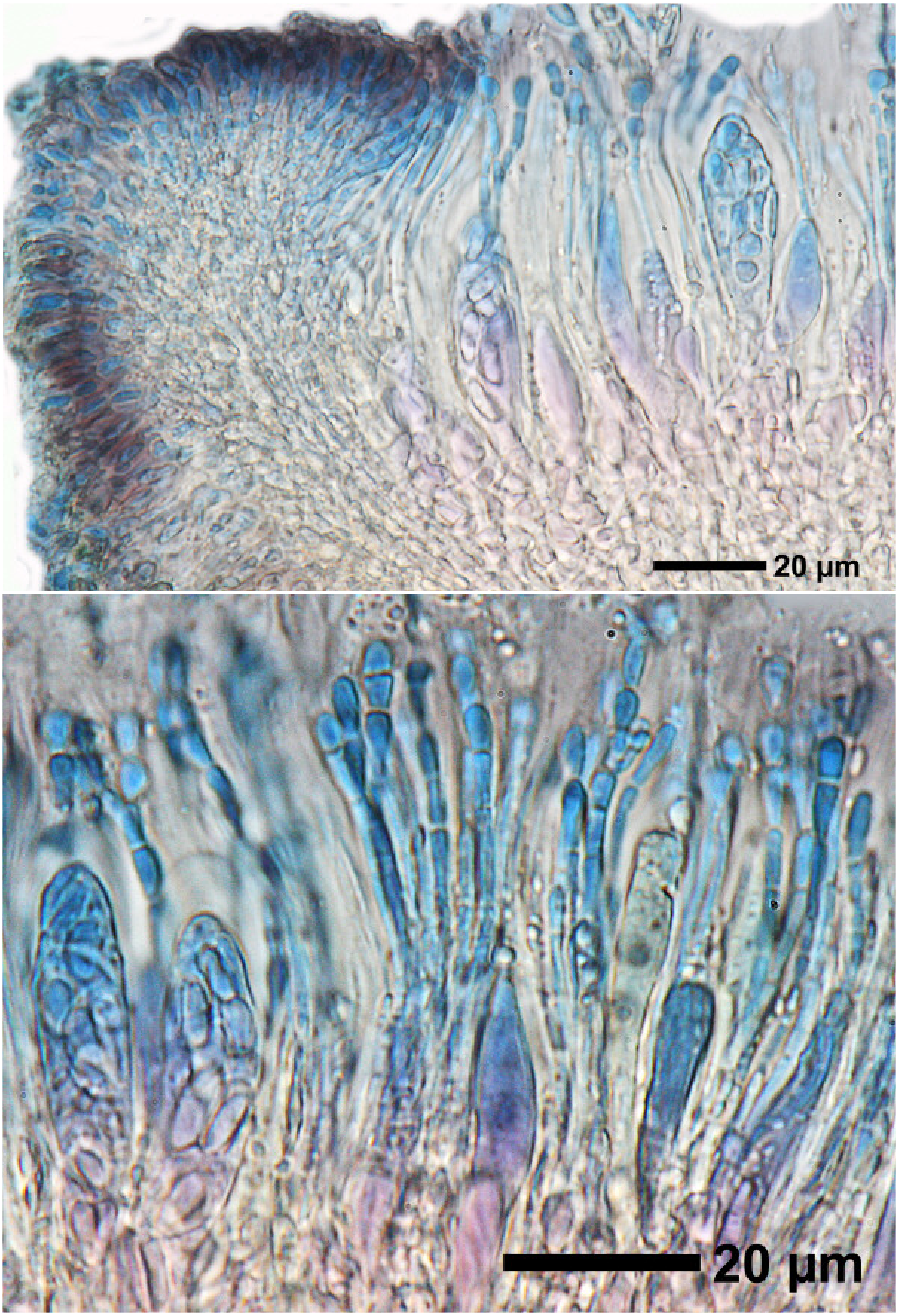
Thallus endolithisch, Apothecien schwarz, 0,2-0,6 mm, Scheiben ± weiß bereift, flach oder gewölbt, mit sehr dünnem oder fehlendem Eigenrand. Epithecium grau mit K+ violett. Sporen polar-2-zellig, hyalin, 11-21 x 6-11 µm, Septum 2-6 µm. Lit. Wunder 1974.

[2193], Jugoslavien, Sibenik, auf sonnigem Kalkgeröll bei Jadrija. Leg .et det. Schumm 1970, test. H. Wunder 1973. Auch auf der Schwäb. Alb vorkommend.

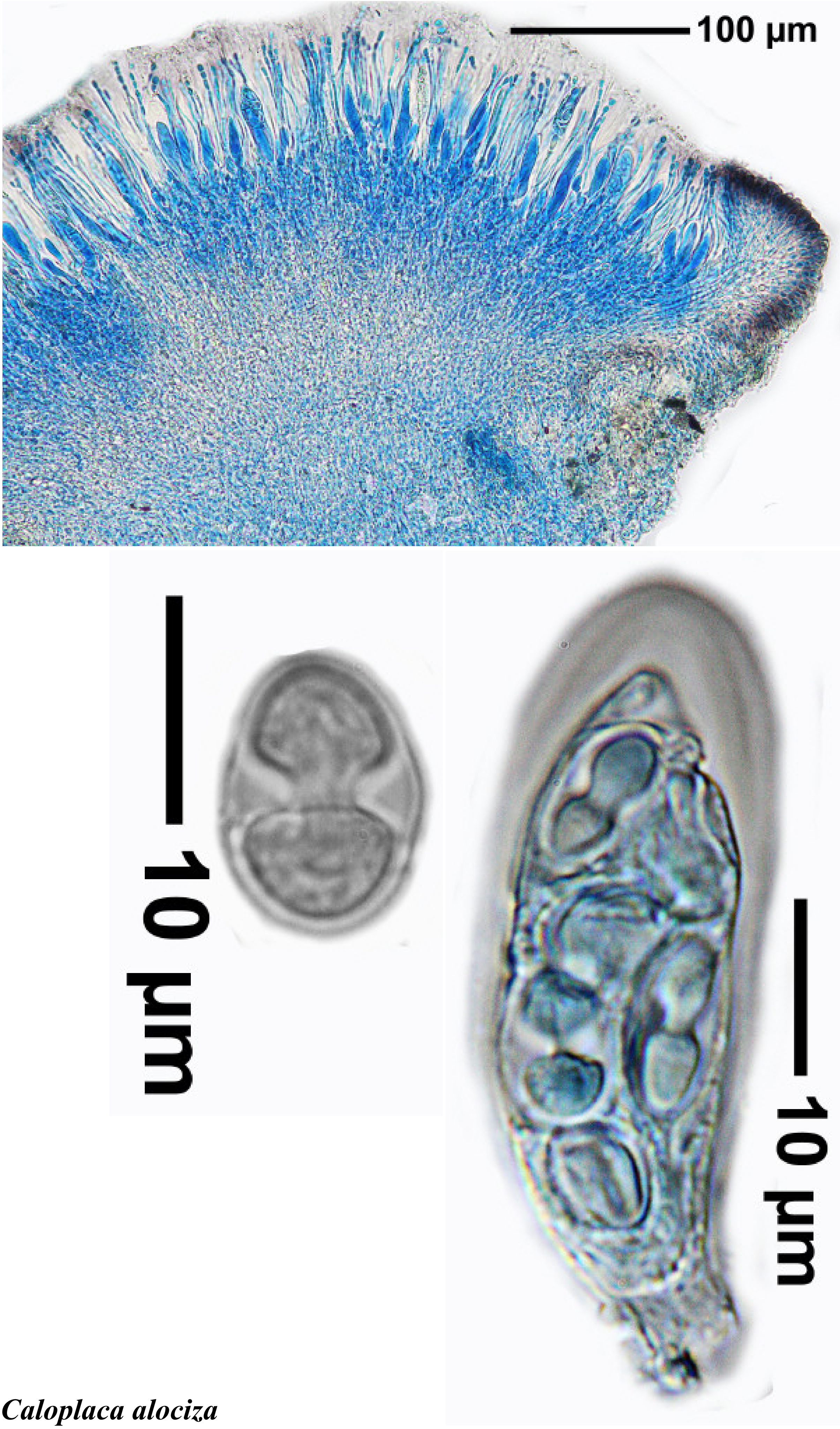




Caloplaca alociza



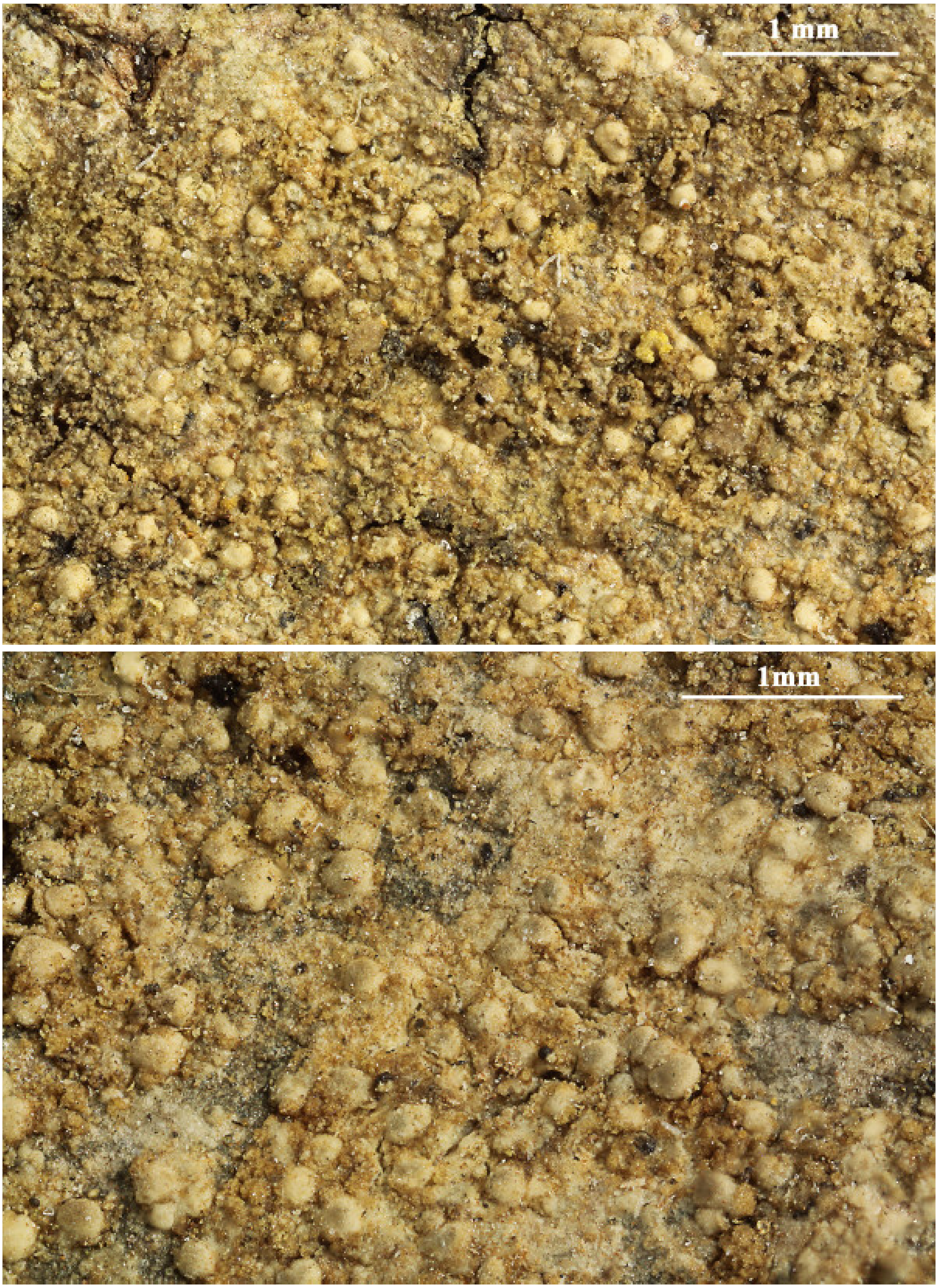
Caloplaca alociza



Caloplaca alociza

Caloplaca alstrupii Søchting

[BR5030035741451], The Netherlands, Prov. Noord-Holland, Wadden Sea Island Texel, Hooge Berg between Qudeschild and Den Burg; on semi-exposed *Acer pseudoplatanus* at margin of forest. 53°02' N, 4°49' E. Leg. A. Aptroot (15960), 20.03.1986, det. A. Aptroot 2000



Caloplaca alstrupii

Caloplaca alstrupii Søchting

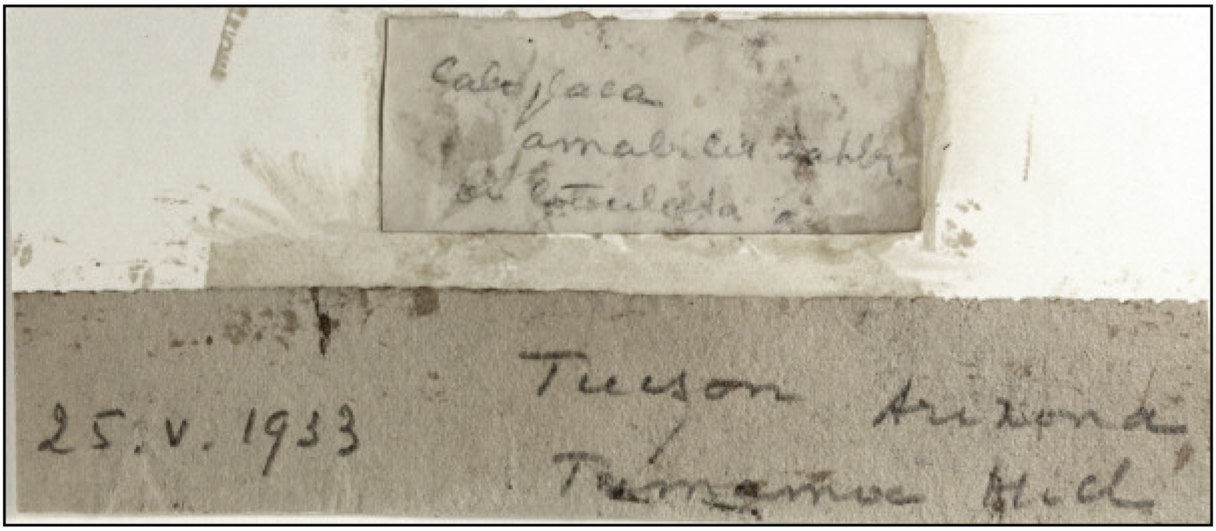
Thallus sterile, P-, C-, K-, KC-; algae green 10 µm diam.

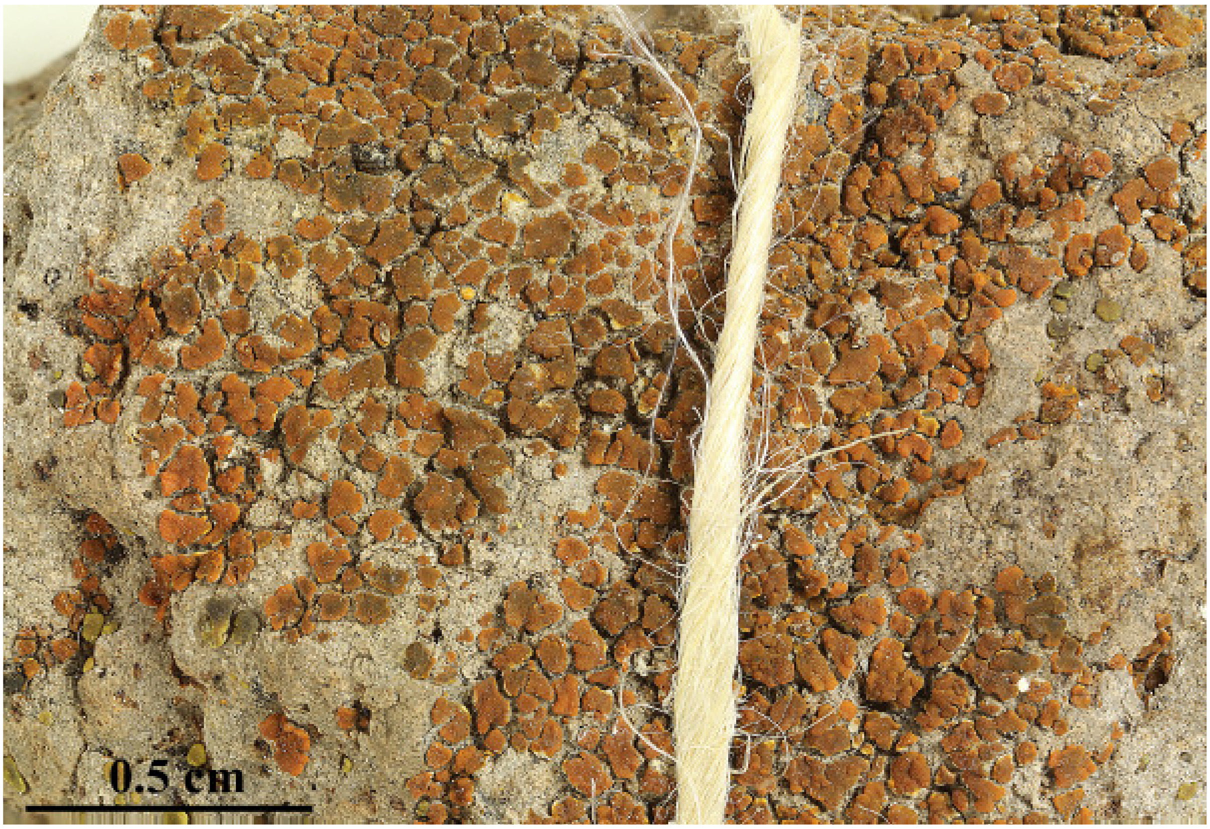
[BR5030035747514], The Netherlands, Prov. Noord-Holland, Texel, Hooge Berg, on *Acer*. Leg. A. Aptroot (15960), 20.03.1986, det. A. Aptroot 2000

Caloplaca alstrupii

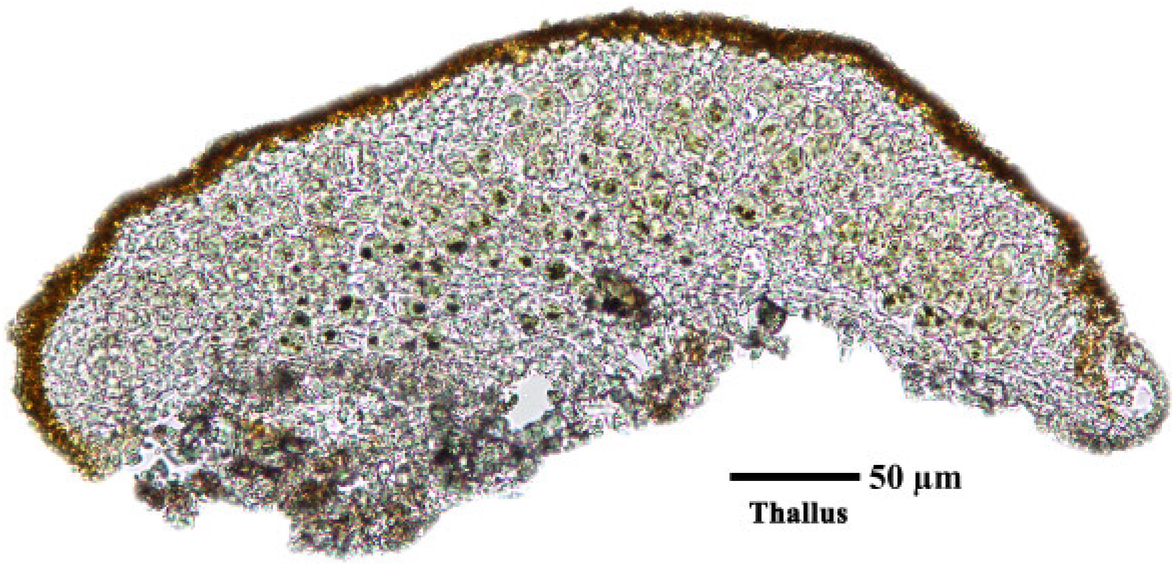
Caloplaca amabilis (Fink) Zahlbr.

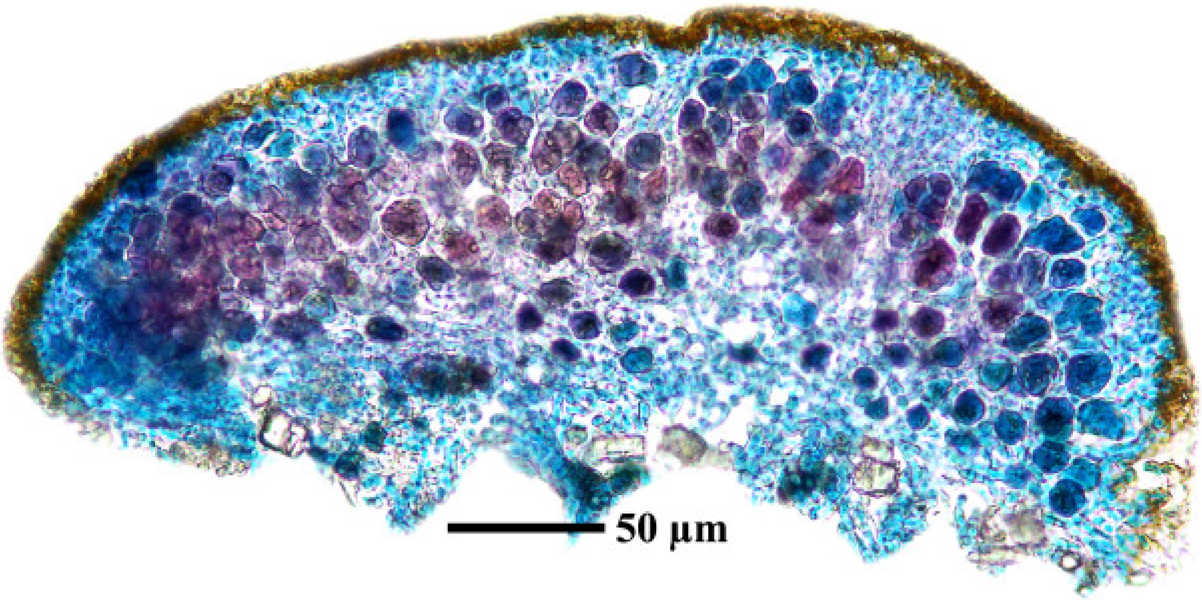
[BR5030035748528], USA, Arizona, Leg. L. Giltay, 25.05.1933



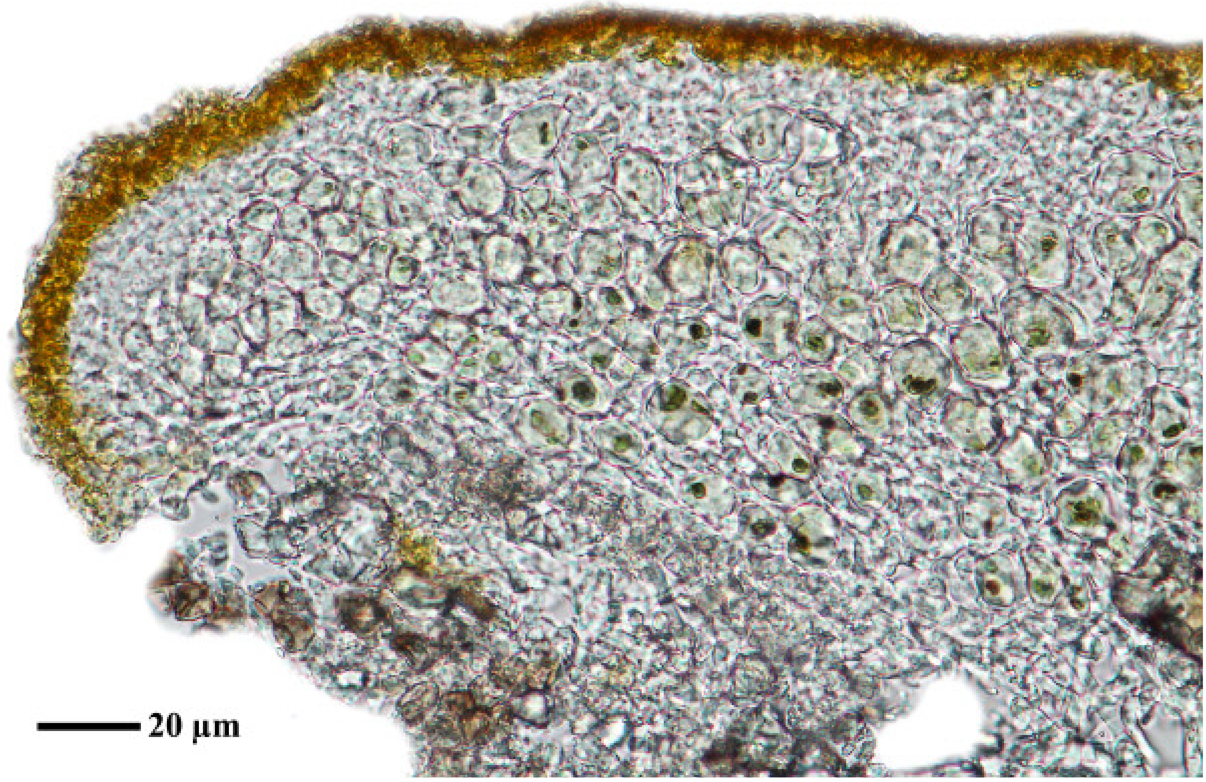


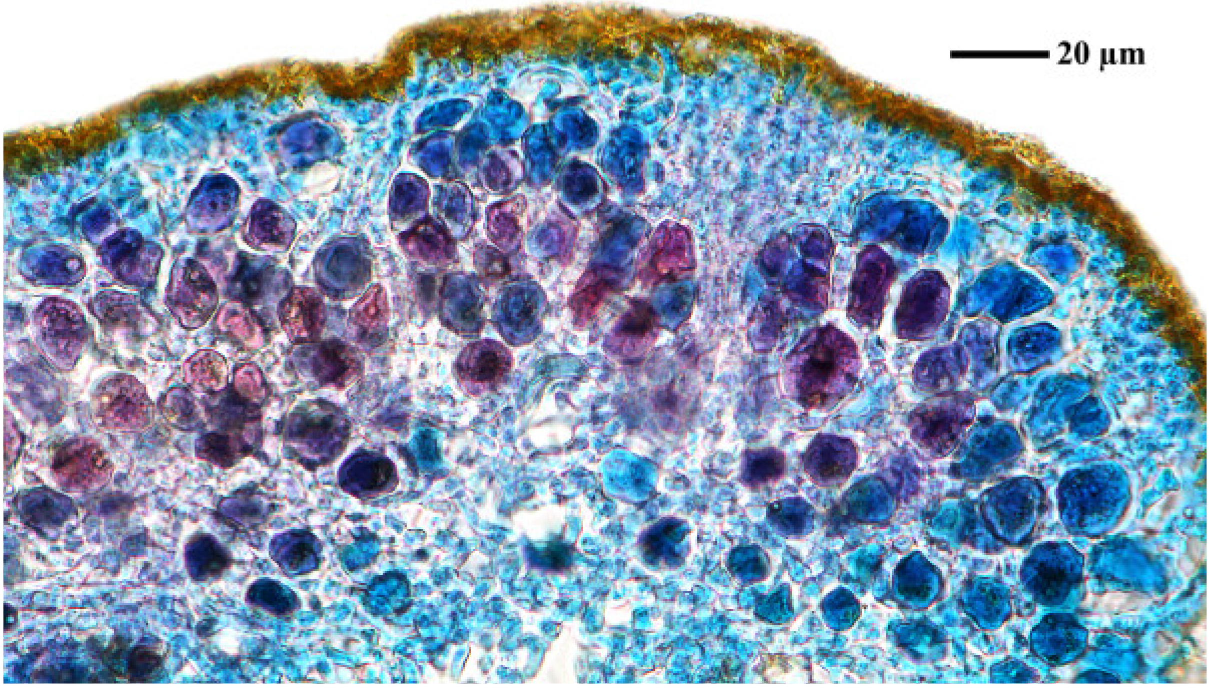
Caloplaca amabilis





Caloplaca amabilis



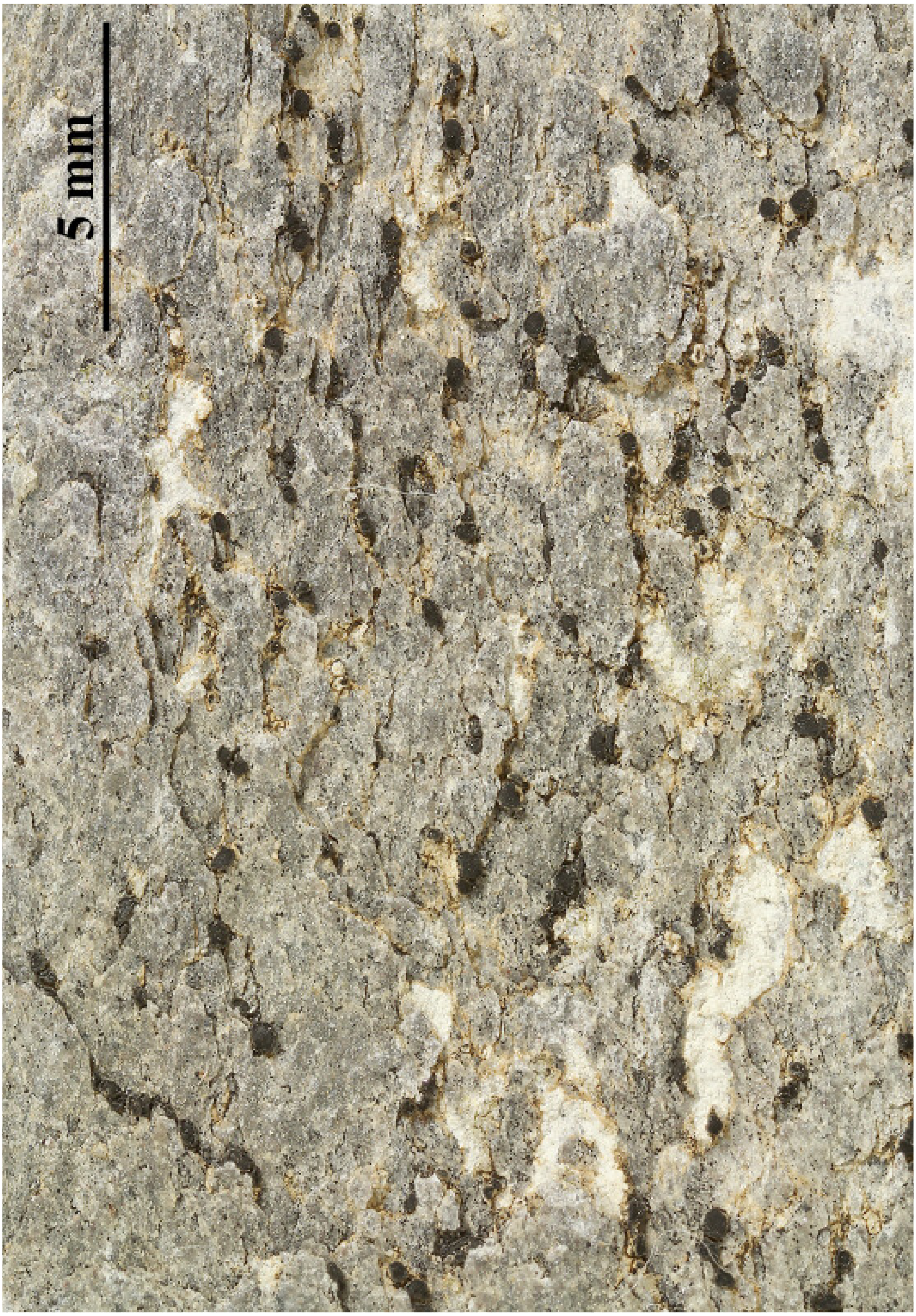


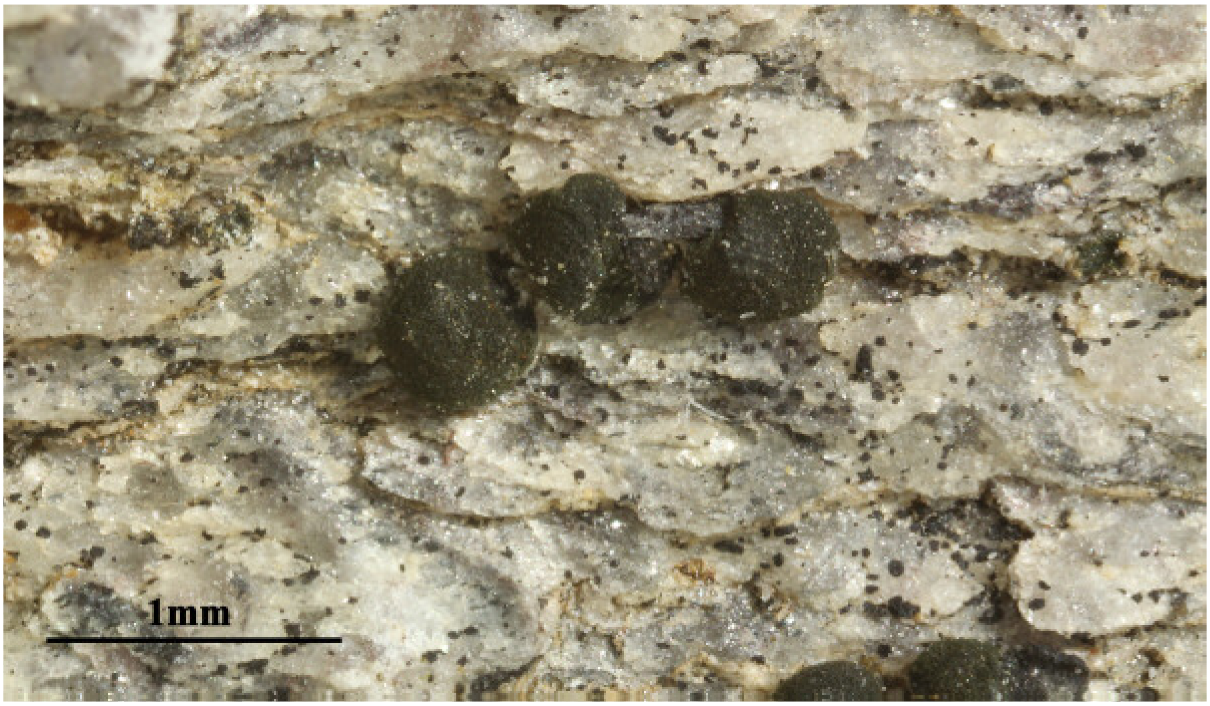
Caloplaca amabilis

Caloplaca ameliensis (Nyl.) H. Olivier

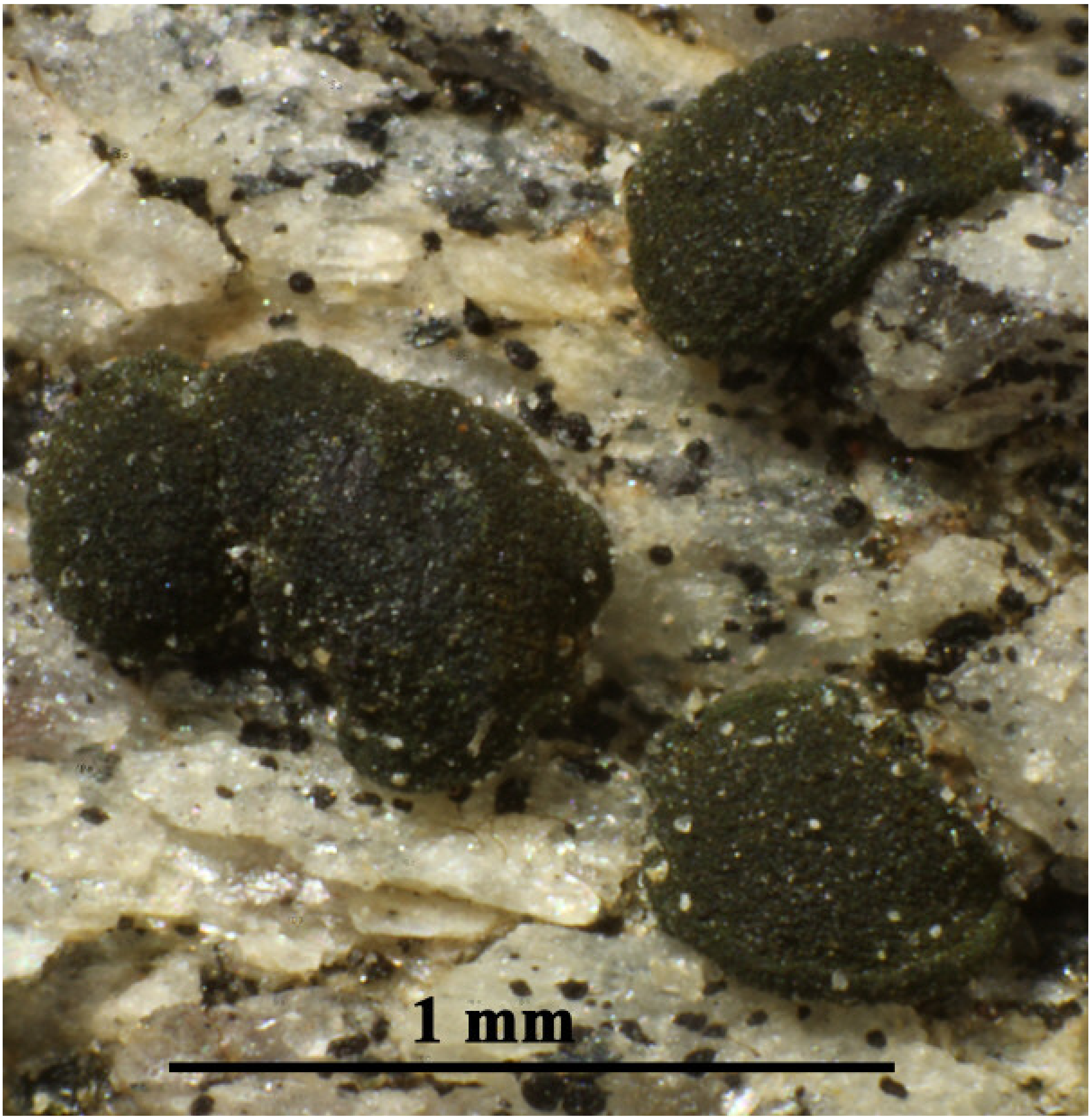
Spores 14-17 x 5.2-5.4 µm, septum 2.3 µm (FS). On non-calcareous rocks. Lit. Olivier in Mém. Soc. Nation. Sci. Nat. Cherbourg 37: 140 (1909)

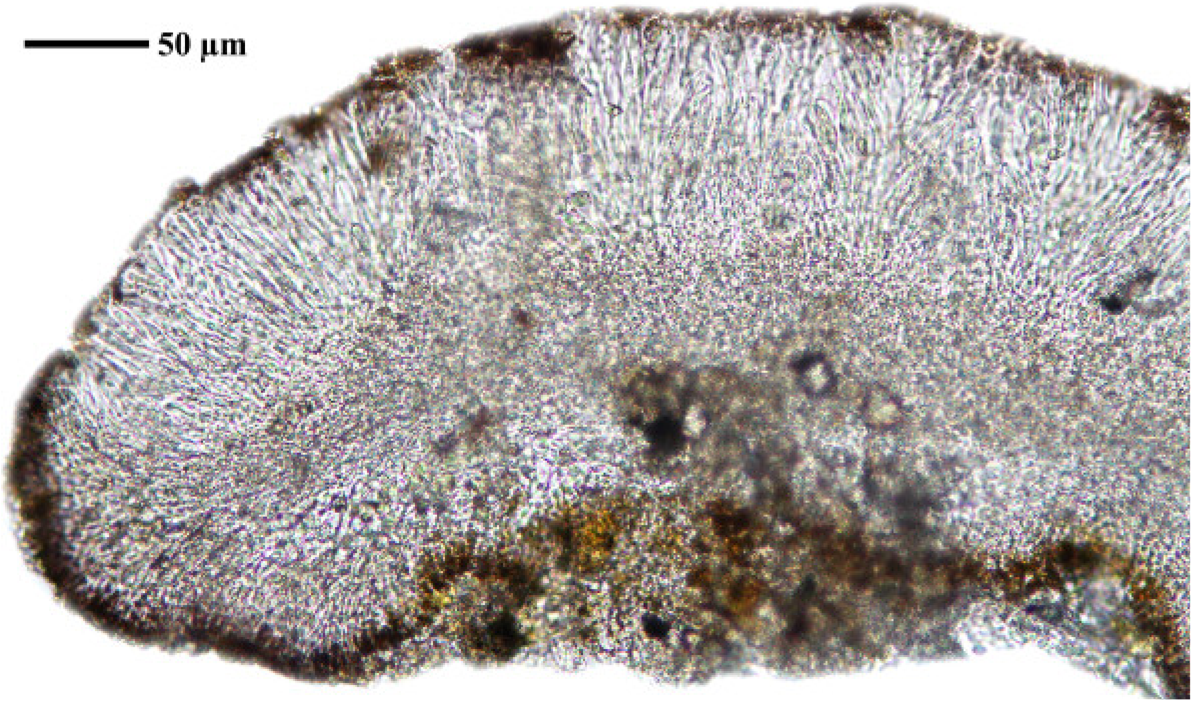
[19565], Hispania, Murcia, Sierra de Enmedio, Puerto Lumbreras, alt. 400 m, ad saxa schistosa. Leg. M. Egea & X. Llimona, 15.04.1976, det. M. Egea. Vězda: Lichenes Selecti Exsiccati Nr. 1969.



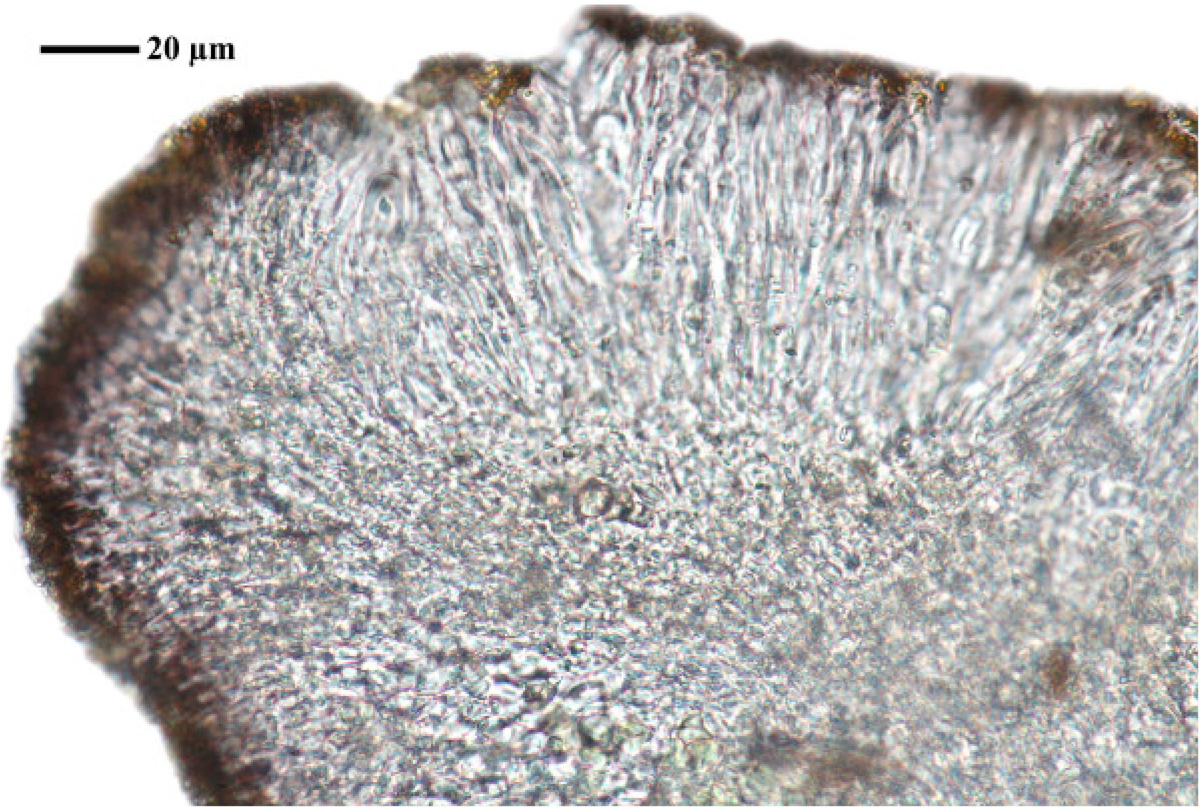


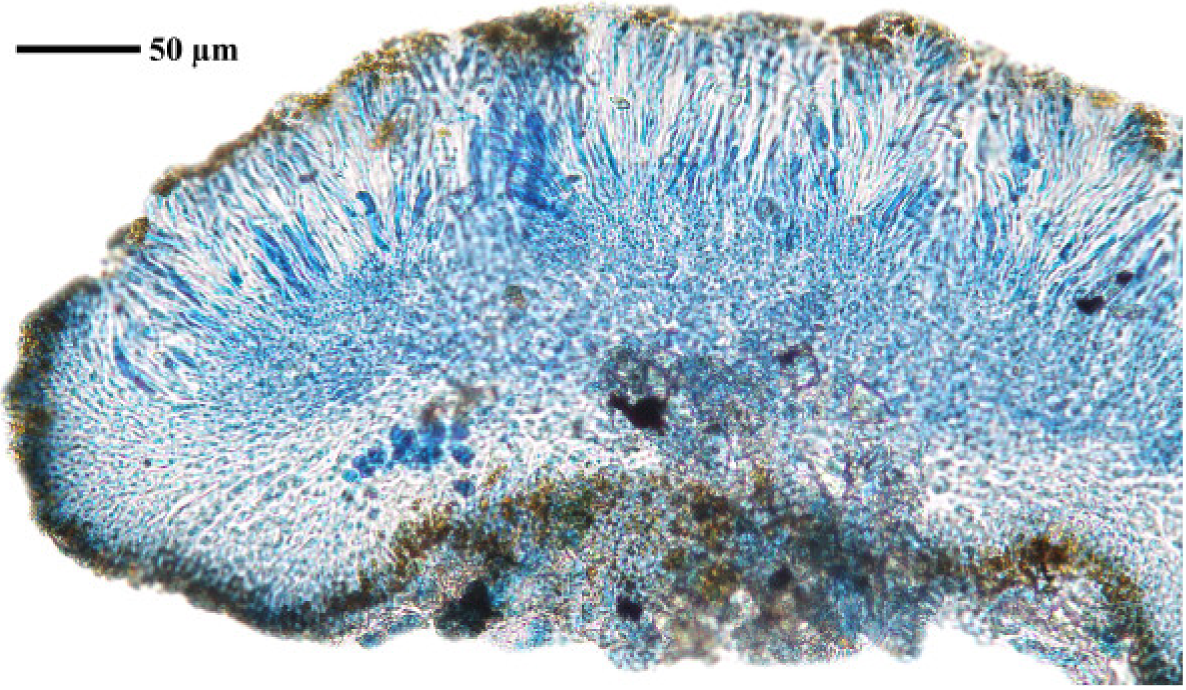
Caloplaca ameliensis



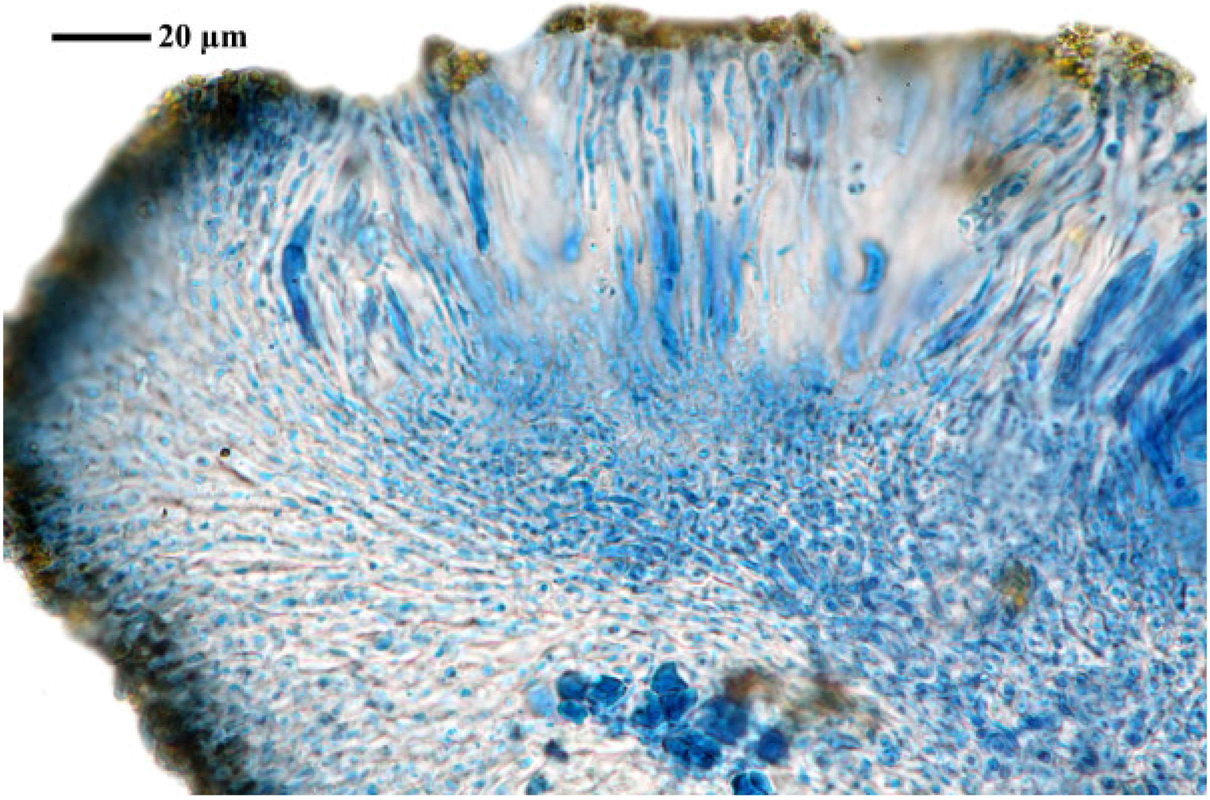


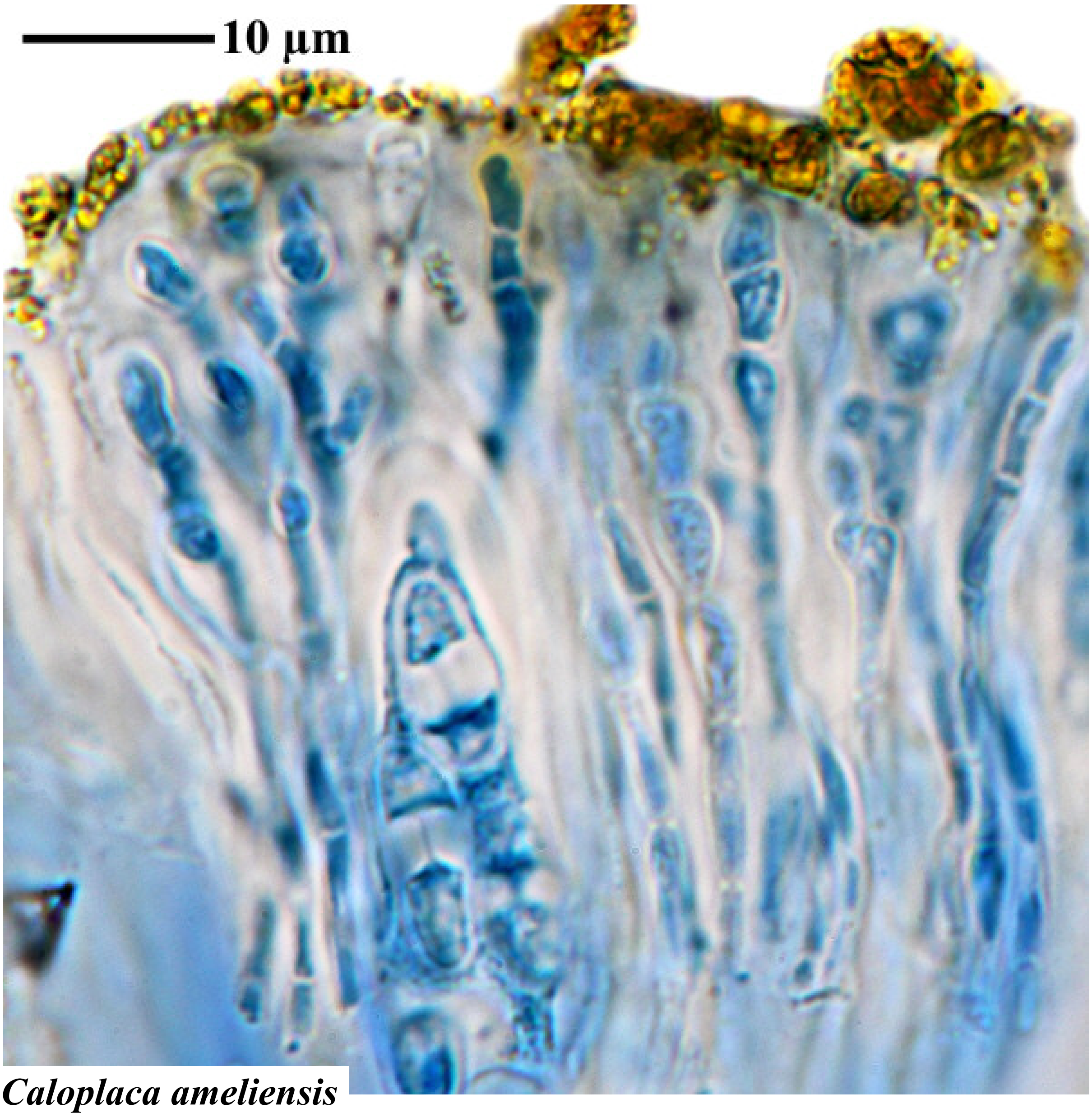
Caloplaca ameliensis



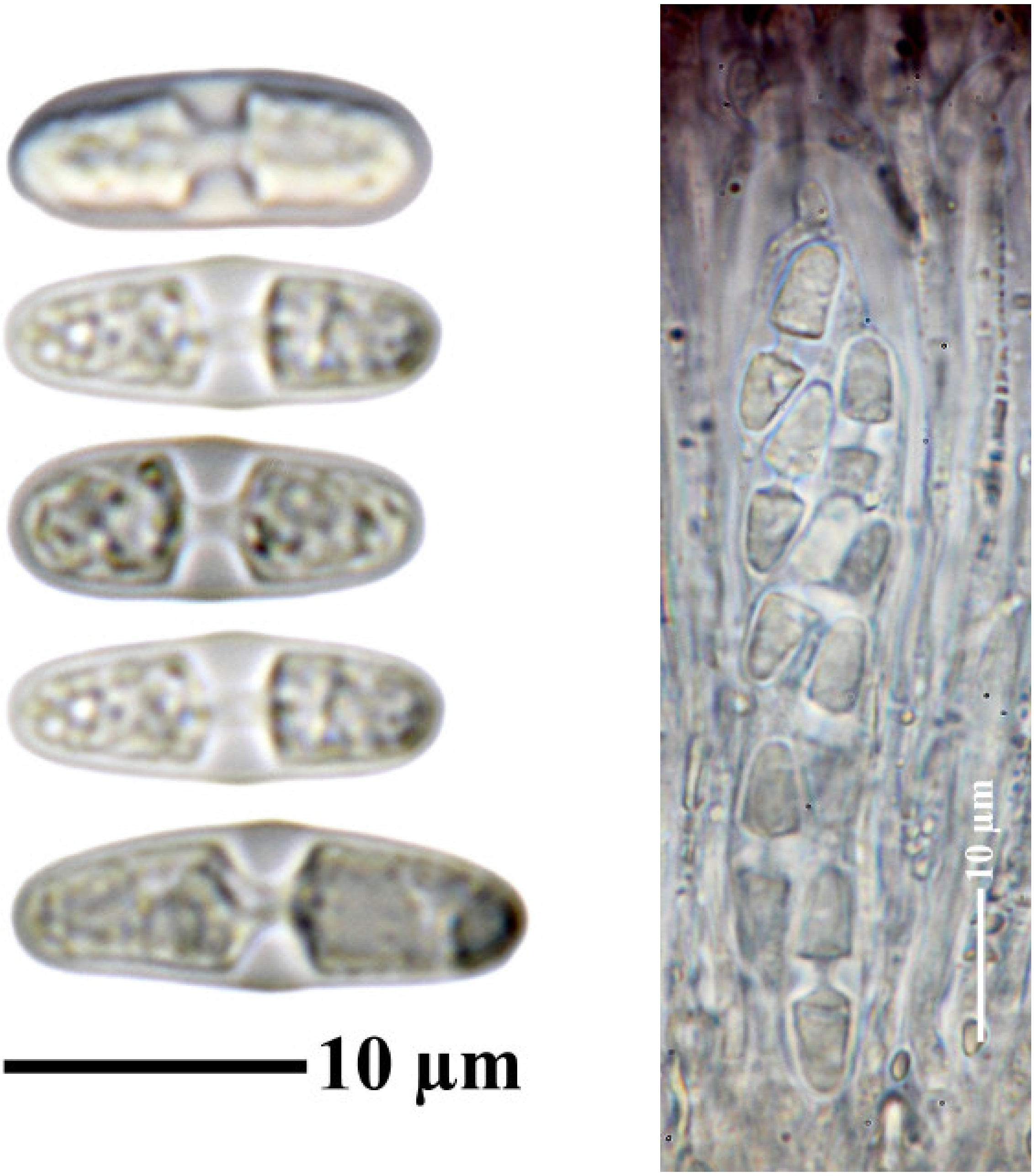


Caloplaca ameliensis





Caloplaca ameliensis

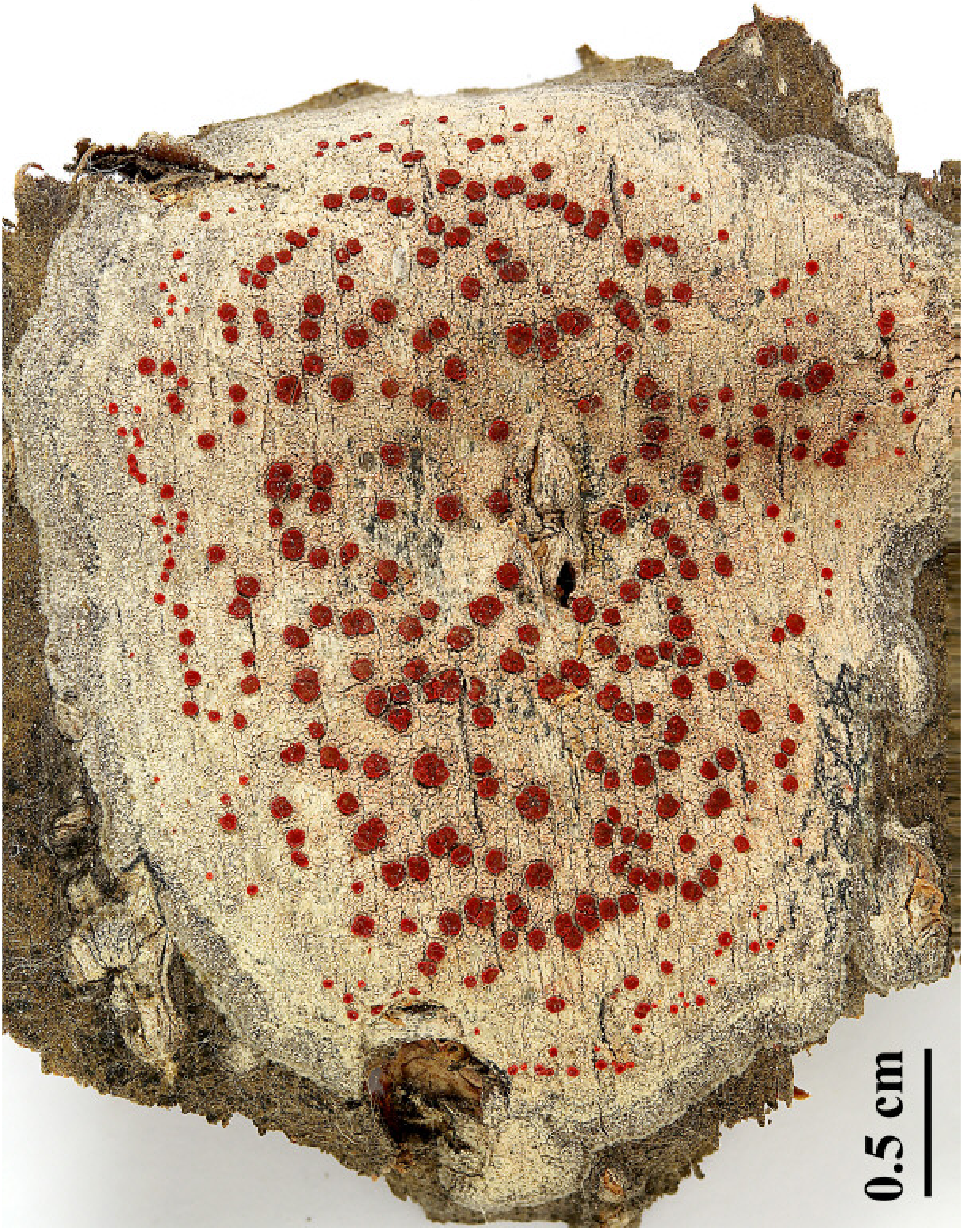


Caloplaca ameliensis

Caloplaca amsterdamensis Aptroot & Ertz

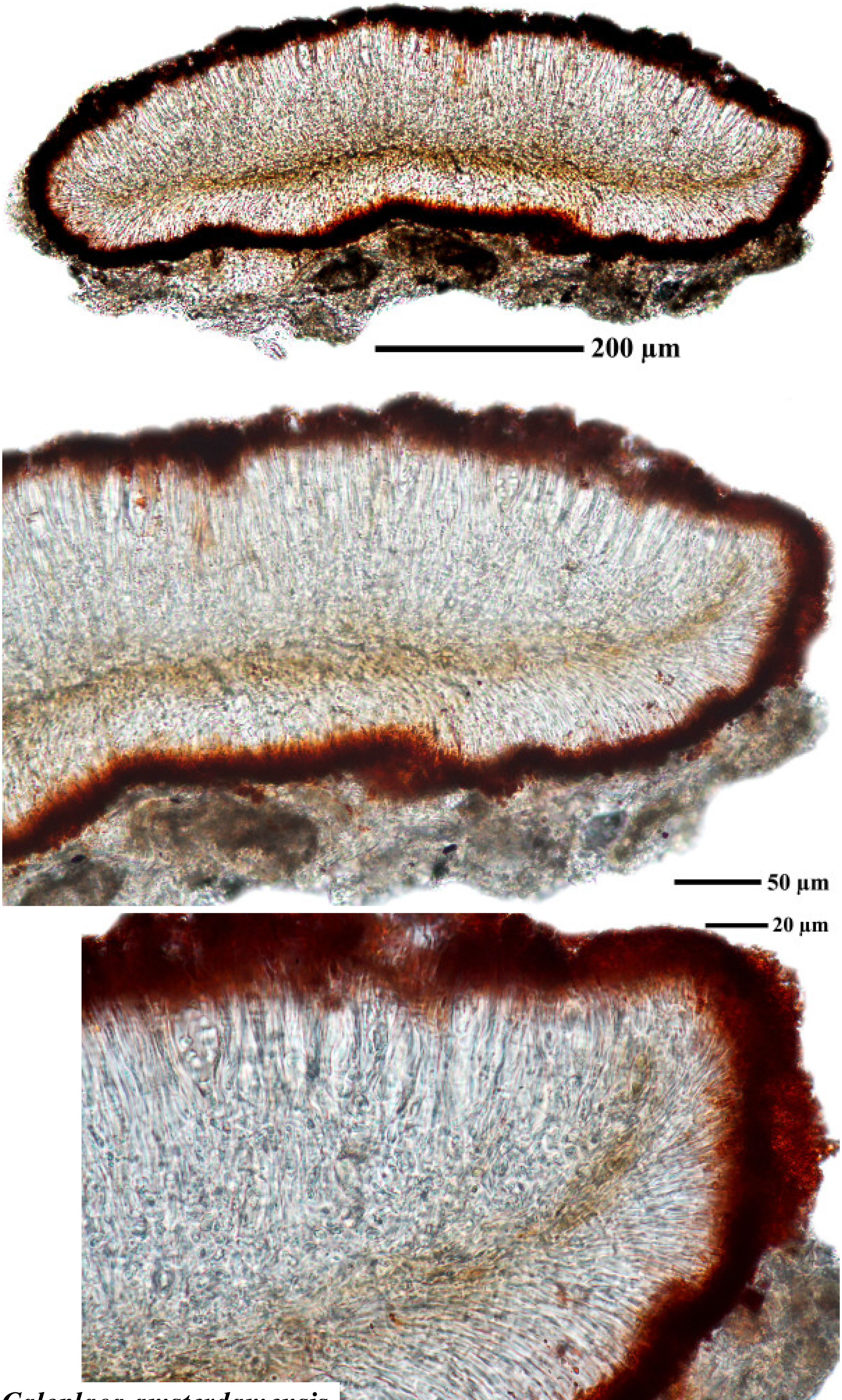
Spores in whater 14-17 x 7-8 µm, in KOH 18-19 x 7-8 µm, septum8-10 µm (DE); spores 13.3-17.7 x 5.6-7.0 µm, septum 7 µm (FS).

[BR5030011498522], Terres australes et antarctique françaises; district Amsterdam et Saint-Paul; Ile Amsterdam, Jardin Météorologique, sur *Prunus spinosa* planté dans le jardin. Leg. Bart Van de Vijver (AMS07L45), 2.12.2007, det. A. Aptroot.

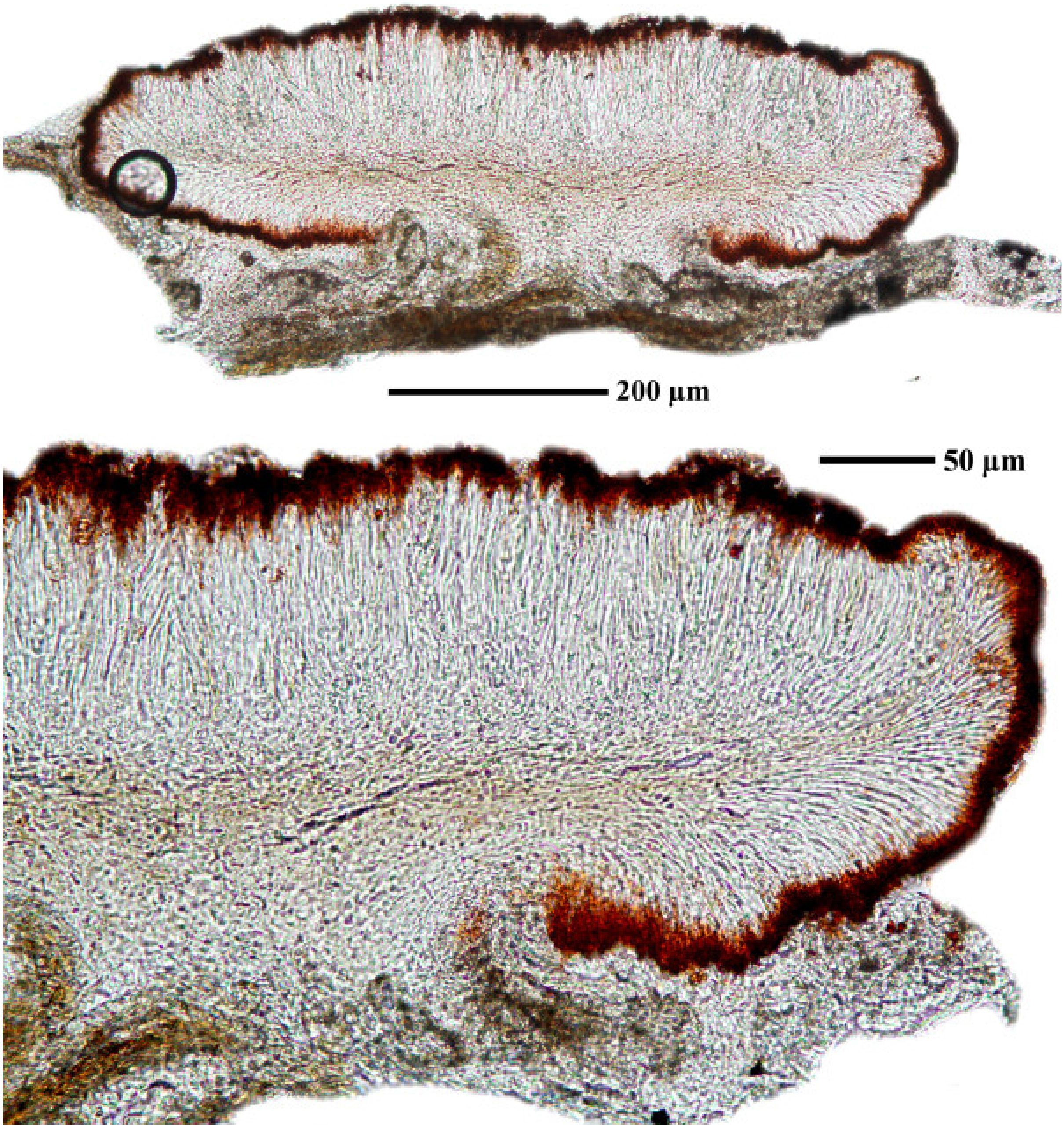


Caloplaca amsterdamensis

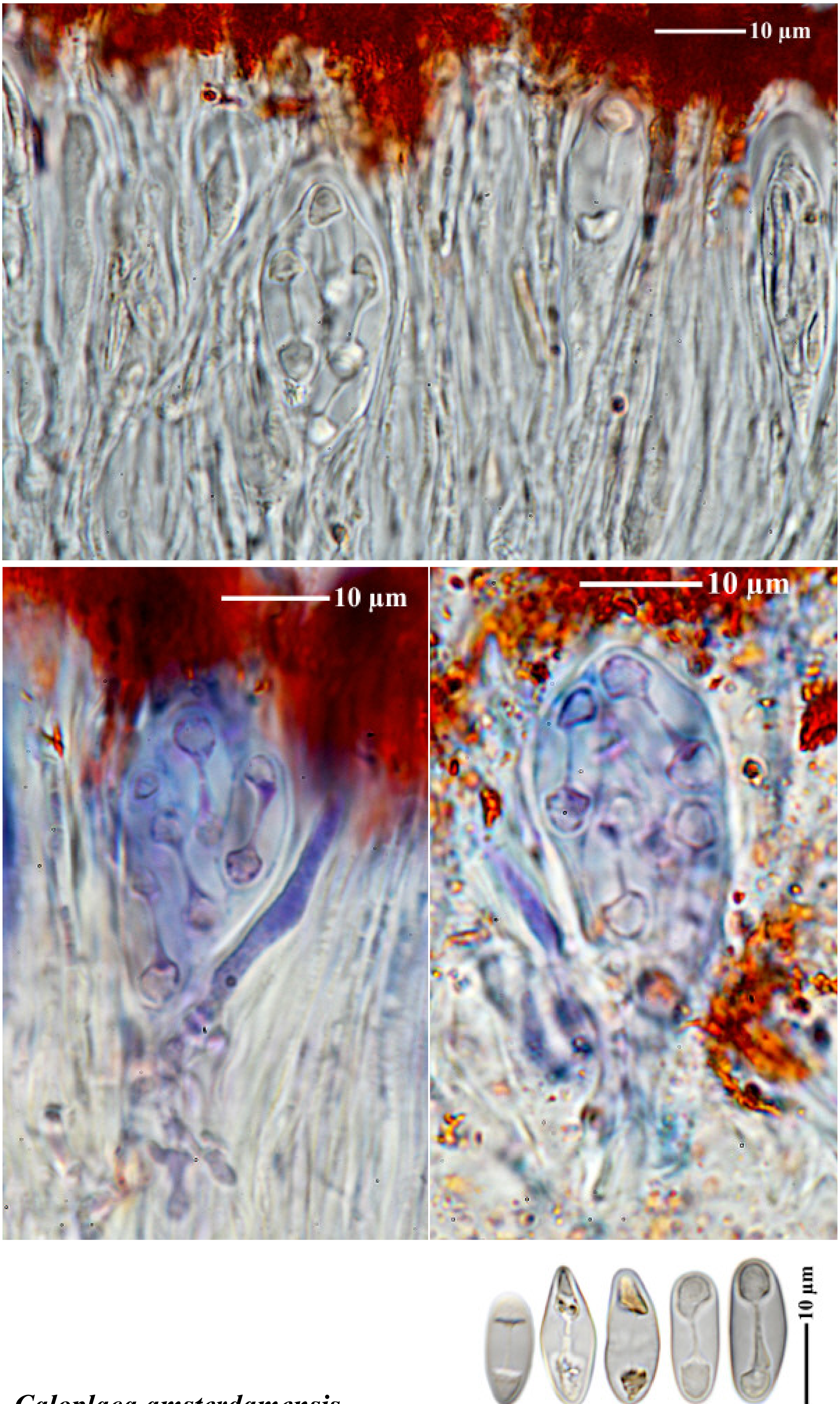
Caloplaca amsterdamensis



Caloplaca amsterdamensis



Caloplaca amsterdamensis

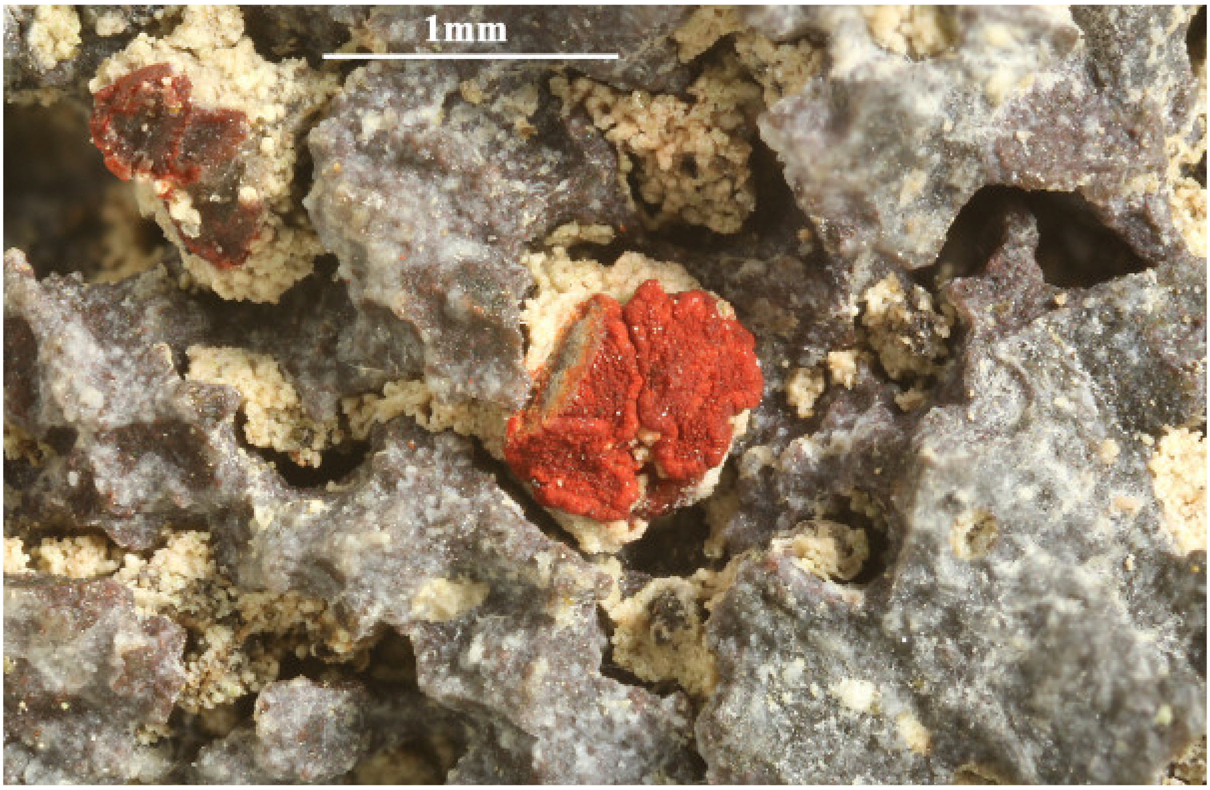


Caloplaca amsterdamensis

Caloplaca amsterdamensis Aptroot & Ertz

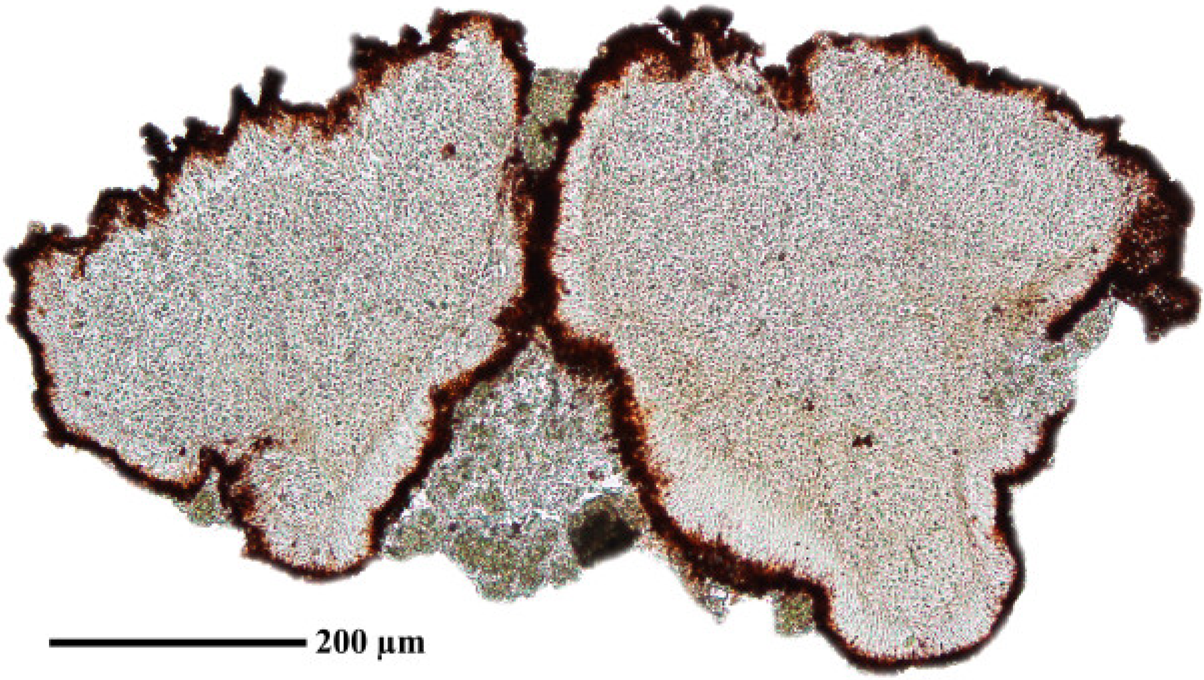
Spores in whater 14-17 x 7-8 µm, in KOH 18-19 x 7-8 µm, septum8-10 µm (DE)

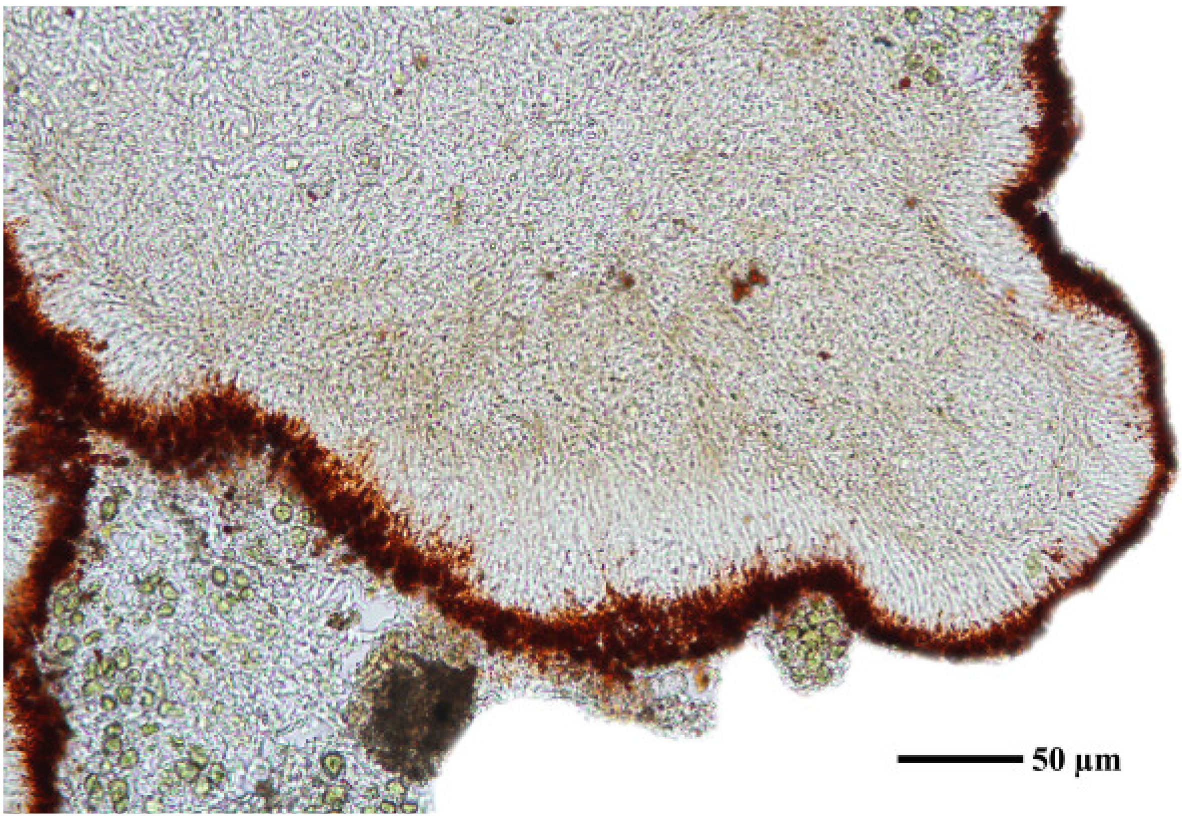
[BR5030012002711], Terres australes et antarctique françaises; district Amsterdam et Saint-Paul; Ile Amsterdam, Jardin Météorologique, paroi de rochers du coté sptentrional, sec, pénombre. Leg. Bart Van de Vijver (AMS07L55), 2.12.2007, det. A. Aptroot.

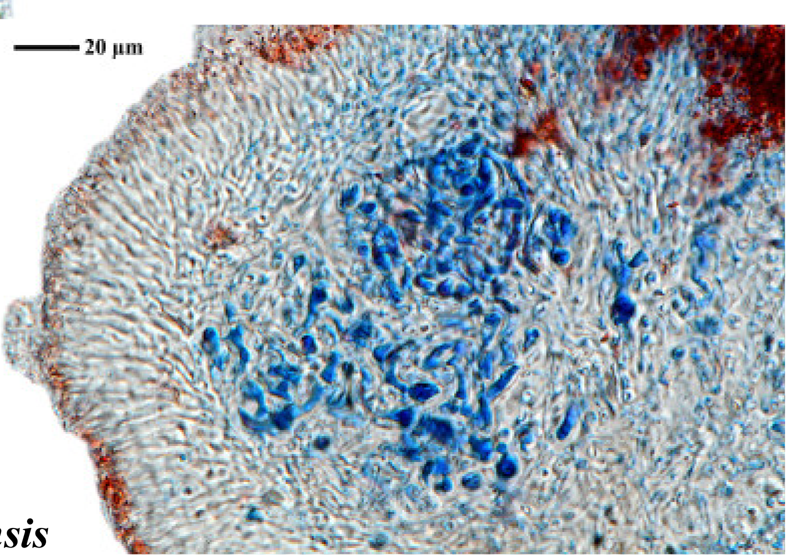


Caloplaca amsterdamensis

Caloplaca amsterdamensis





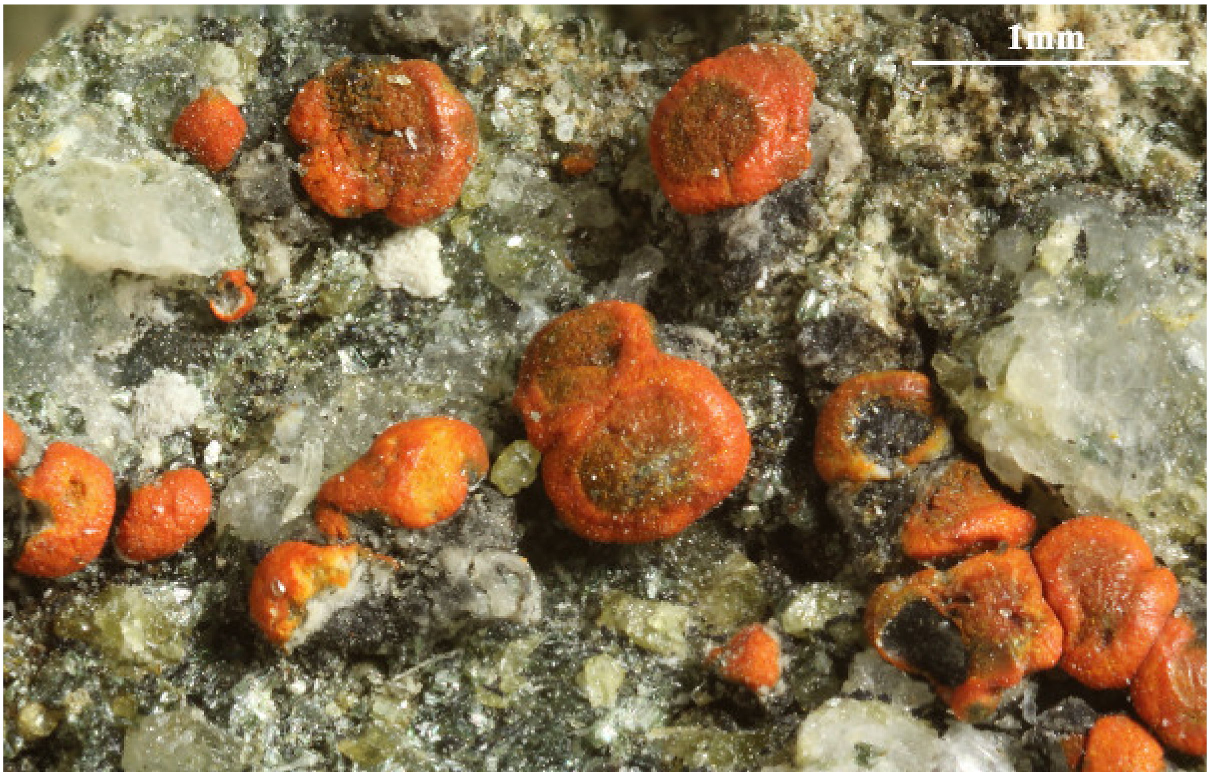


Caloplaca amsterdamensis

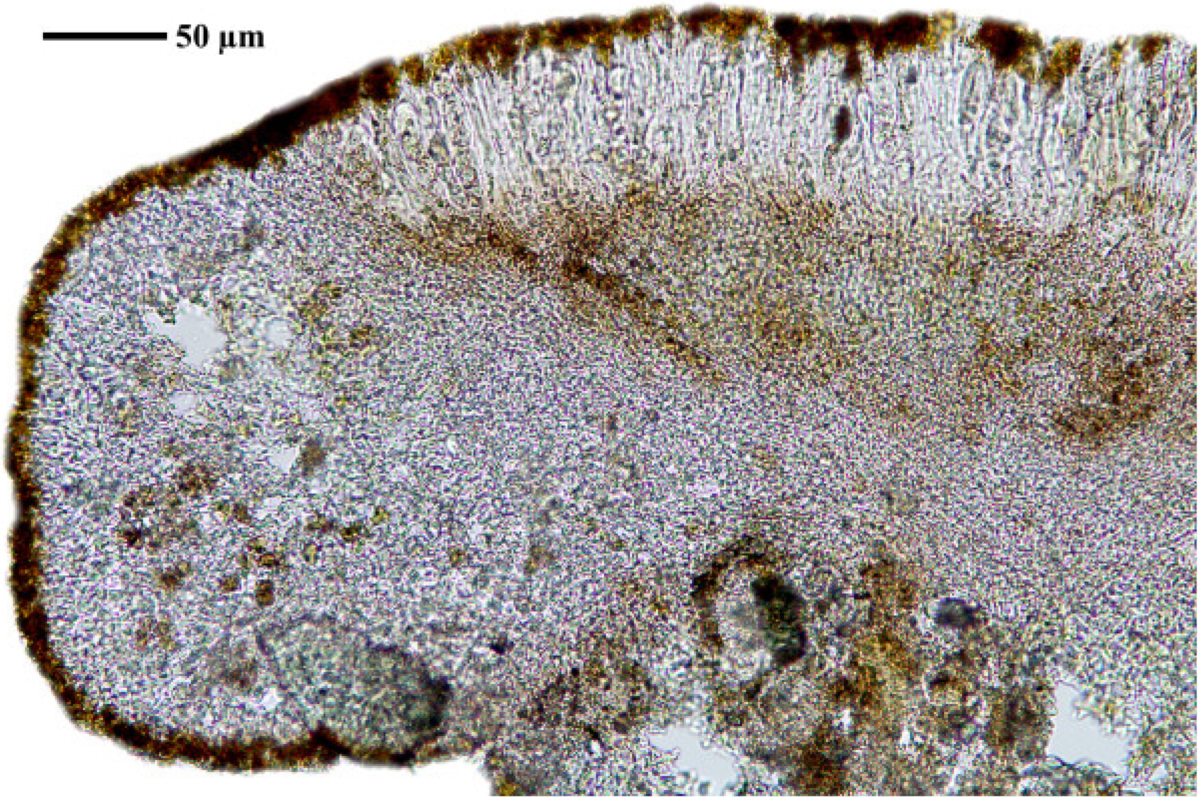
Caloplaca anchon-phoeniceon Poelt & Clauzade, Planta 51: 297 (1958)

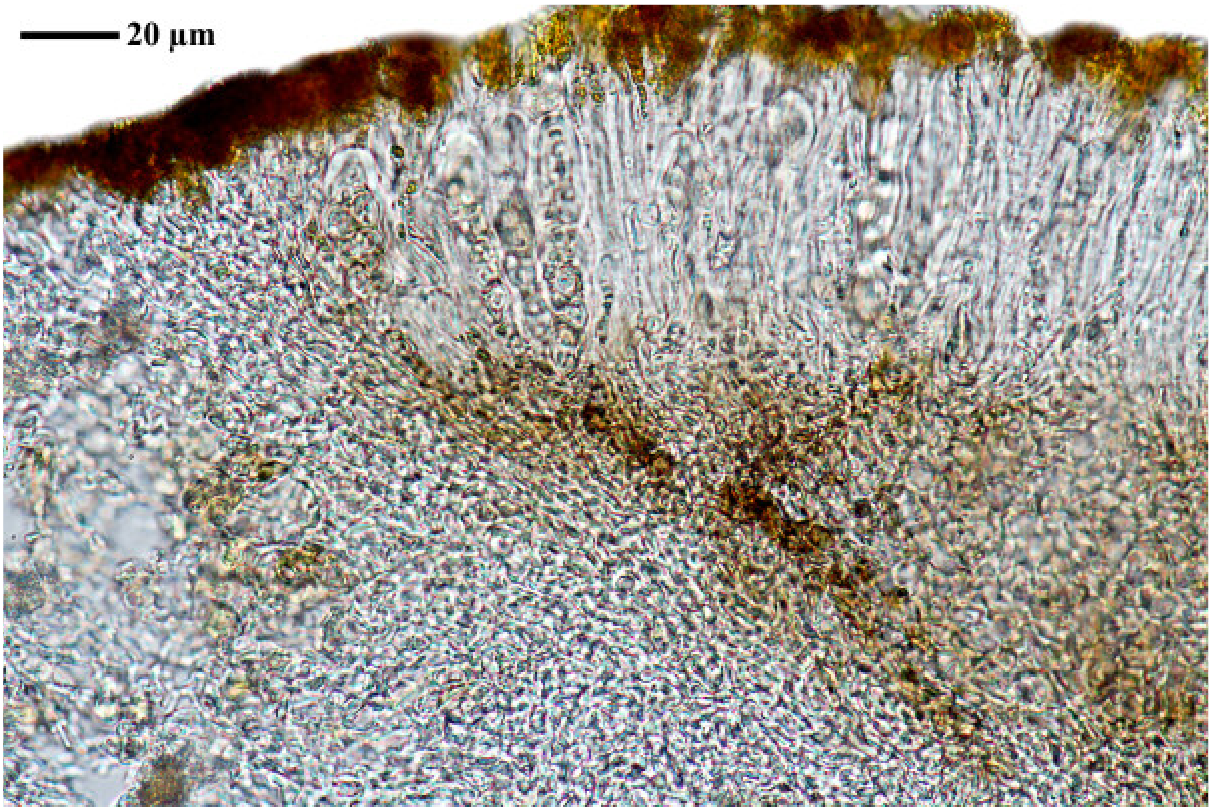
On non-calcareous rocks. Lit. Poelt et Clauzade in Planta 51: 297 (1958). Spores 7.7-10.4 x 4.6-5.6 μm, septum 1.7-2.8 μm (FS).

[19562], Austria, Tirolia, Kaprun, Kleine Schmiedinger, alt. 2650 m, in pariete rupis schistosae. Leg. J. Asta, X. Llimona & Cl. Roux, 6.09.1973. Vězda: Lichenes Selecti Exsiccati Nr. 1219.

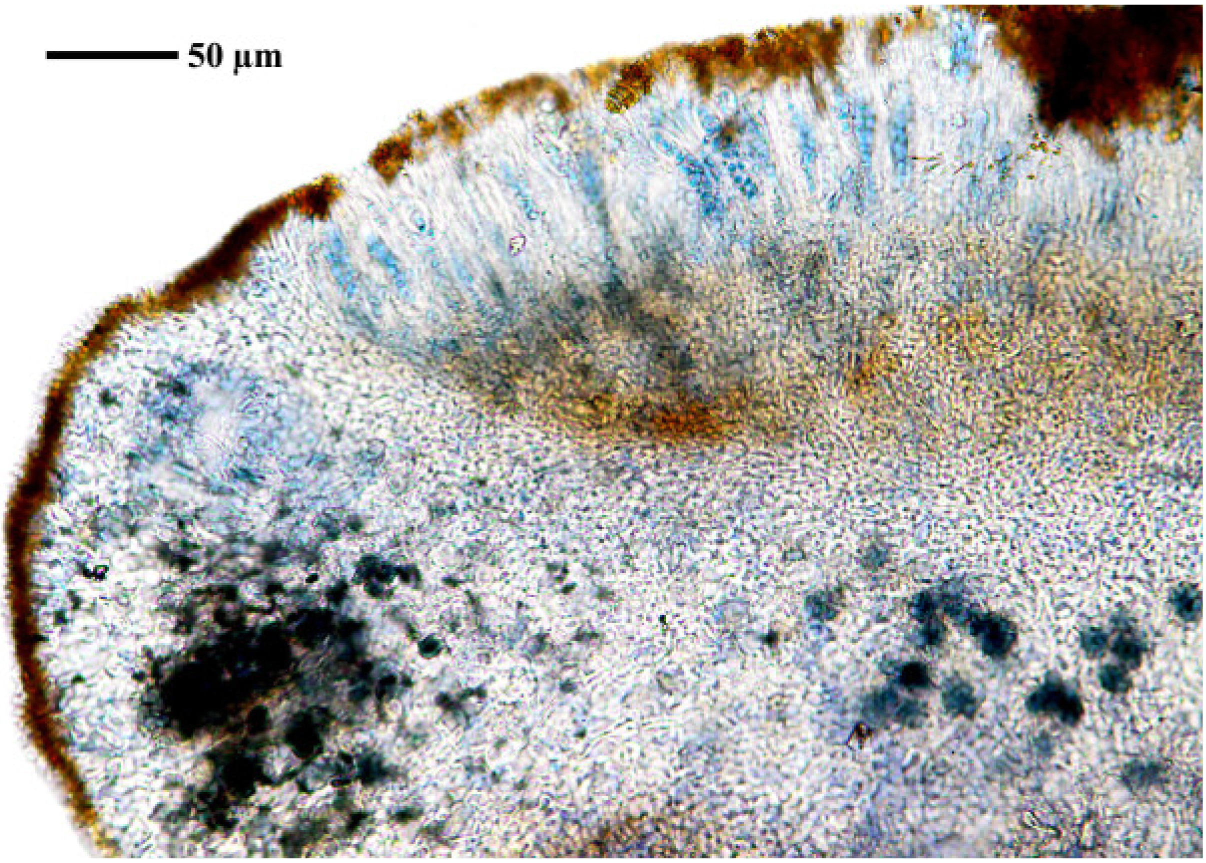


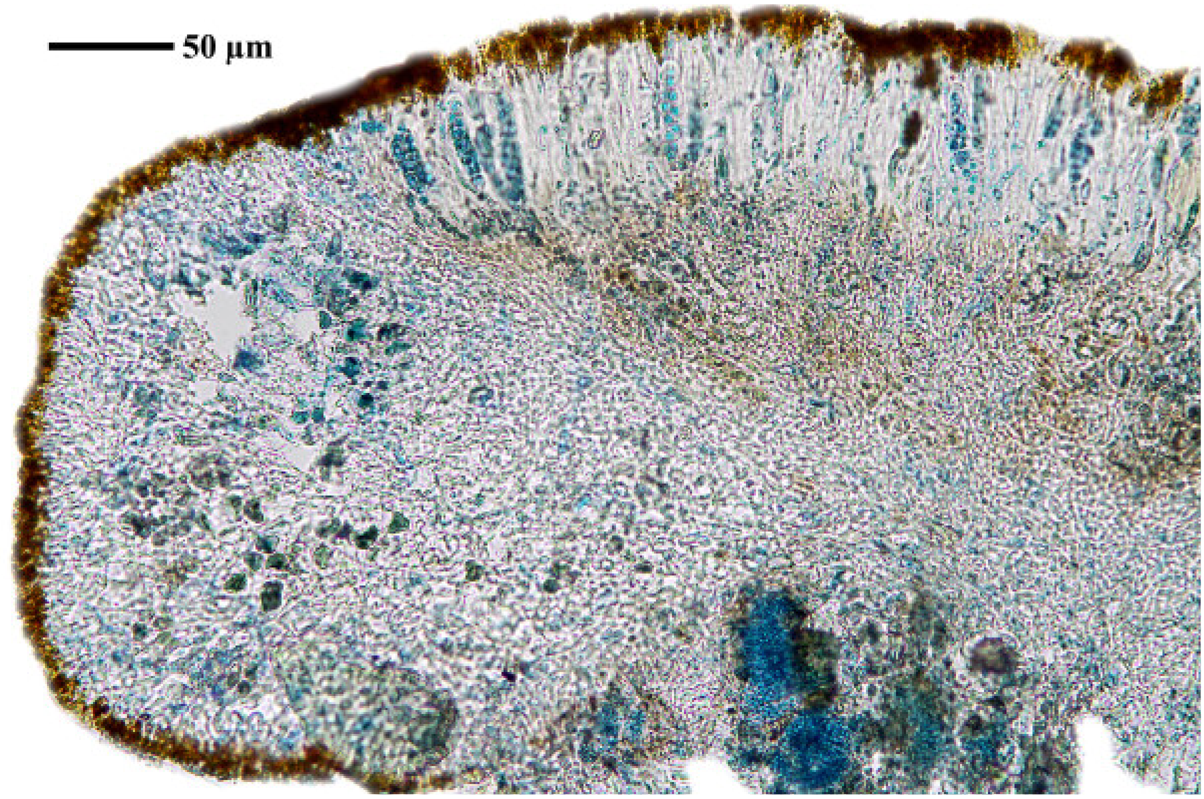
Caloplaca anchon-phoeniceon



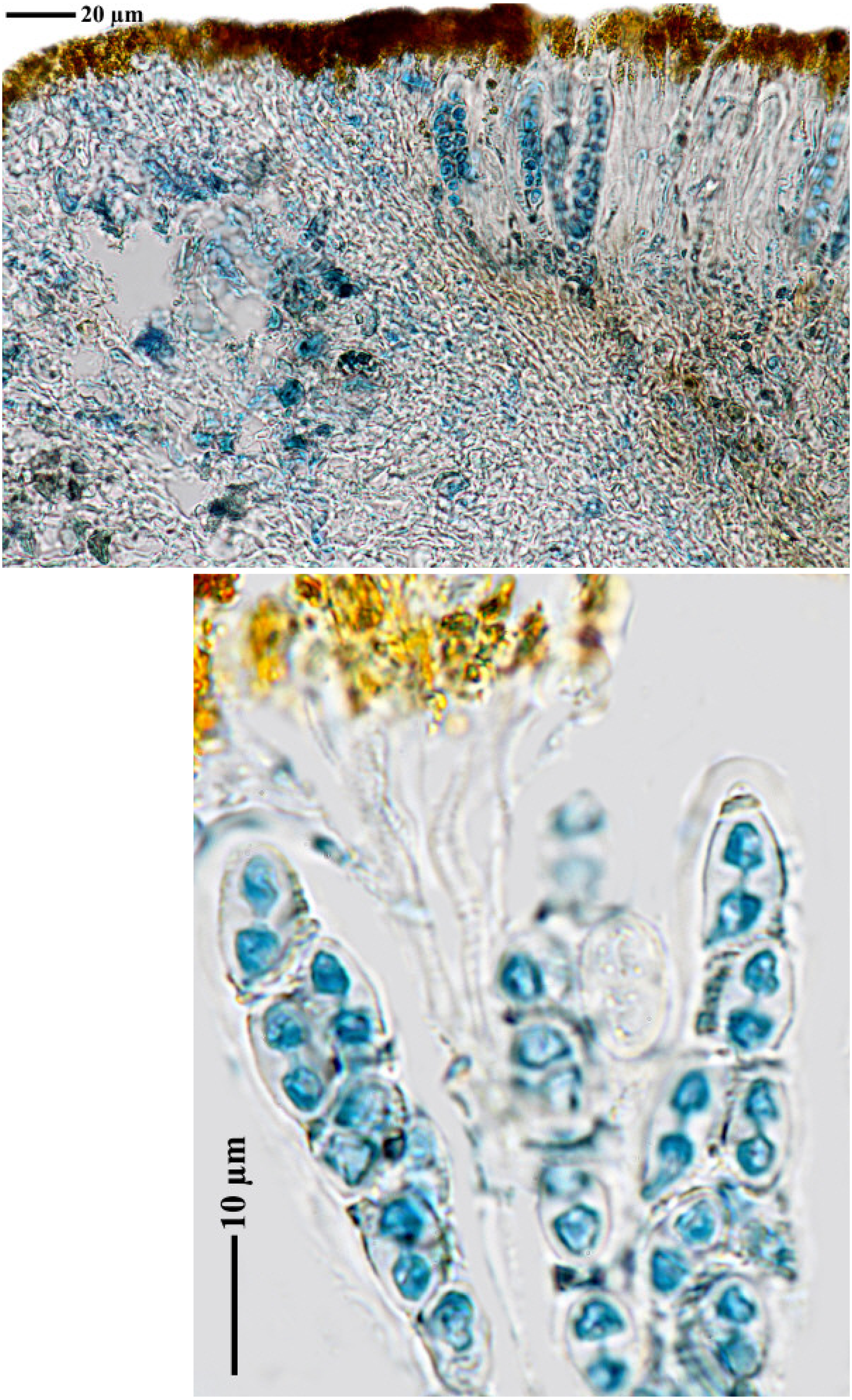


Caloplaca anchon-phoeniceon

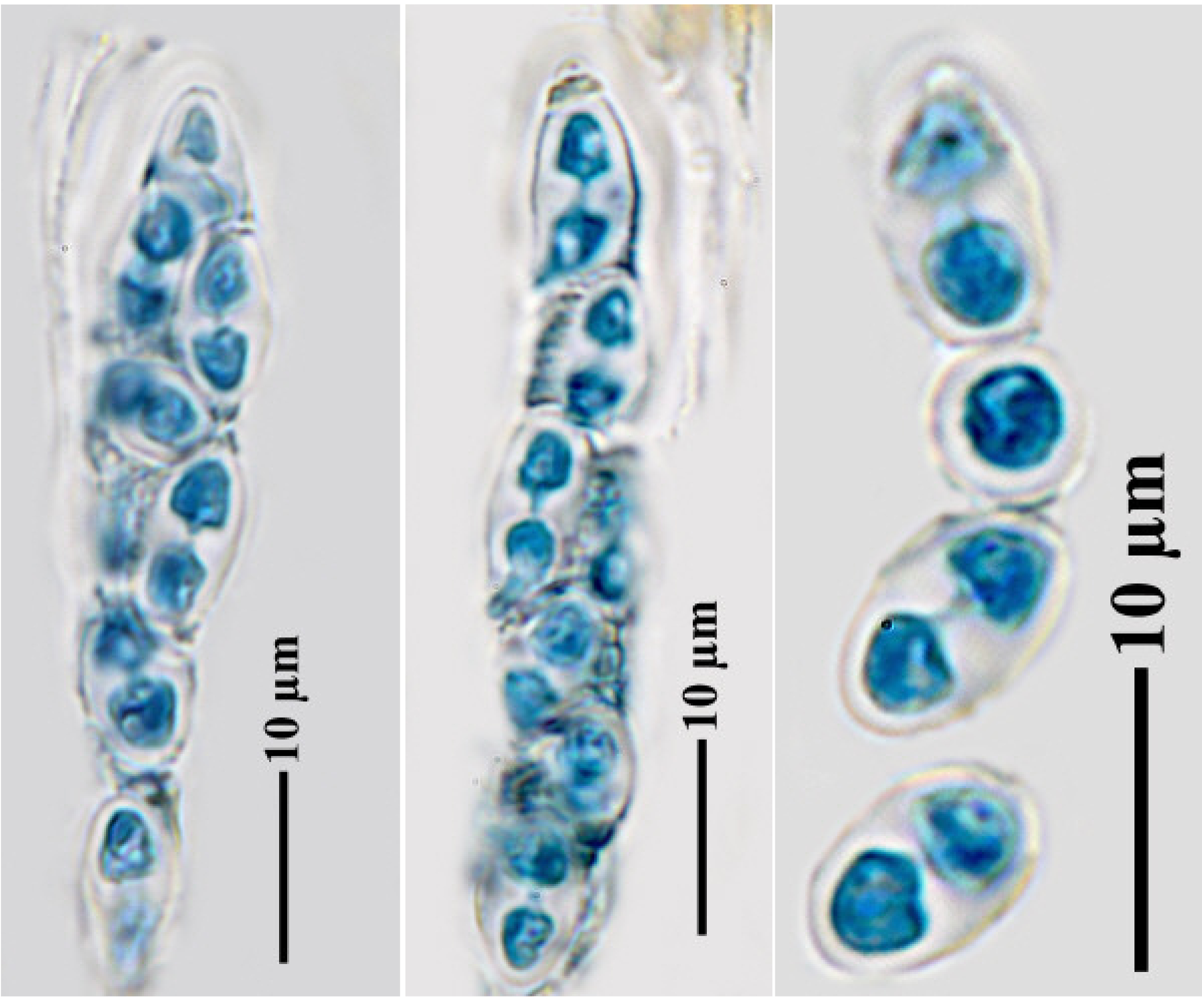


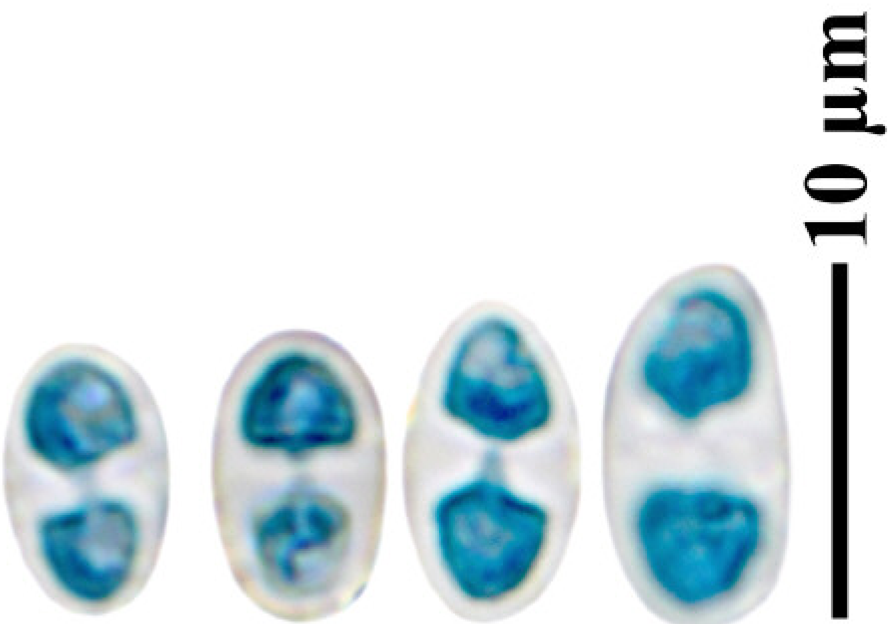


Caloplaca anchon-phoeniceon



Caloplaca anchon-phoeniceon



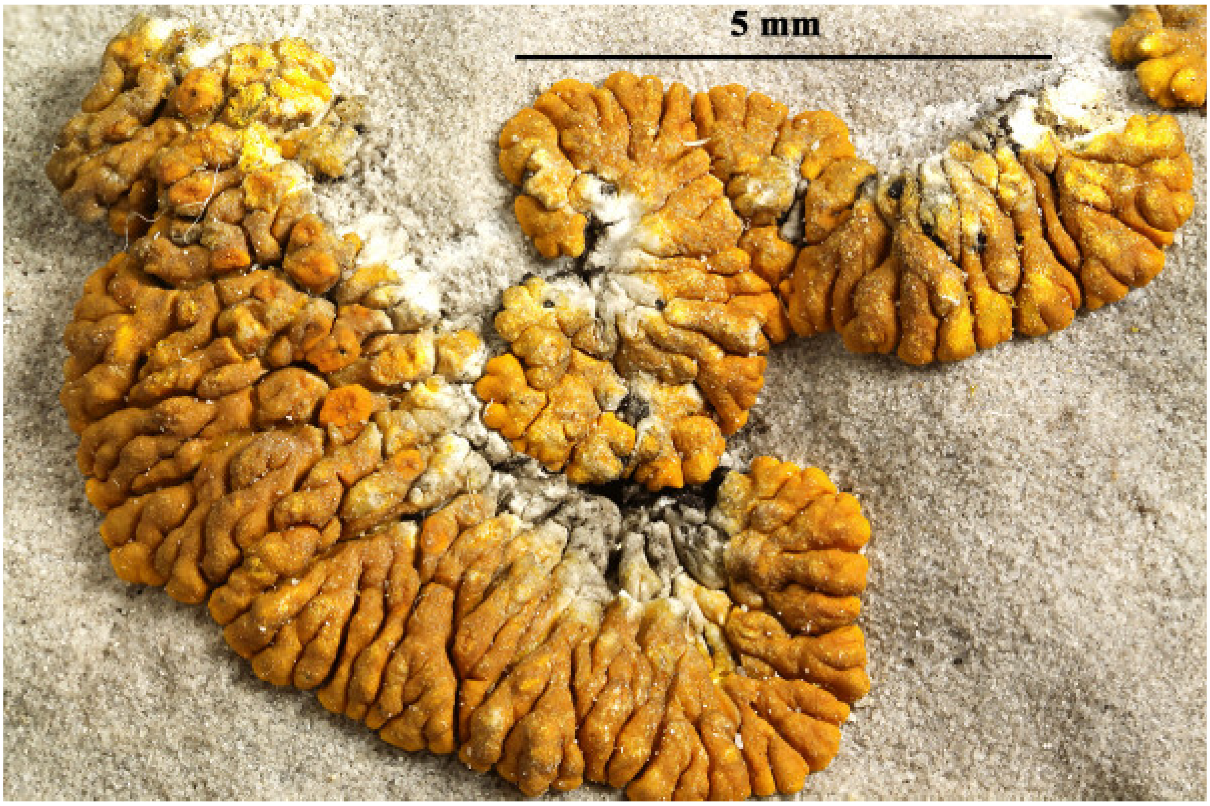


Caloplaca anchon-phoeniceon

Caloplaca anularis Clauzade & Poelt

On calcareous rocks. Lit. Clauzade et Poelt in Herzogia 2: 305-311 (1972)

[19566], Bohemoslovacia, Slovacia, Carpates Centrales (Tatra Magna), iugum Belanské Tatry dictum, in monte Bujačí, alt. 1900 m, ad saxa calcarea venti exposita. Leg. E. Farkas, Z. Kyselová & A. Vězda, 29.08.1985. VĕZDA: LICHENES SELECTI EXSICCATI NR. 2077.

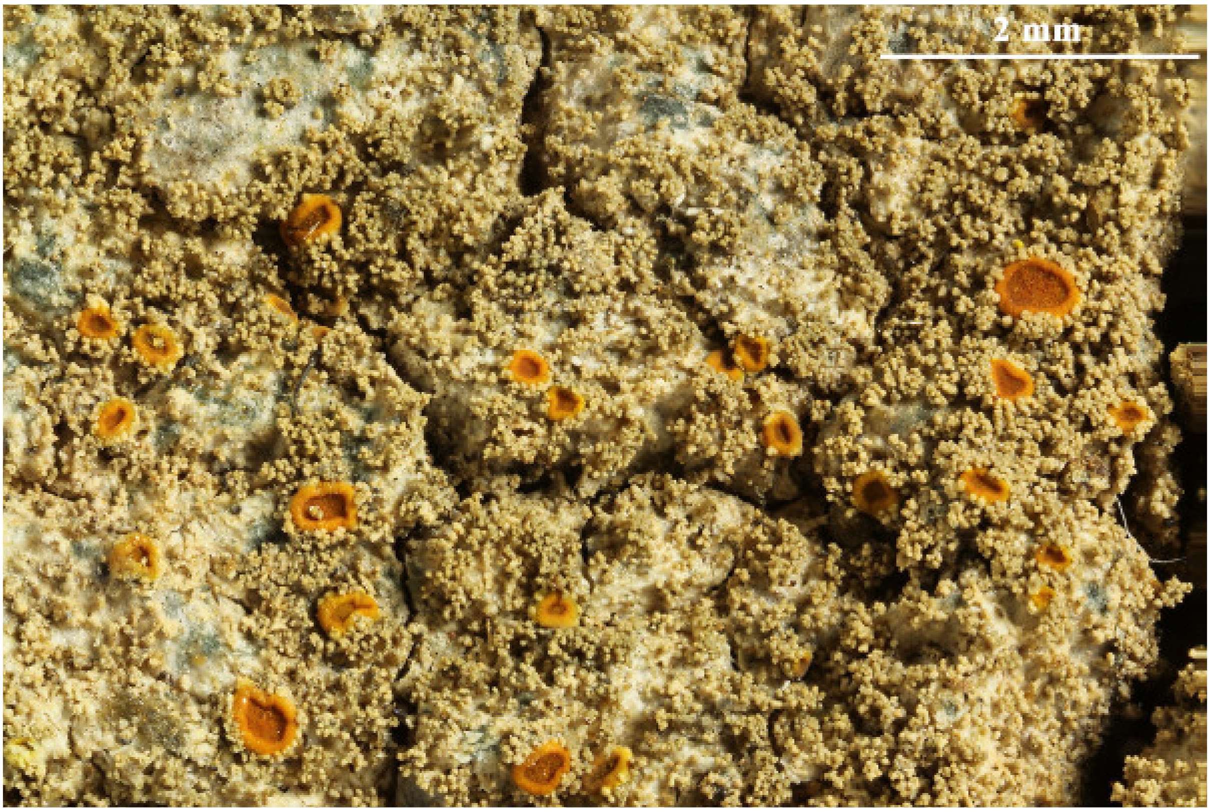


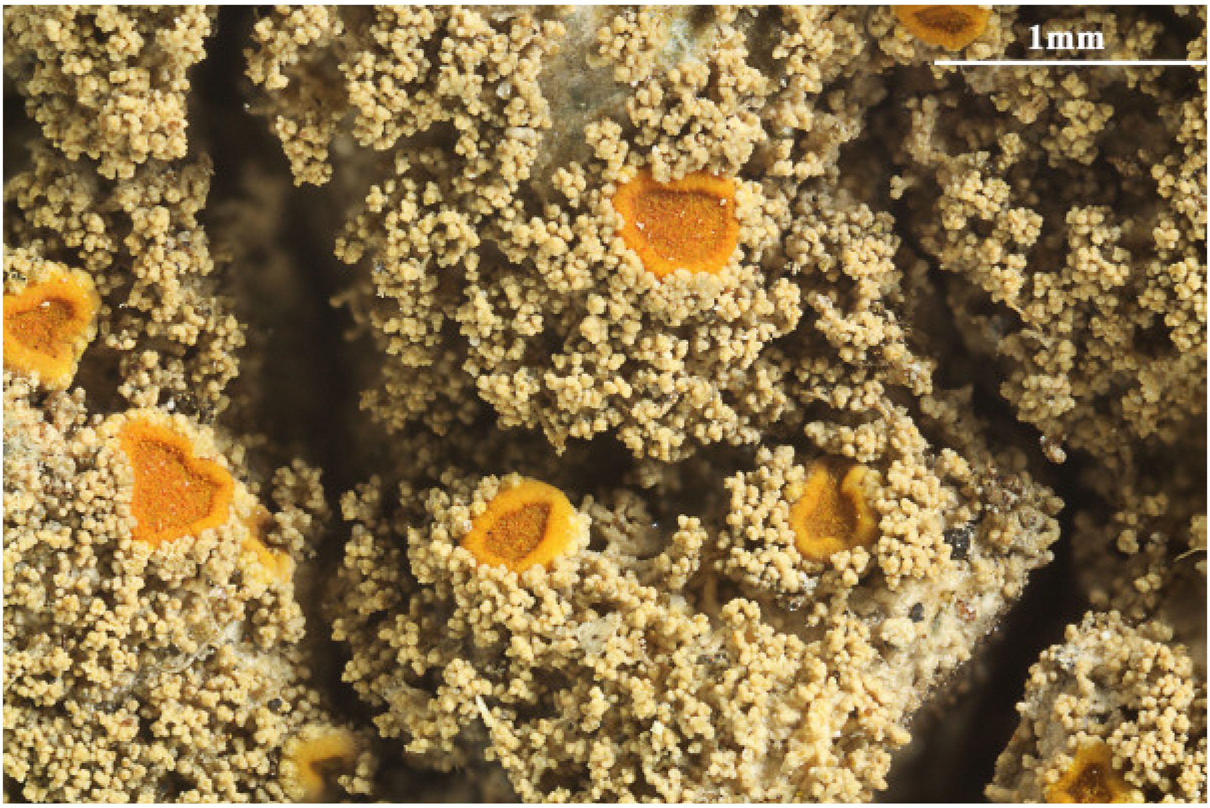
Caloplaca anularis

Caloplaca aphanotripta (Nyl.) Zahlbr.

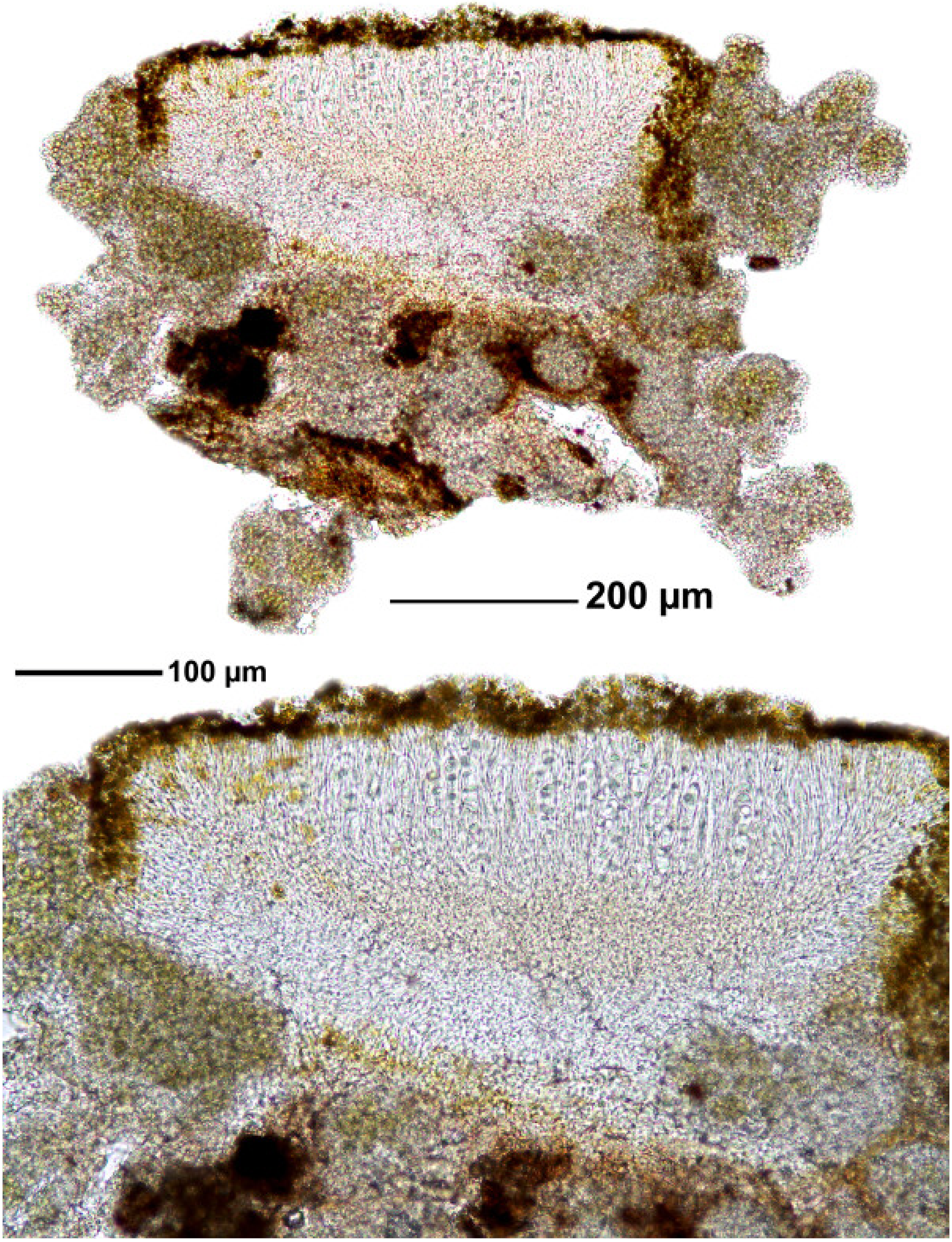
On bark. Thallus grey, isidiose. Spores polarilocular, hyaline, 8/ascus, 18-23 x 8-11.5 µm, septum 8-13.5 µm.

[ABL 65085], Ecuador, Galápagos Islands, Isabela Island, Cerro Alcedo, outer SE-exposed slope and crater rim (ISA 1), fern-sedge zone, tortoise pasture with scattered trees (*Tournefortia rufo-sericea*, *Zanthoxylum fagara*), on *Croton*, 0°27’29” S, 91°07’19” W, 1089 m. Leg. et det. A. Aptroot 05.03.2006.

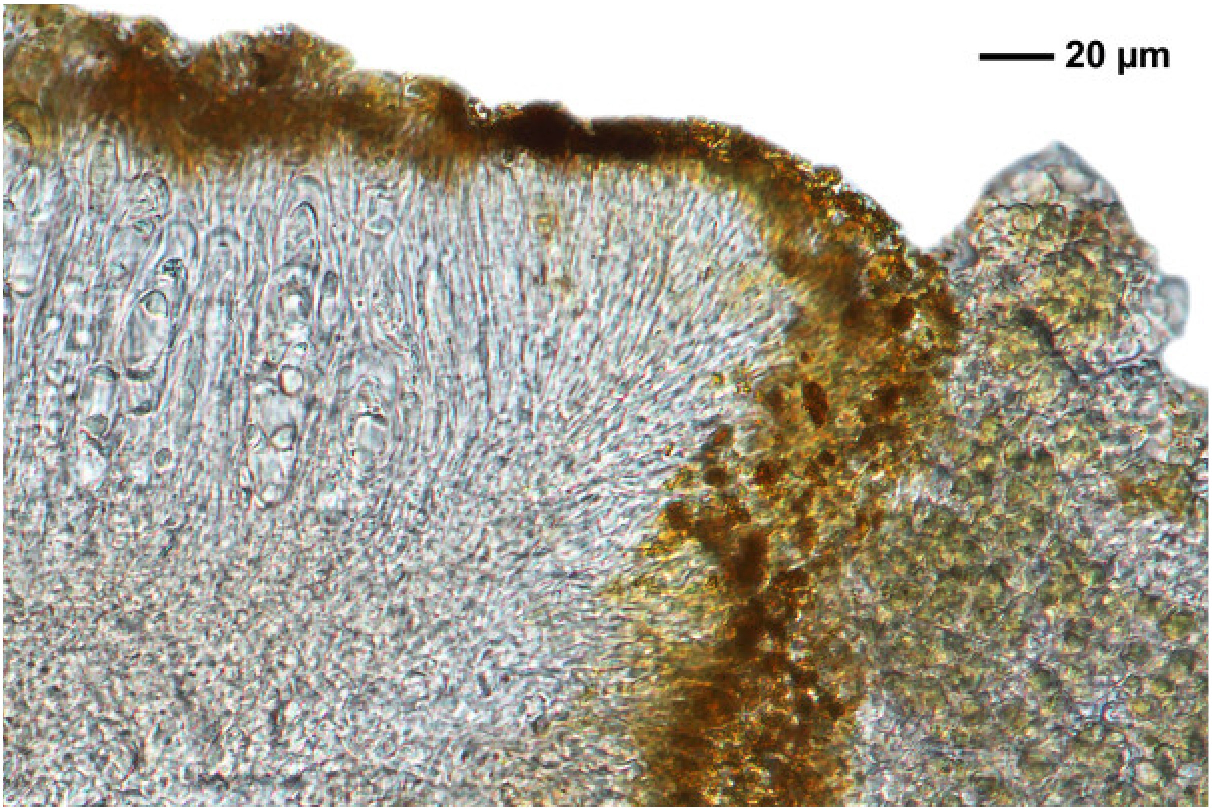


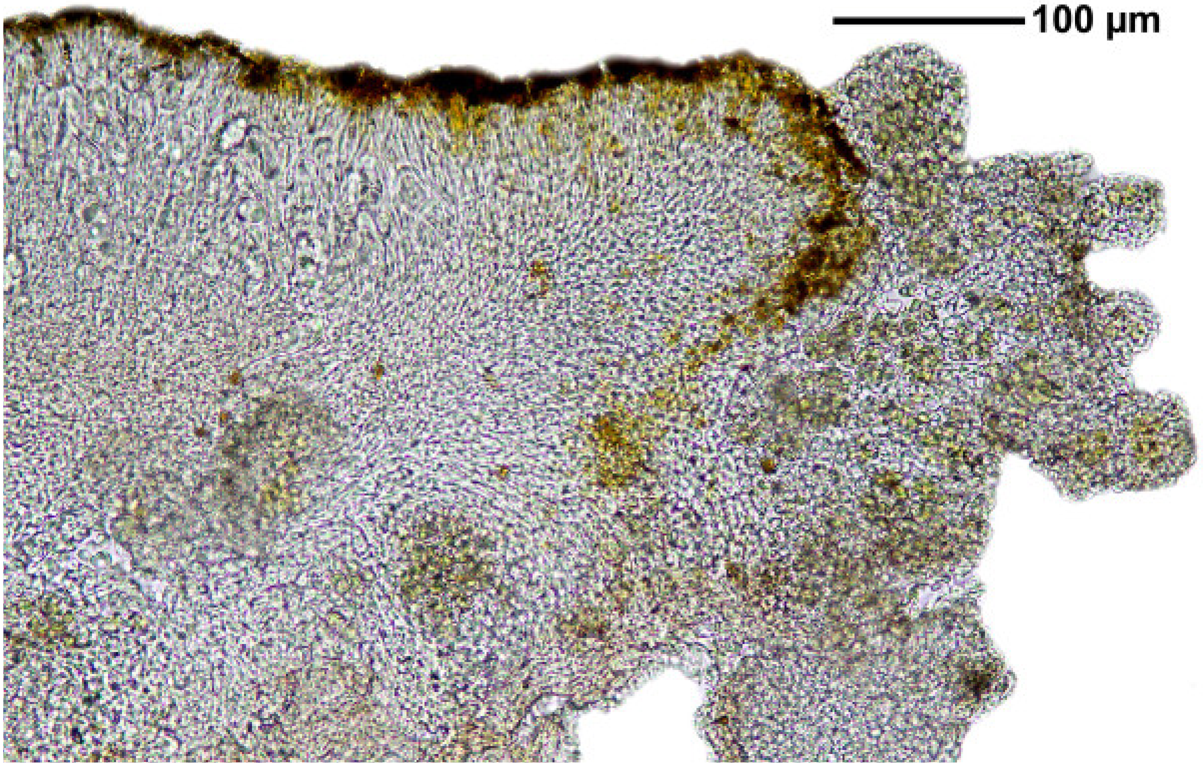


Caloplaca aphanotripta

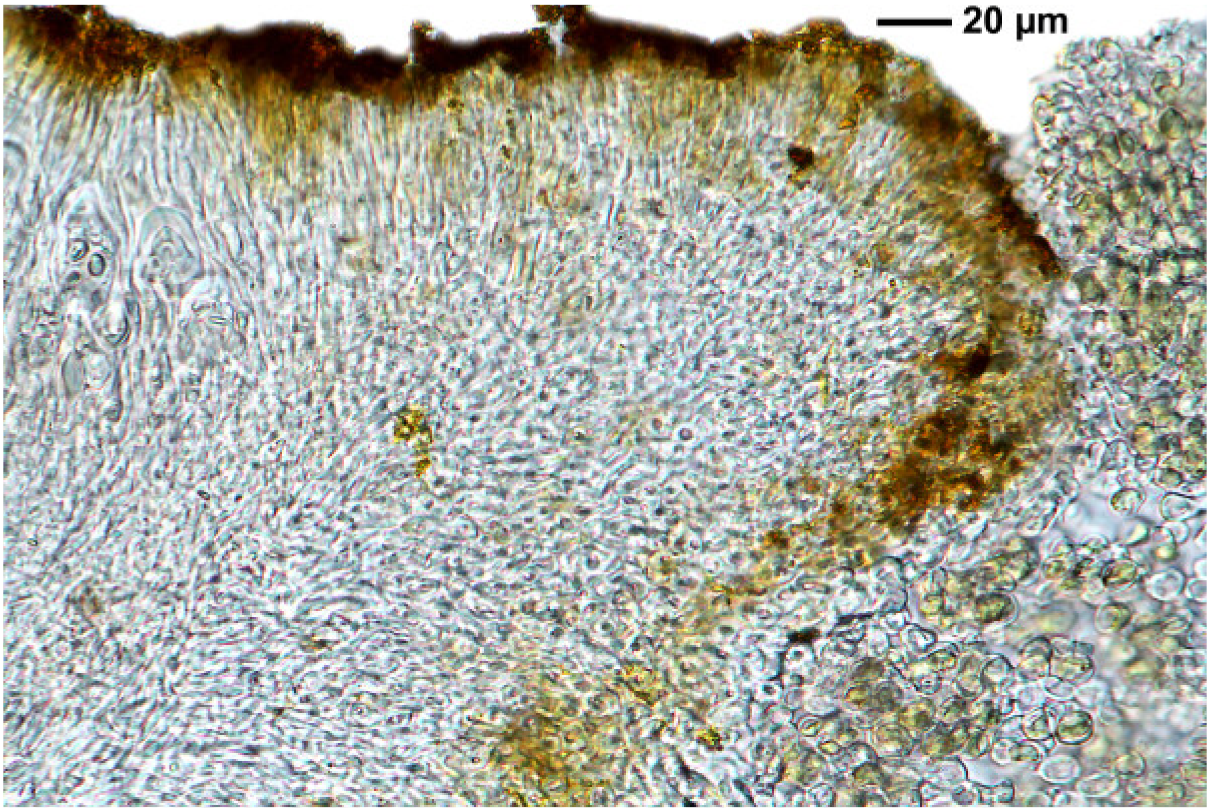


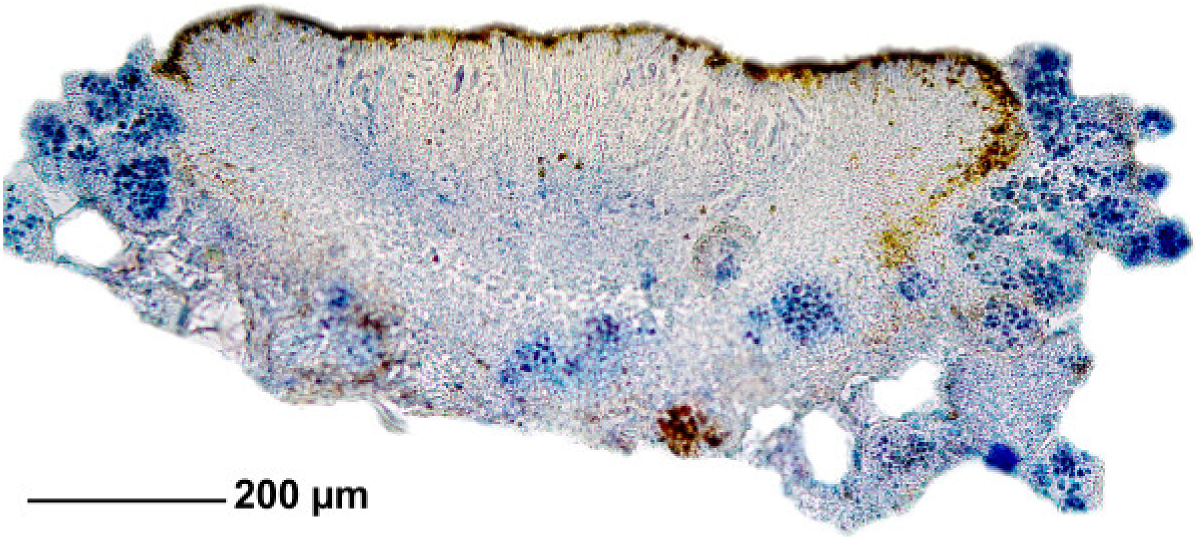
Caloplaca aphanotripta

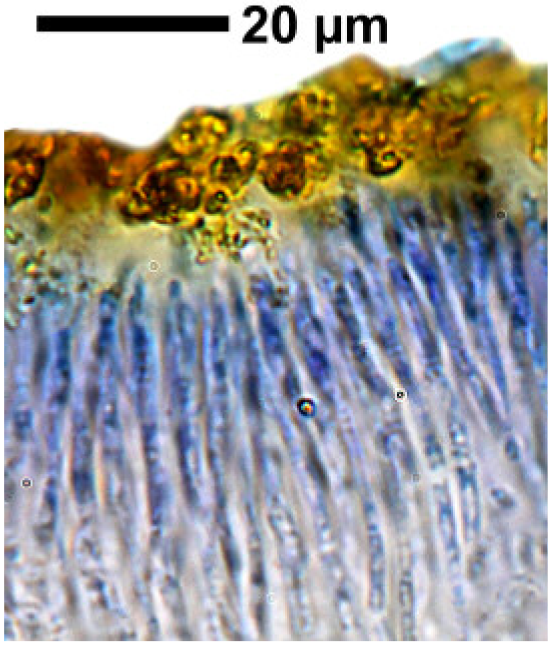




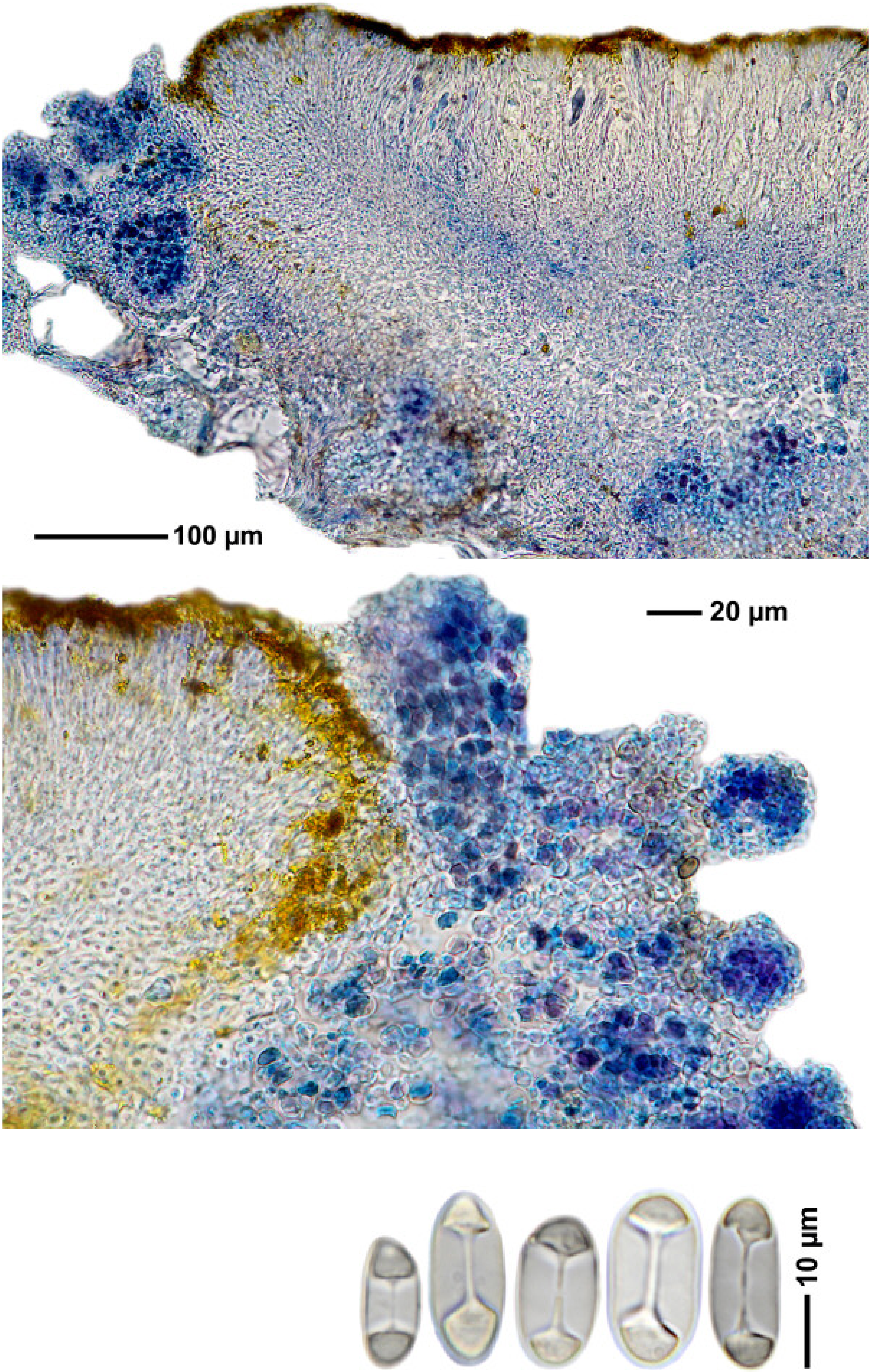
Caloplaca aphanotripta







Caloplaca aphanotripta



Caloplaca aphanotripta

Caloplaca aphanotripta (Nyl.) Zahlbr.

On bark.

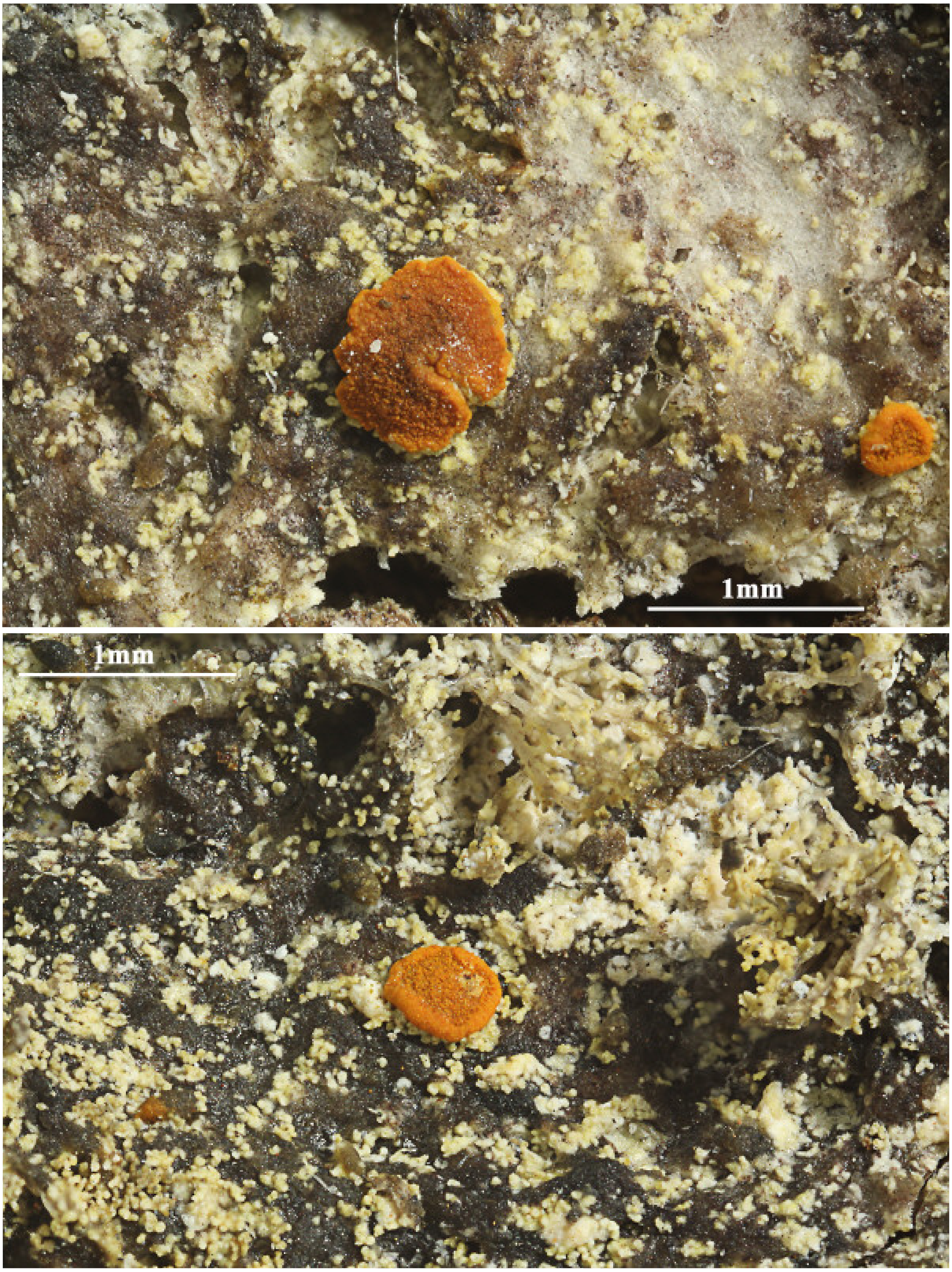
[19612], Sri Lanka, Central Province, Victoria Park-Nuwara Eliya, 6°58' N, 80°46' E, 1872 m, submontane secundary forest. Leg. G. Weerakoon (No. Ne229) & Omal Arachchige, 1.02.2015, det. A. Aptroot 2016.

Caloplaca aphanotripta

Caloplaca aphanotripta (Nyl.) Zahlbr.

On bark.

[19613]. Sri Lanka, Central Province, Horton Plains National Park, Nuwara Eliya, 6°48' N, 80°50' E, 2181 m, montane forest. Leg. G. Weerakoon, P. Wolseley & Omal Arachchige, 23.02.2015, det. A. Aptroot 2016.

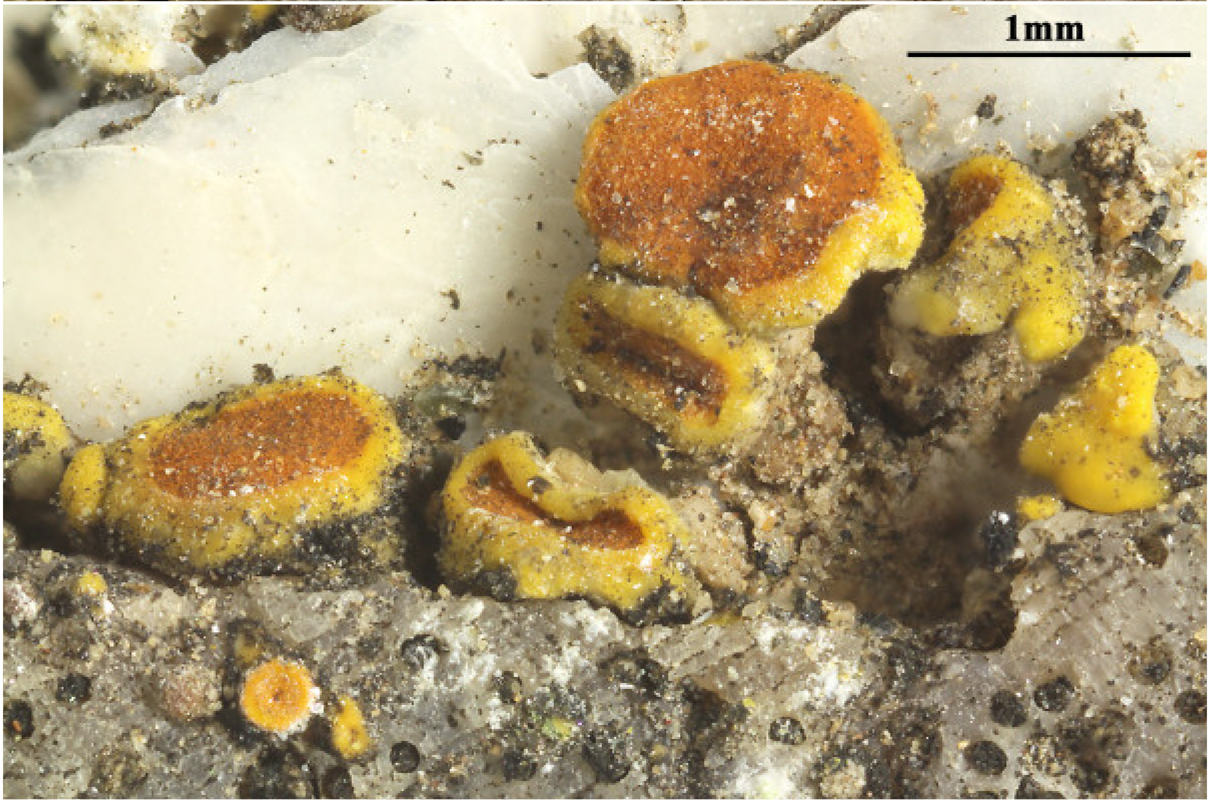


Caloplaca aphanotripta

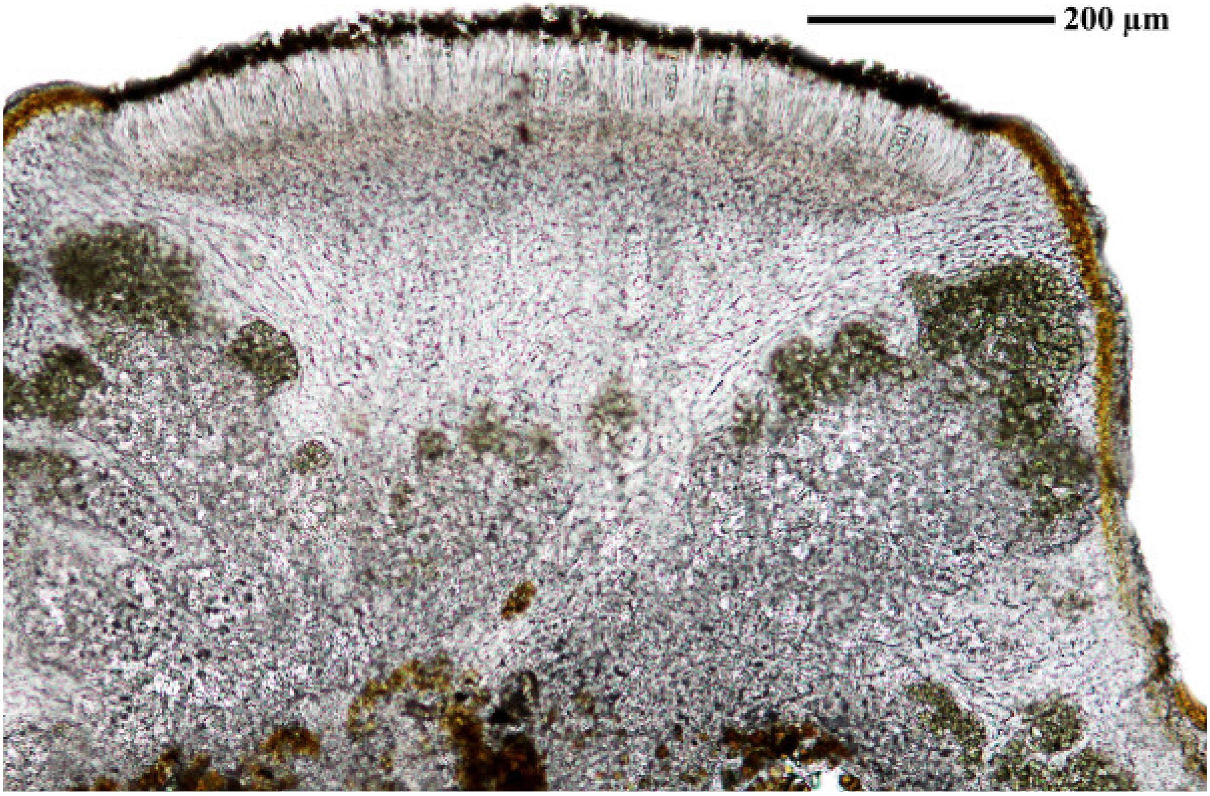
Caloplaca approximata (Lynge) H. Magn.
[= *Amundsenia approximata* (Lynge) Søchting, Arup & Frödén]

Spores 12-14 x 5.5-7 µm, septum 3.8 µm (FS)

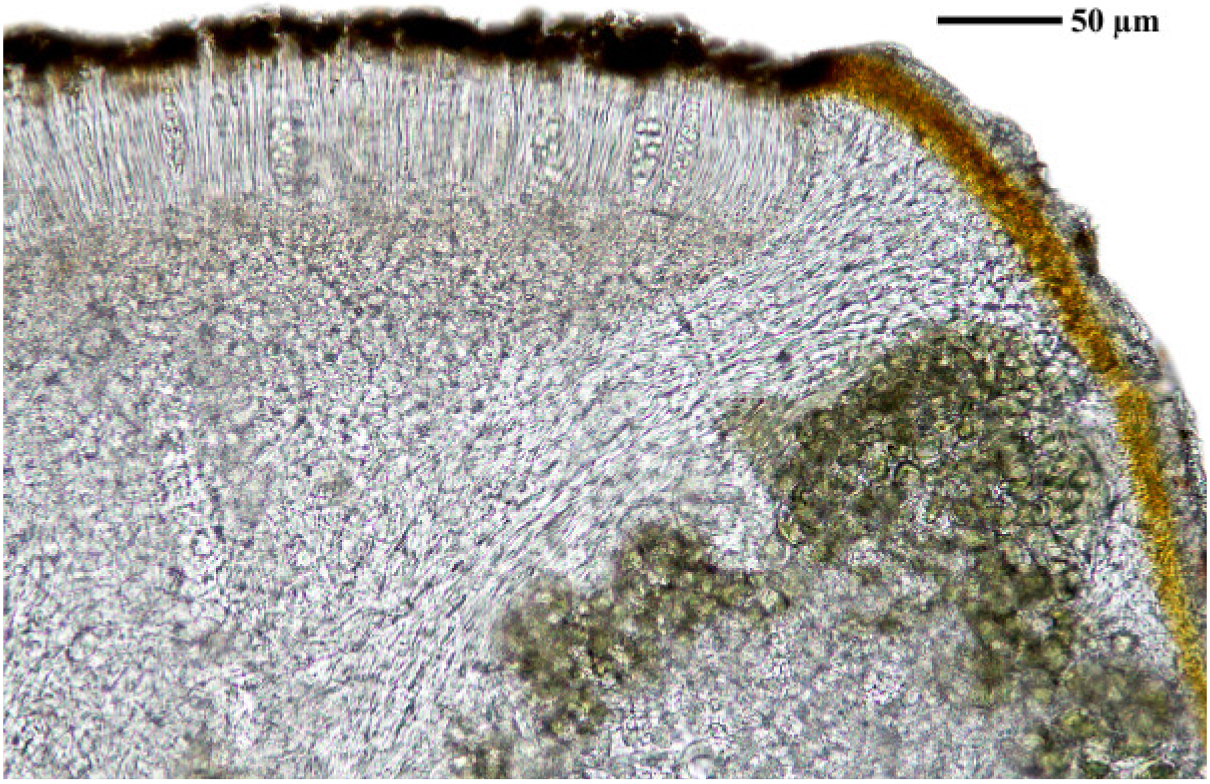
[BR5030035757612], Mexico, Baja California, 100 m strip along Pacific Ocean front NW of Bahia Falsa & W of San Quintin, costal scrub community (*Euphorbia*, *Jatropha*, etc.), on shells in dune area, 30°28' N, 116°02' W, 0-15 m. Leg. A. & M. Aptroot (24497), 4.01.1989, det. A. Aptroot 1989.

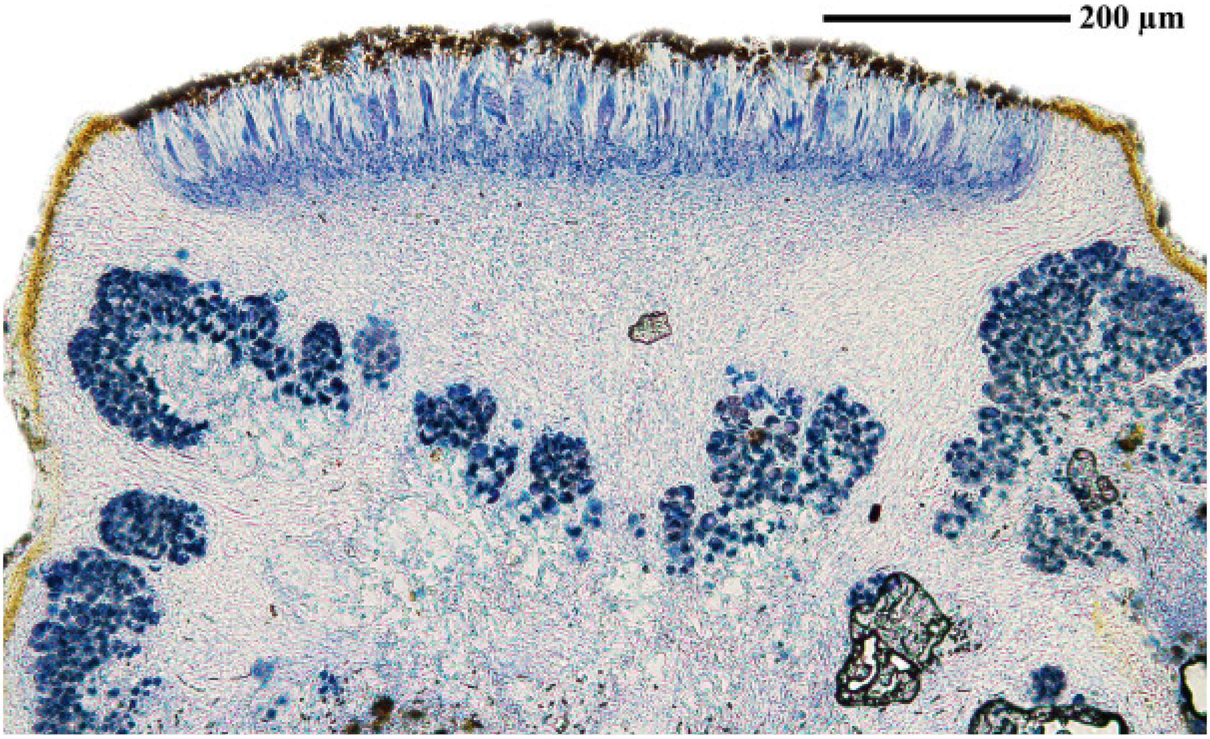


Caloplaca approximata

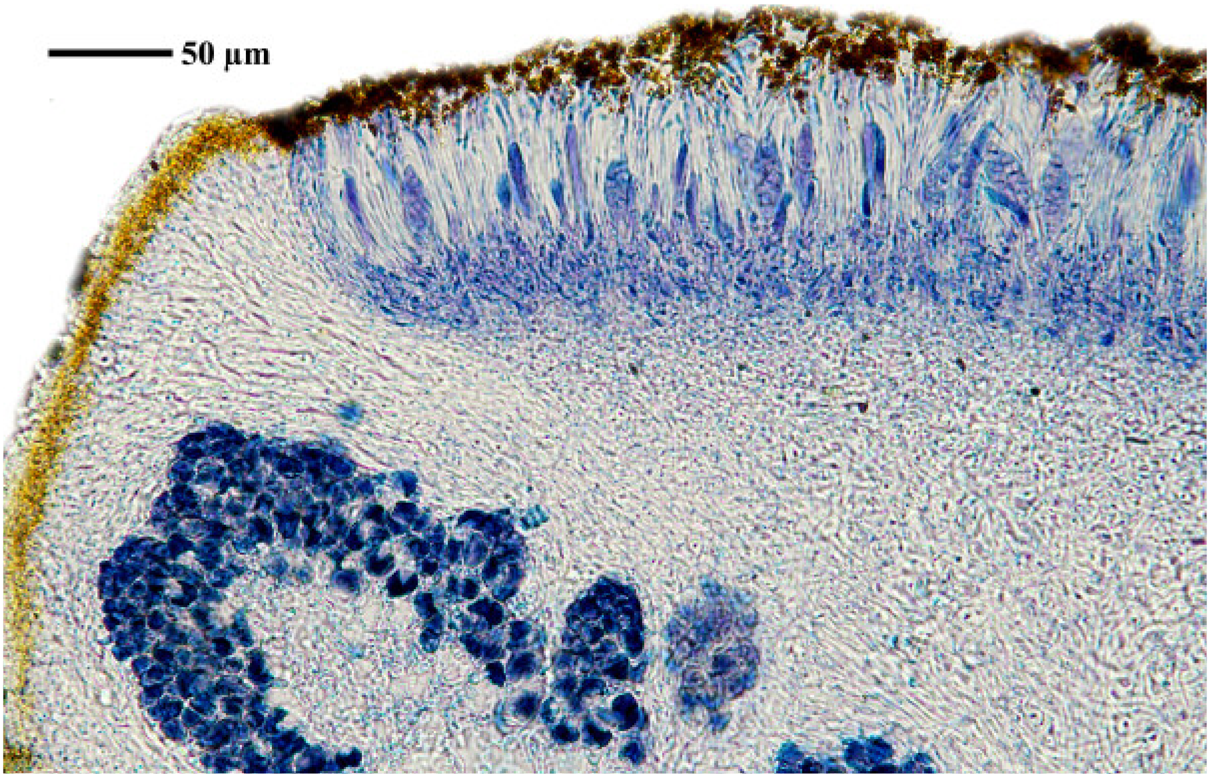


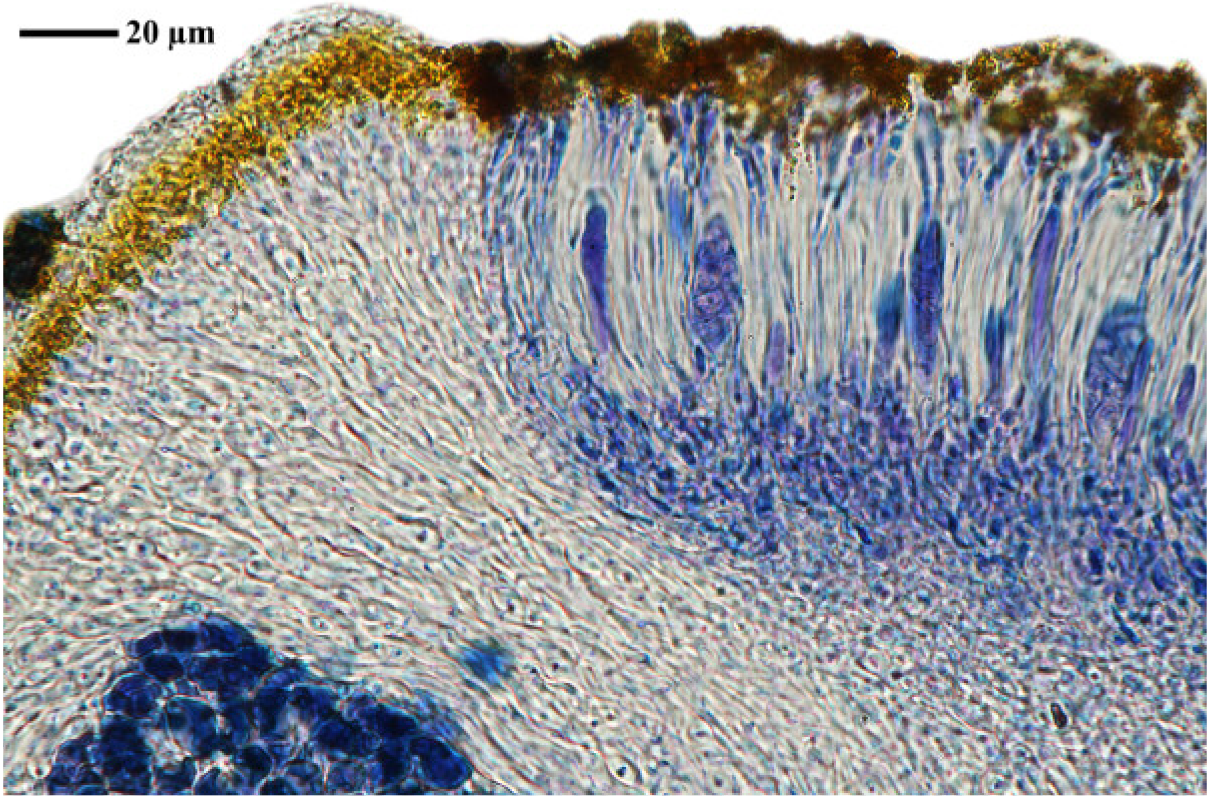
Caloplaca approximata

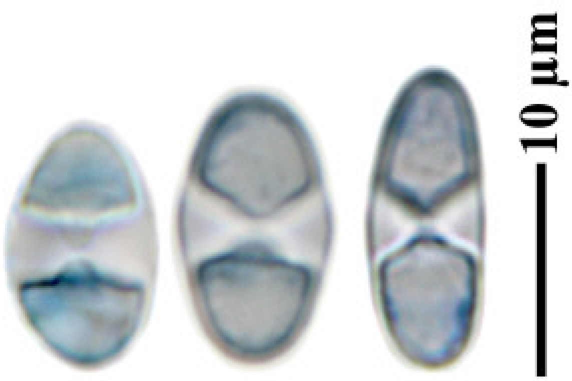




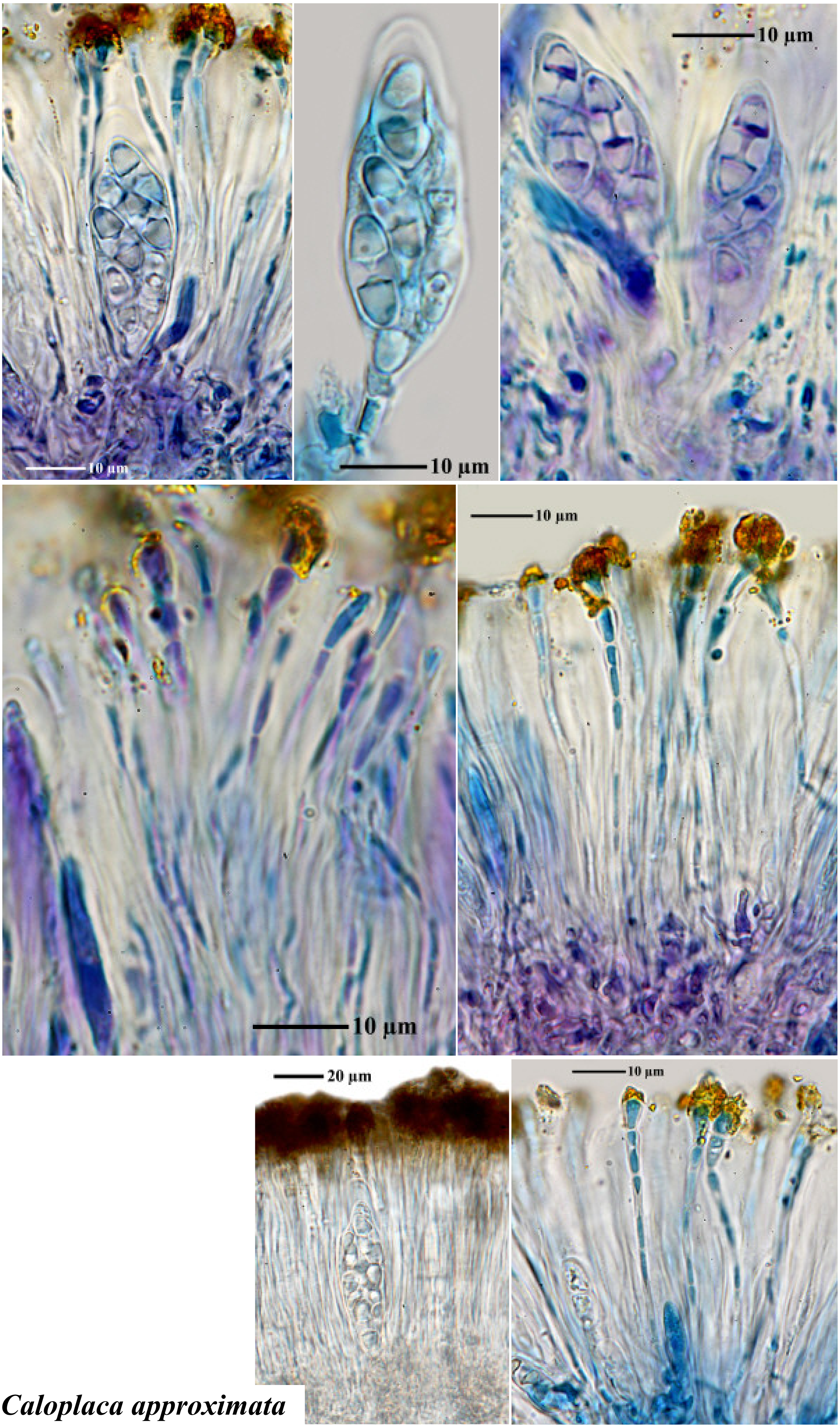
Caloplaca approximata







Caloplaca approximata

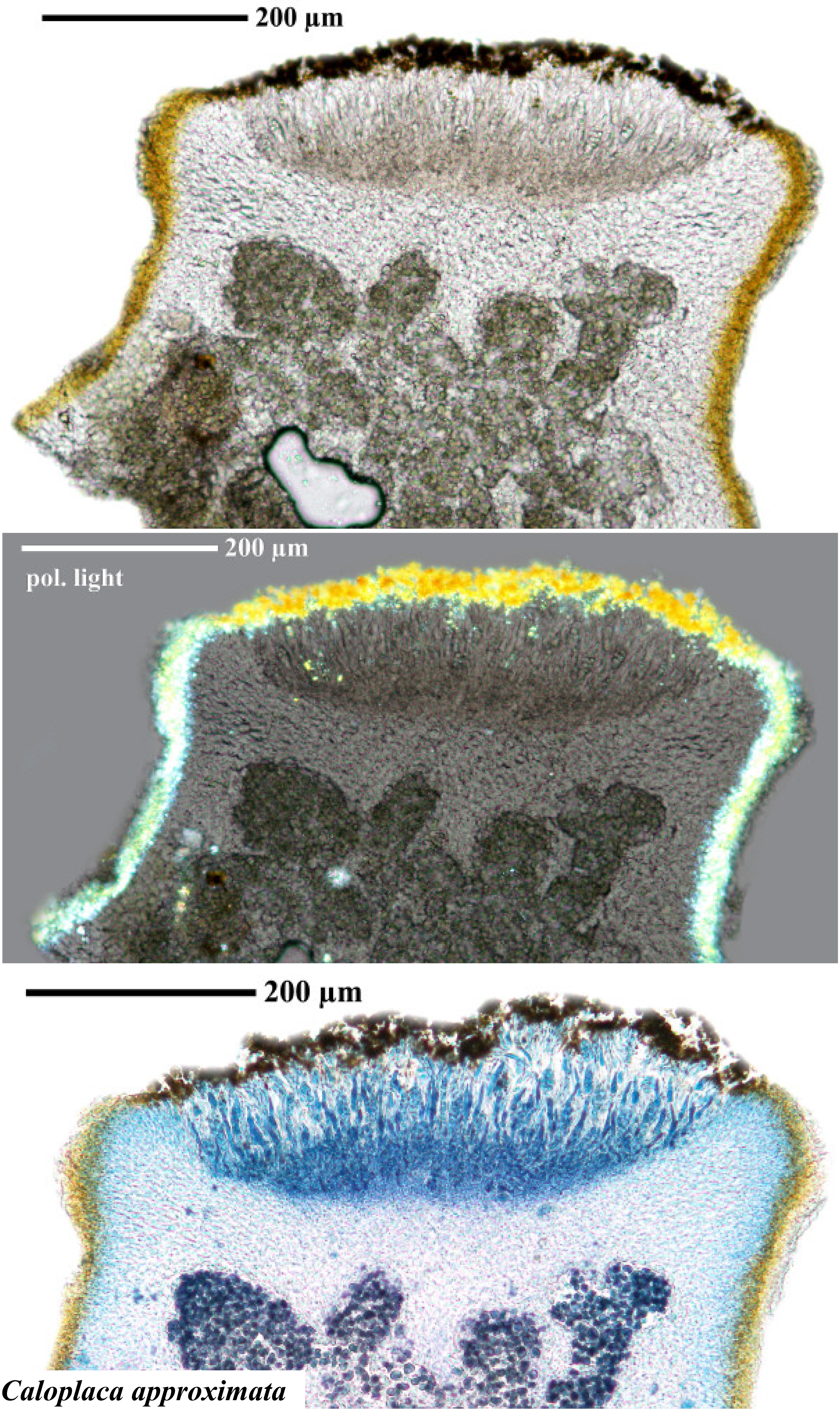


Caloplaca approximata

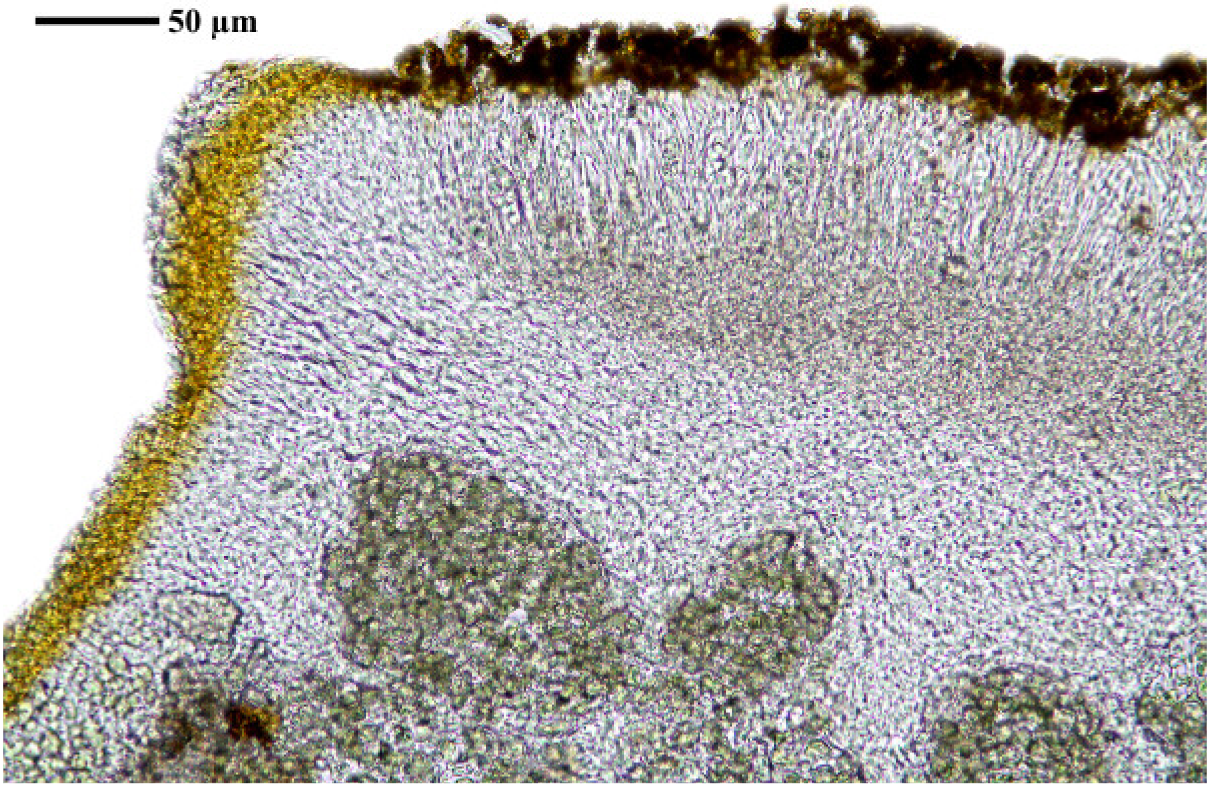
Caloplaca approximata (Lynge) H. Magn.
[= *Amundsenia approximata* (Lynge) Søchting, Arup & Frödén]

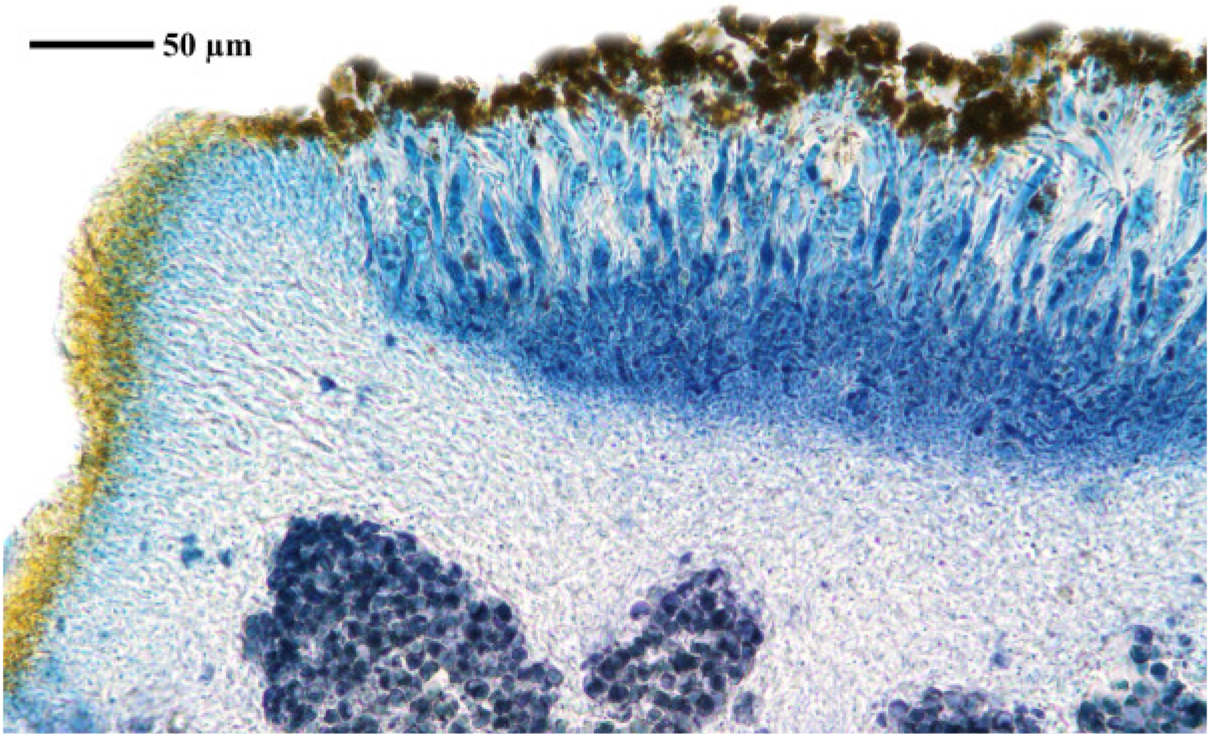
[BR5030035760643], Mexico, Baja California, 100 m strip along Pacific Ocean front NW of Bahia Falsa & W of San Quintin, costal scrub community (*Euphorbia*, *Jatropha*, etc.), on bone in dune area, 30°28' N, 116°02' W, 0-15 m. Leg. A. & M. Aptroot (24485), 4.01.1989, det. A. Aptroot 1989.

Caloplaca approximata

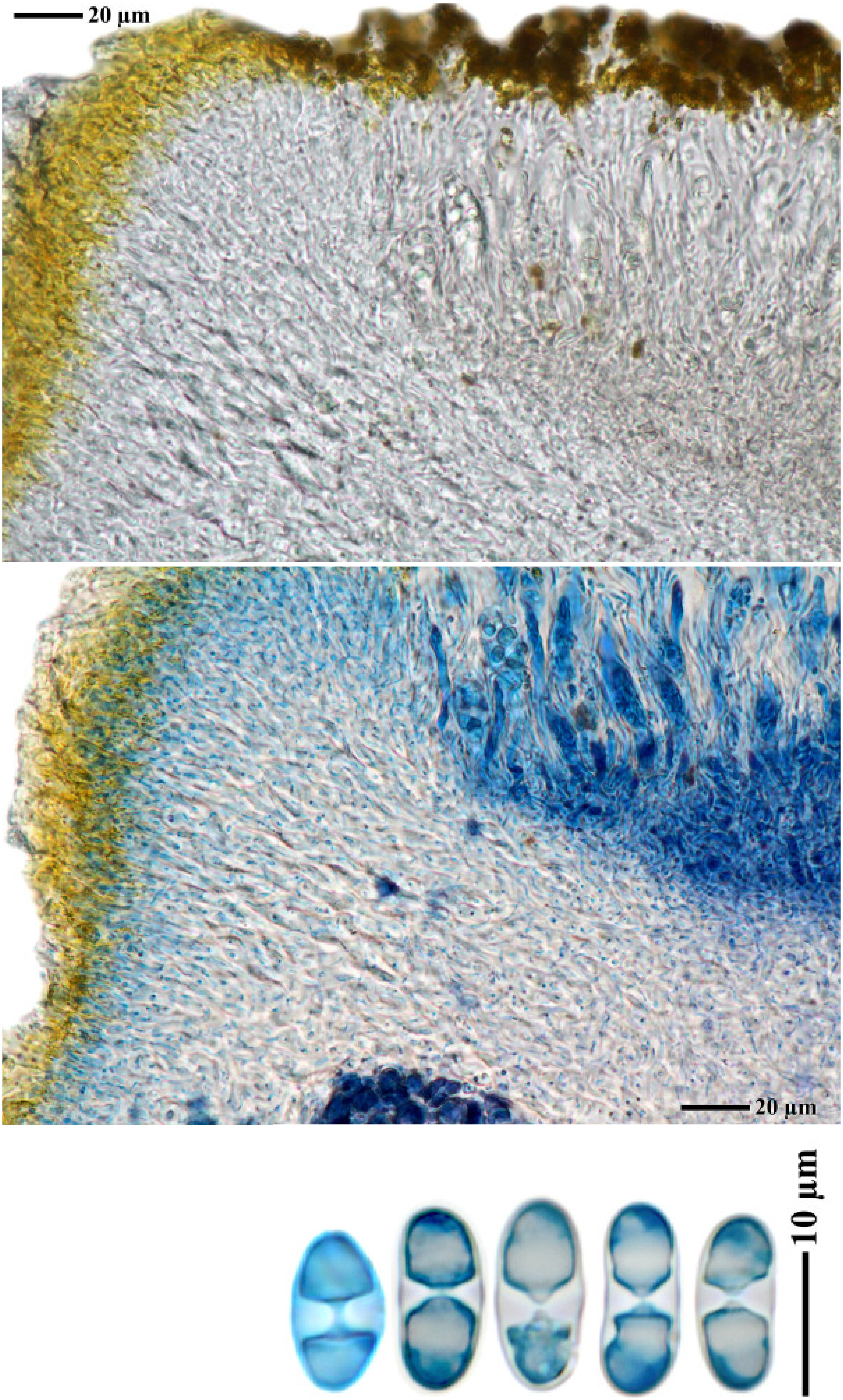


Caloplaca approximata

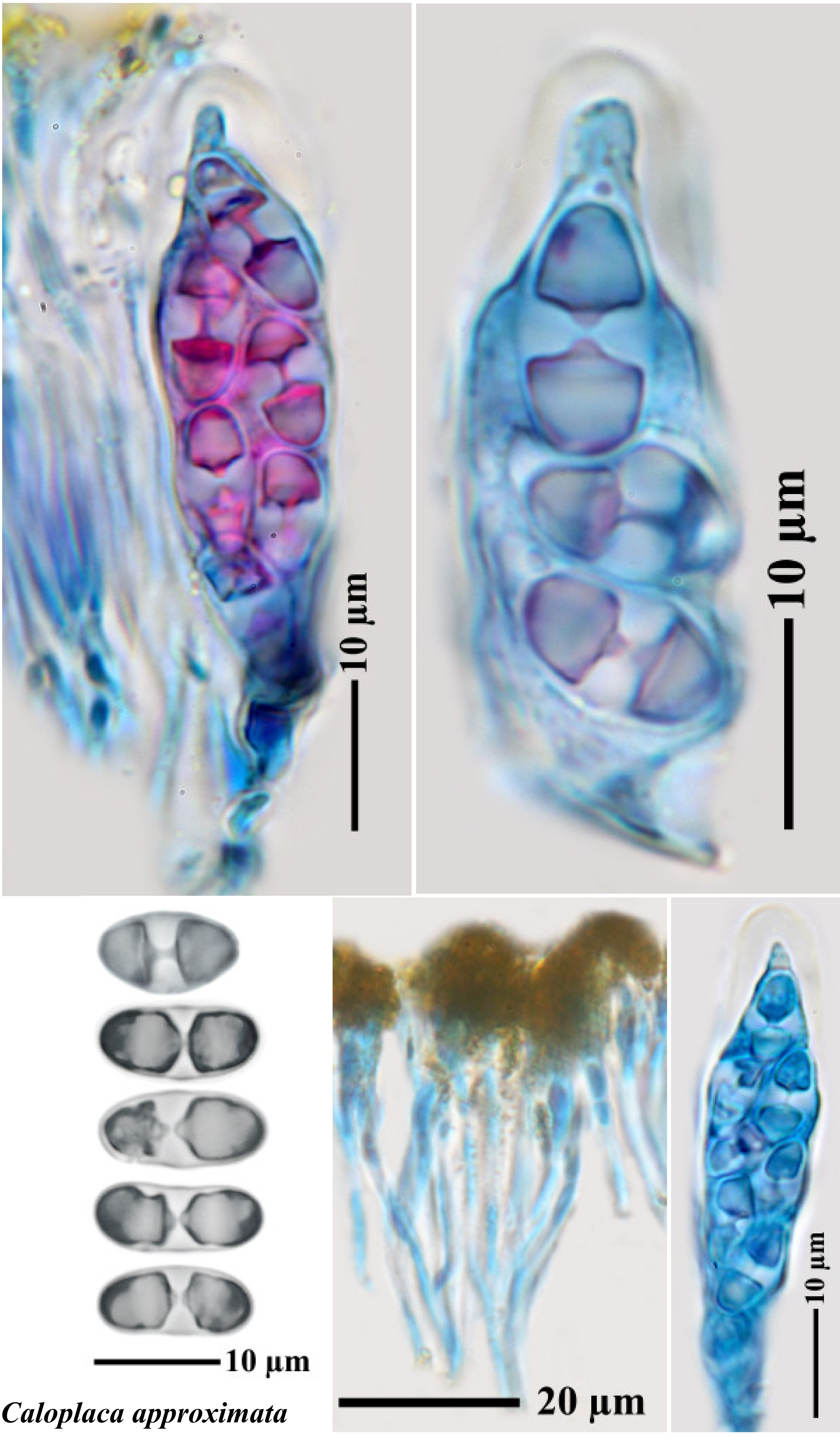




Caloplaca approximata



Caloplaca approximata



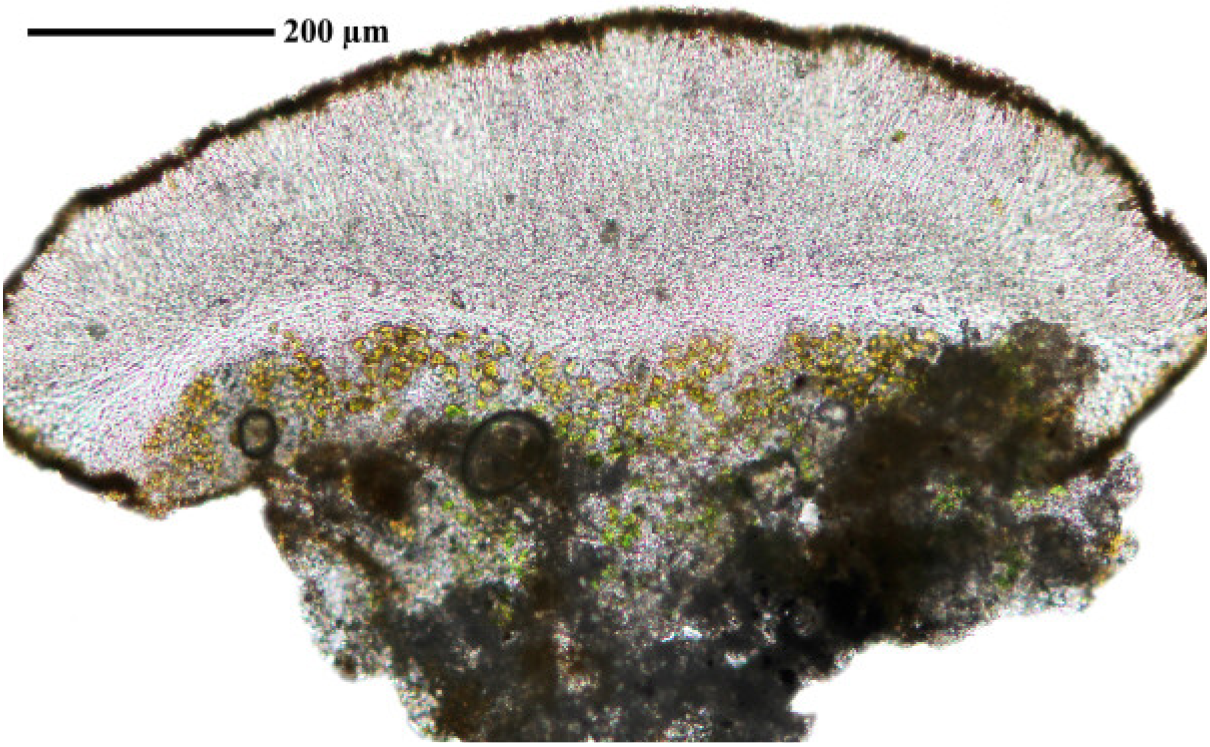
Caloplaca approximata

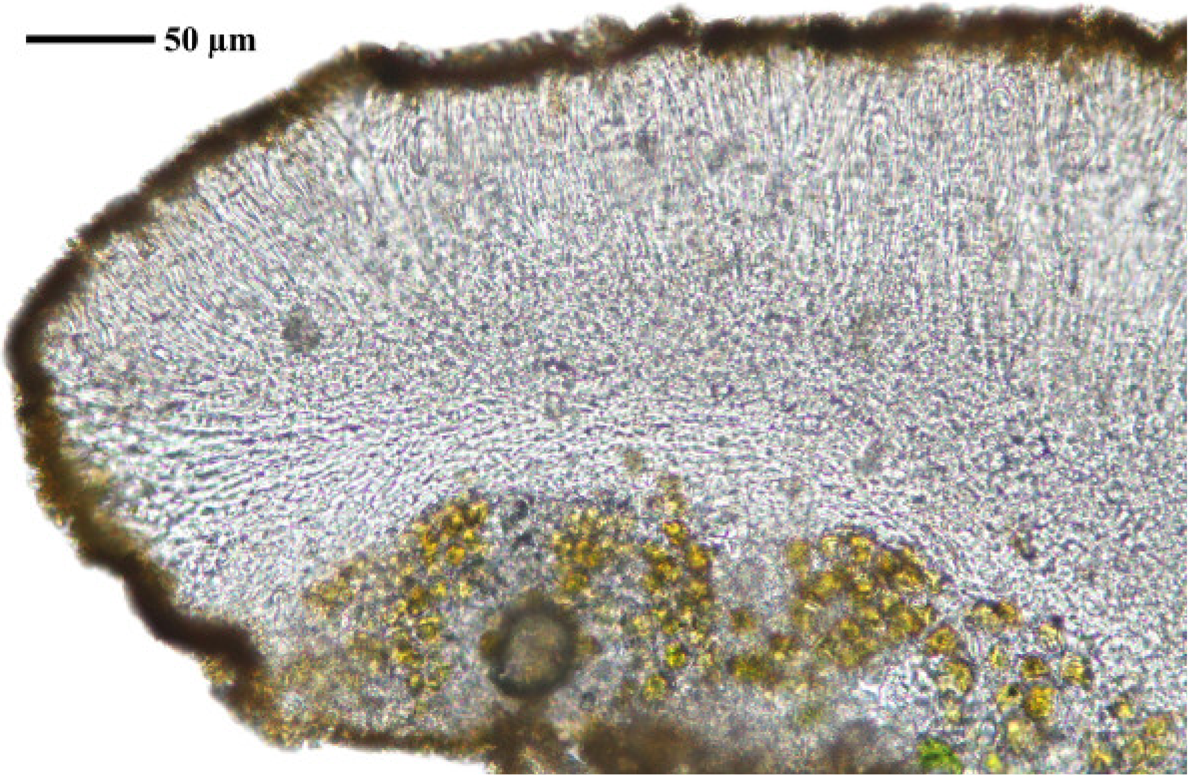
Caloplaca aquensis Houmeau & Cl. Roux
[= *Xanthocarpia aquensis* (Houmeau & Cl. Roux) Frödén, Arup & Søchting]

Spores 14-18 x 6-7 µm, septum (1-)2 µm (Spribille)

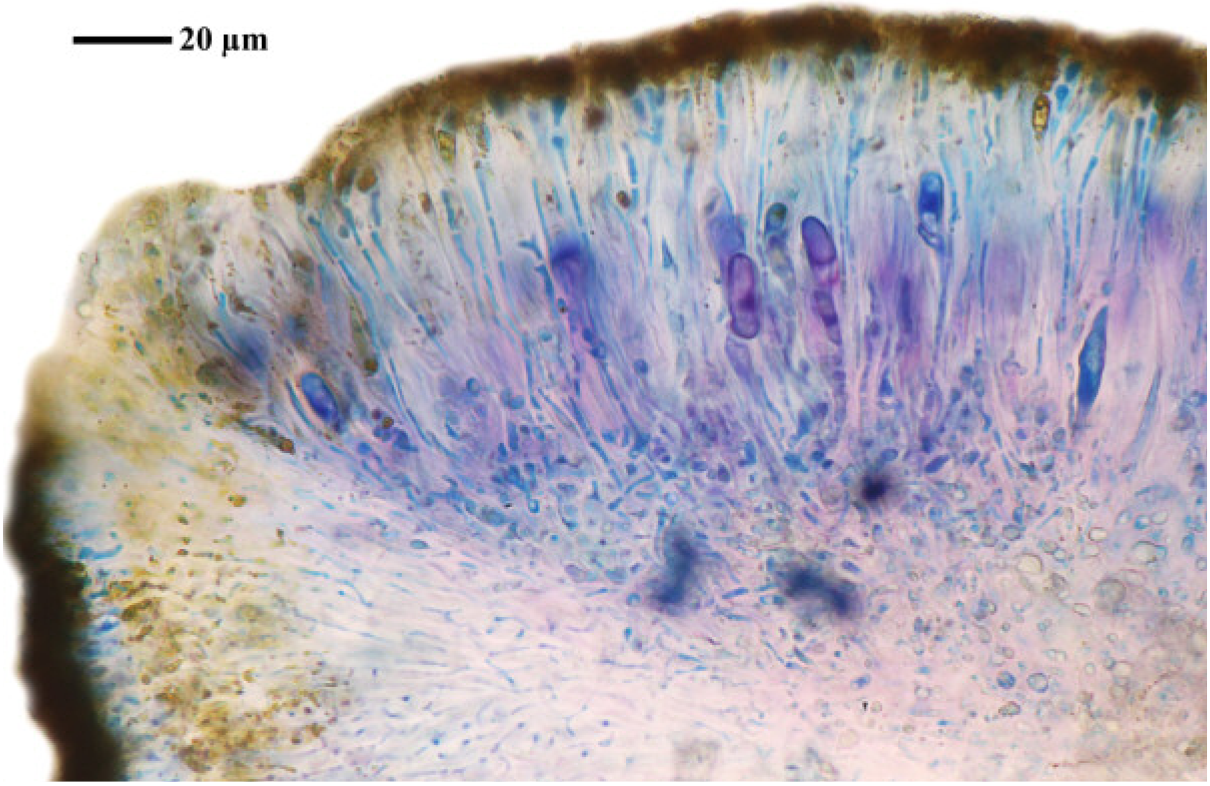
[B 60 0149708], Greece, Crete, West of Pitsidia, Kommos Beach, on consolidated marl/conglomerate, 100-200m from sea, 35°01' N, 24°45' E, 0-5 m above sea level. Leg. T. Spribille (13757) & V. Wagner, V., 18. May 2004, det. C. Roux, 2005.

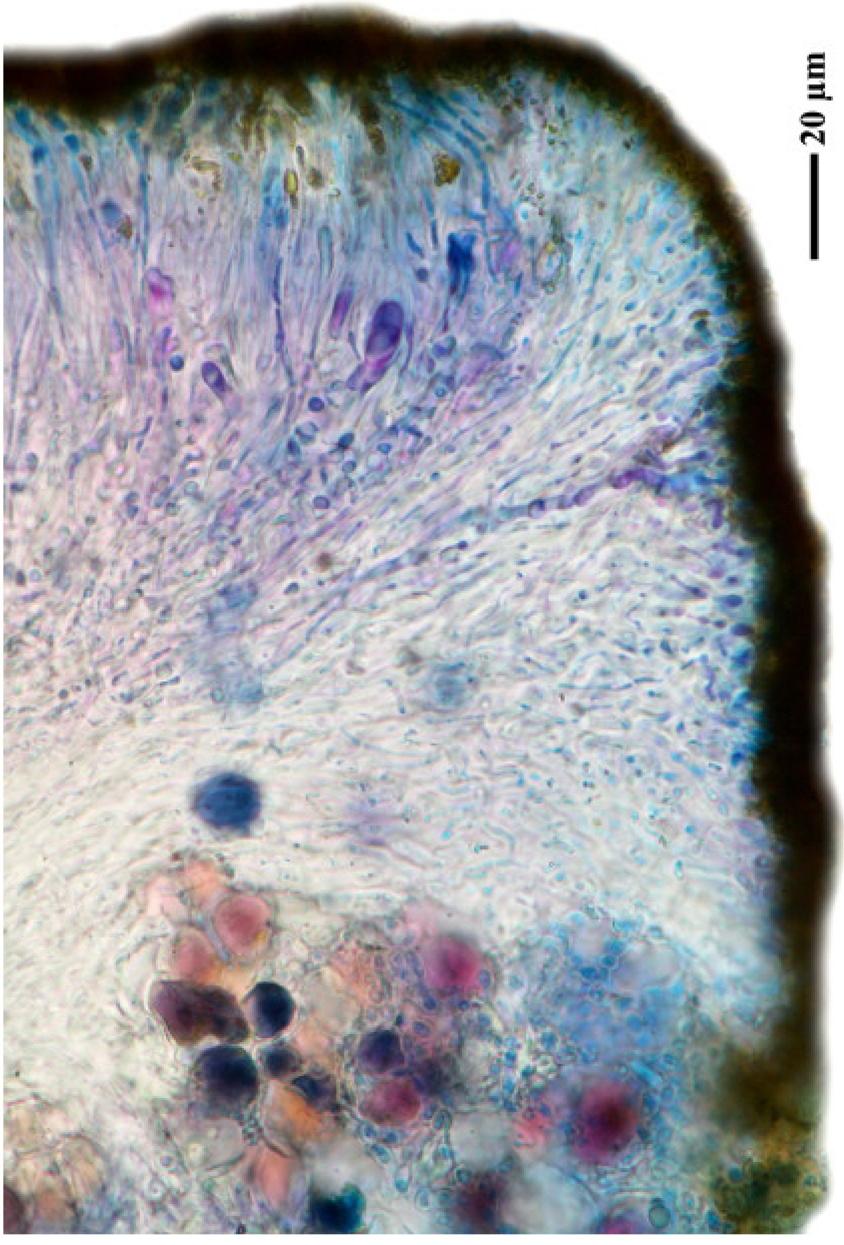
Caloplaca aquensis



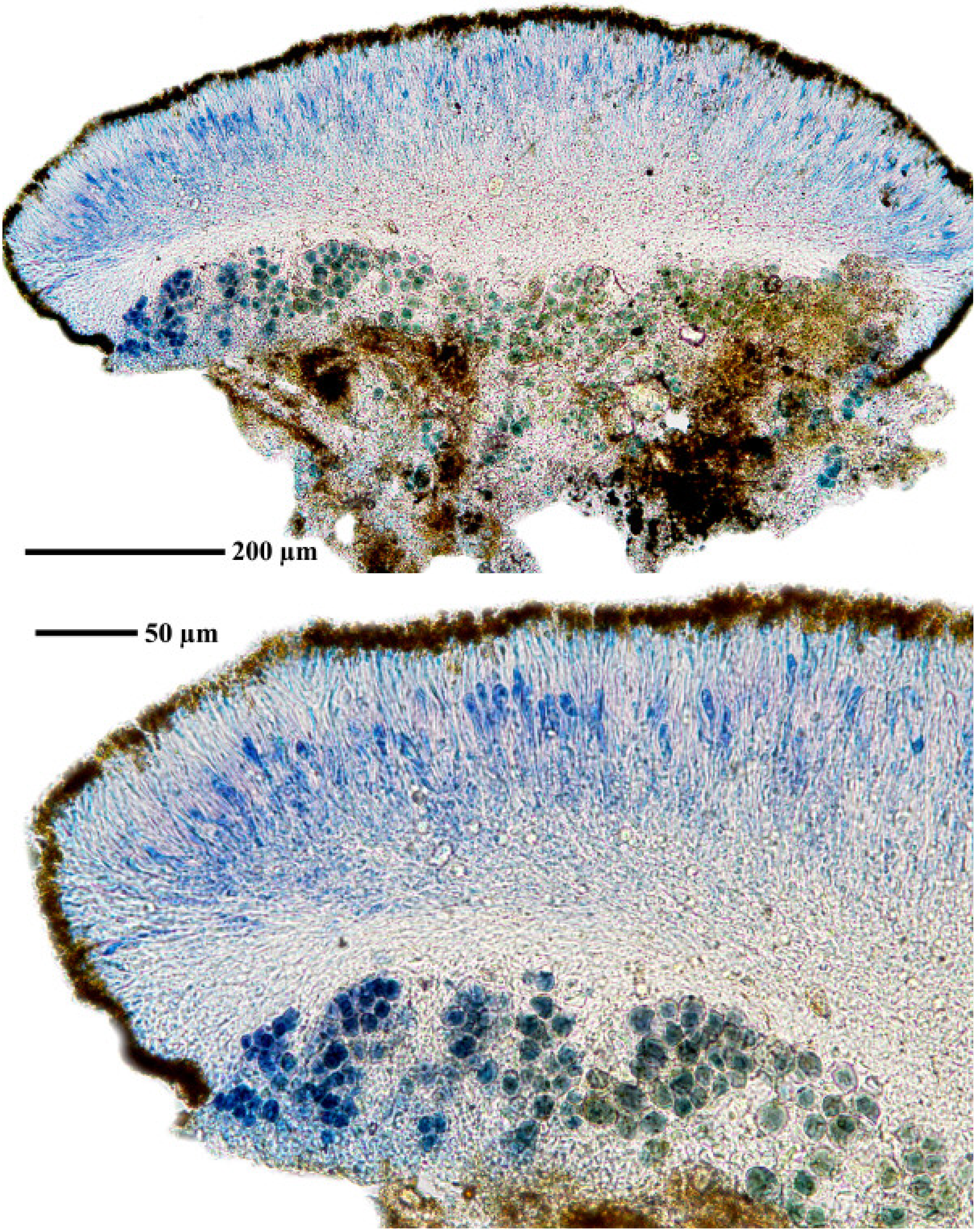


Caloplaca aquensis

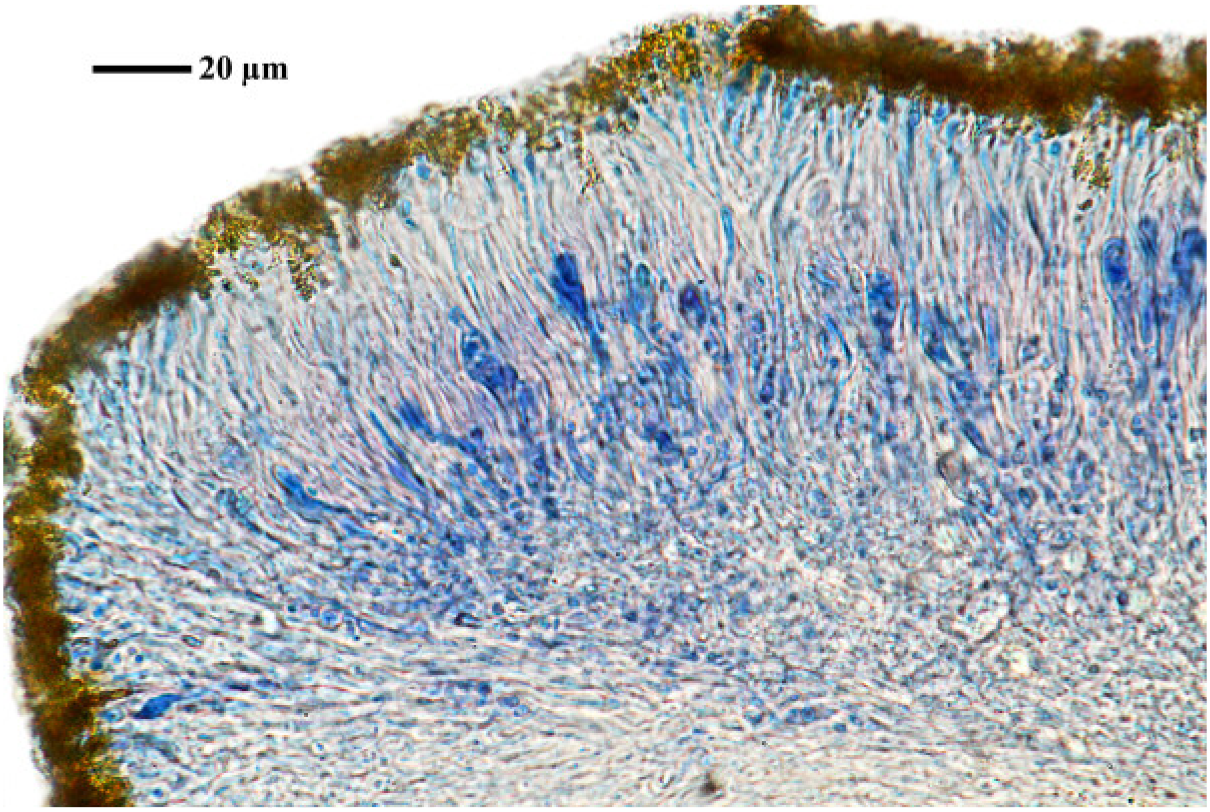


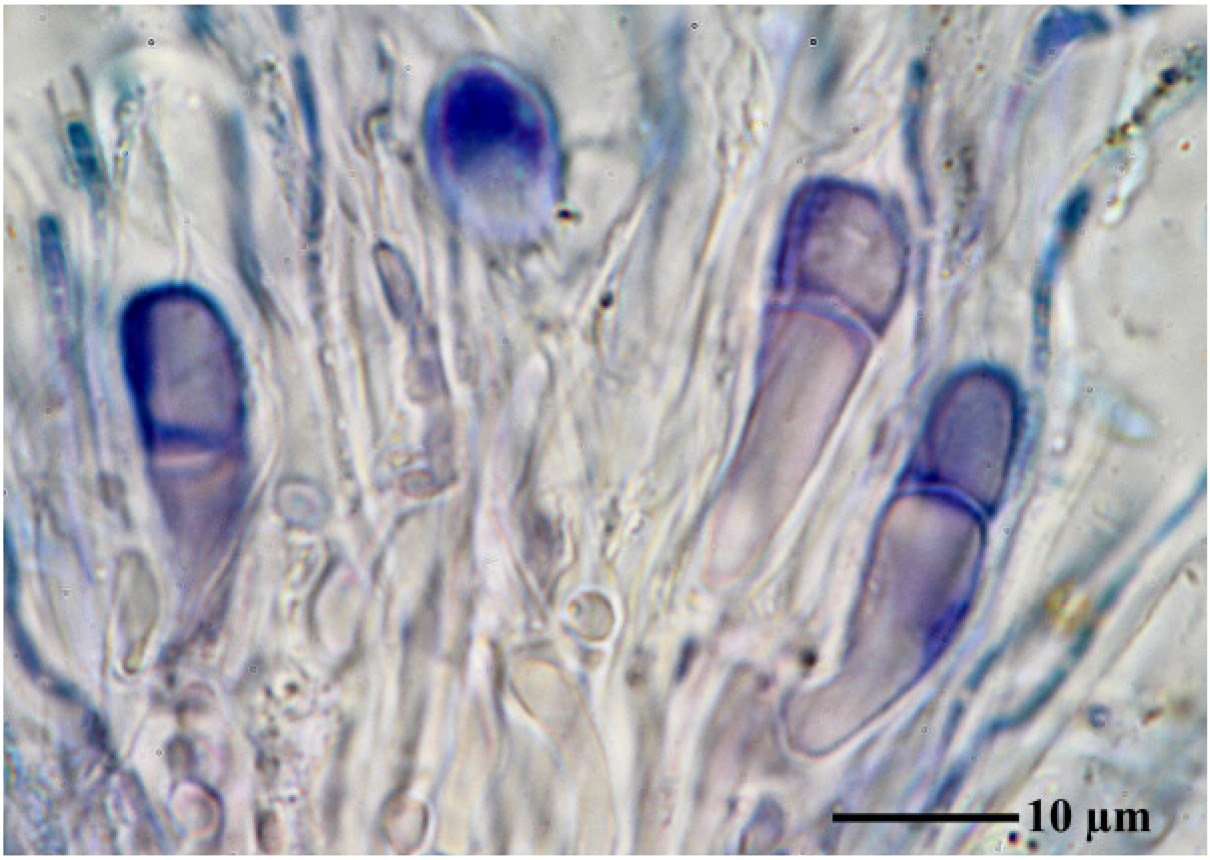


Caloplaca aquensis

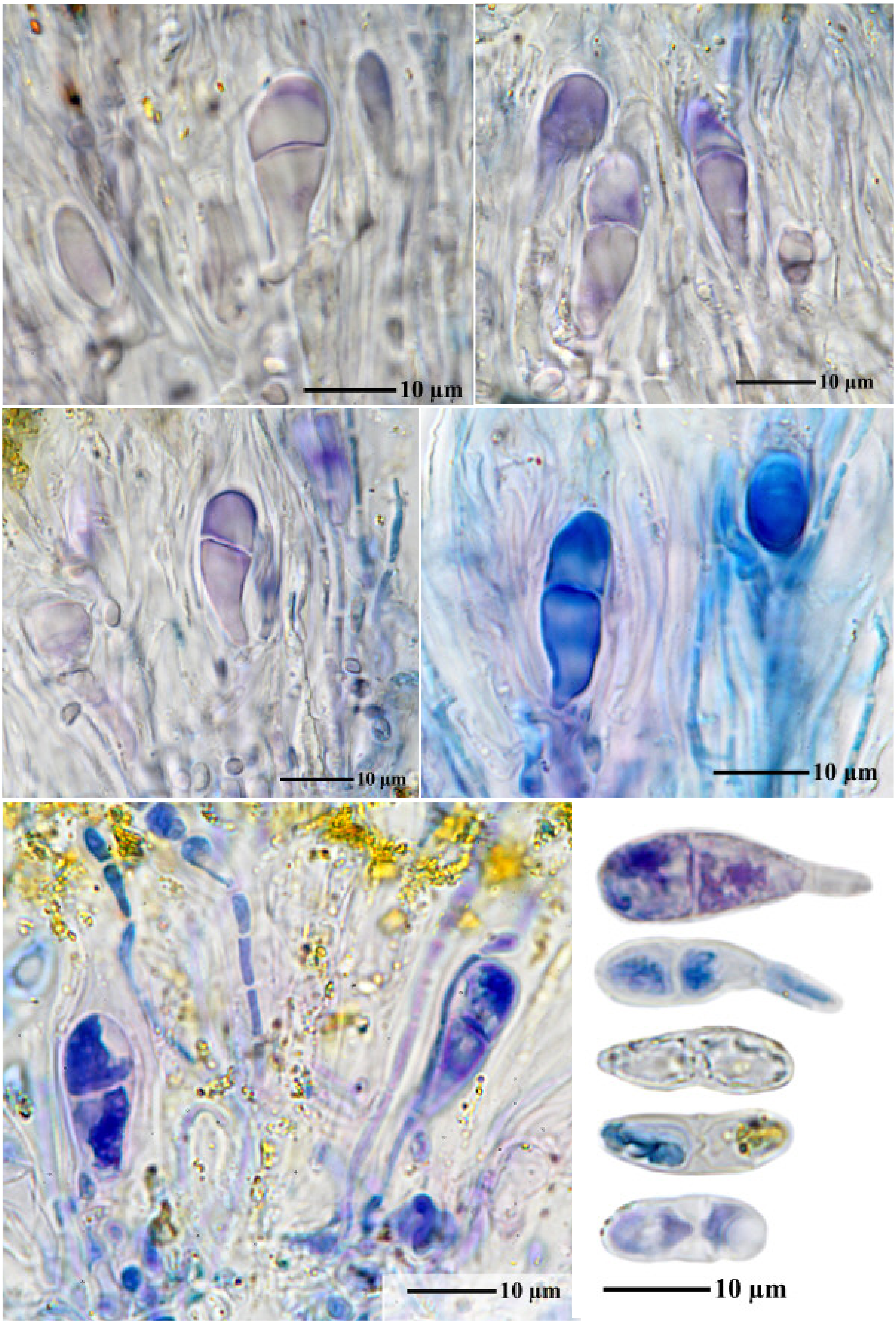


Caloplaca aquensis

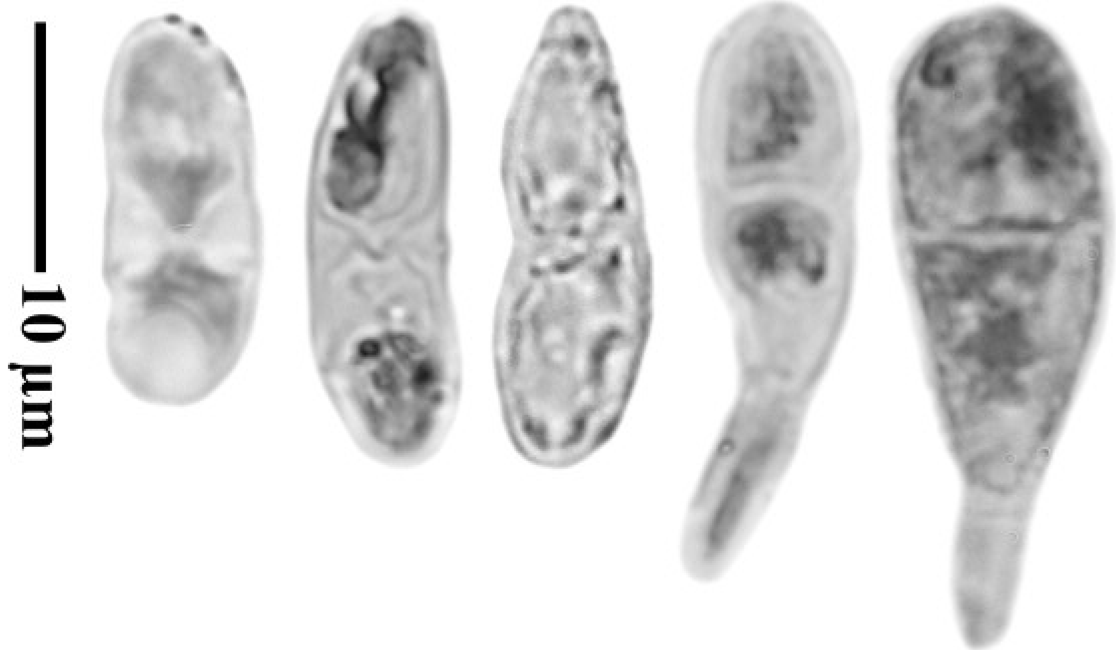


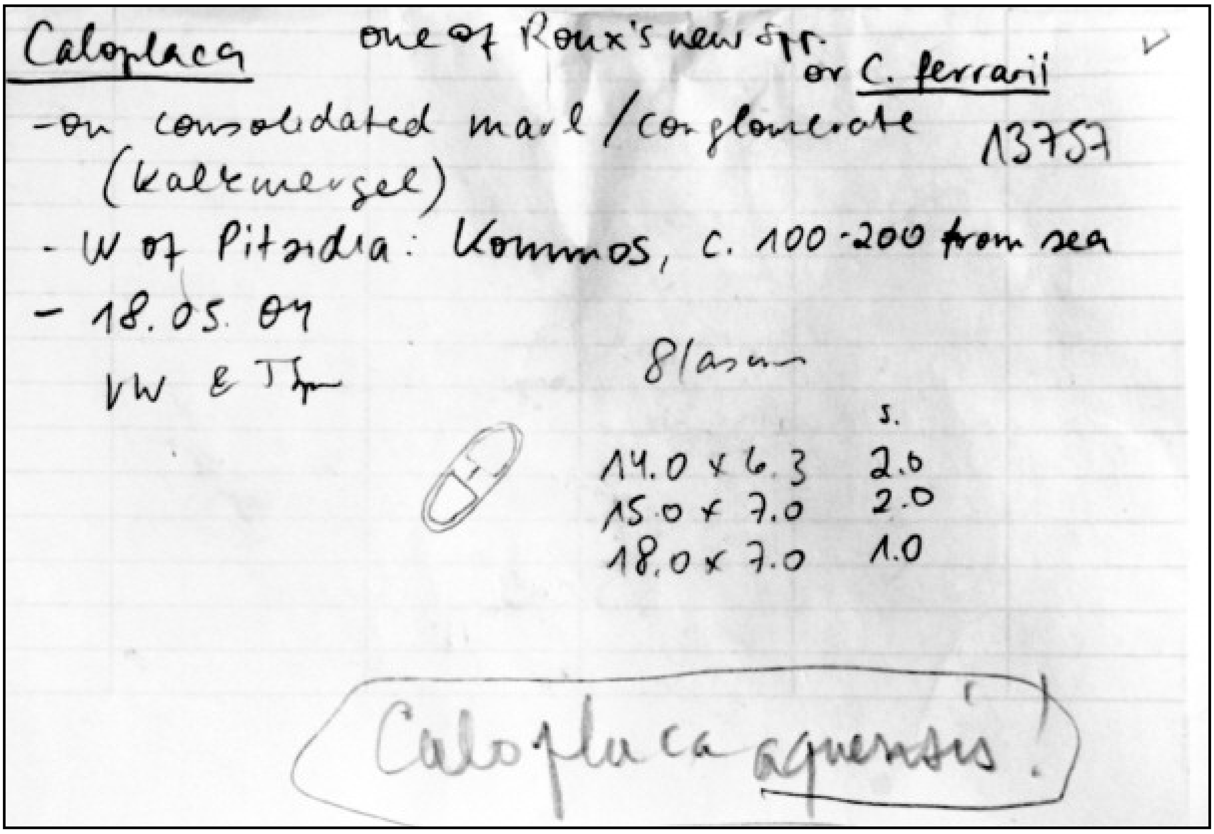


Caloplaca aquensis



Caloplaca aquensis




Caloplaca one of Roux's new spp. or C. ferrarii
- on consolidated marl/conglomerate 13757
(kalkmergel)
- W of Pitsidia: Kommos, c. 100-200 from sea
- 18.05.07
VW & T[illegible]

8/ascus

		s.
	14.0 x 6.3	2.0
	15.0 x 7.0	2.0
	18.0 x 7.0	1.0

Caloplaca aquensis!

Die Sporenform, welche auf dem der Probe beigefügten Zettel abgebildet ist, kann ich nicht bestätigen! Meine Werte: 15.5-18(-19.4) x 5.5-6(-8.3) µm, septum 2.5-3.3 µm. Die im Ascus keimenden Sporen haben dünnes Septum.

Caloplaca aquensis

Caloplaca aractina (Fr.) Häyrén, Landveg. Flor. Meeresfels. Tvärminne: 152 (1914)

[= *Caloplaca cerina* (Hedw.) Th.Fr. var. *aractina* (Fr.) Th.Fr., Lich. Scand. (Upsaliae) 1(1): 174 (1871)

[= *Caloplaca fuscoatra* (Decuillé) Zahlbr., Annln K. K. naturh. Hofmus. Wien 9: 131 (1894)

[= *Caloplaca viridirufa* (Ach.) Zahlbr., Cat. Lich. Univers. 7: 198 (1931)

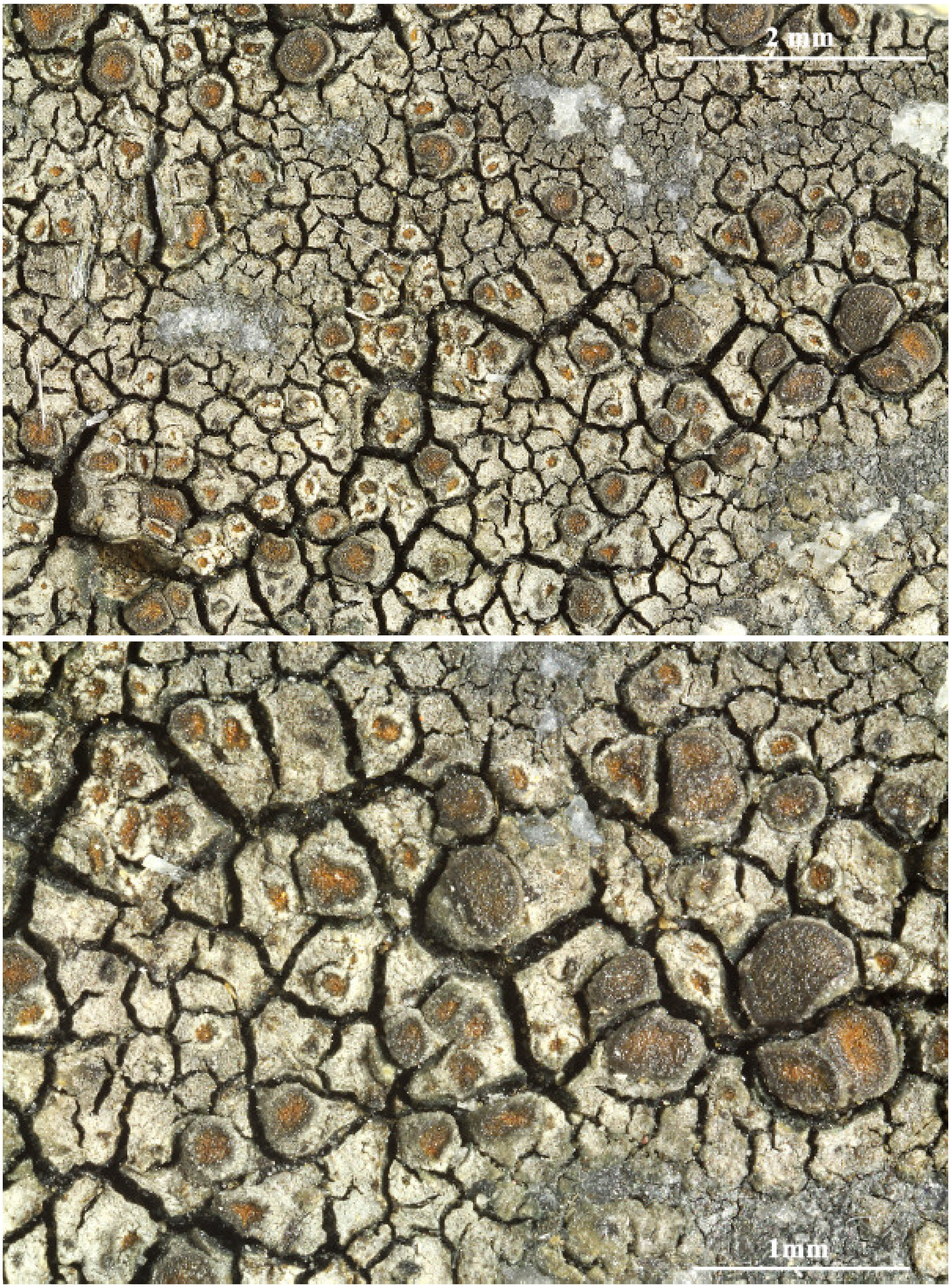
[TSB_8394], Italia, Sardinia, Prov. Cagliari, Isola dei Cavoli, 10 m, on siliceous rocks near the coast. Leg. P.L. Nimis & J. Poelt, 17.07.1985.

Caloplaca aractina

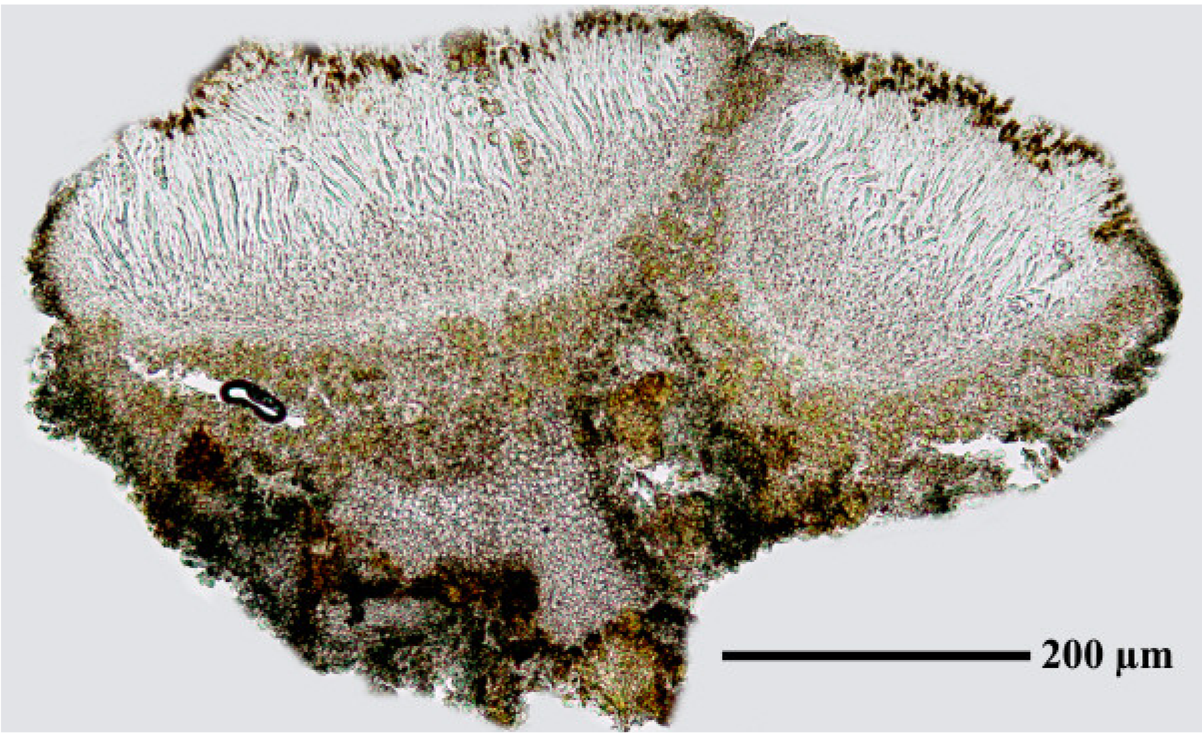
Caloplaca aractina (Fr.) Häyrén

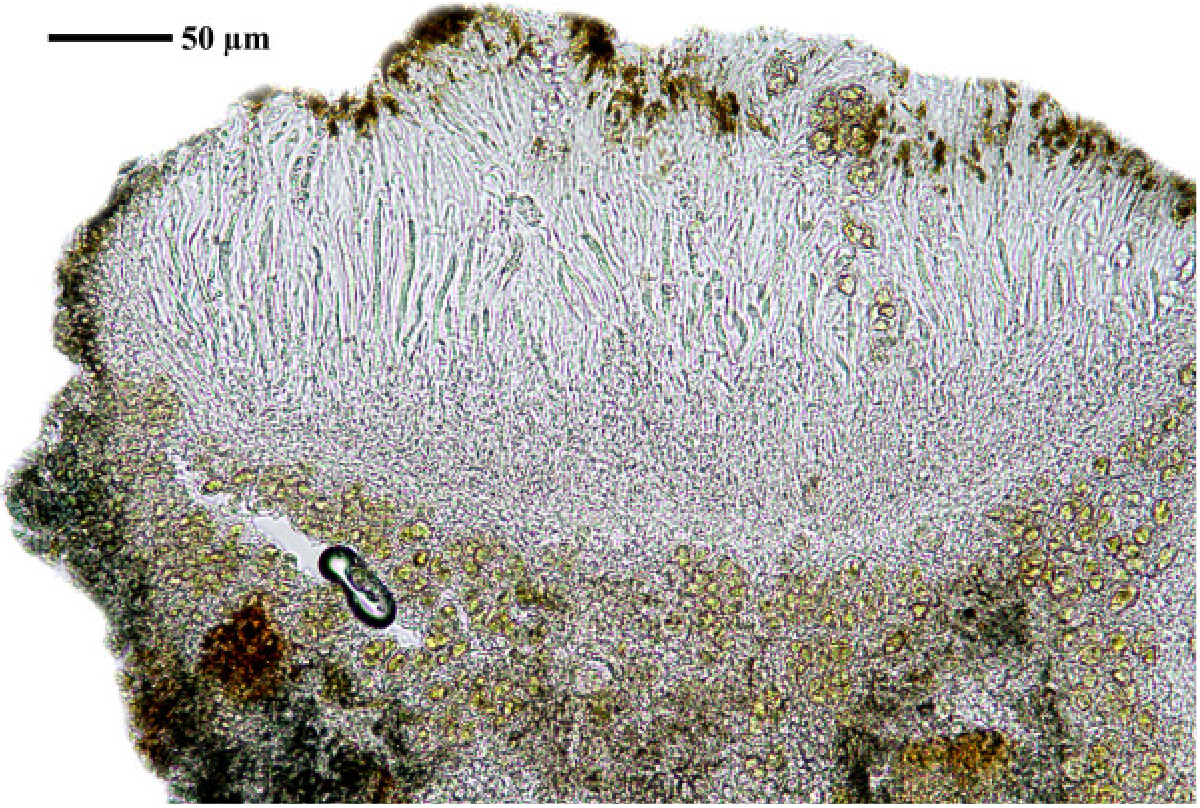
Spores 12 x 6 µm, septum 3 µm (AA); 11 x 6-7. septum 3 µm (FS)

[BR5030035765693], Spain, Extremadura, 40 km ENE of Plosencia, sunny rock in stream, 950 m. Leg. P. v. d. Boom (8804),17.7.1989, det A. Aptroot 1990.

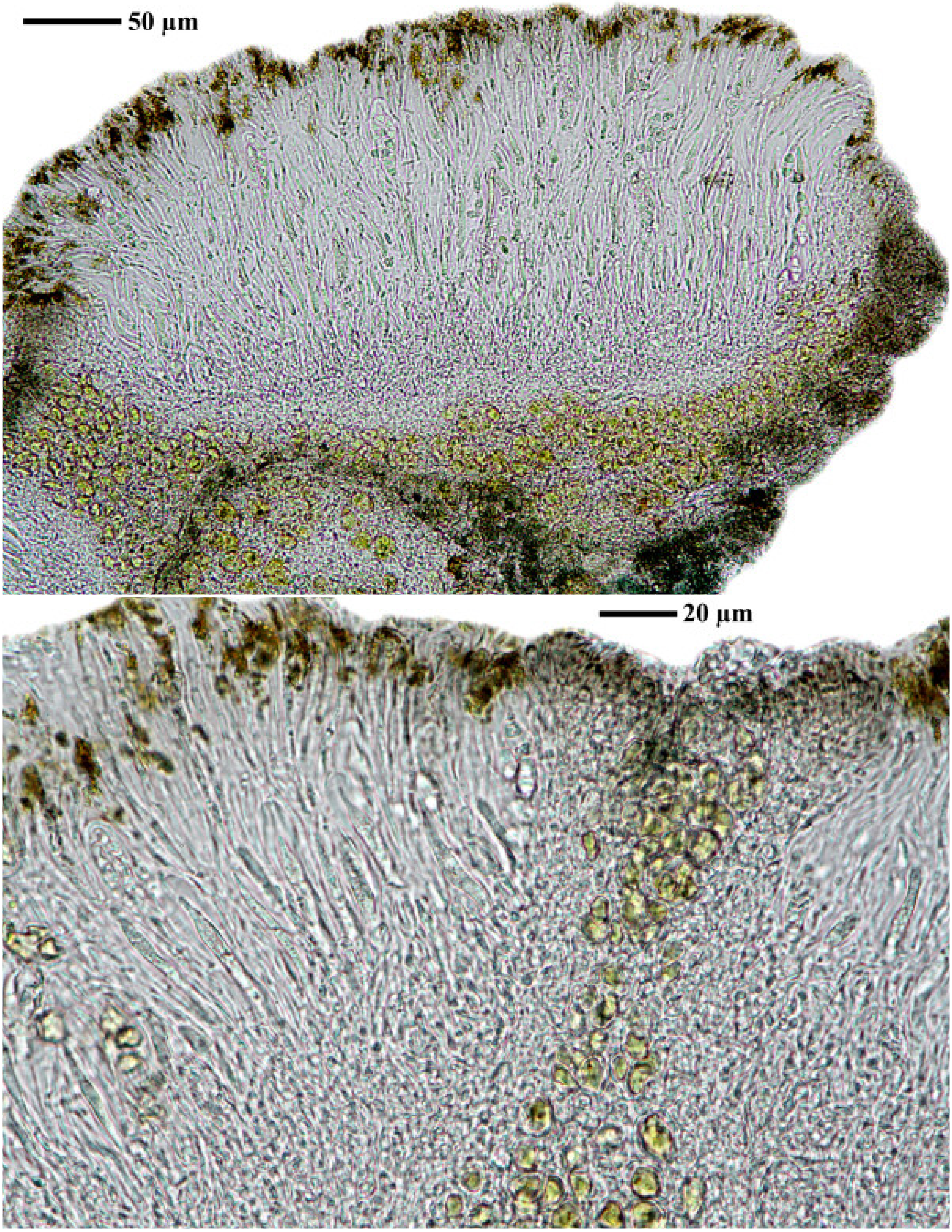


Caloplaca aractina

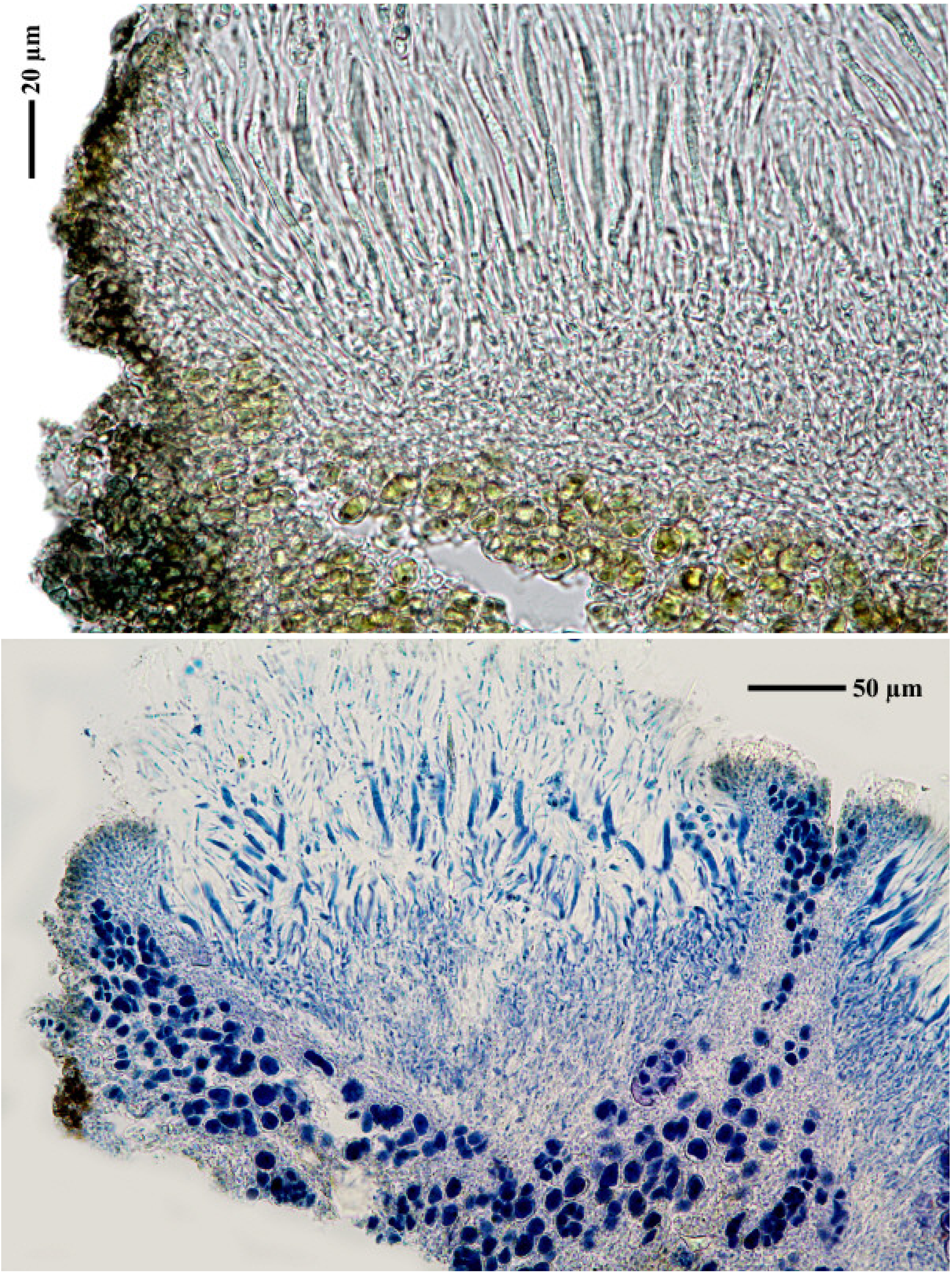




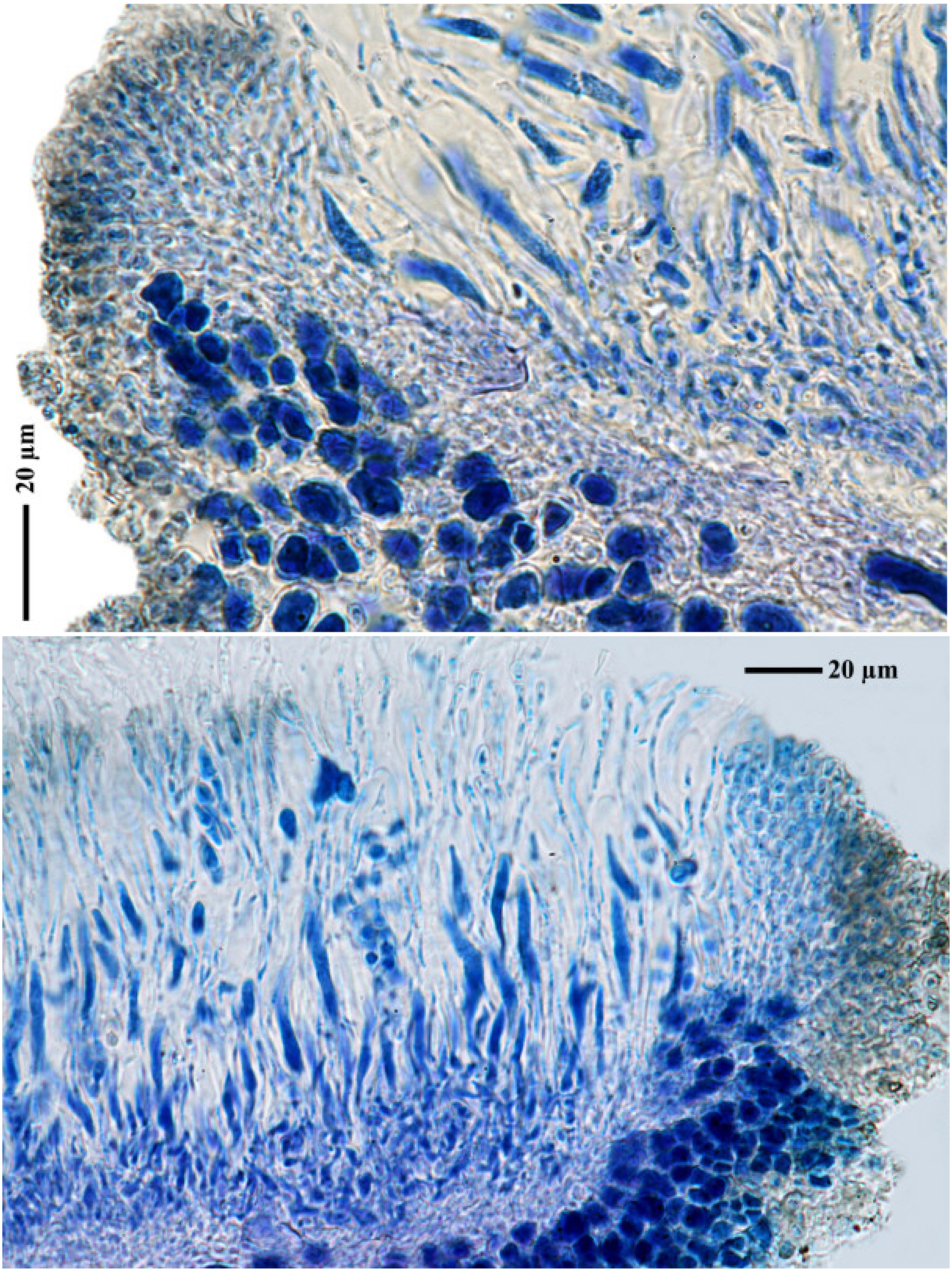
Caloplaca aractina



Caloplaca aractina

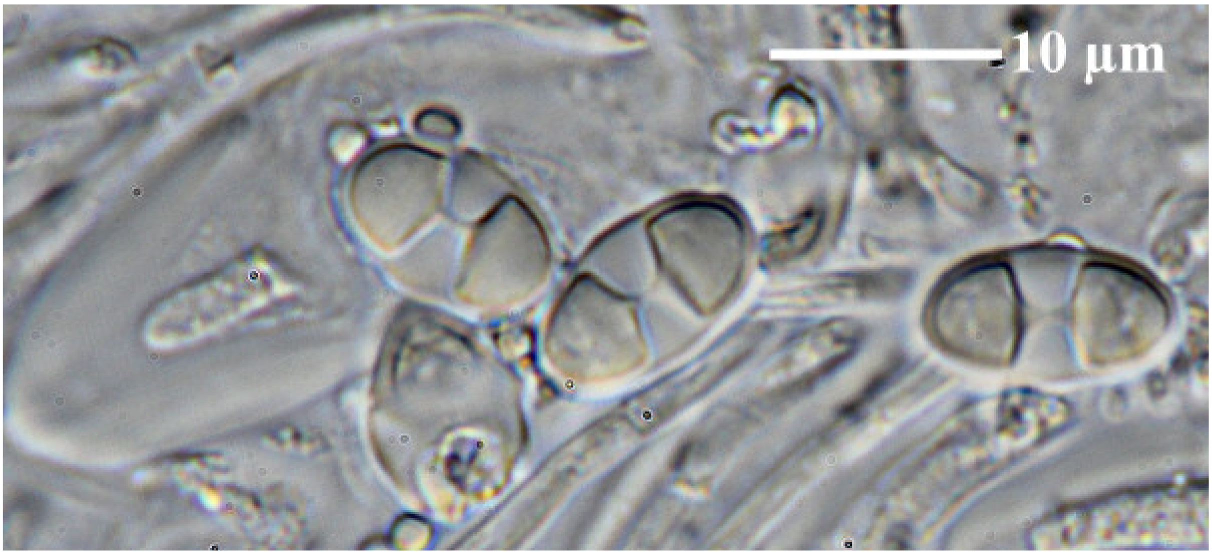


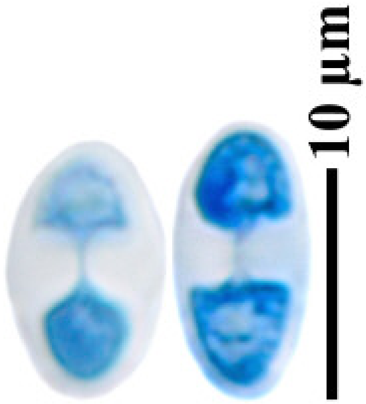
Caloplaca aractina



Caloplaca aractina

Caloplaca aractina





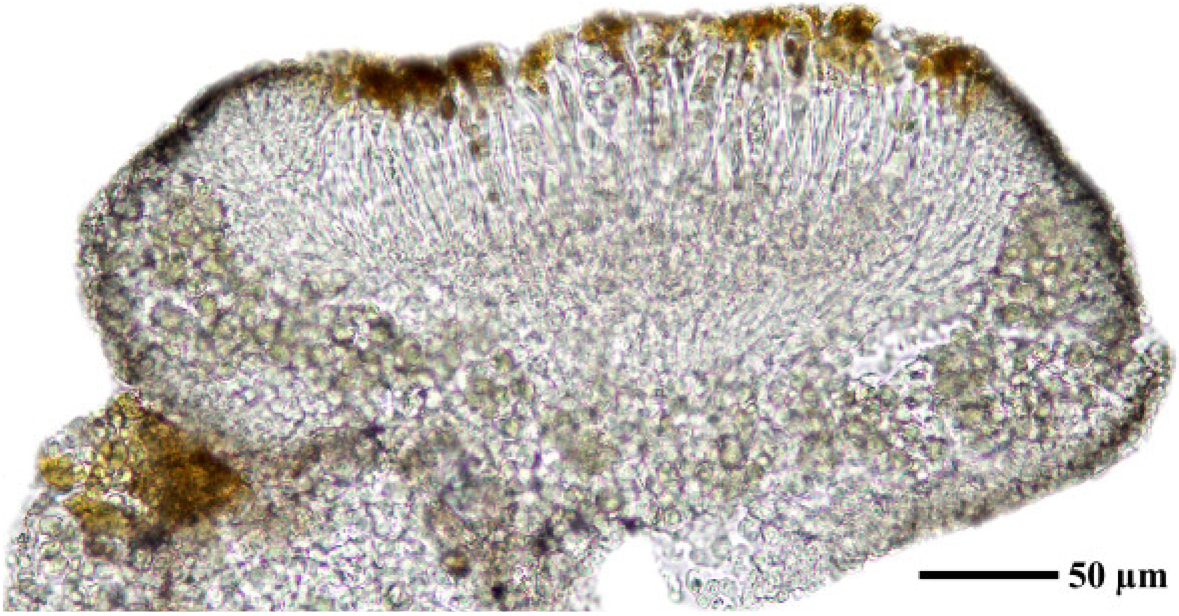
Caloplaca aractina

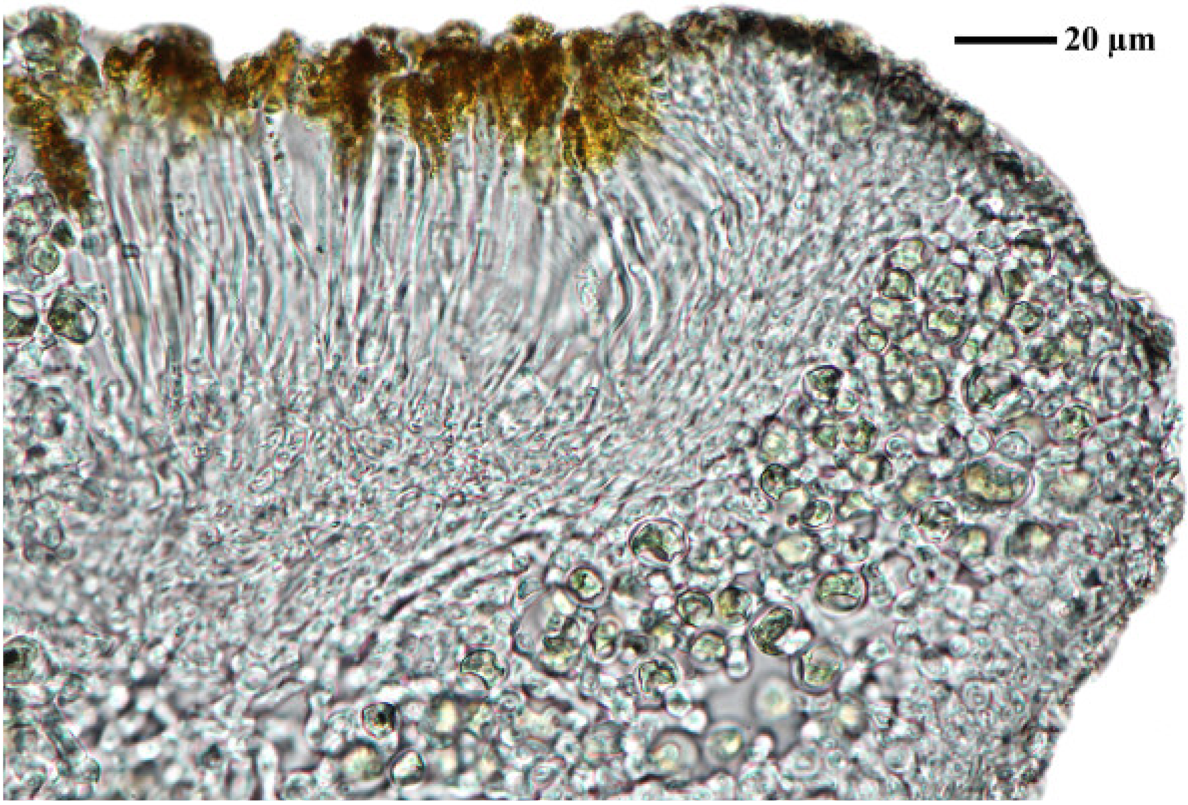
Caloplaca aractina (Fr.) Häyrén

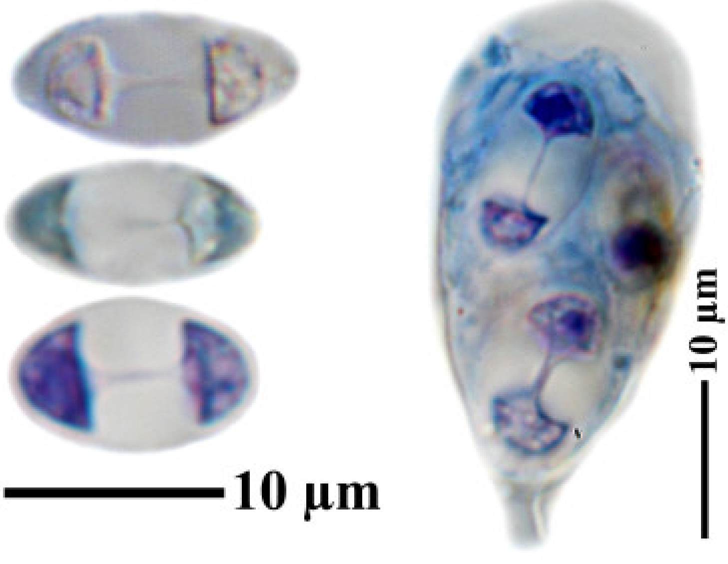
Spores hyalin, polarilocular, 8/ascus,11.5-13.2 x 5.8-7.1 µm, septum 4.7-5.8 µm.

[BR5030035766706], Italy, Sardinia, Prov. Sassari, Torre Falcone near Punta Falcone, on siliceous rock near the coast. 40°57' N, 8°11' E, 0-100 m. Leg. A. Aptroot (21167), 07.1987, det. A. Aptroot 1987.

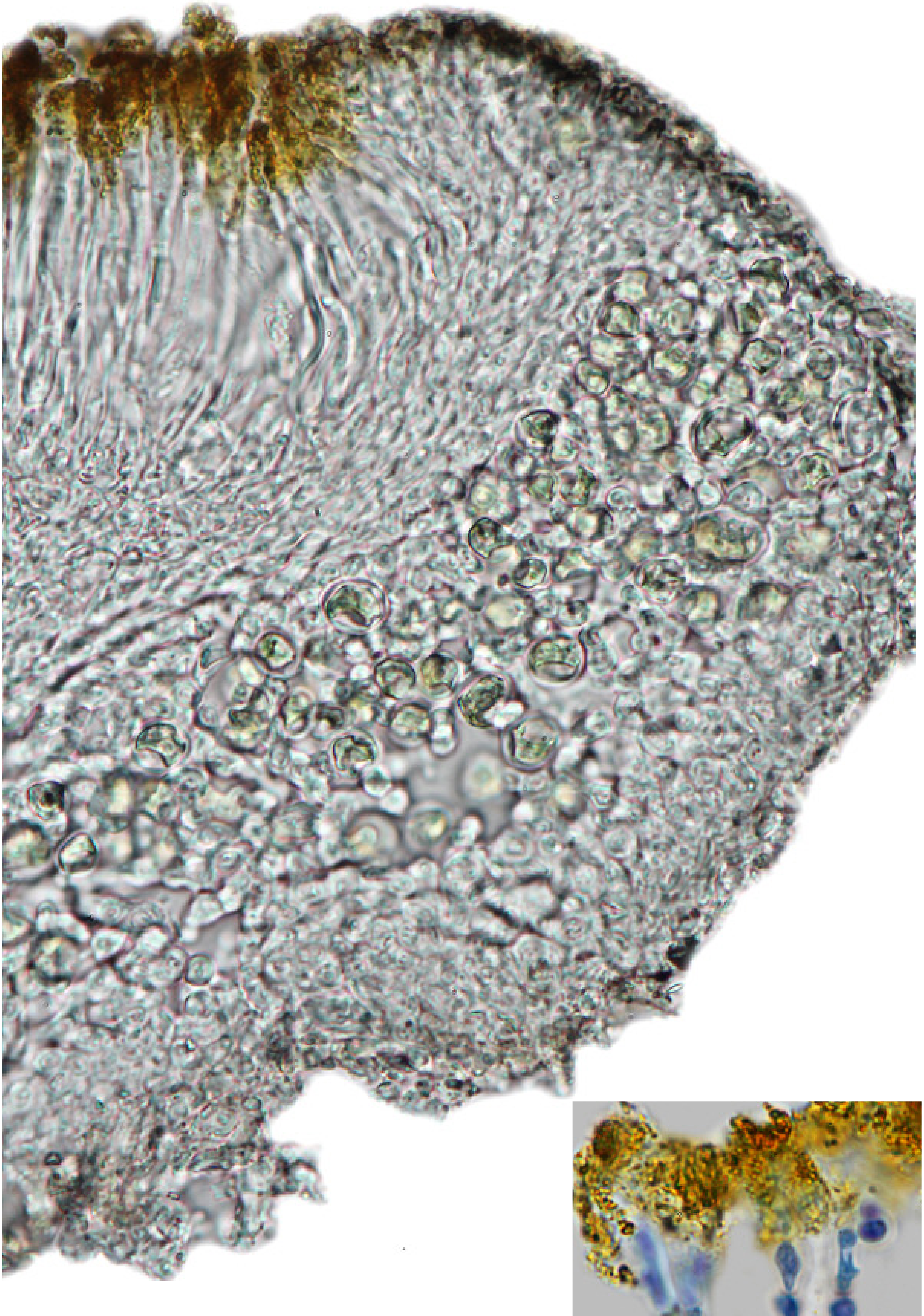
Caloplaca aractina

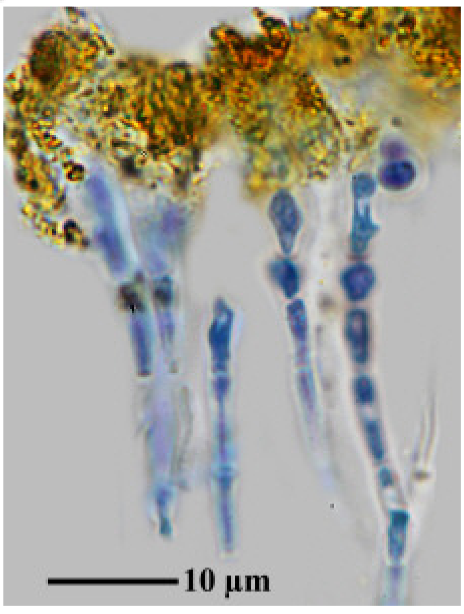






Caloplaca aractina



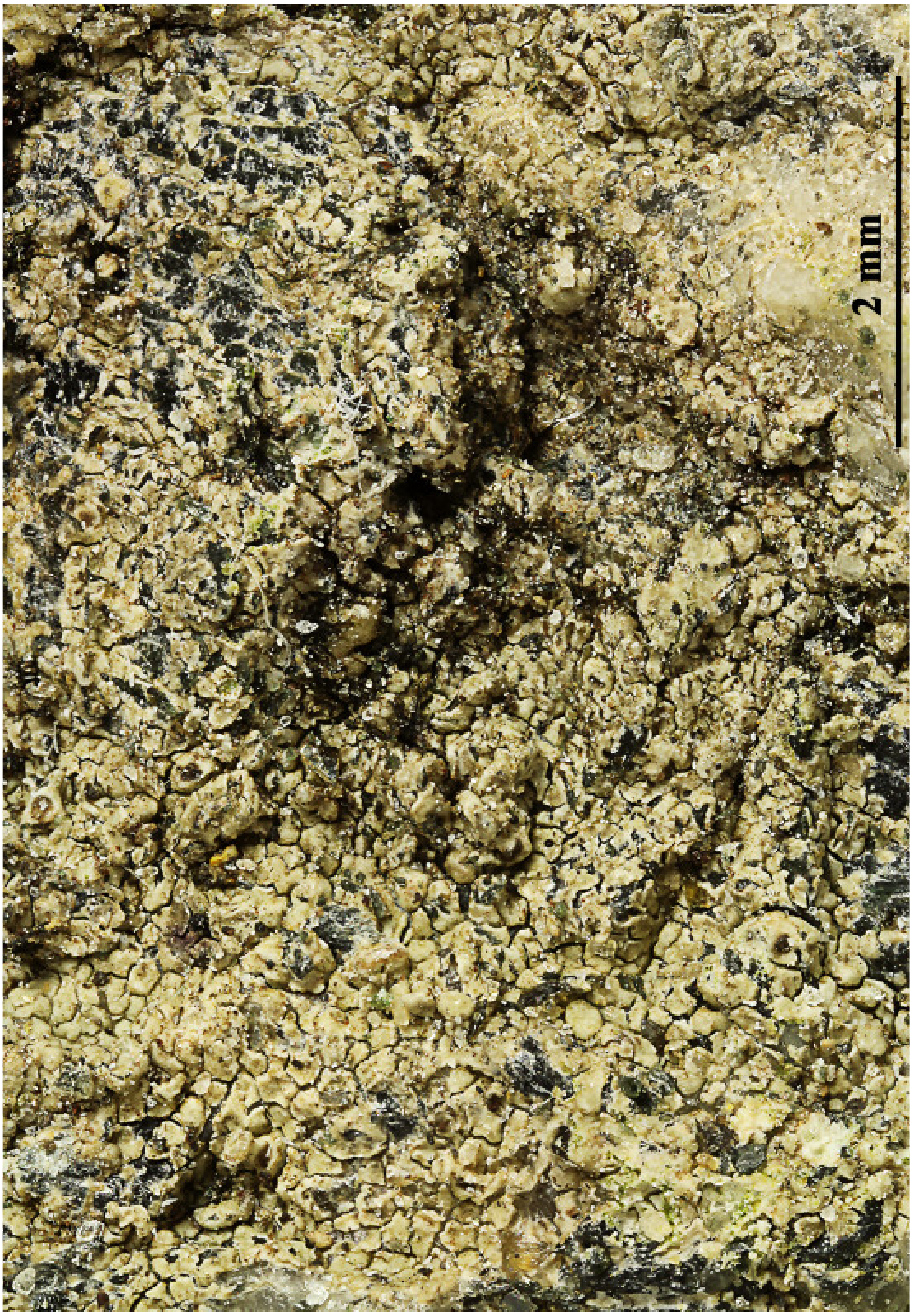


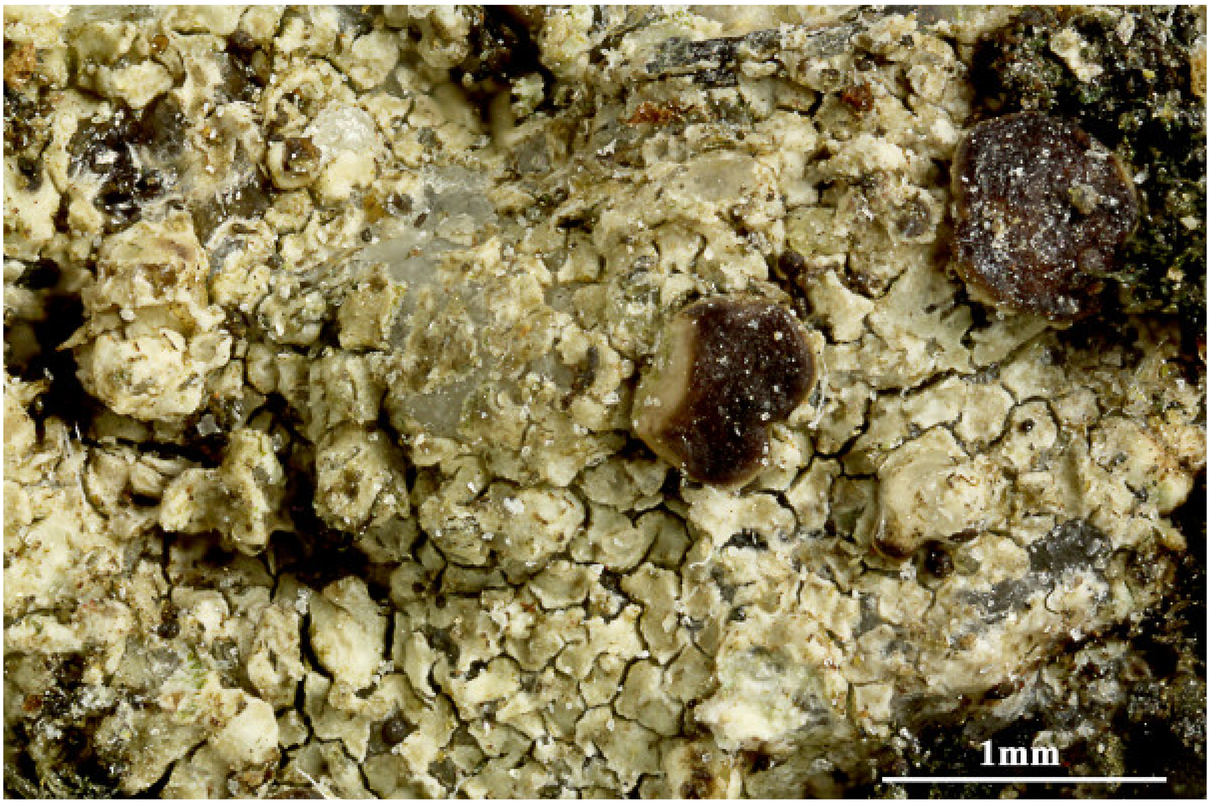
Caloplaca aractina

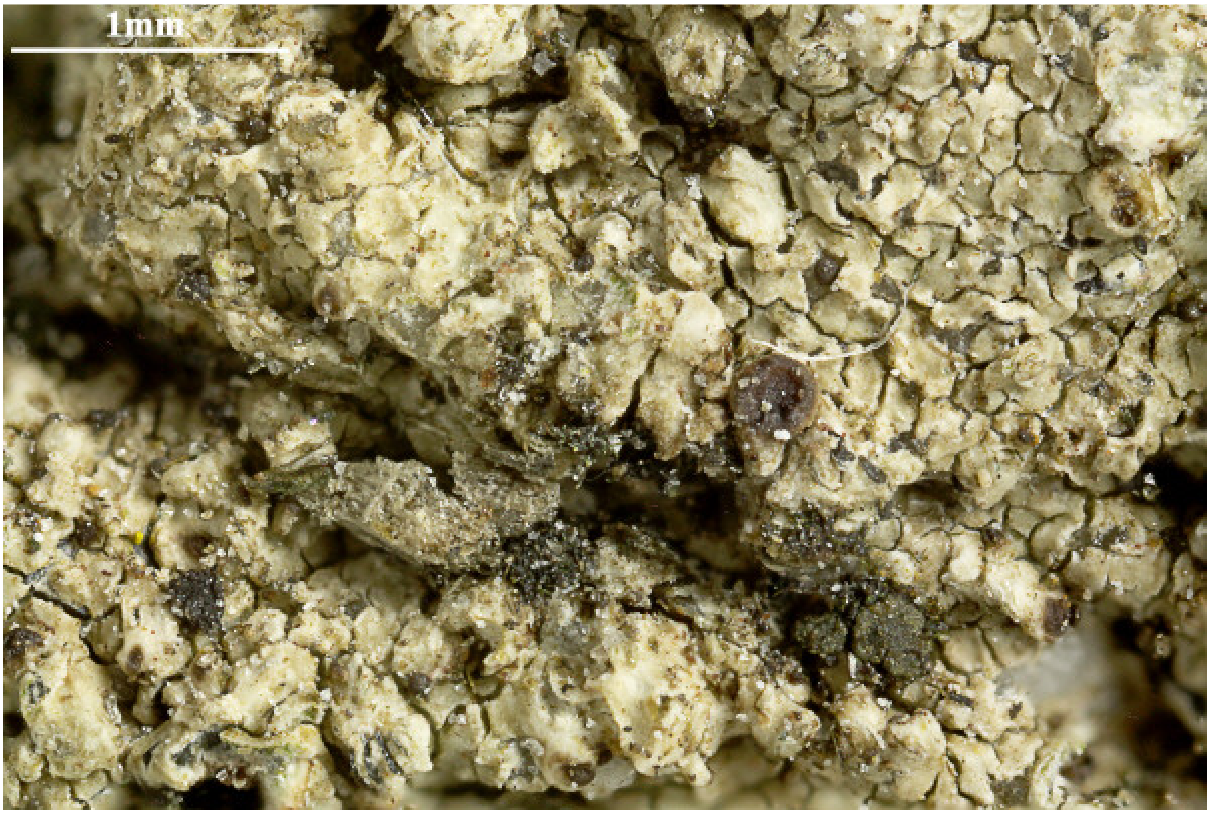
Caloplaca araguana Poelt & Hafellner

On non calcareous-rocks. Ap. discs brown, K-. Hymenium with many pol+ cristals. Spores irregular, mostly 3-locular, hyaline, 11-18.6 x 5.2-6.9 µm. (nots. A.A: Ascospores12-15 x 5 µm .).

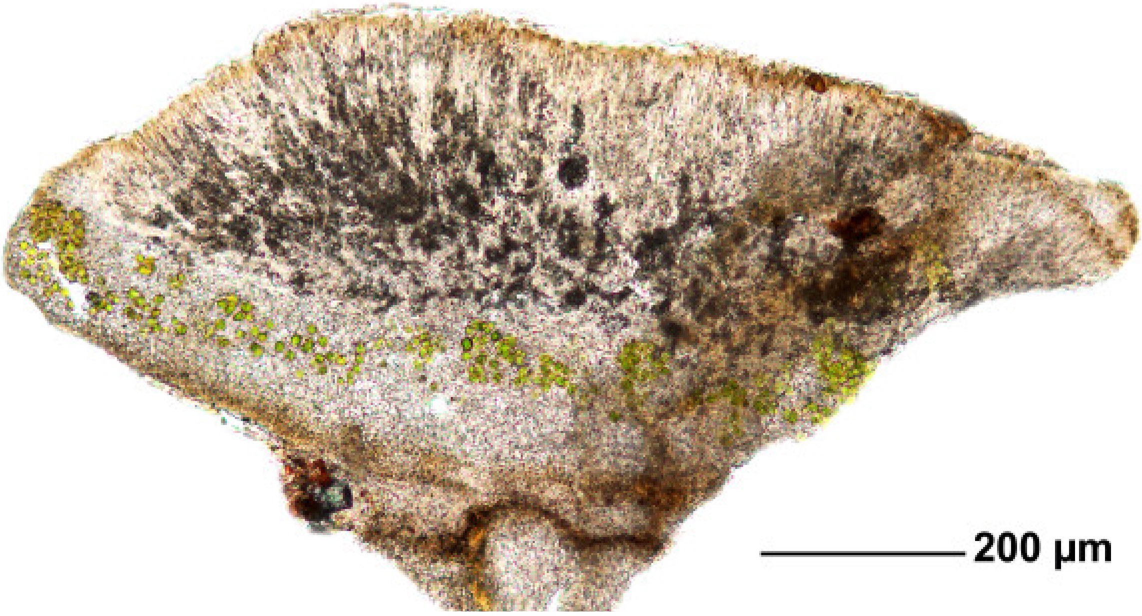
[ABL 21362], Brazil, Ceará, Quixadá, Açude Cedró, trilha da Galinha, 04°58’ S, 39°03’ W, 250 m, on gneiss in Caatinga. Leg. M. Cáceres & A. Aptroot, 31.03.2014, det. A. Aptroot 2014.



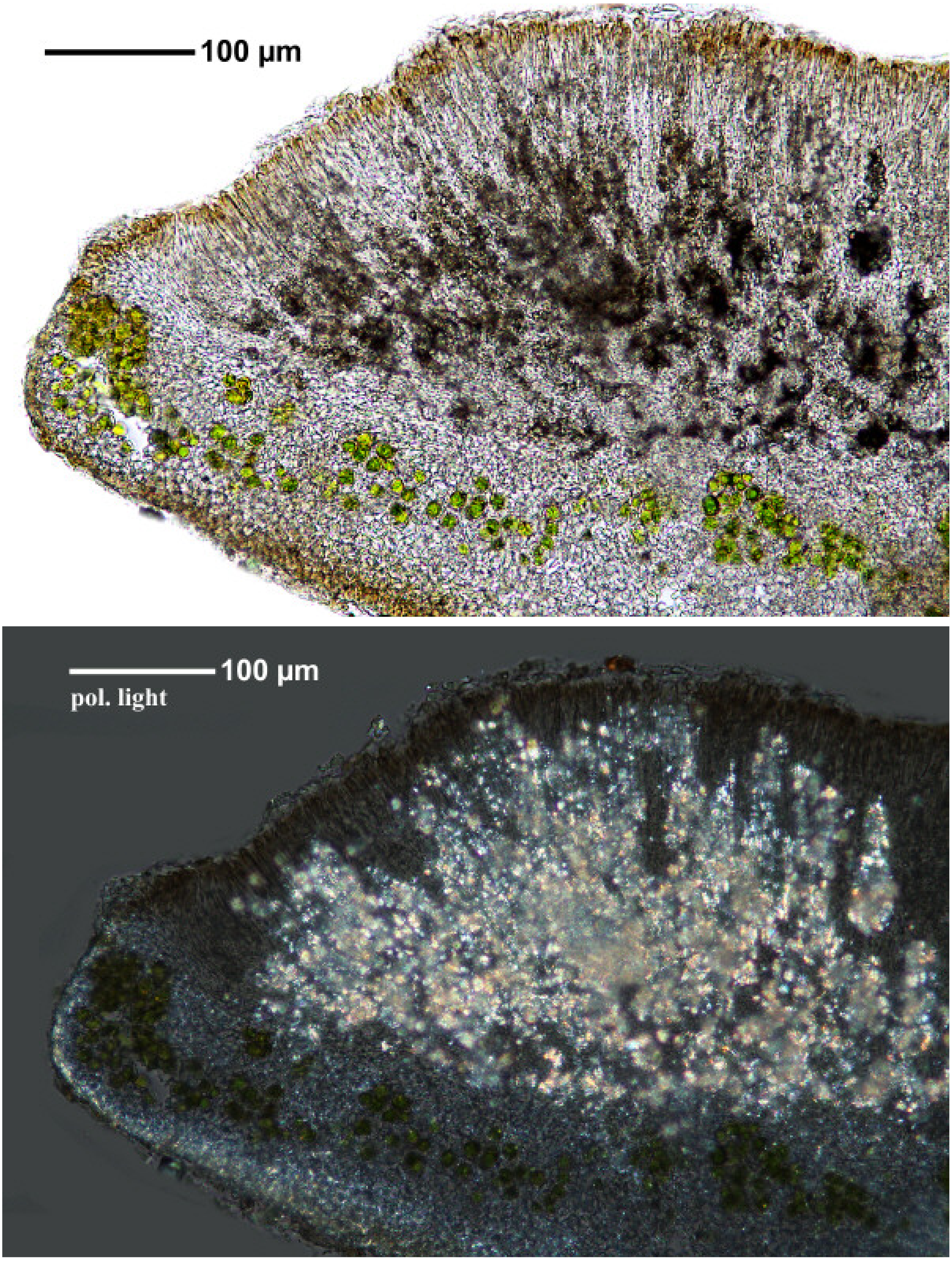




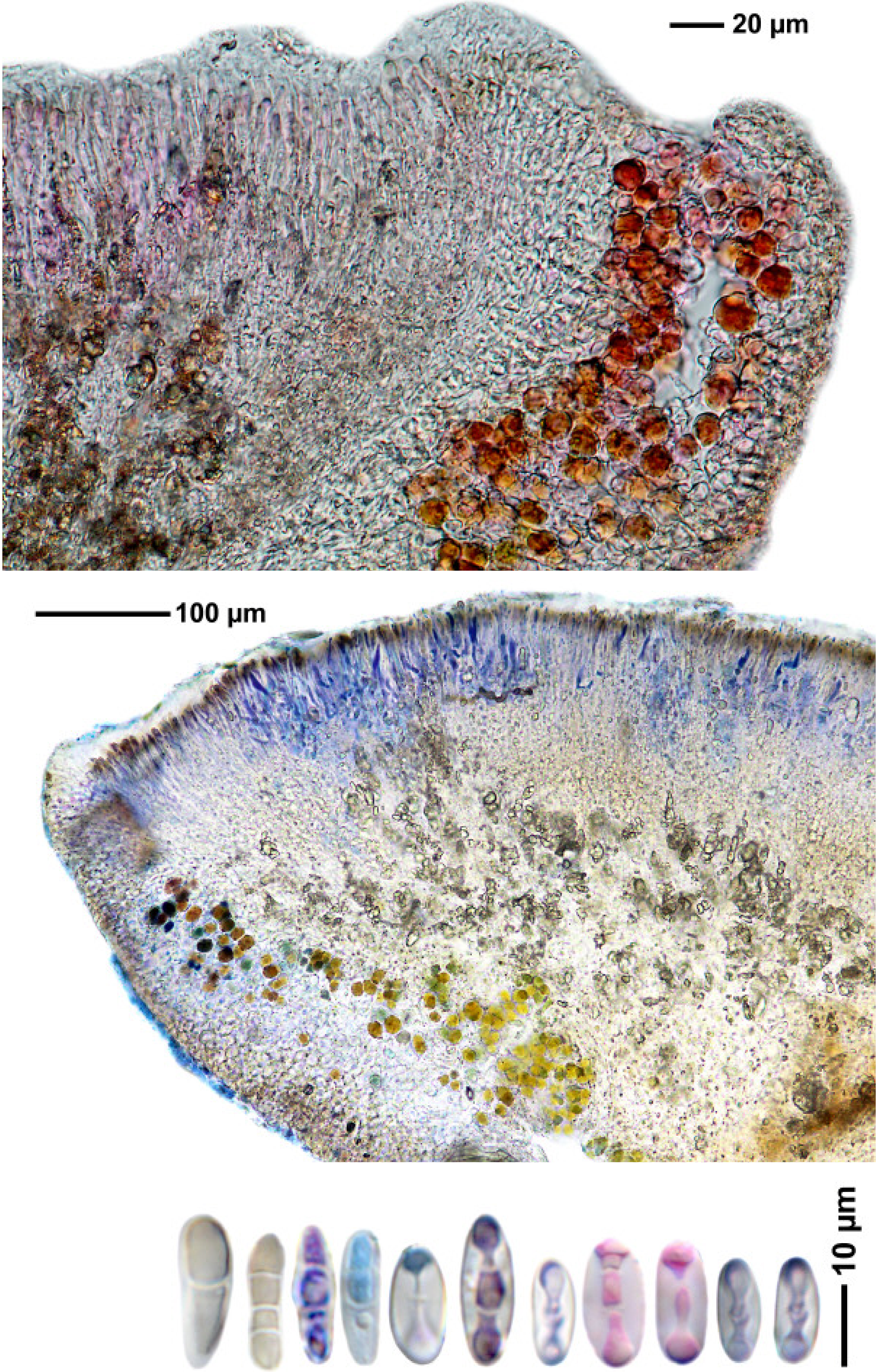
Caloplaca araguana



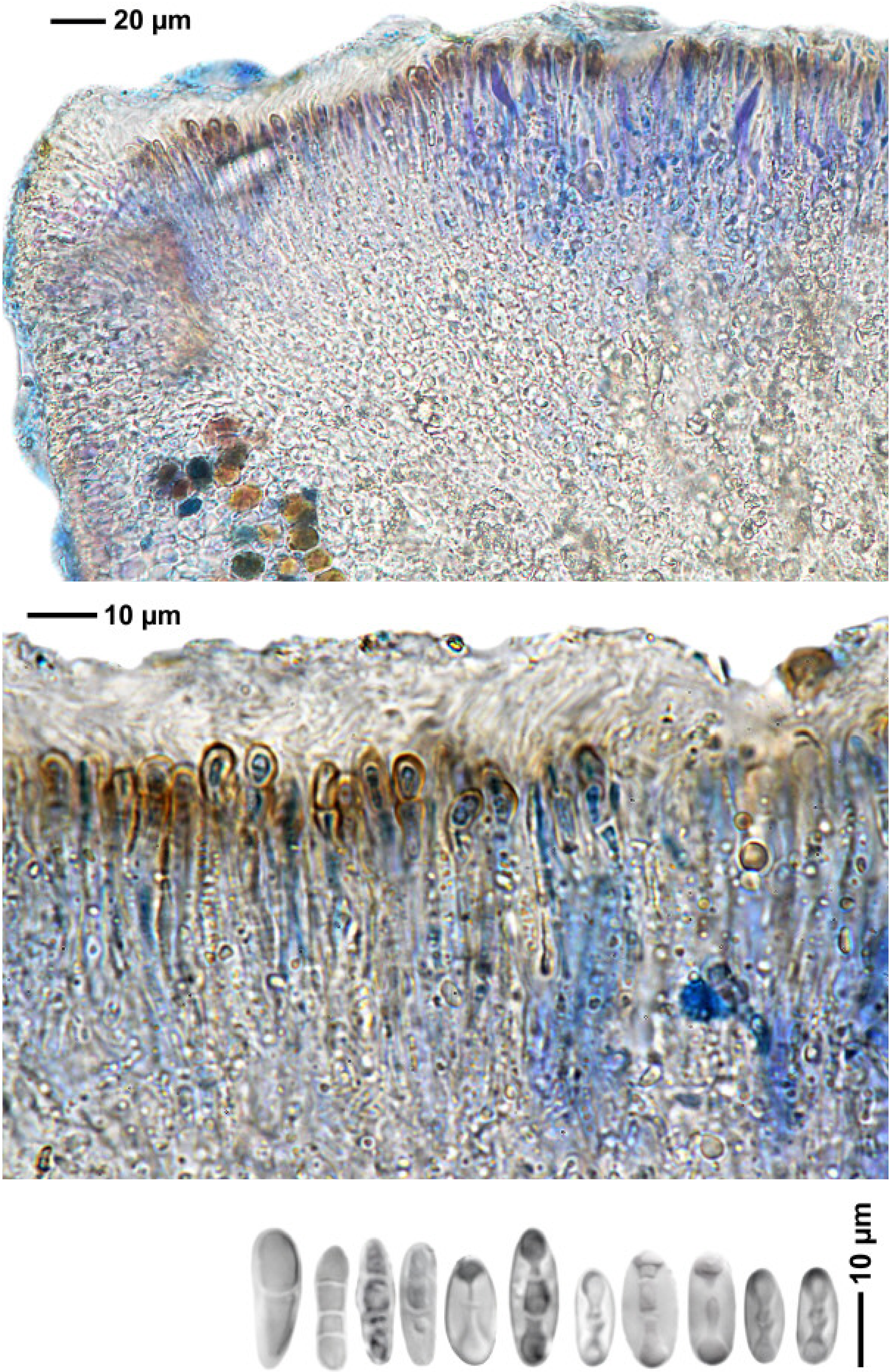
Caloplaca araguana



Caloplaca araguana



Caloplaca araguana

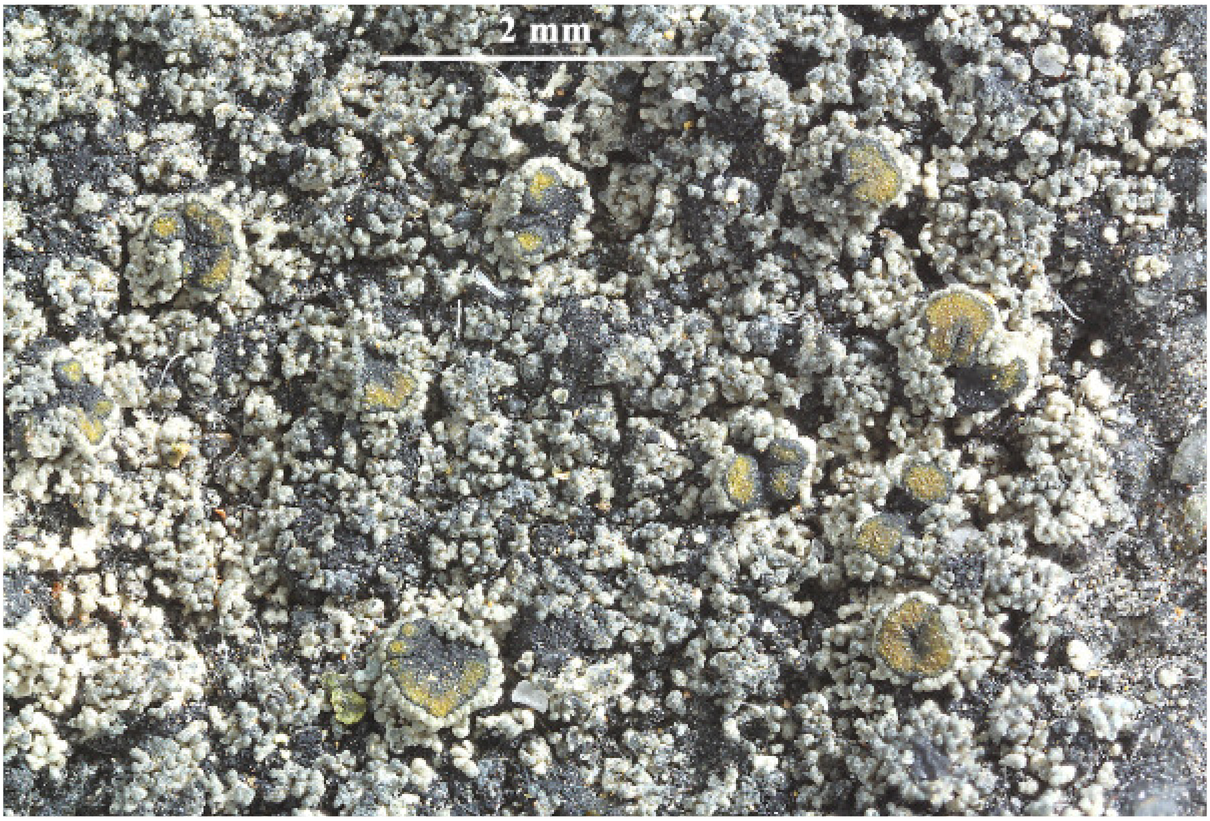


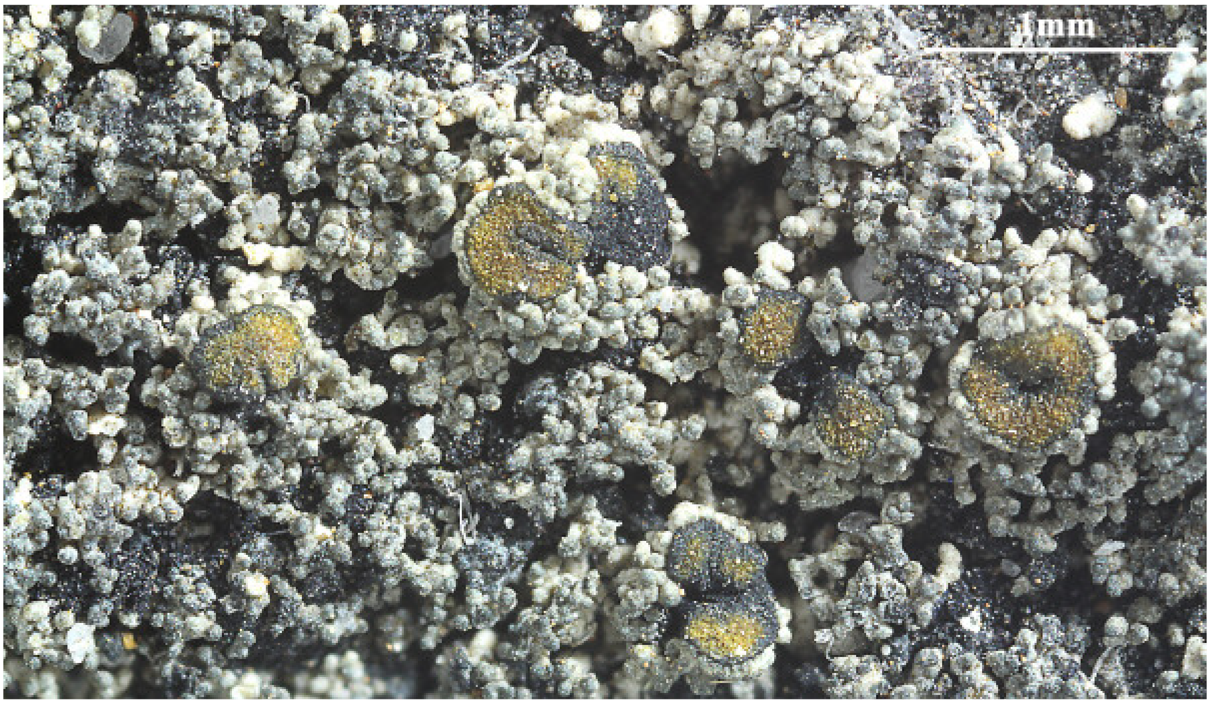
Caloplaca araguana

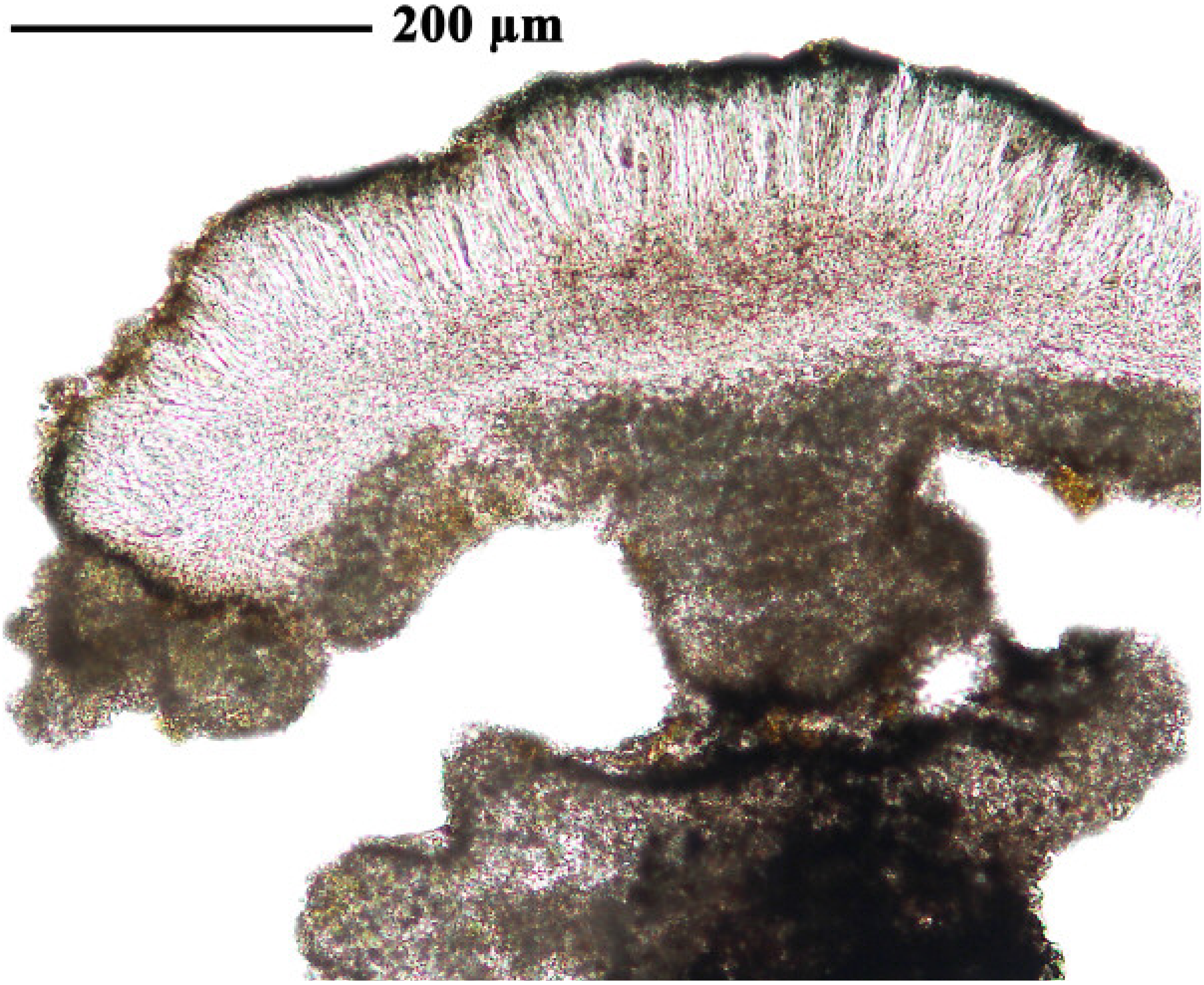
Caloplaca archeri Kalb, S.Y. Kondr., Elix & Kärnefelt

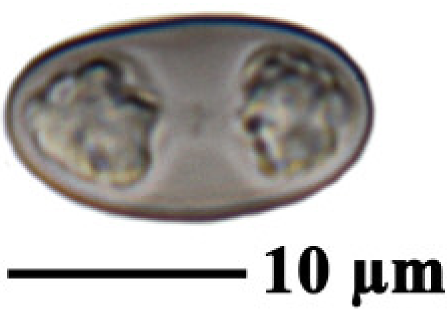
Thallus saxicolous, forming a grey isidiate crust on a black hypothallus. Apothecia 0.4-0.8 mm diam, lecanorine, constricted at the base, disk greenish-yellow to brownish to black, thalline exciple, grey-white, crenulate and isidiate. Epithecium orange-yellow (K+ purple violet) or blackish-blue (K-). Paraphyses thickened and blackish blue at the tips, richly branched. Ascospores bipolar, 1-2(-8)/ascus, becoming brownish, 9-12(-17) x 6-8(-10) µm, septum 2-3 µm. Chemistry: caloploicin (major), O-methylvioxanthin (minor), 5-chloroemodin (minor), atranorin (minor), fulgidin (minor), isofulgidin (minor), vicanicin (minor), diploicin (trace), parietin (trace). Lit.: Kondratyuk, Kärnefelt, Thell & Elix (2010): Six new species of Caloplaca from Australasia - Australas. Lichenol. 66: 32.

[KK35546], Australia, New South Wales, road from the Woy Woy to Kariong Brook, c. 45 km north of Sydney, on sandstone rocks in a dry Eucalyptus forest, 100 m, 33°21’30’’ S, 151°16’ E. Leg. K. et A. Kalb & Archer, 10.08.1992.

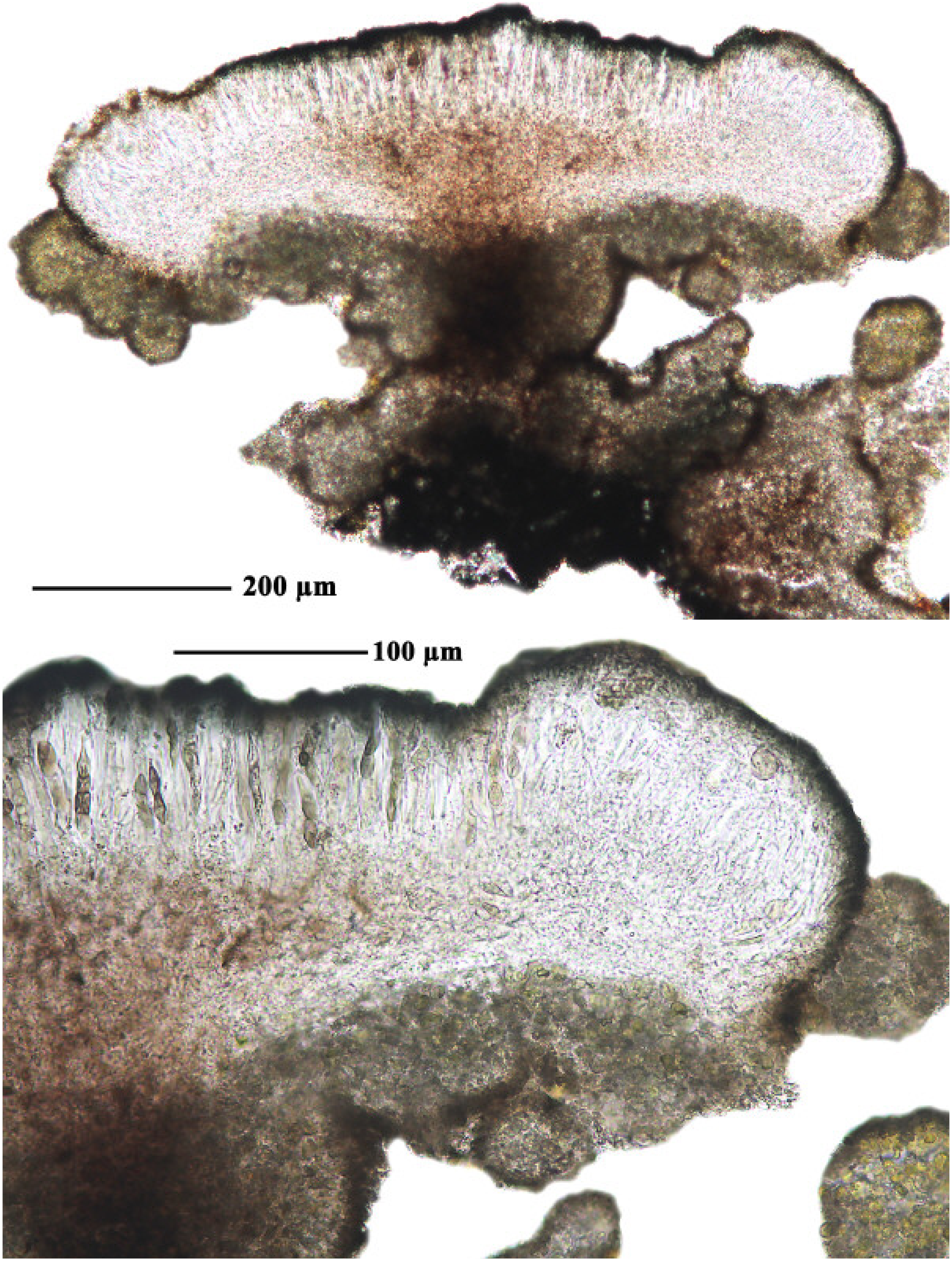




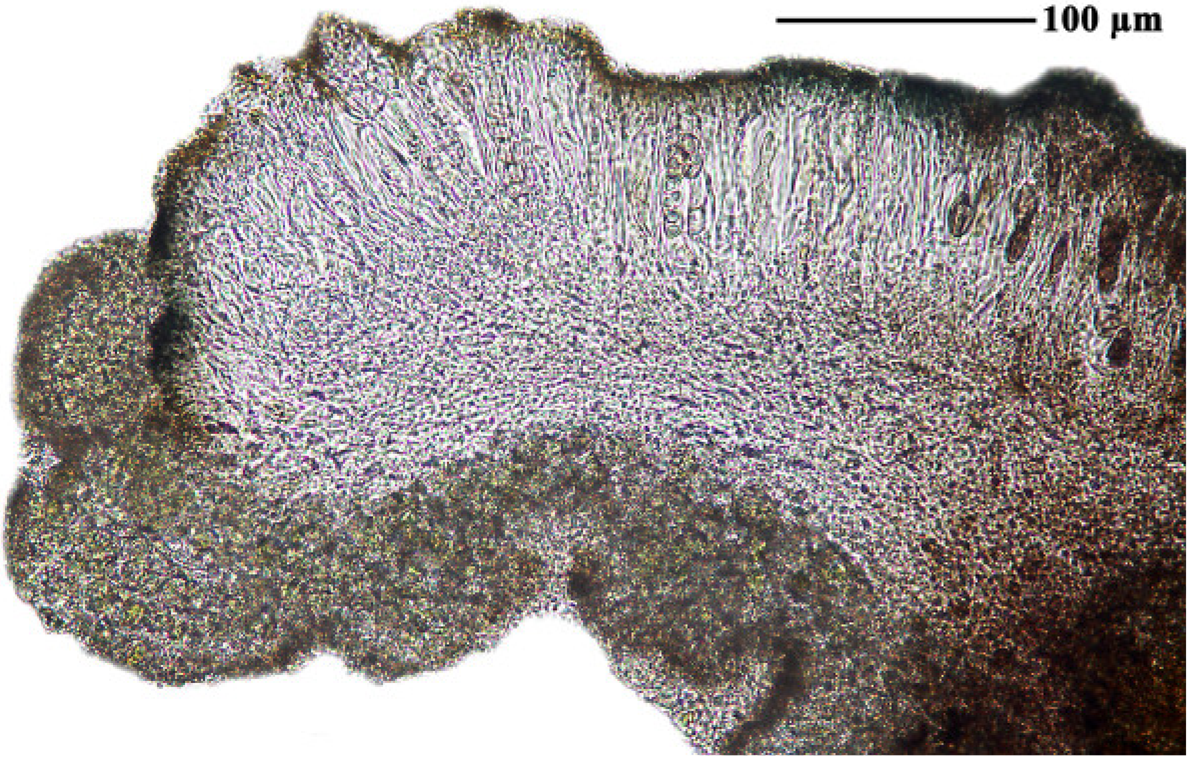


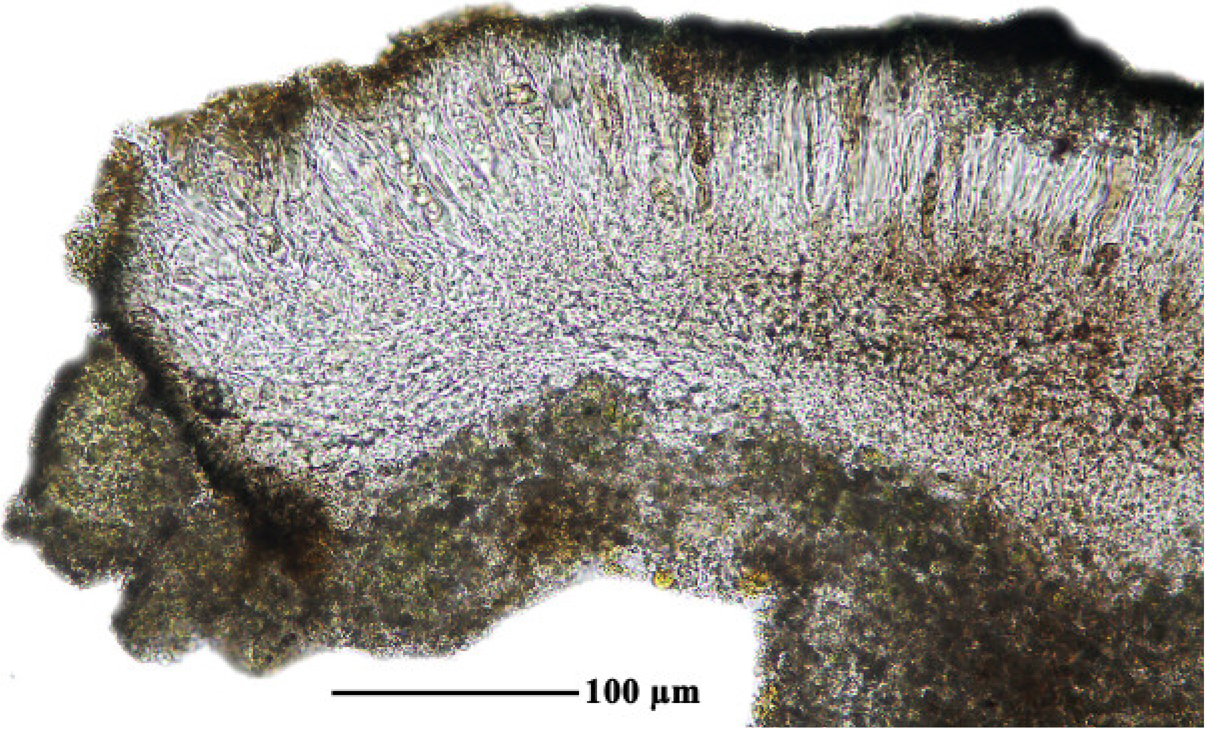


Caloplaca archeri

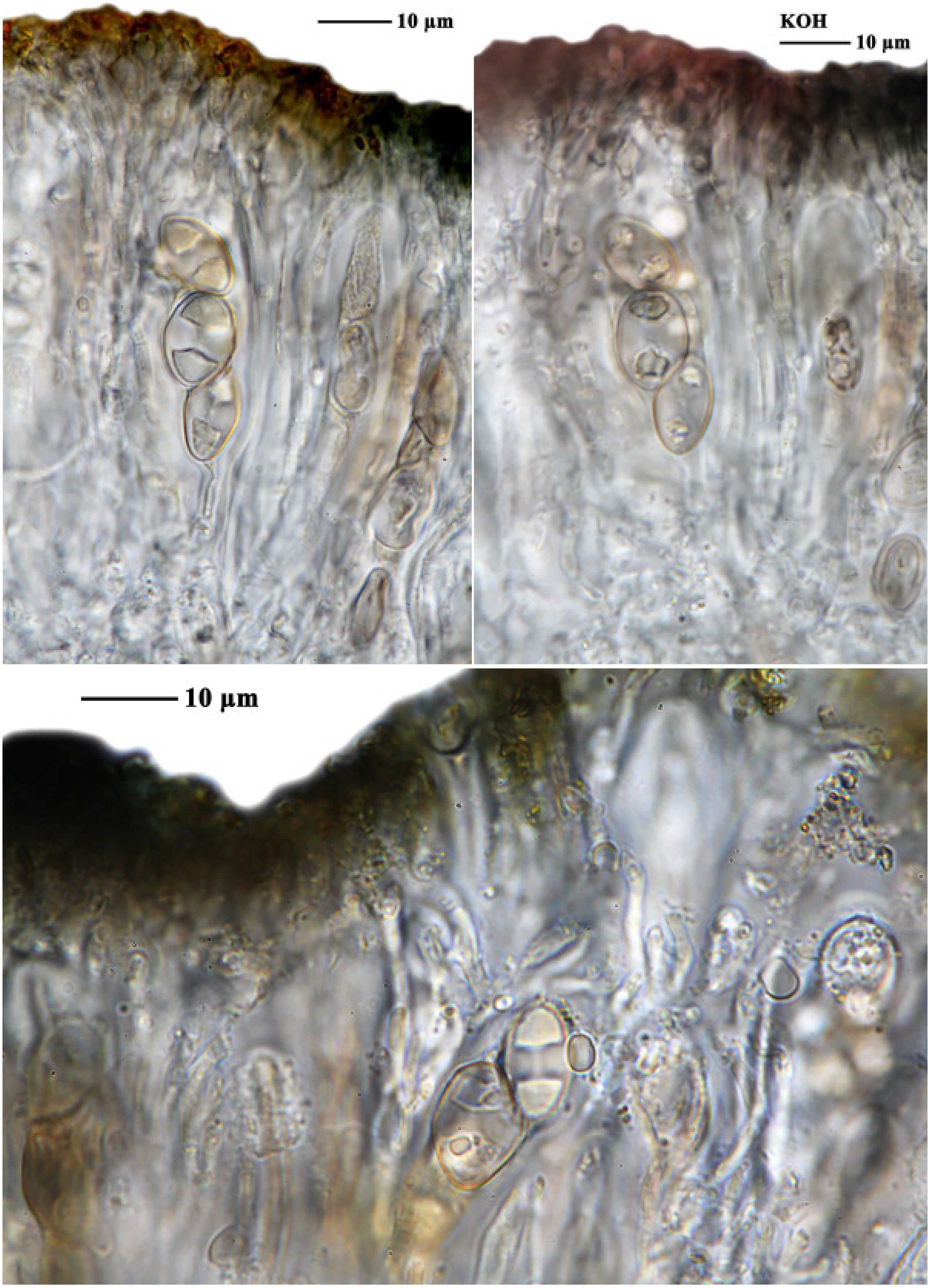


Caloplaca archeri





Caloplaca archeri



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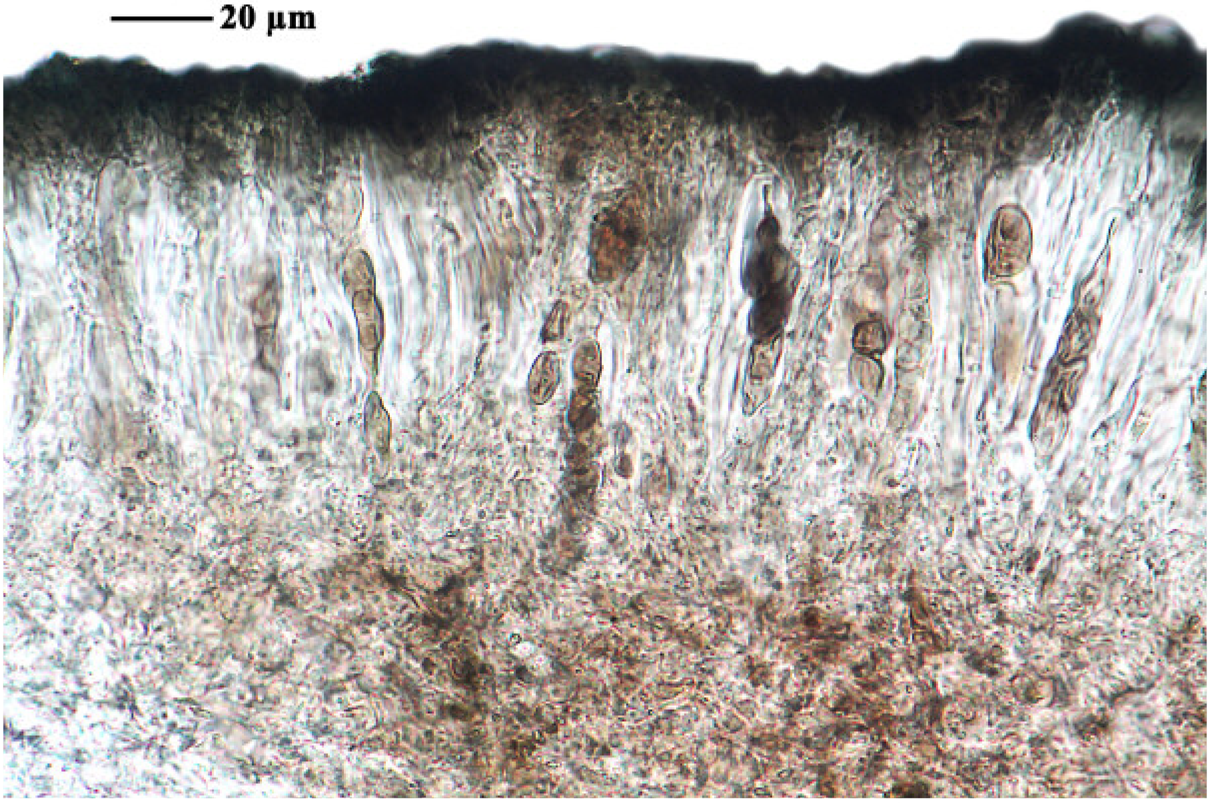
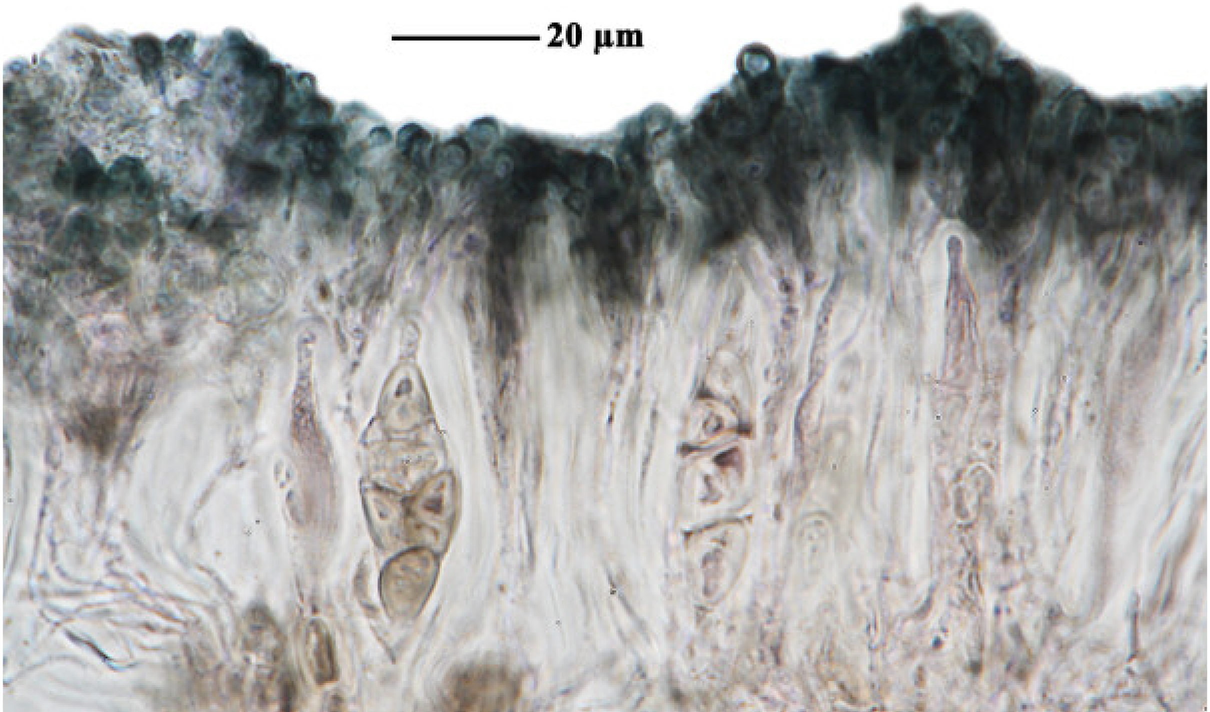
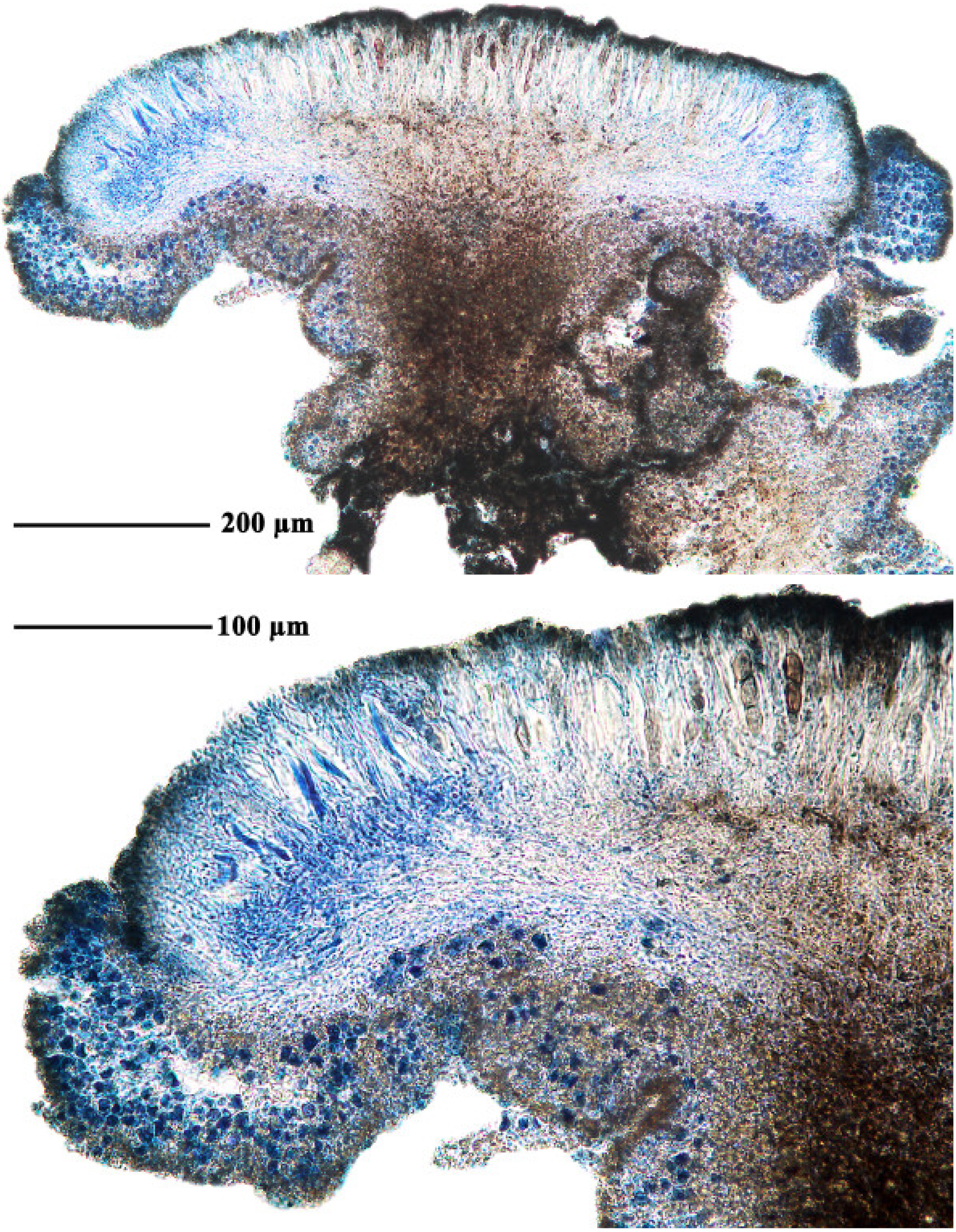
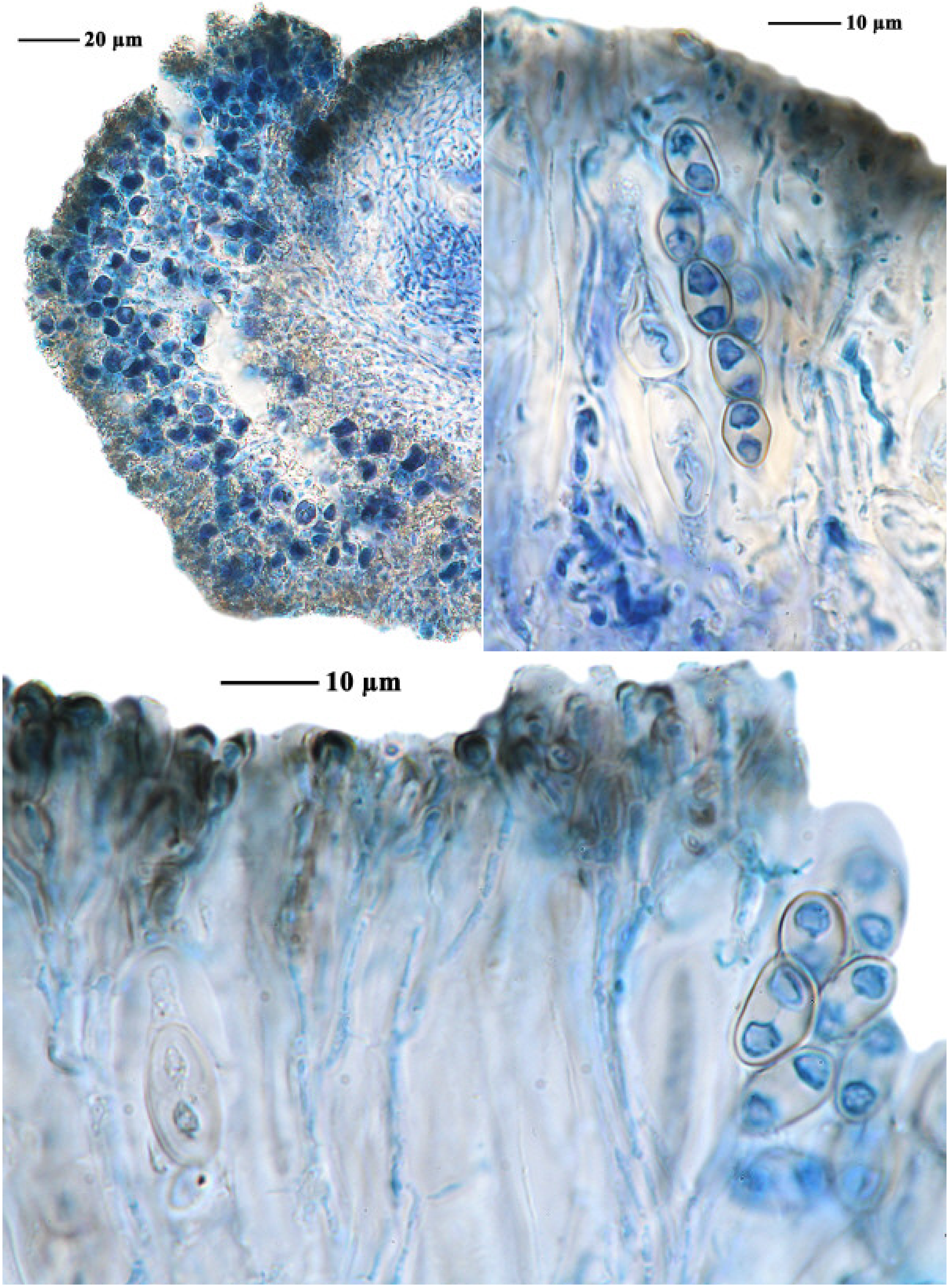




Caloplaca archeri



Caloplaca archeri

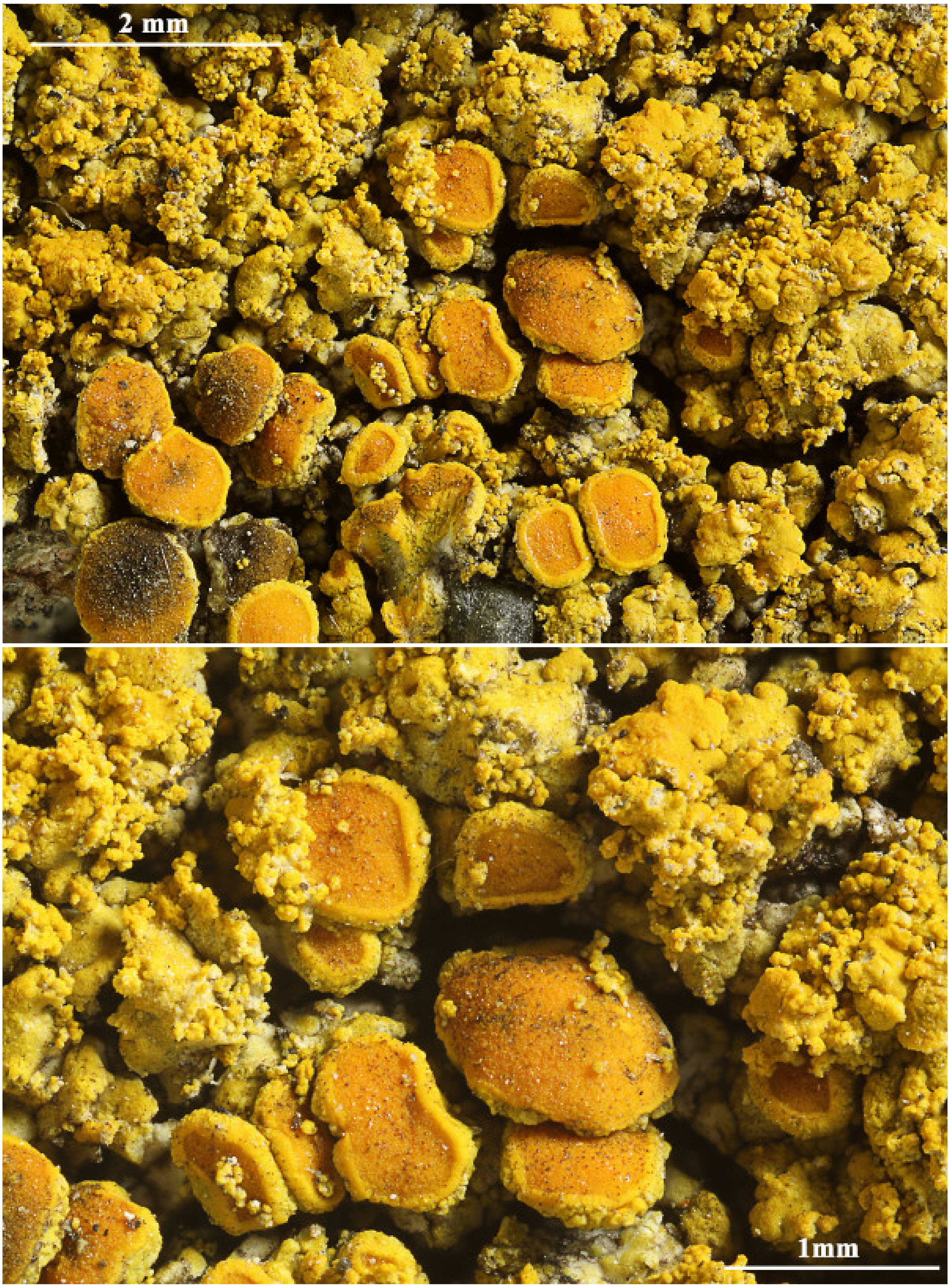


Caloplaca archeri

Caloplaca arcis (Poelt & Vězda) Arup, Lichenologist 38(1): 8 (2006)
[= *Flavoplaca arcis* (Poelt & Vězda) Arup, Frödén & Søchting, Nordic Jl Bot. 31(1): 44 (2013)]
[= *Caloplaca chlorina* var. *arcis* Poelt & Vězda, in Vězda, Lichenes Selecti Exsiccati, Fascicle 99, no. 2470, (1990)]
[= *Caloplaca citrina* var. *arcis* Poelt & Vězda, in Vězda, Lichenes Selecti Exsiccati, Fascicle 99, no. 2475, (1990)]

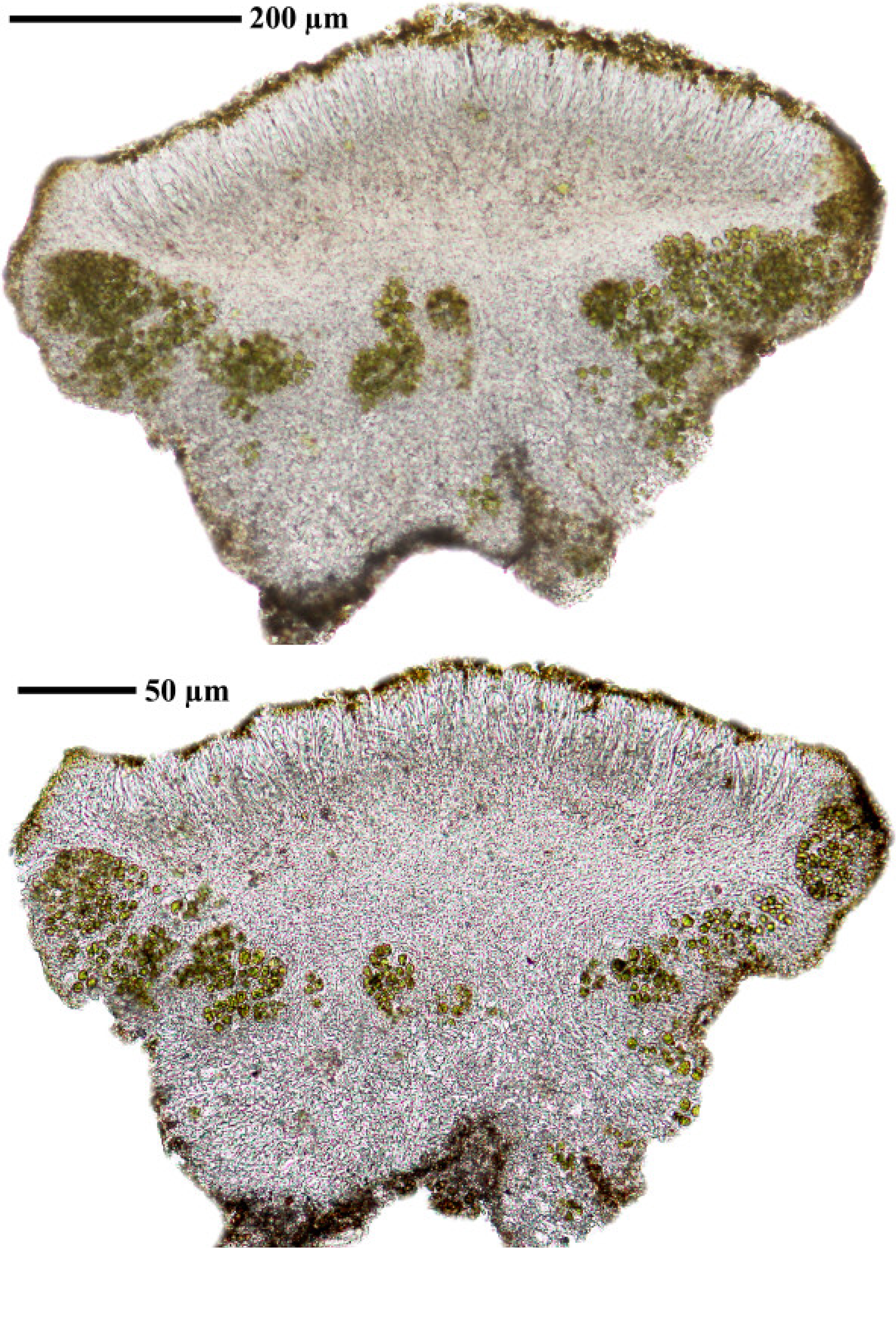
On non-calcareous rocks. Thallus lobatus, lobis marginalibus, 0.35-0.5 mm in diametro, ad margines crenulatis mox tamen erectis, blastidiis coralloideis ornatis; structura thallorum distincte paraplectenchymatica. Apothecie copiosa. (Holotypus: GZU). Spores 10.5-12 x 4.5-6 µm, septum 3-4 µm (FS).

[19573], Austria, Stiria, distr. Feldbach, Riegersburg, alt. 400 m, ad saxa andesitica sub arcem. Leg. G. Kantvilas, H. Mayrhofer et A. Vězda, 22.09.1990. VĕZDA: LICHENES SELECTI EXSICCATI NR. 2470. ISOPTYPUS

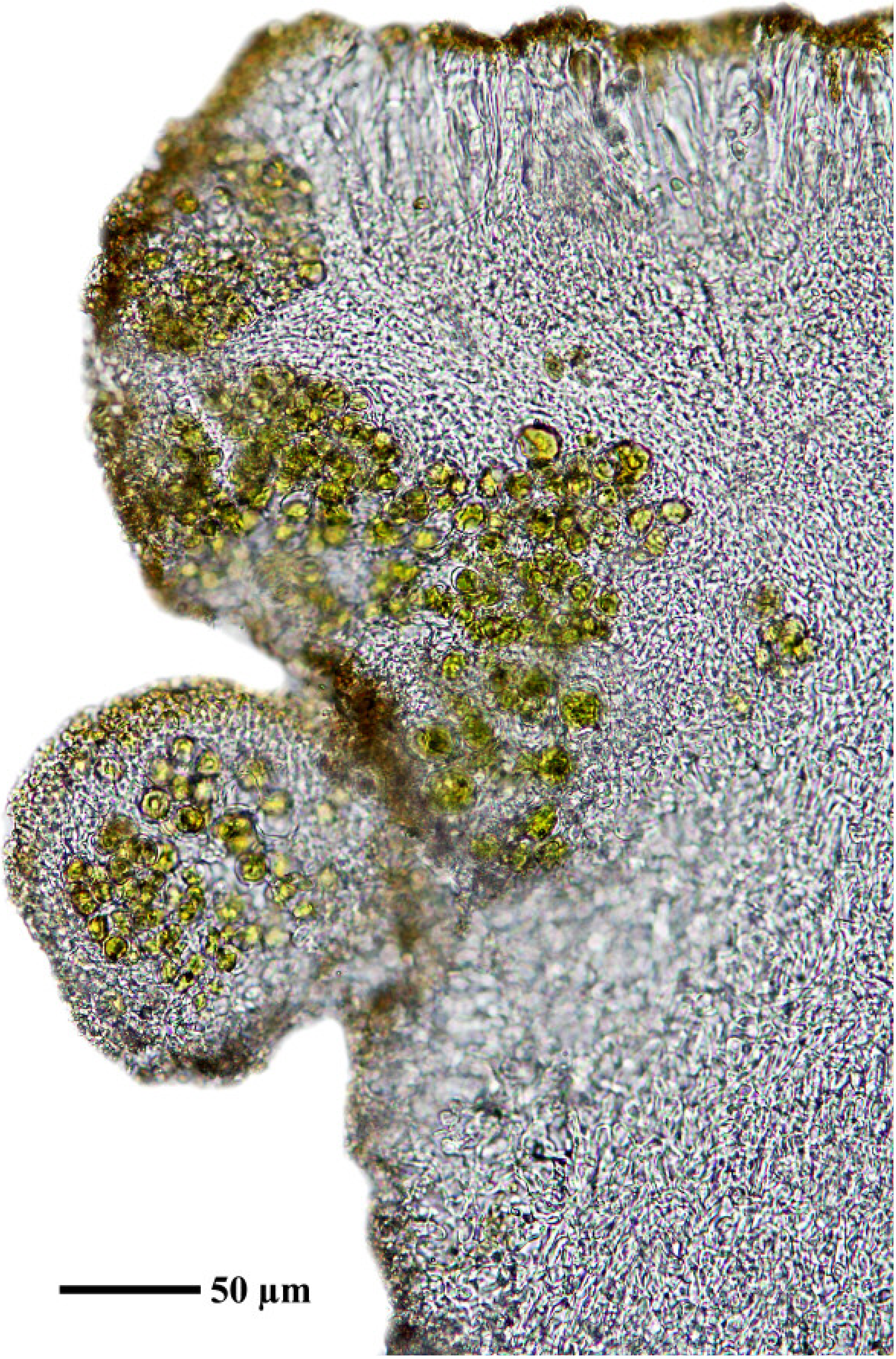


Caloplaca arcis

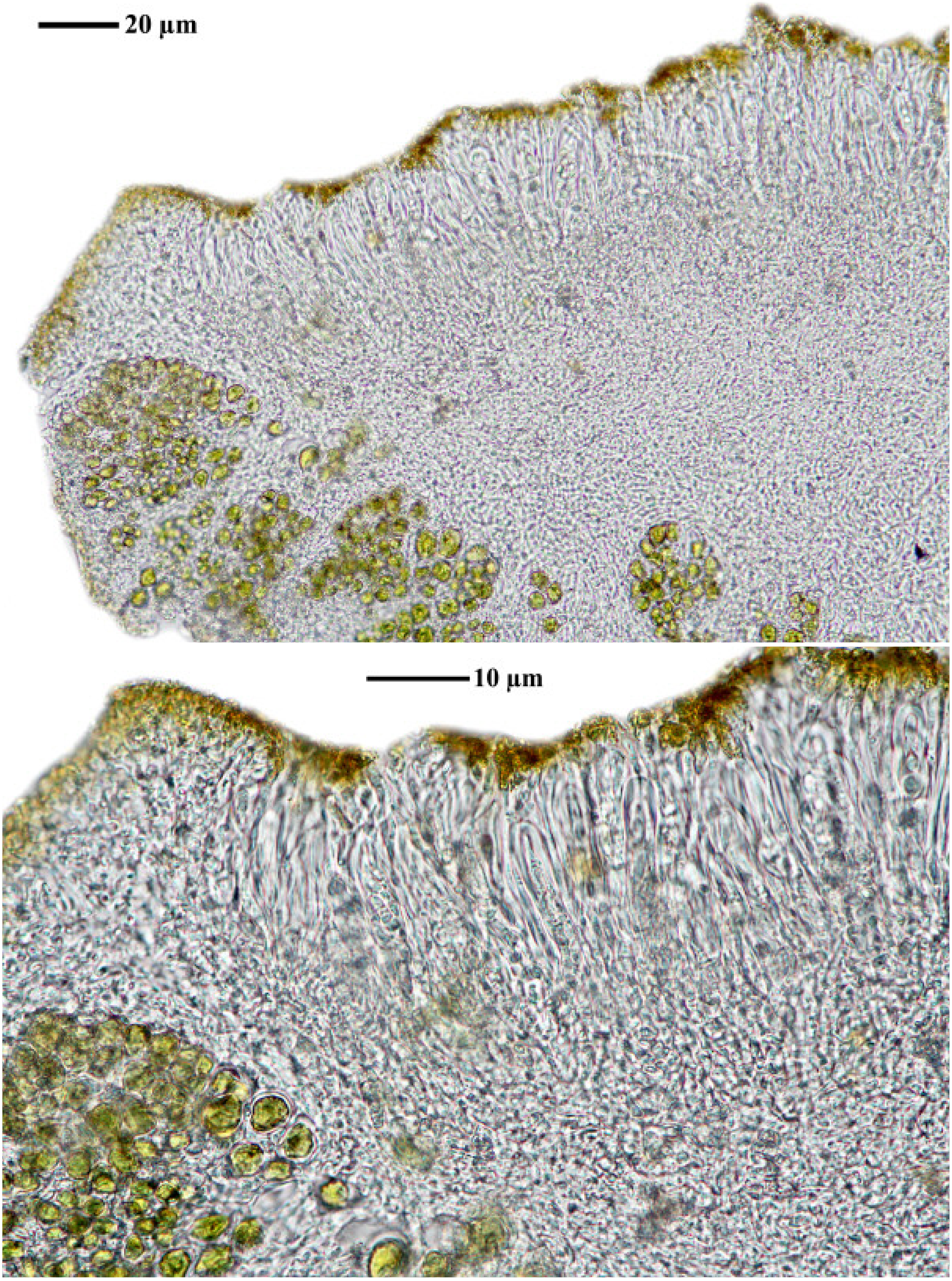
Caloplaca arcis



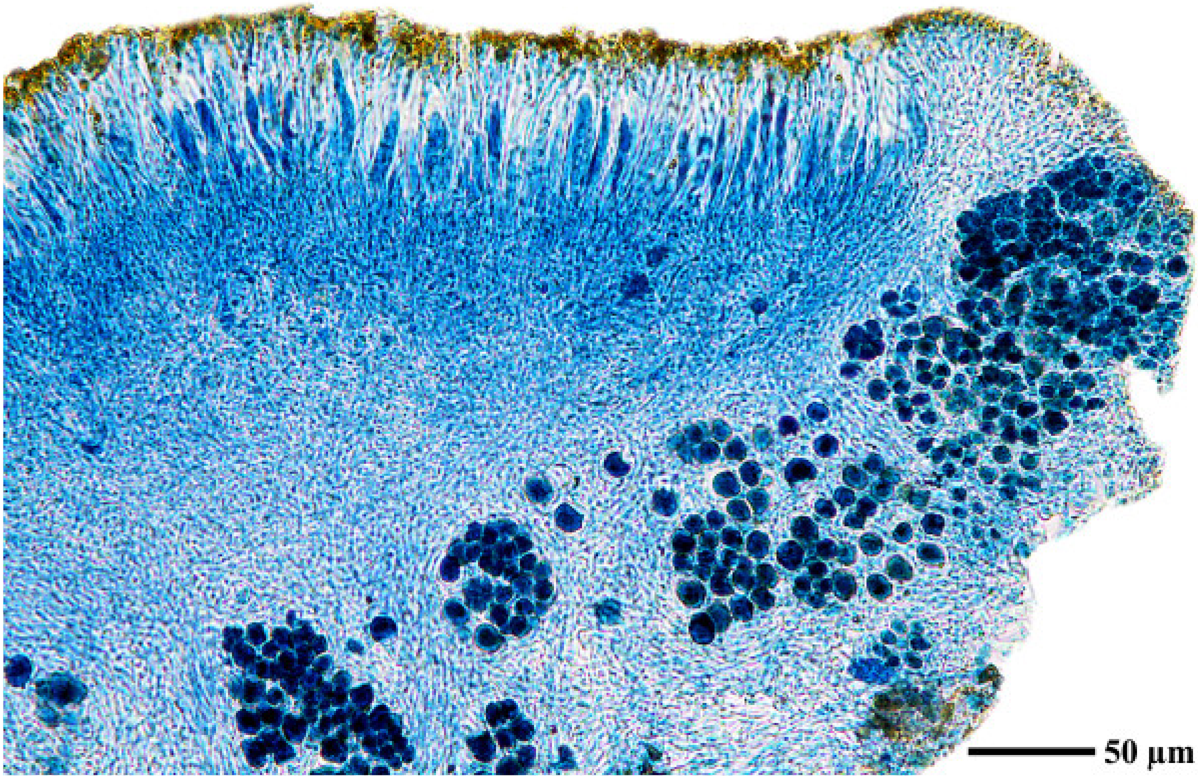
Caloplaca arcis

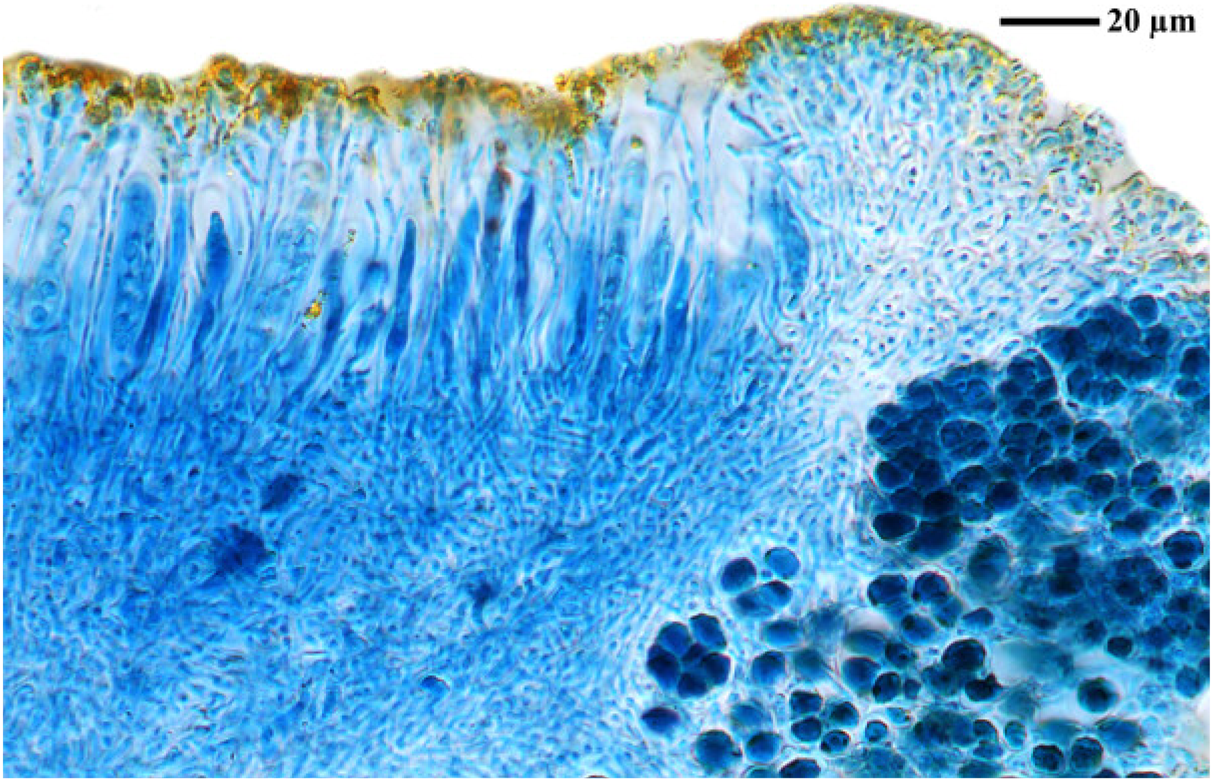


Caloplaca arcis

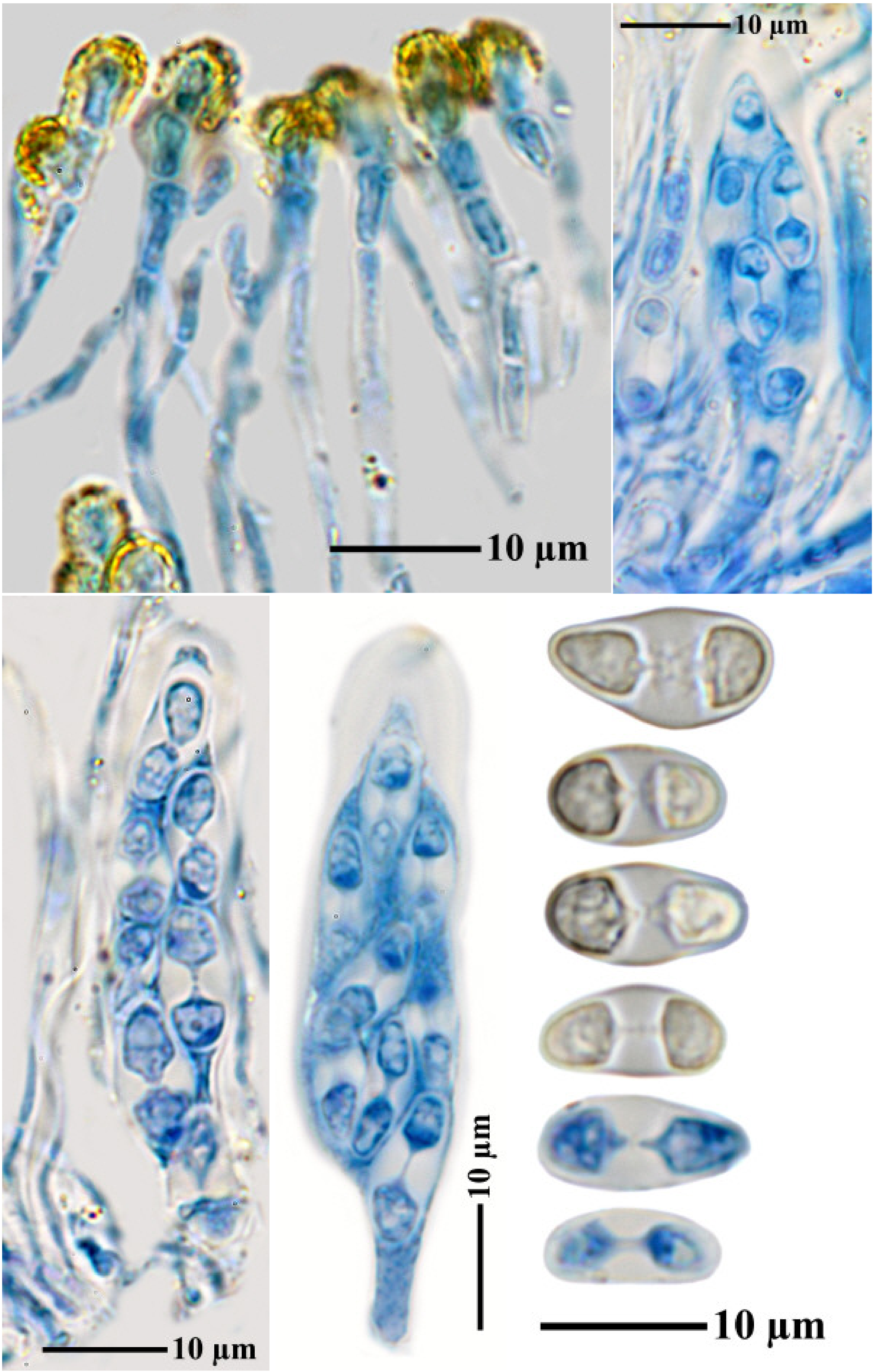


Caloplaca arcis





Caloplaca arcis

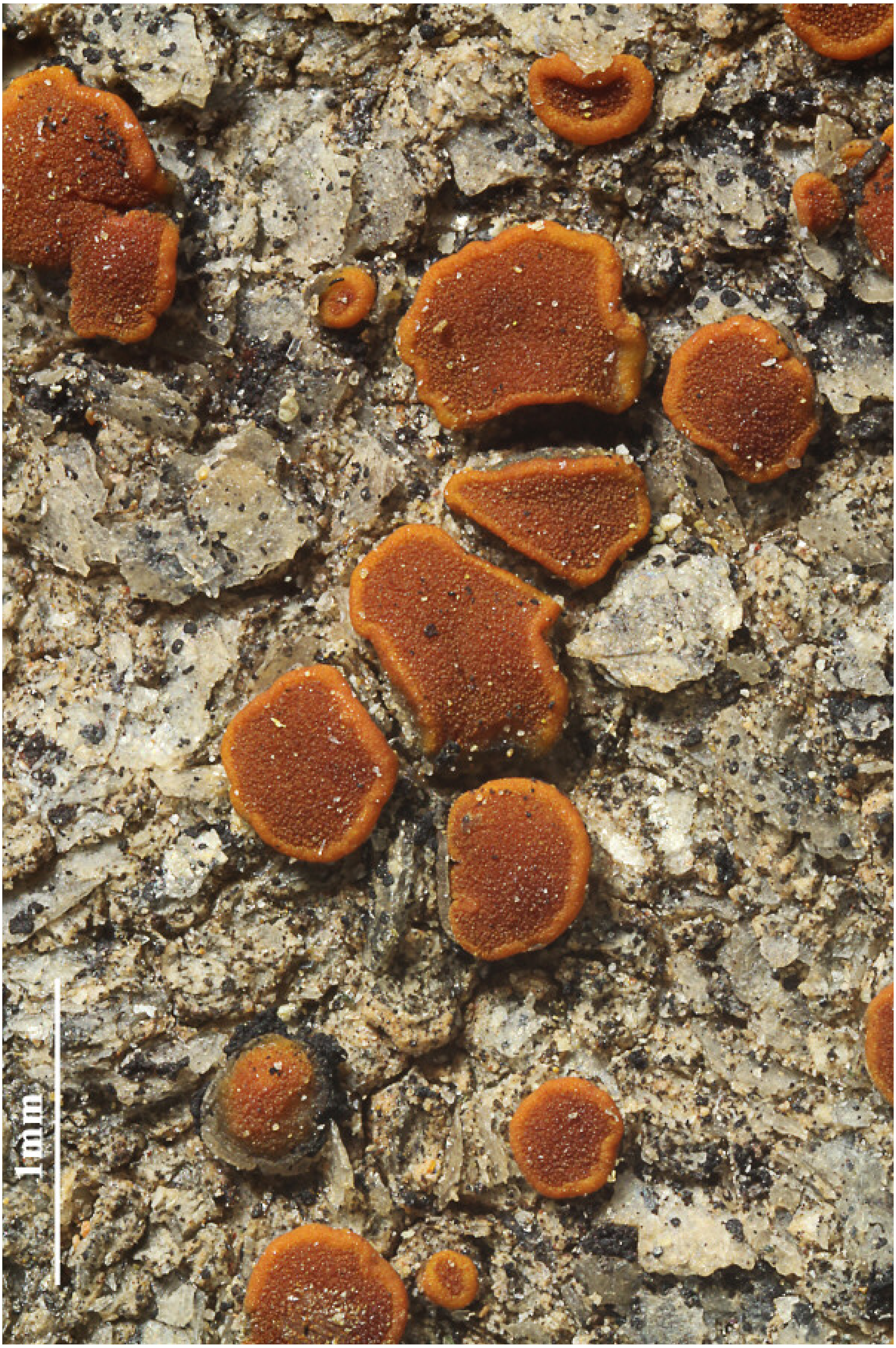


Caloplaca arcis

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

On gneiss rocks.

[5371], Spanien, Kanarische Inseln, Gran Canaria, Nordhänge am Stausee Embalse del Mulato; lückige Gebüschvegetation mit offenerdigen Stellen und vereinzelten *Pinus-canariensis*-Gruppen; 27°54.905' N, 15°41.596' W, Höhe 760 m. Leg. F. Schumm & U. Schwarz, 31.12.1998, det. A. Aptroot 2016.

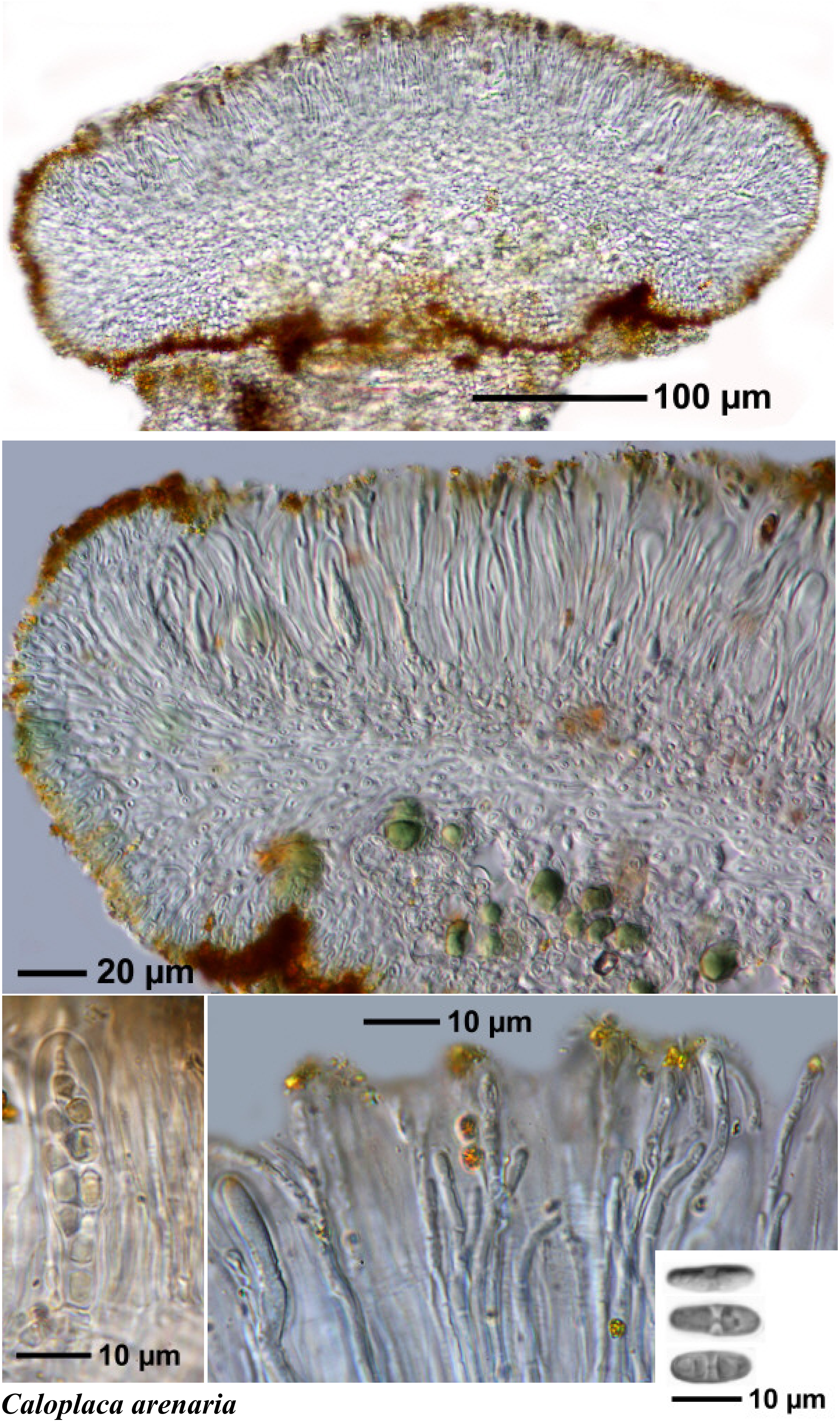


Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Thallus unsichtbar, auf Glimerschiefer. Sporen 8/Ascus, schmal, 13-14 x 4-5 µm, Septum 1-2 µm. Hymenium 88 µm.

[5568], Schweiz, Wallis, südwestlich des Simplonpasses, 2370 m.



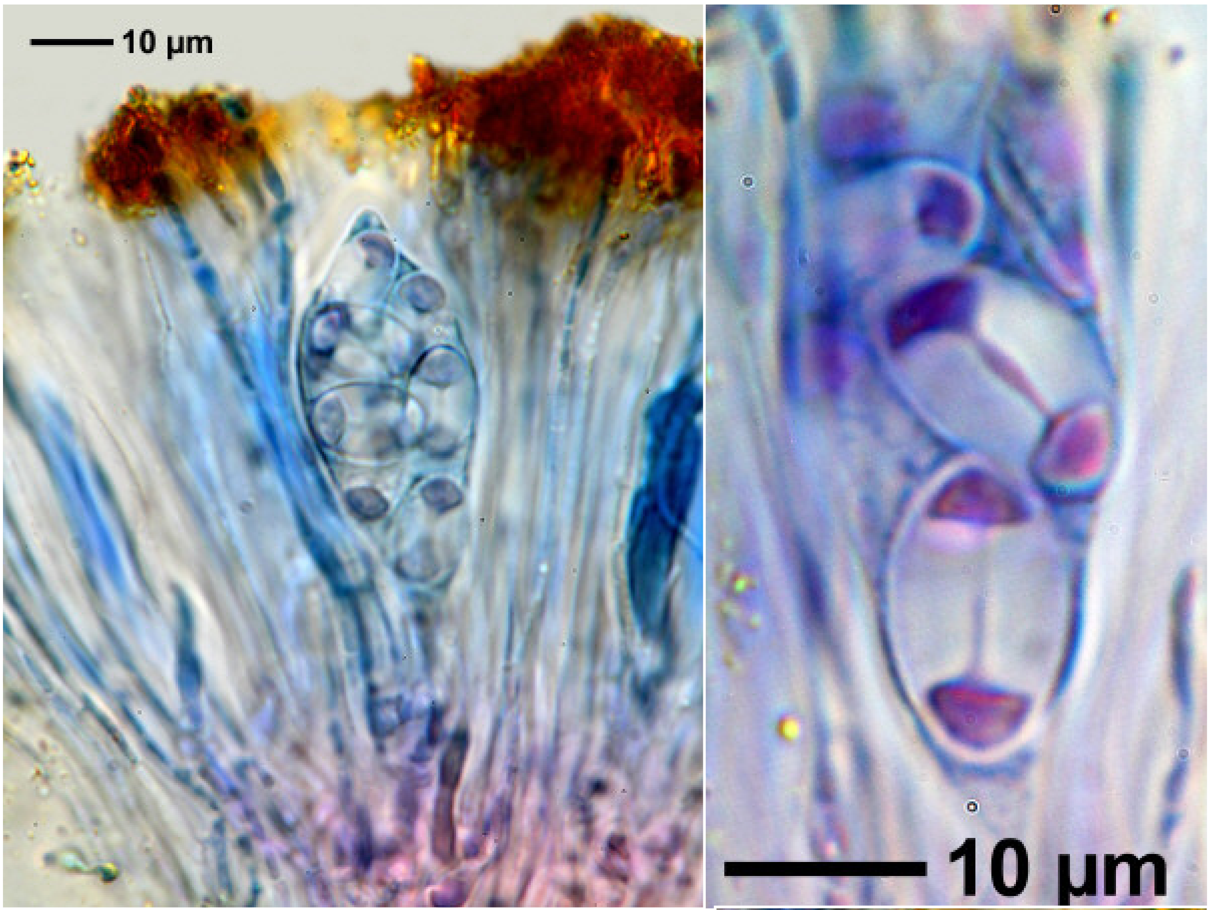
Caloplaca arenaria

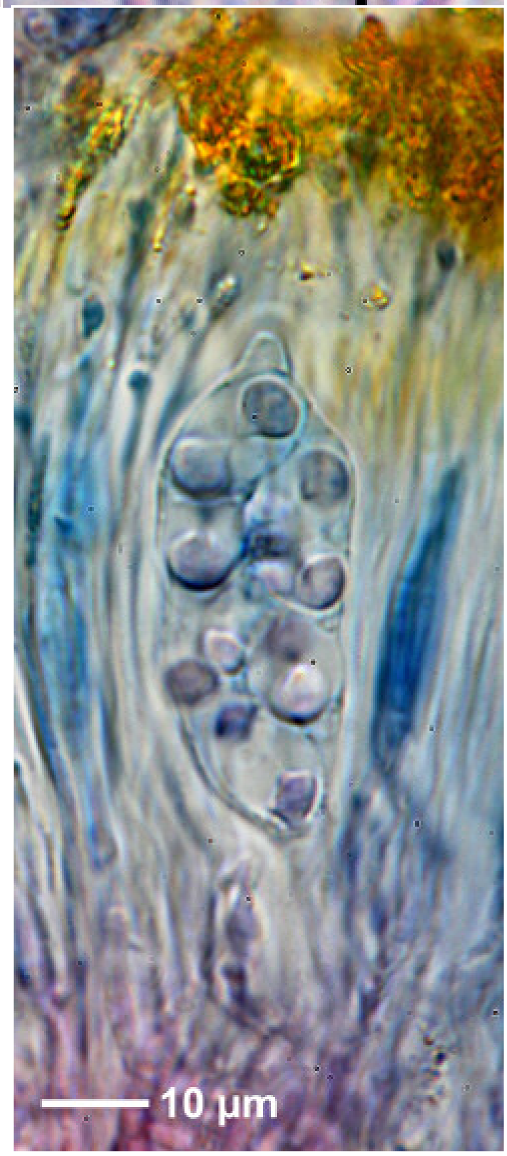
Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, q4-17 x 8-10 µm, septum 7-10 µm. On non-calcareous rocks.

[7181], Spanien, Kanarische Inseln, Teneriffa, Teno Gebirge, im Barranco de las Cuevas Negras, an Mauern nahe Erjos. Leg. F. Schumm, 20.03.1978, det. A. Aptroot 2016

Caloplaca arenaria





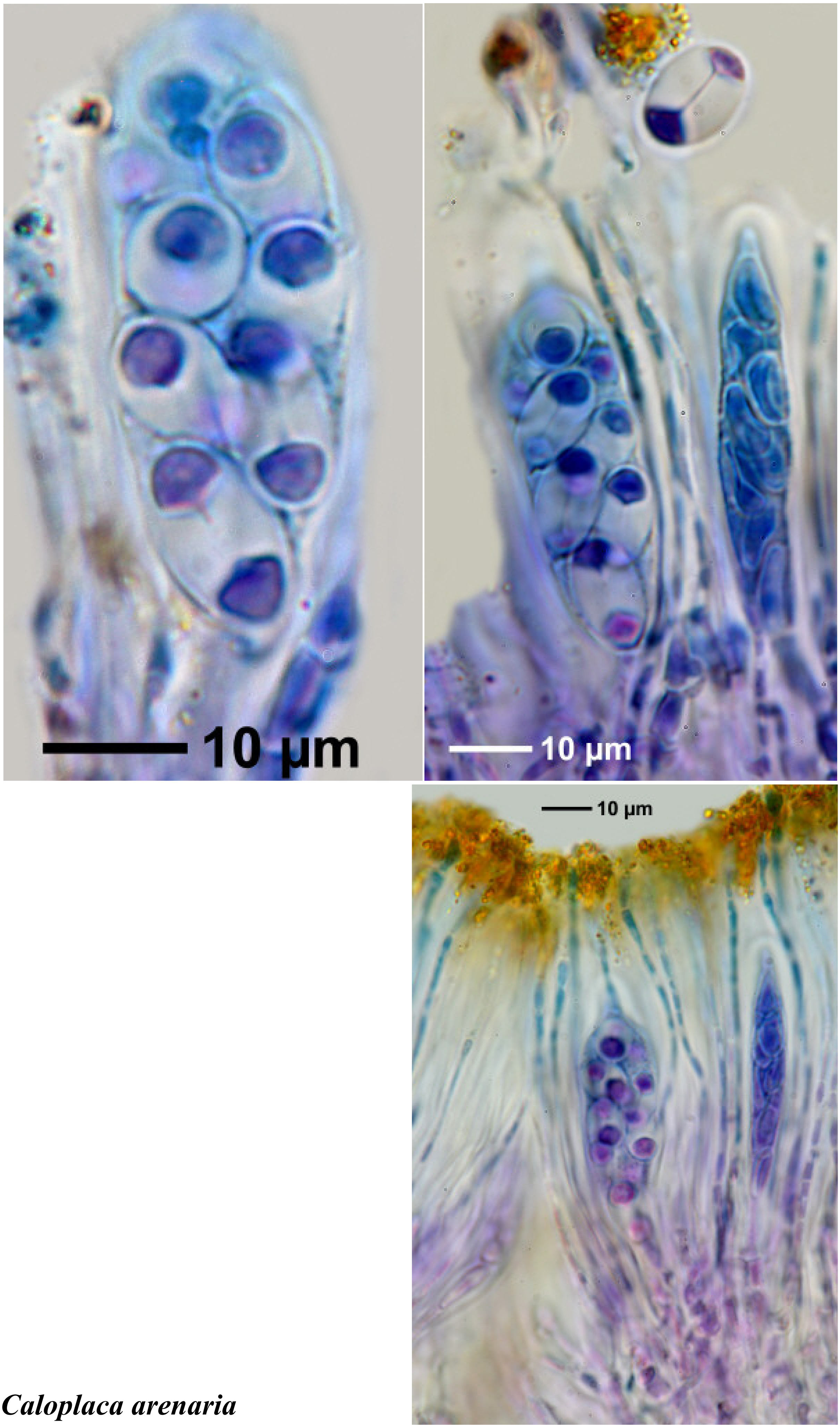
Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, 13.5-17.5 x 8-9 µm, septum 6.5-8 µm. On non-calcareous rocks.

[7182], Spanien, Kanarische Inseln, Teneriffa, Teno Gebirge, im Barranco de las Cuevas Negras, an Mauern nahe Erjos. Leg. F. Schumm, 20.03.1978, A. Aptroot 2016.

Caloplaca arenaria

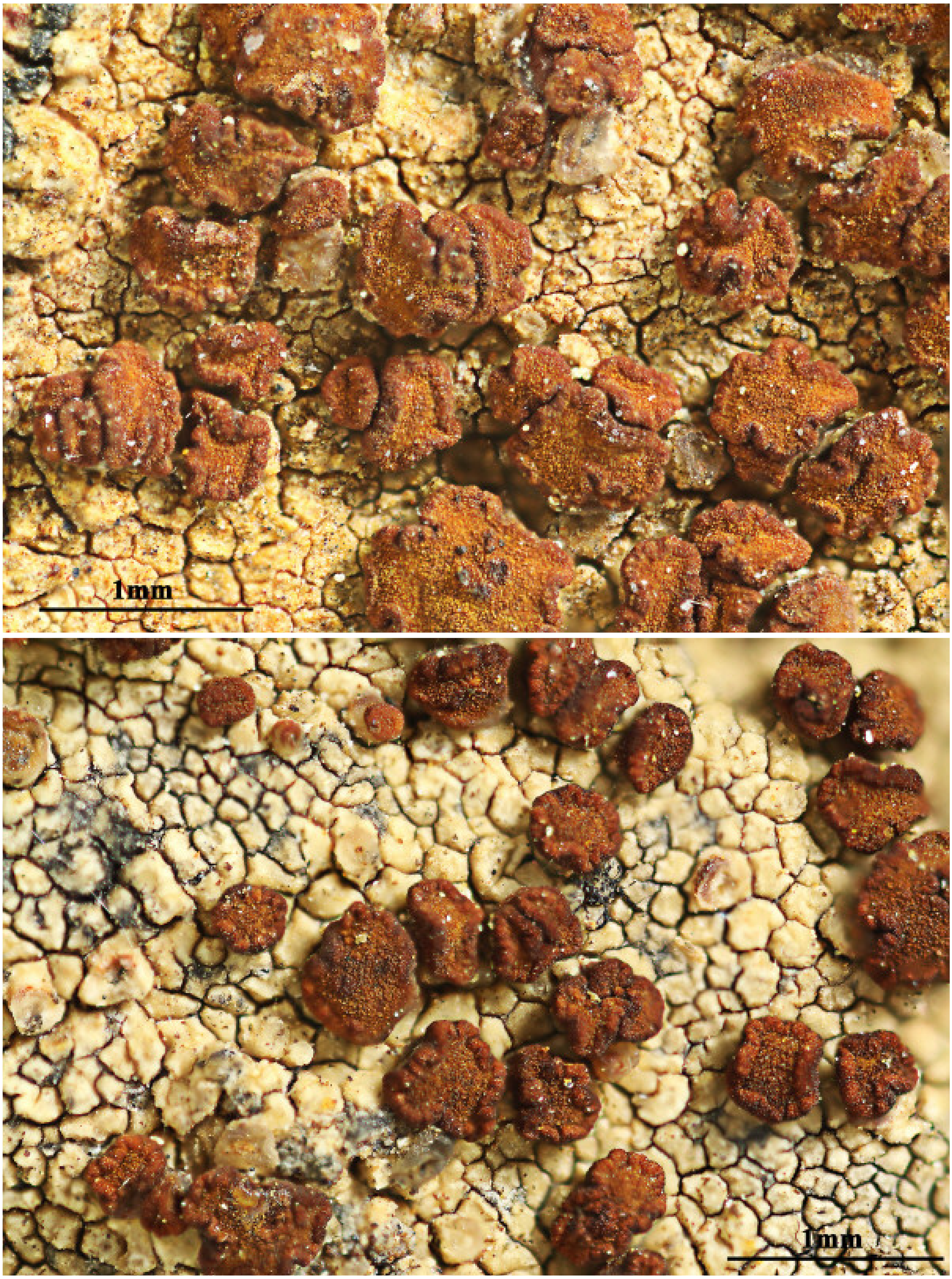


Caloplaca arenaria

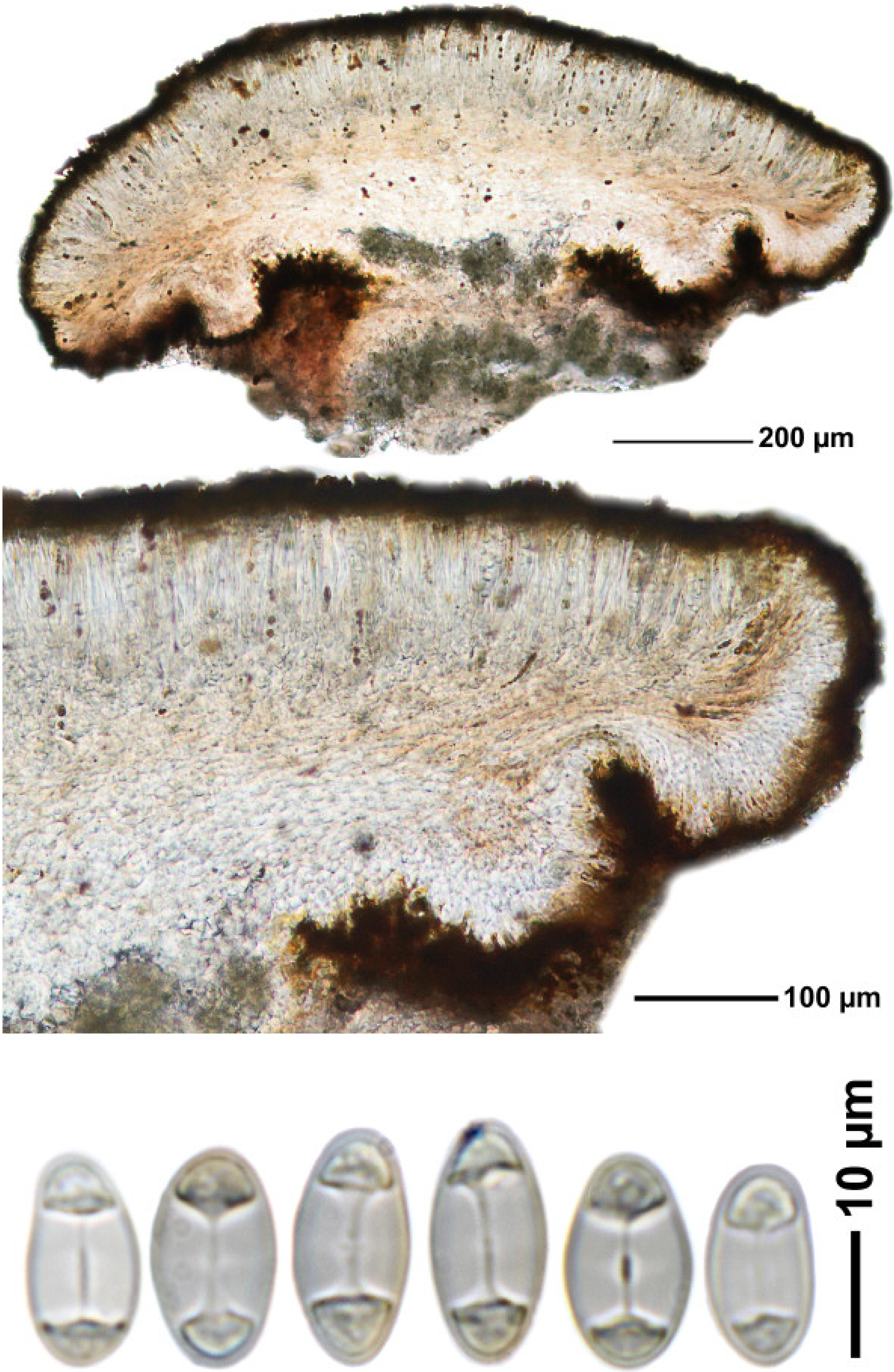
Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

On non-calcareous rocks. Spores polarilocular, hyaline, 8/ascus, 15.5-19.5 x 8-9.7 µm, septum 6.5-10.5 µm.

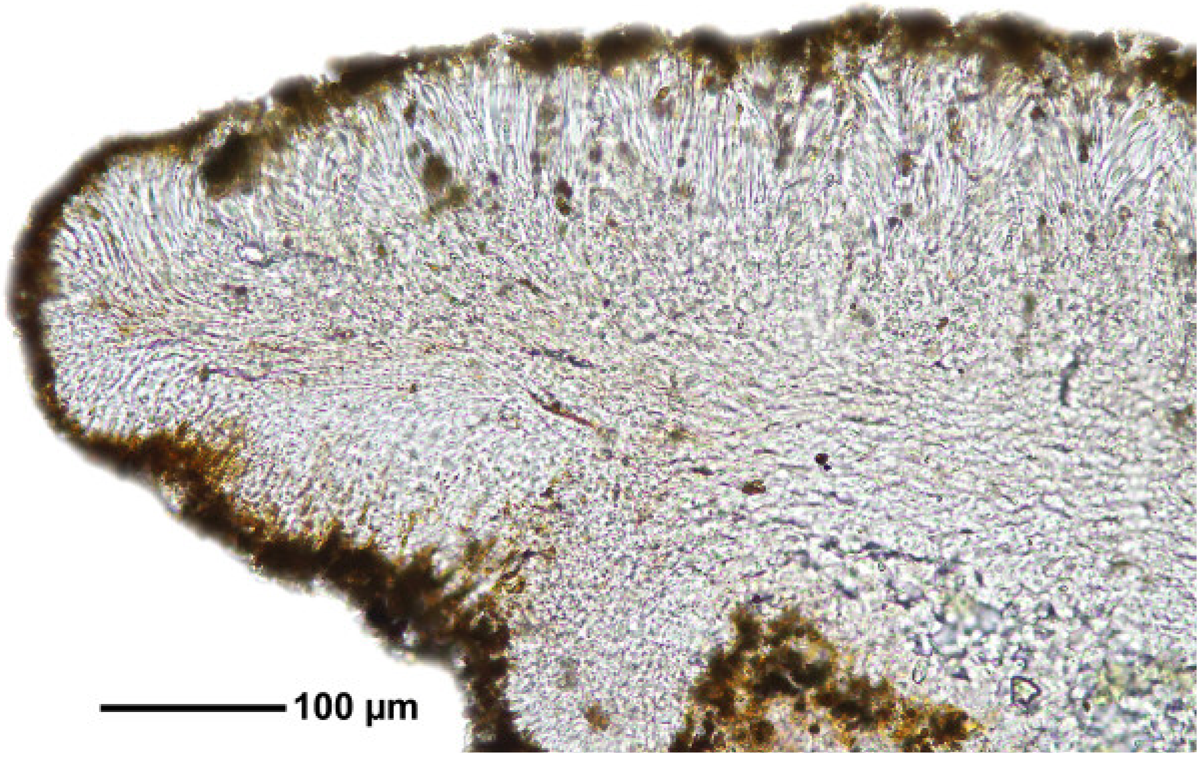
[9173], Spanien, Kanaren, La Gomera, Chorros de Epina, zwischen Arure und Vallehermoso, im Lorbeer-Erica Wald, 28°09.830' N, 17°17.852 W, 750-850 m. Leg. F. Schumm, 10.02.2002, det. A. Aptroot 2016

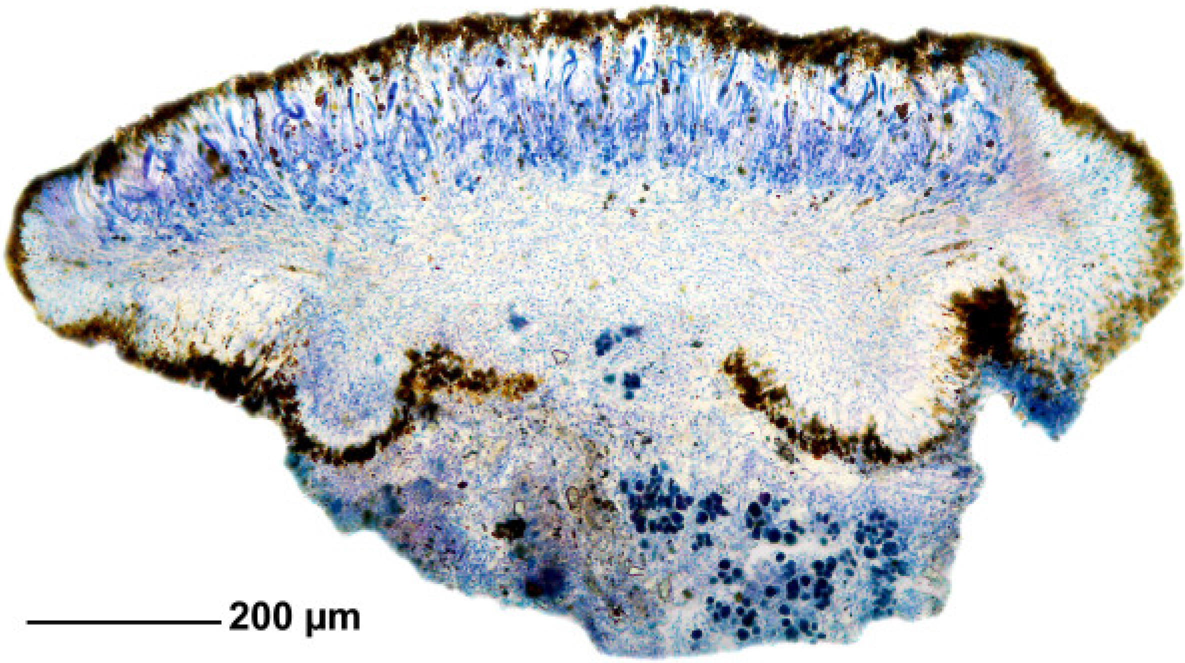


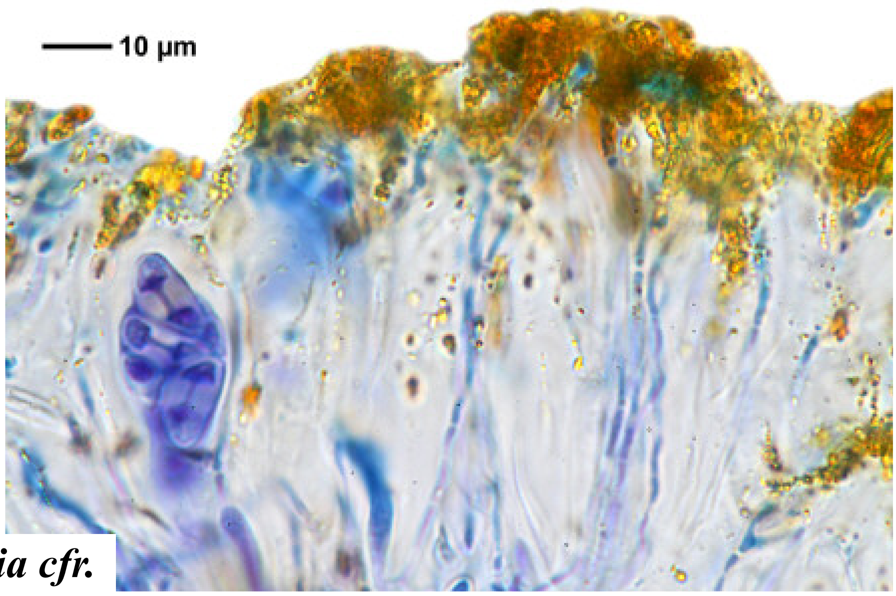
***Caloplaca arenaria* cfr.**



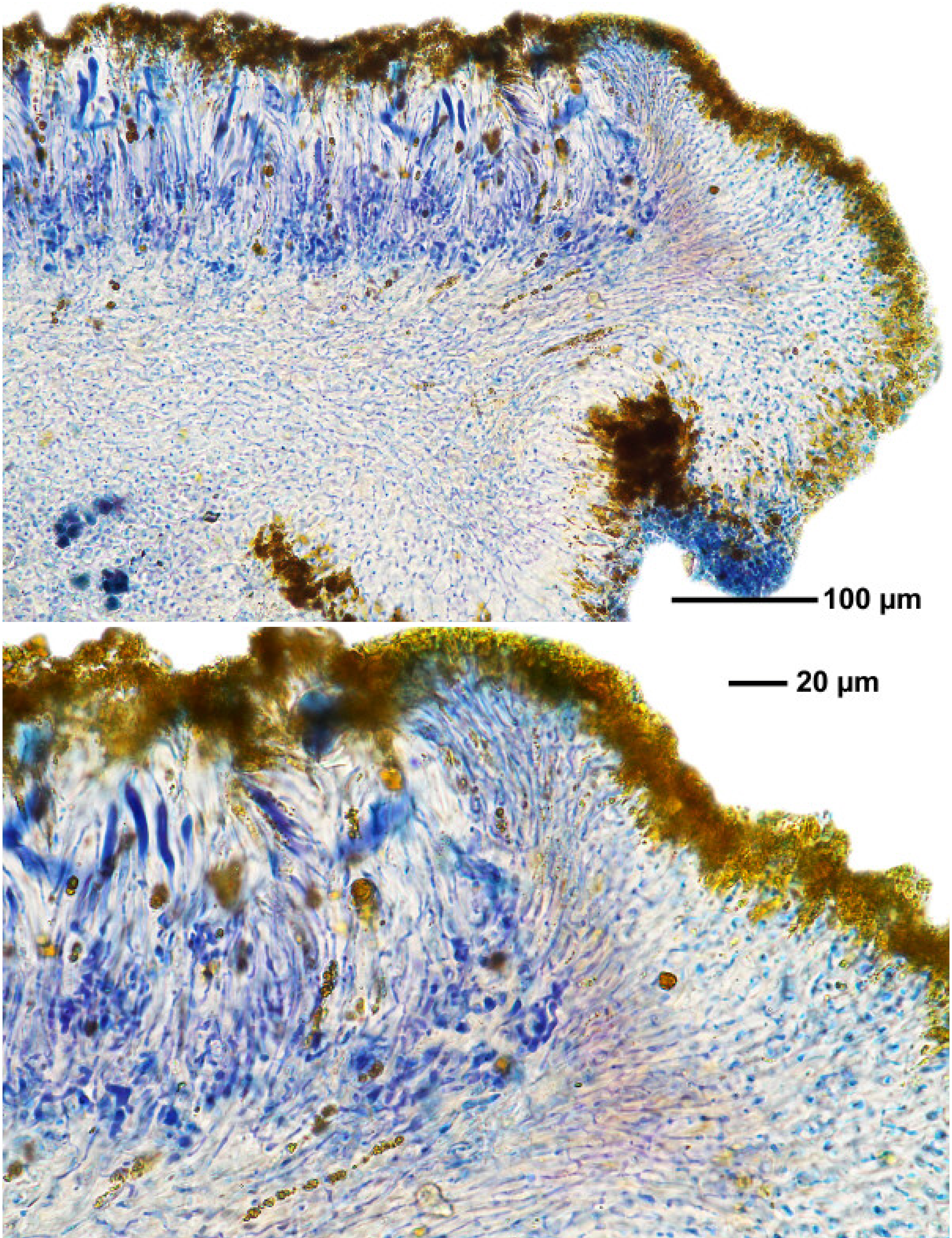
Caloplaca arenaria cfr.







Caloplaca arenaria cfr.



Caloplaca arenaria cfr.

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

On non-calcareous rocks.

[12295], Griechenland, N-Samos, bei Manolates südlich von Agios Konstandinos, 37°47.185' N, 26°49.533' E, 341 m, halbschattige bis besonnte Terrassenmauern, auf Glimmerschiefer. Leg. F. Schumm, 02.05.2006, det. A. Aptroot 2016.

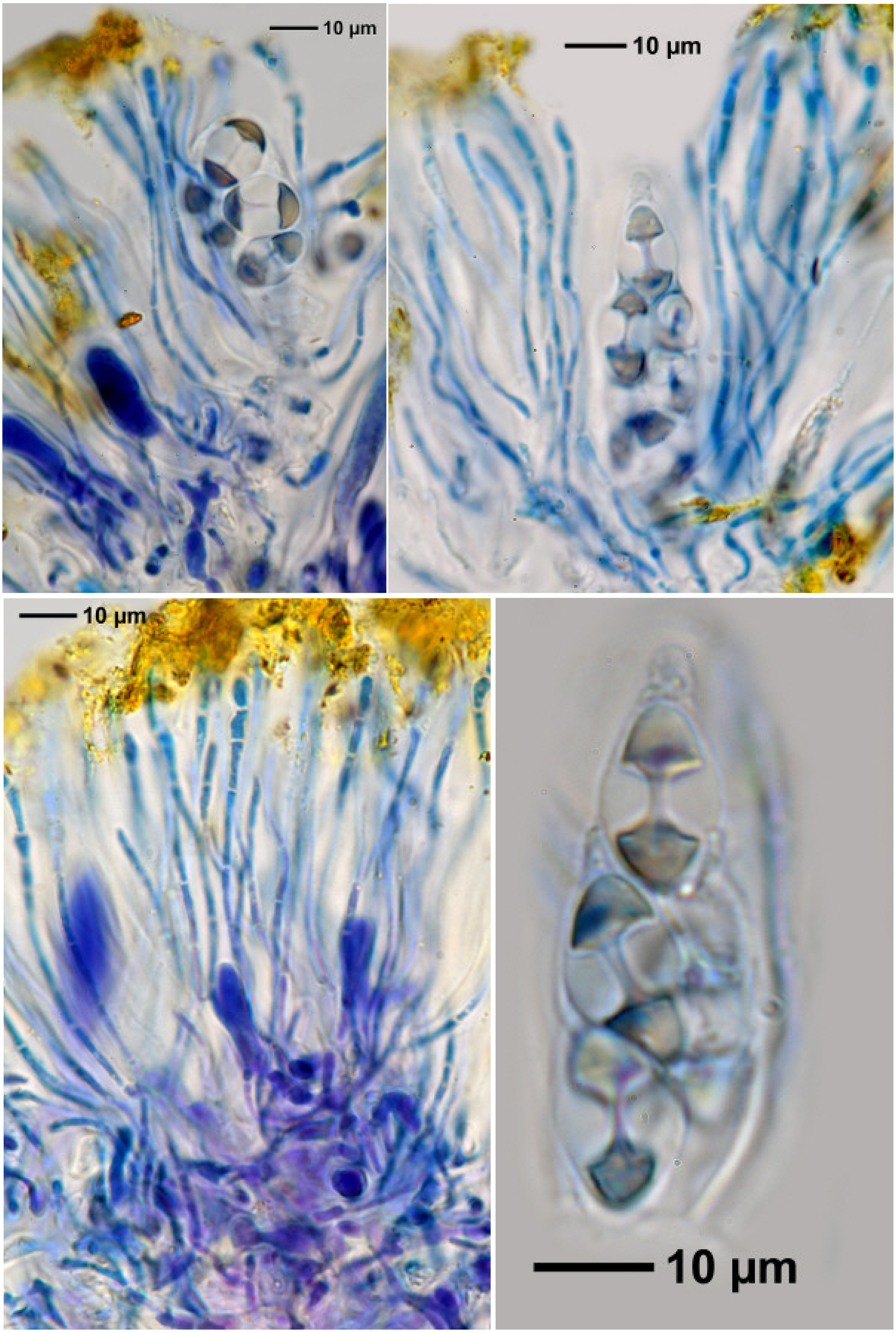
Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, 16.5-19.5 x 10.5-12 µm, septum 5.5-10 µm. On non-calcareous rocks

[12354], Griechenland, N-Samos, südlich Avlakia an der Straße oberhalb Vourliotes beim Kloster M. Vronda, 37°48' N, 26°51' E, 490 m, Glimmerschiefergebiet. Leg. F. Schumm & R. Düll, 03.05.2006, det. A. Aptroot 2016.

Caloplaca arenaria



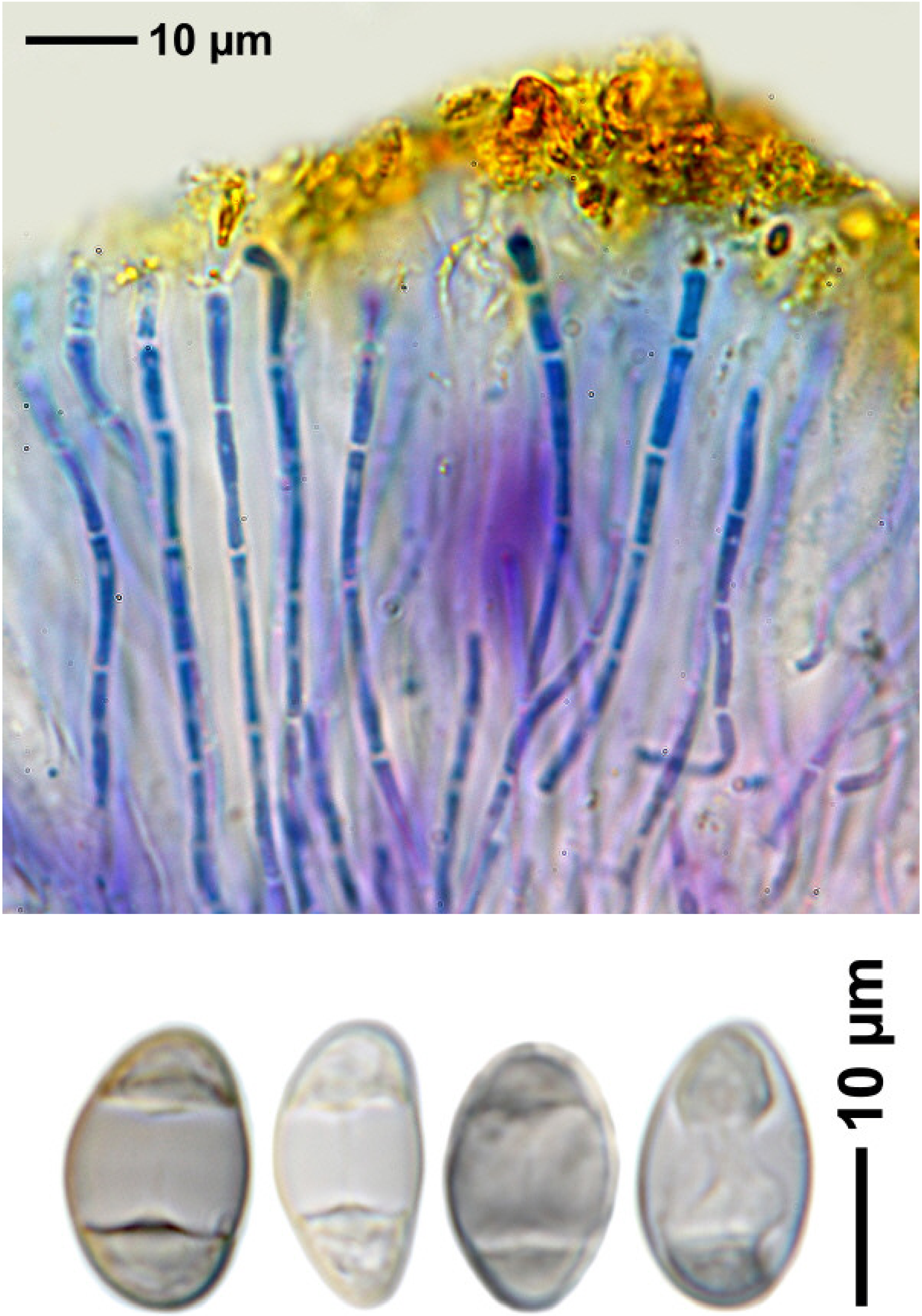
Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, 16.5-18.5 x 9.5-11.5 µm, septum 7-9 µm. On non-calcareous rocks.

[12361], Griechenland, N-Samos, südlich Avlakia an der Straße oberhalb Vourliotes beim Kloster M. Vronda, 37°48' N, 26°51' E, 490 m, Glimmerschiefergebiet. Leg. F. Schumm & R. Düll, 03.05.2006, A. Aptroot 2016.

Caloplaca arenaria



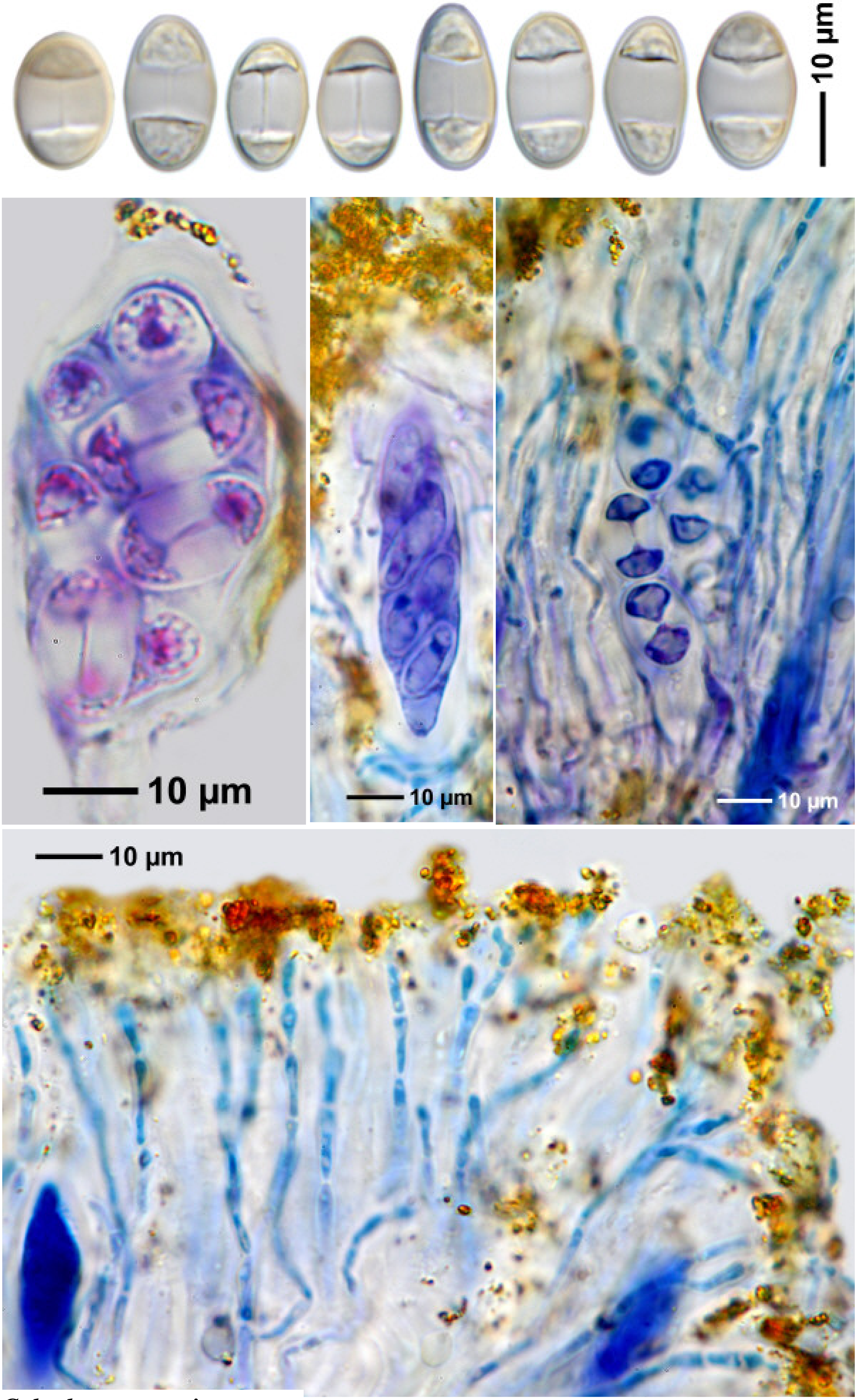
Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, 16-22 x 10-12.5 µm, septum 8-10 µm. On not calcareous rocks.

[13486], Griechenland, S-Kreta, Asteroussia Berge, 2 km oberhalb Lentas, ca. 190 m. Leg. F. Schumm & R. Düll, 23.10.2007, det. A. Aptroot 2016.

Caloplaca arenaria



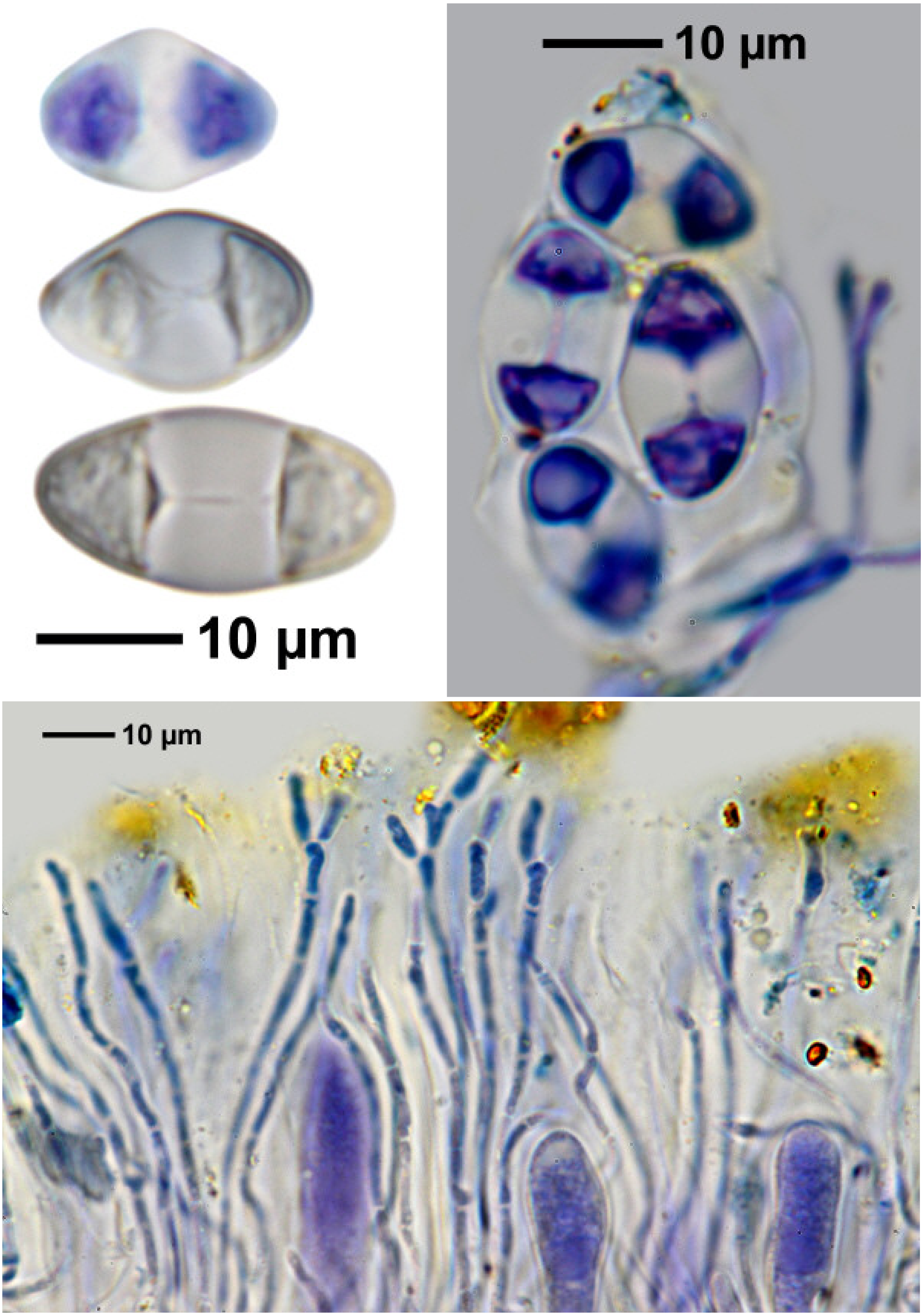
Caloplaca arenaria

Caloplaca arenaria (Pers.) Müll.Arg.
[= *Rufoplaca arenaria* (Pers.) Arup, Søchting & Frödén]

Spores polarilocular, hyaline, 8/ascus, 17-20(-25) x 11-13 µm, septum 6.5-7(-10) µm. On rocks.

[13841], Griechenland, N-Samos, oberhalb Manolates, 37°46.946' N, 26°49.659' E, 450 m. Leg. F. Schumm, 13.05.2008, det. H. Sipman 2016.

Caloplaca arenaria



Caloplaca arenaria

Caloplaca areolata (Zahlbr.) Clauzade
[= *Caloplaca cerina* (Hedw.) Th.FR. var. *areolata* Zahlbr.]

On calcareous rocks. Lit. Zahlbruckner. Österr. Bot. Z. 53: 289 (1903)

[19555], Italia, Carstus Triestinus, in valle Rosandra prope urbem Trieste, alt. 160 m, ad saxa calcarea. Leg. P.L. Nimis & M. Tretiach, 22.12.1993. VĕZDA: LICHENES RARIORES EXSICCATI NR. 141.

Caloplaca areolata

Caloplaca areolata (Zahlbr.) Clauzade
[= *Caloplaca cerina* (Hedw.) Th.FR. var. *areolata* Zahlbr.]

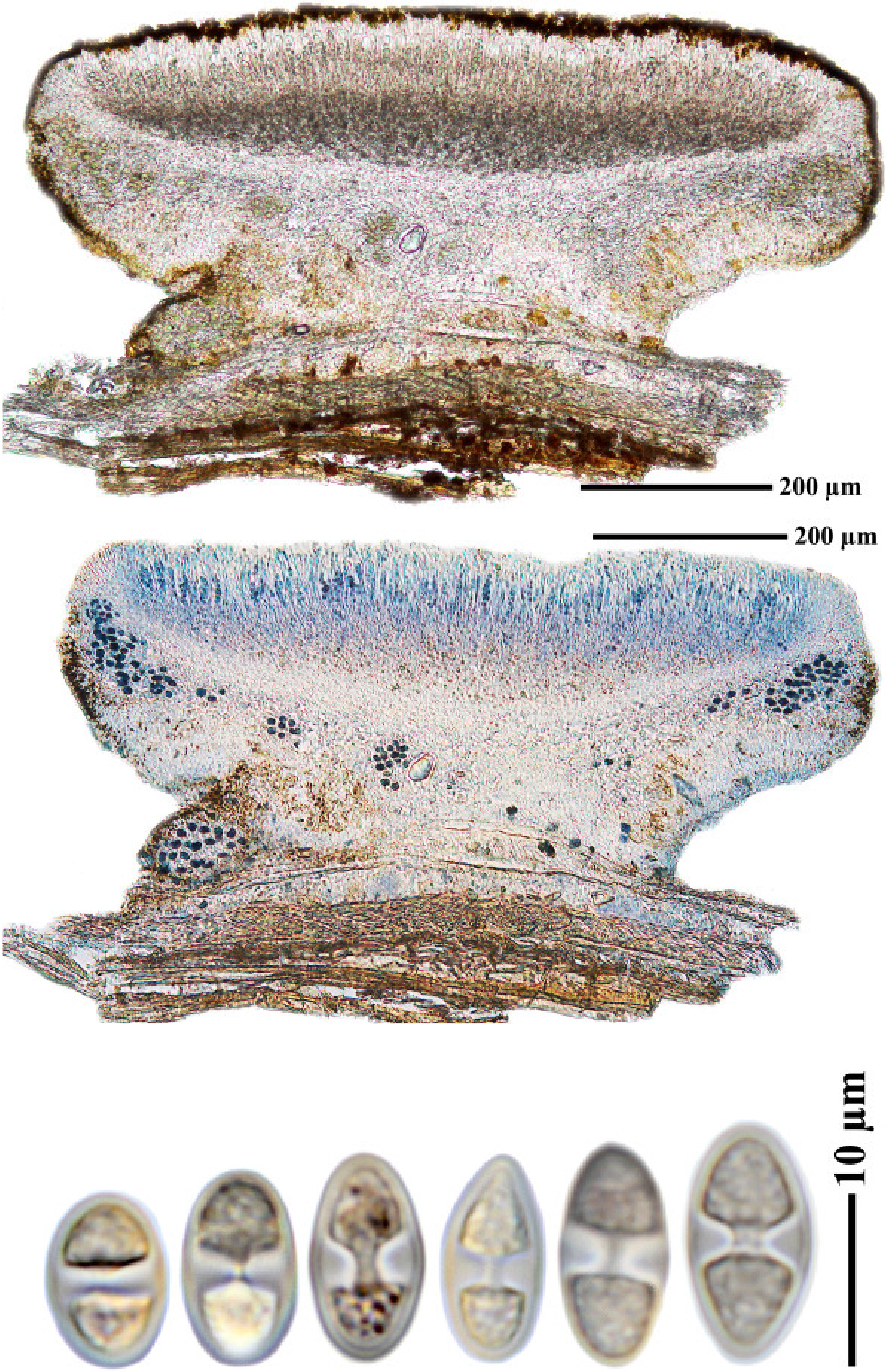
[TSB_17384], Italia, Friuli Venezia Giulia, Prov. Trieste, below Santa Croce, c. 160 m, on limestone. Leg. Pecchiari & Tretiach, 02.06.1996.

Caloplaca areolata

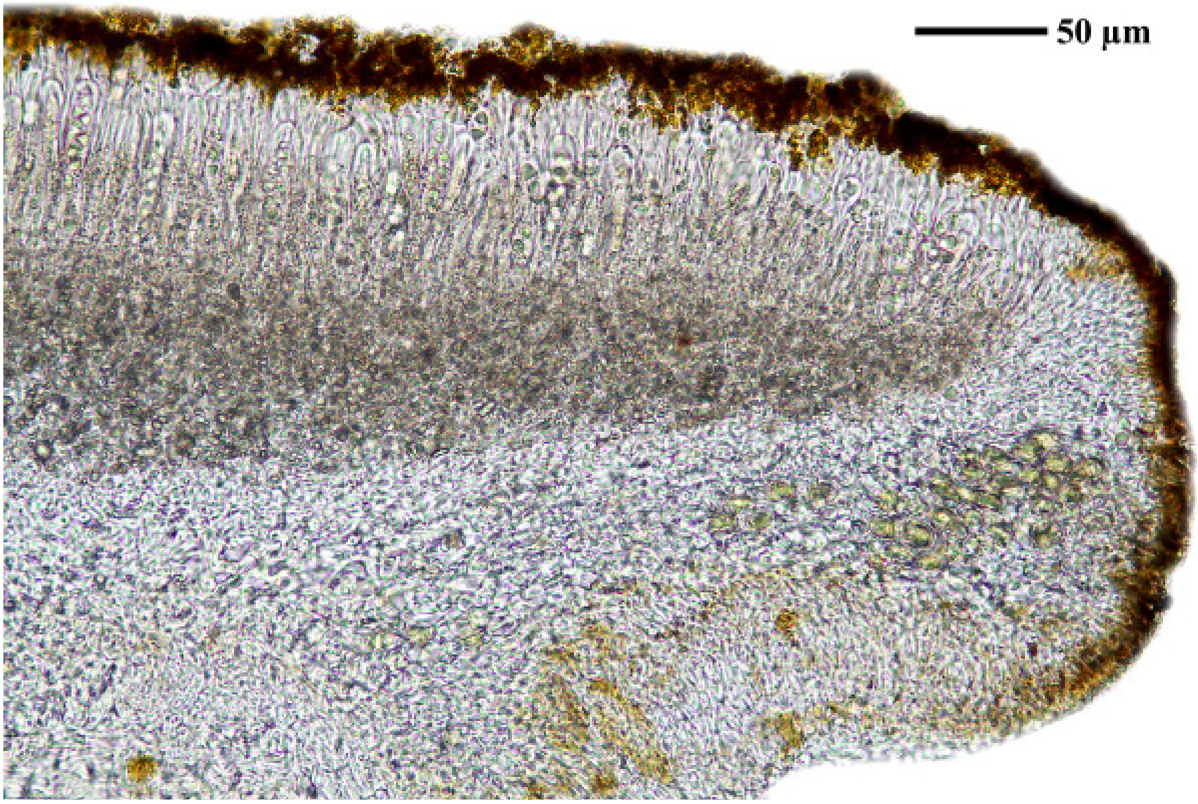
Caloplaca arizonica H. Magn.
[= *Gyalolechia arizonica* (H. Magn.) Søchting, Frödén & Arup]

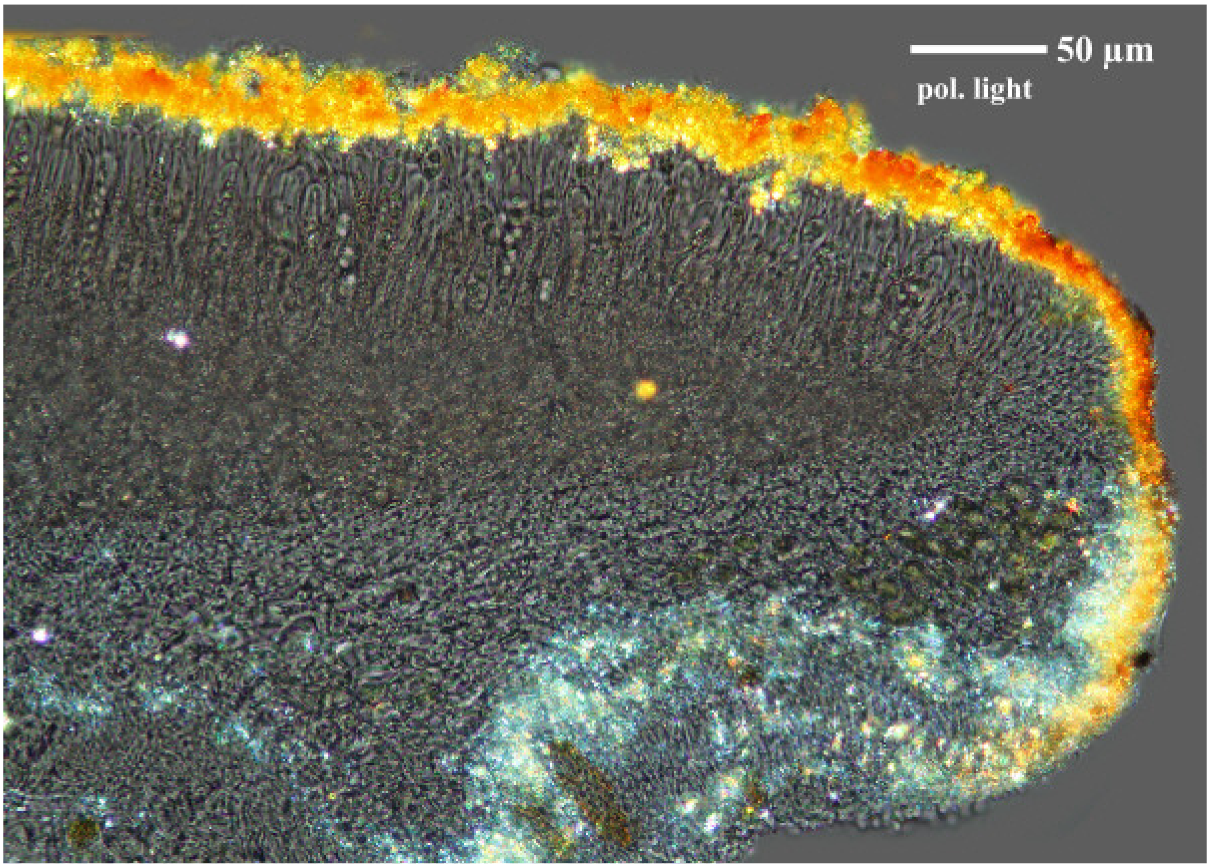
[B 60 0152240], U.S.A., Arizona, Gila Co., 1 km S of Payson along highway AZ 287, on *Juniperus monosperma*. 34°13' N, 111°21' W, 1525 m. Leg. T. H. Nash (21.219), 25. September 1983, det. T. H. Nash. Lichenes Exsiccati ASU No 53

Caloplaca arizonica

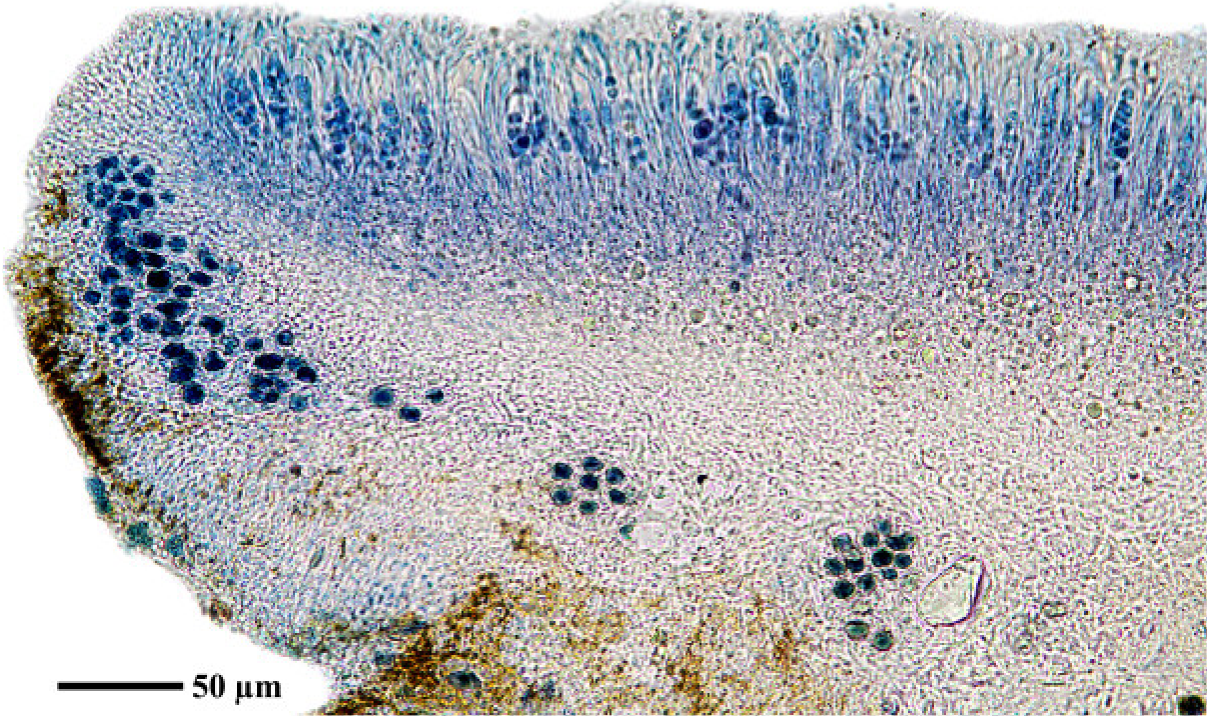


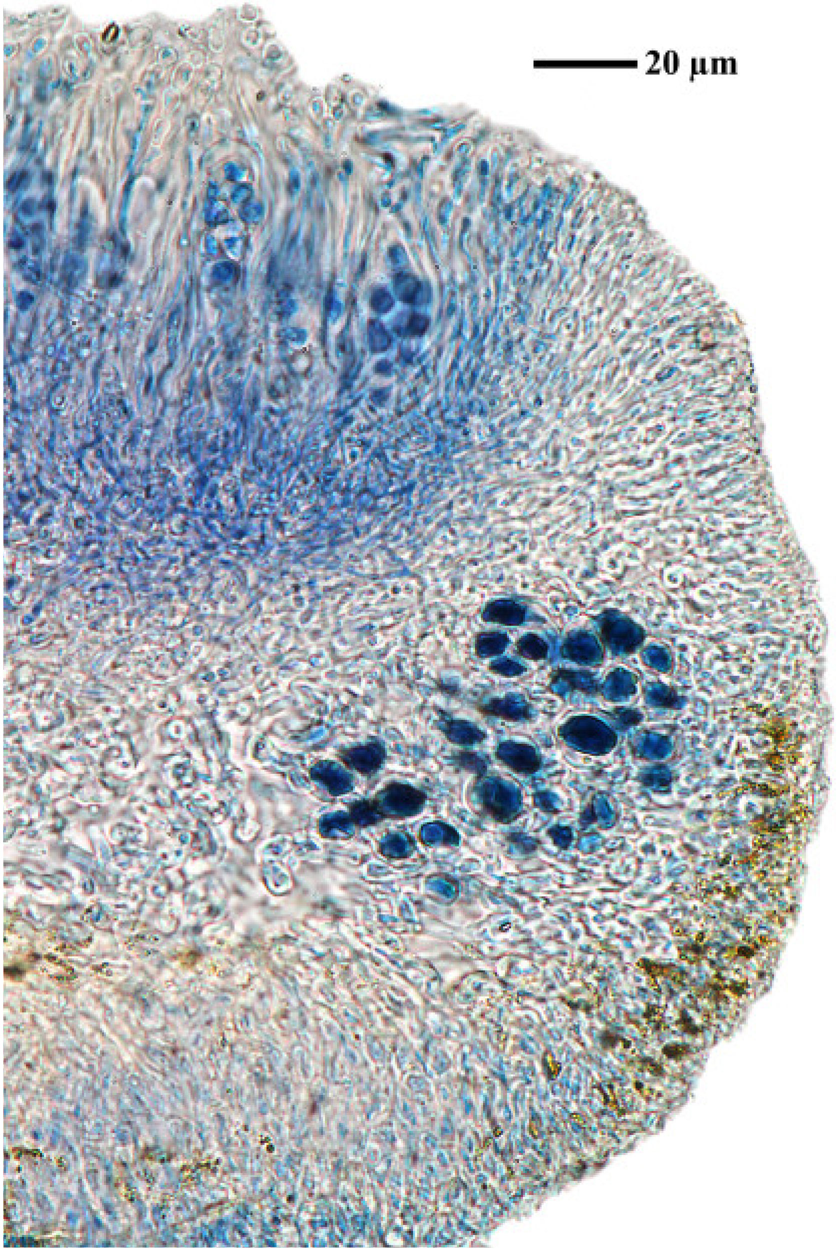
Caloplaca arizonica



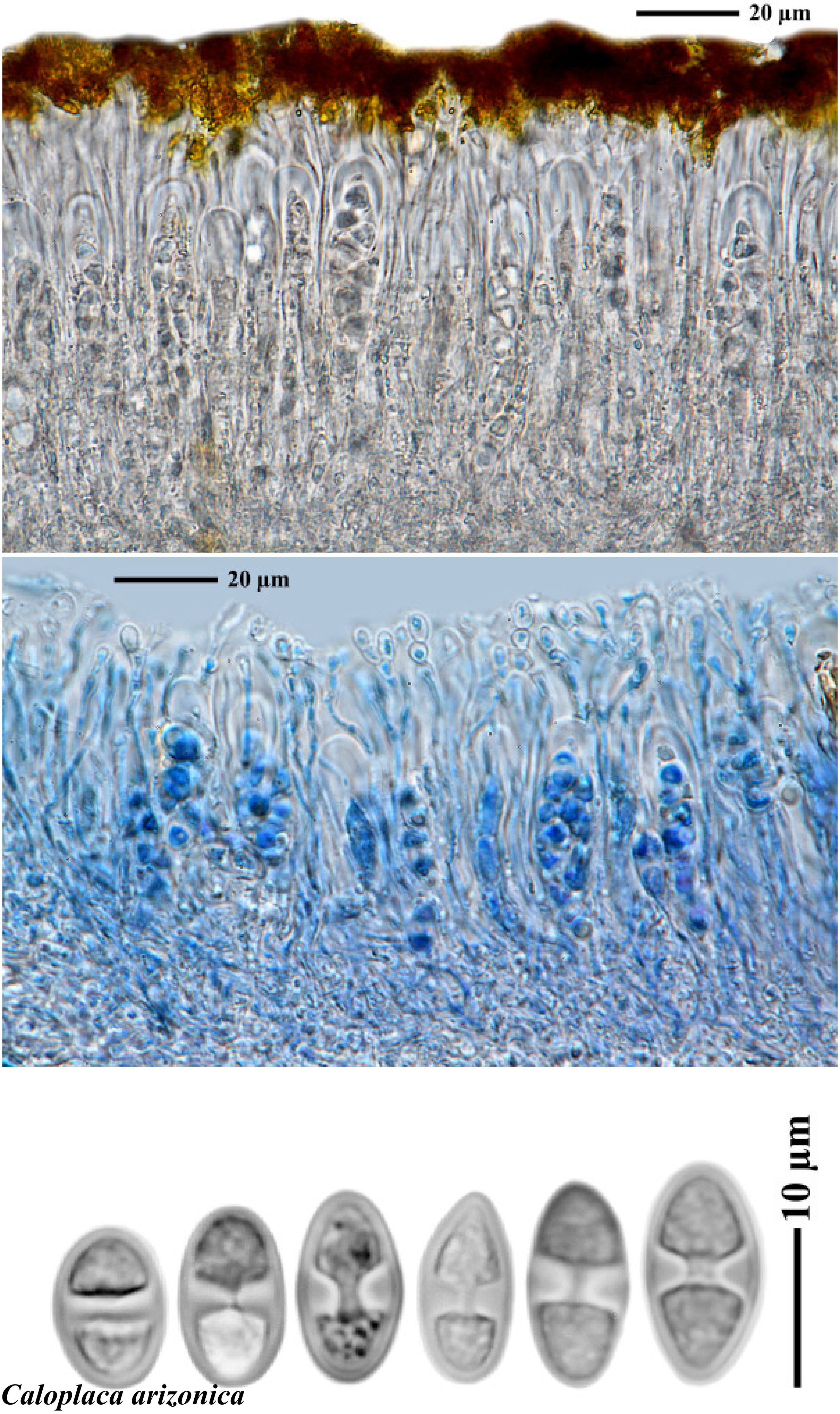


Caloplaca arizonica





Caloplaca arizonica

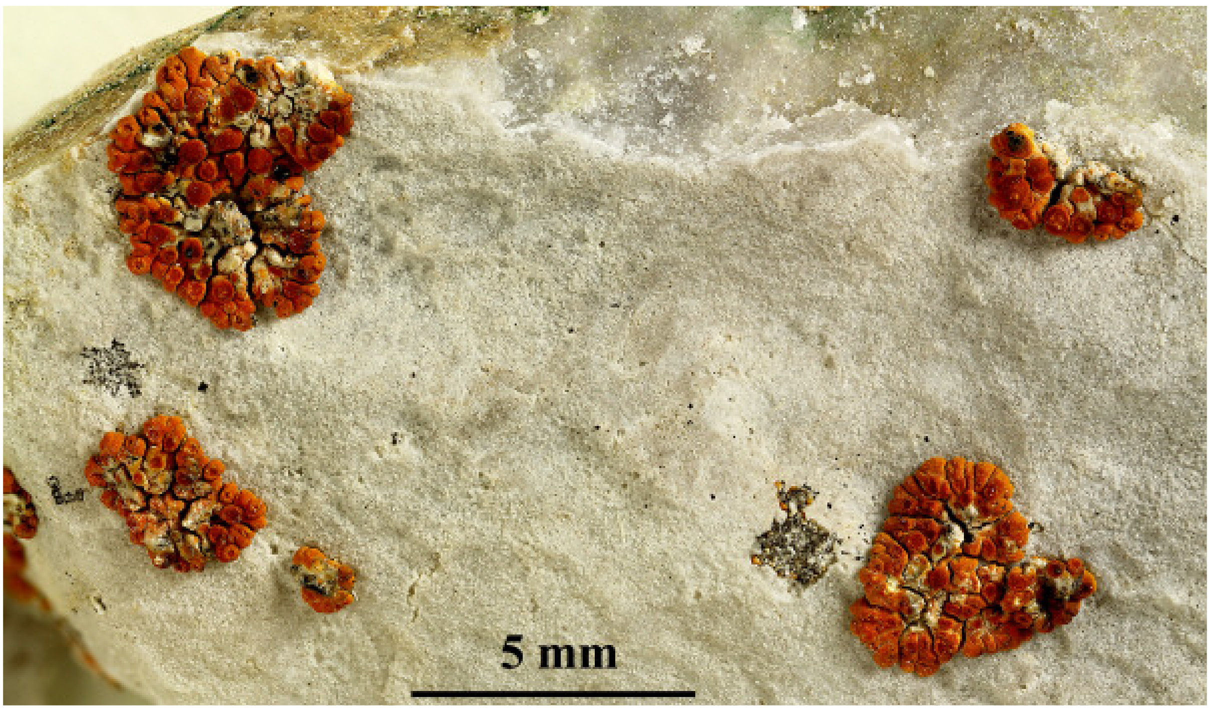


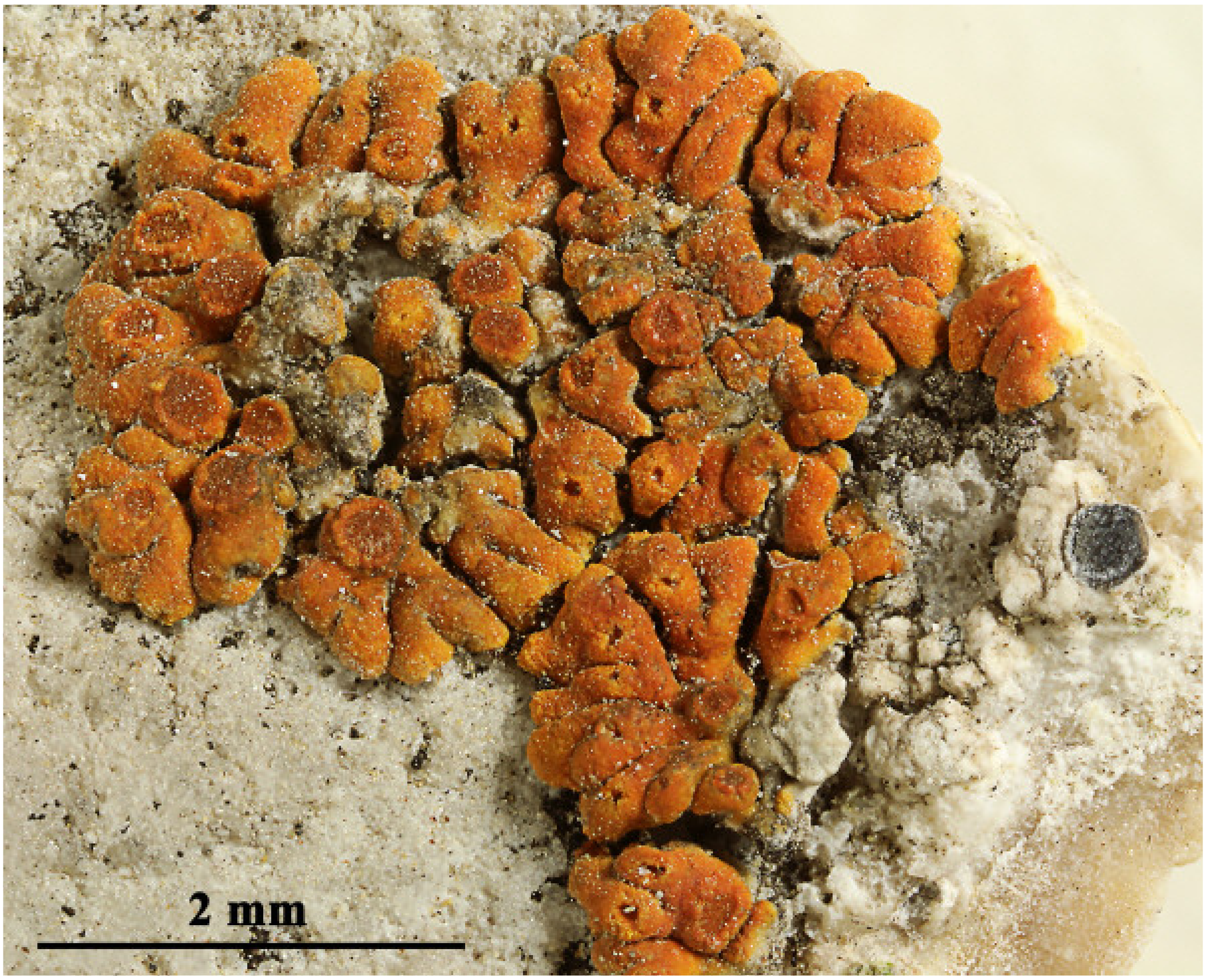
Caloplaca arizonica

Caloplaca arnoldii (Wedd.) Zahlbr.
[= *Calogaya arnoldii* (Wedd.) Arup, Frödén & Søchting]

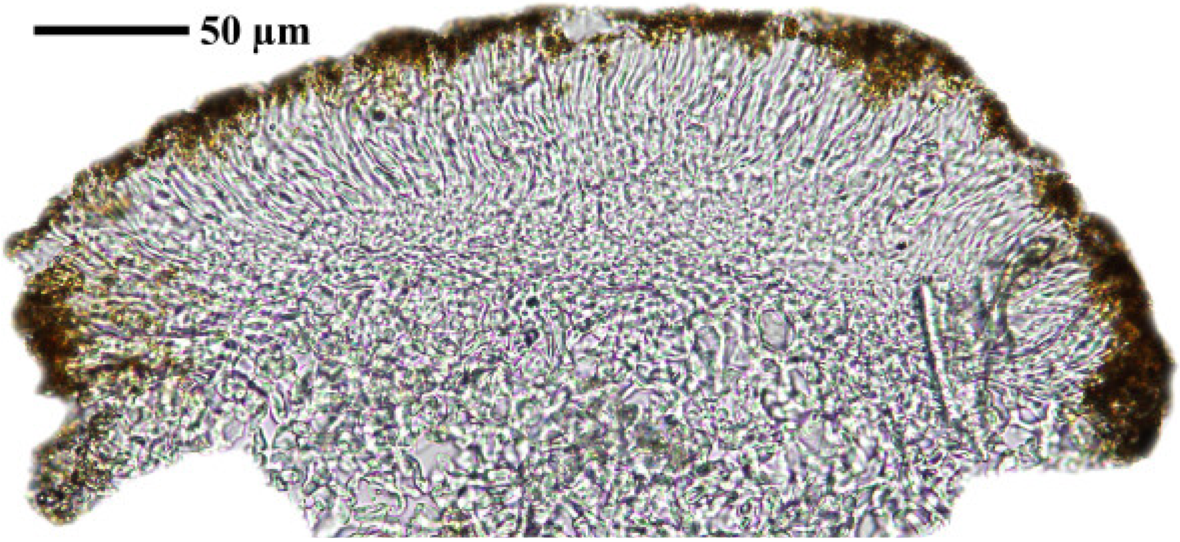
On calcareous rocks. Lit. Zahlbruckner in Denkschr. math.-naturw. Classe Kais. Akad. Wiss. Wien 92: 319 (1915)

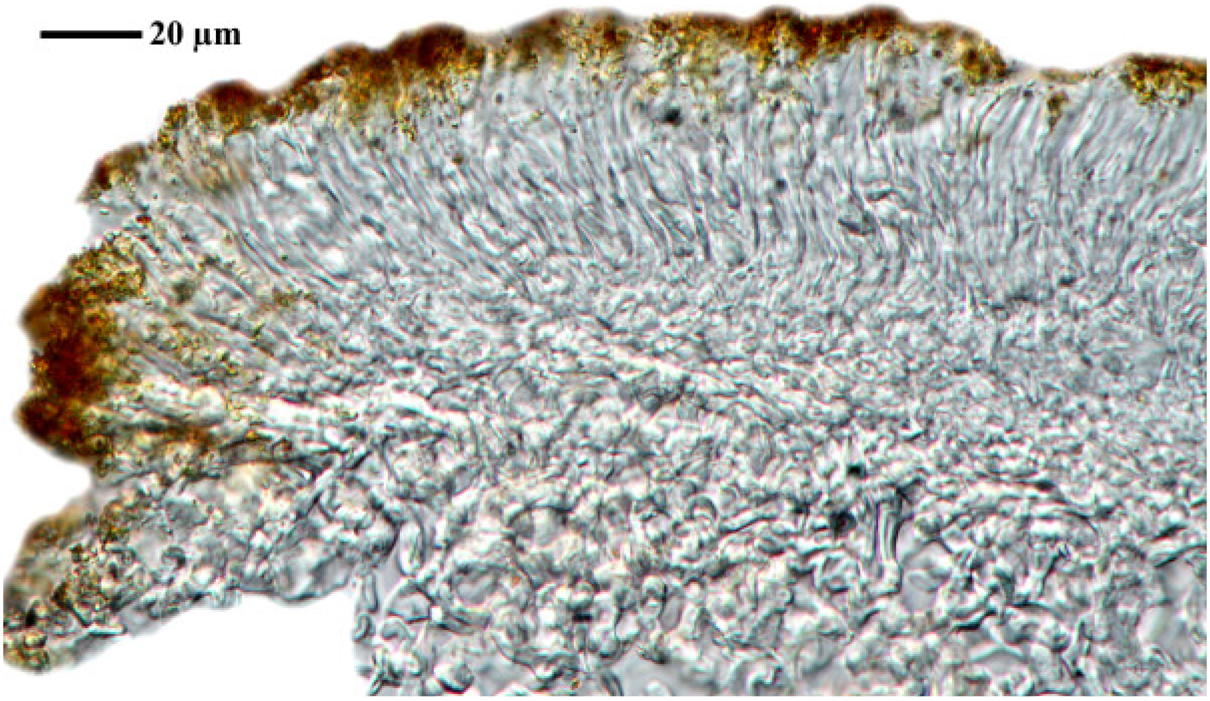
[19567], Austria, Styria, Hochschwab montium Alpium, in monte Griesmauer, alt. 1750 m, in rupibus calcareis. Leg. J. Poelt & A. Vězda, 19.09.1982. Vězda: Lichenes Selecti Exsiccati Nr. 1862.

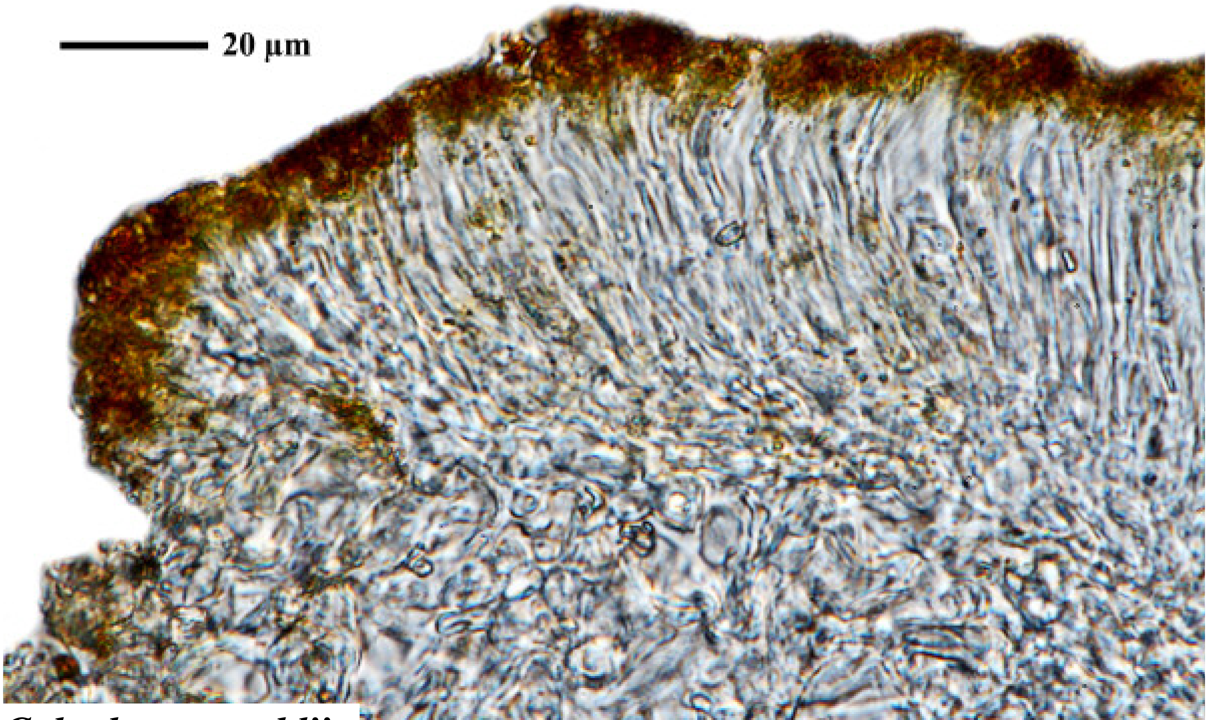




Caloplaca arnoldii





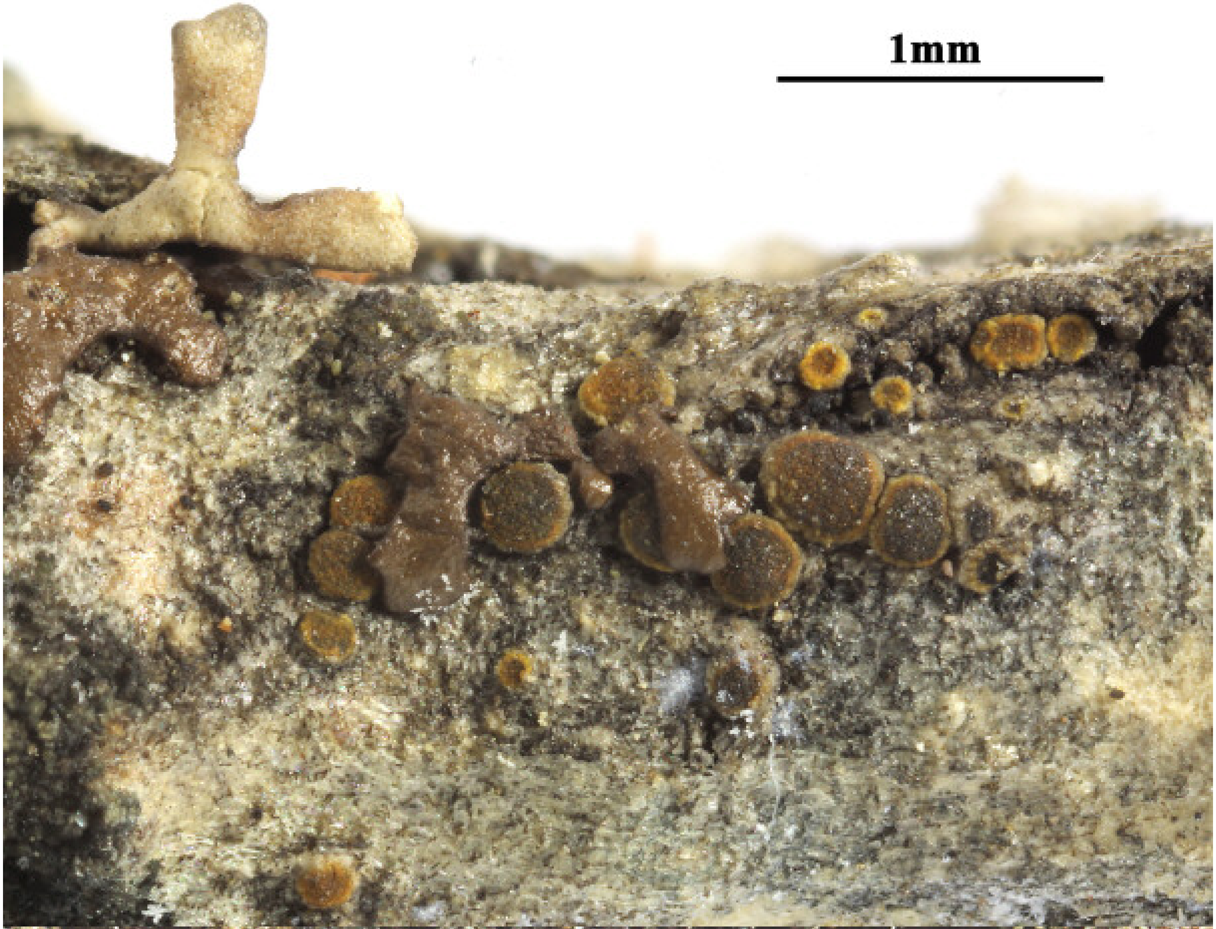


Caloplaca arnoldii

Caloplaca asserigena (J. Lahm) Della Torre & Sarnth.

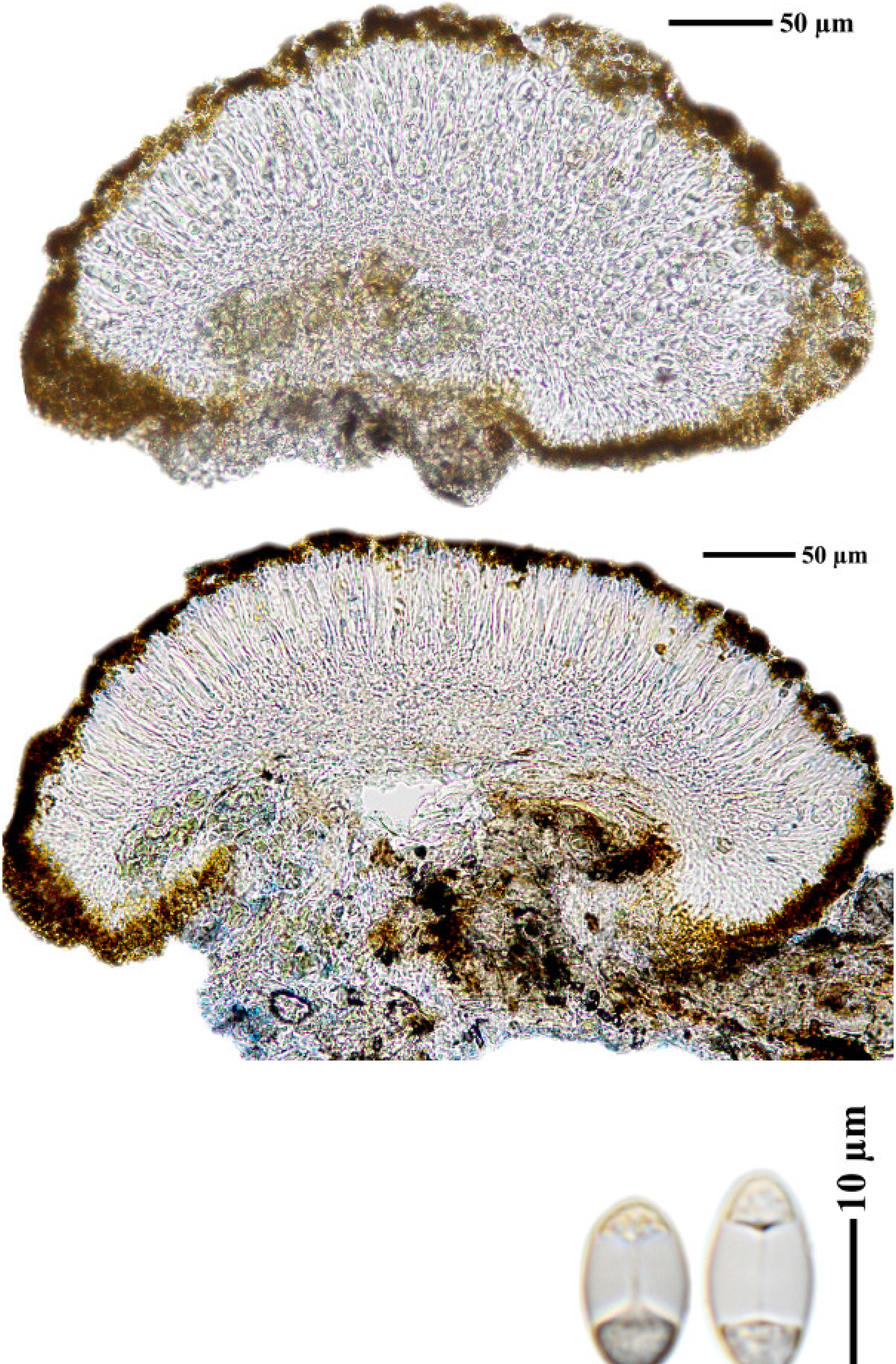
Hymenium 50 µm, clear. Spores 8/ascus, 11 x 7 µm, septum 6 µm (Sipm.), 12.8 x 6.3 µm, septum 6.3 µm (FS)

[B 60 0190879], Austria, Tirol, Achensee, forest near Pertisau, on dry twigs of Larix decidua. 47°26' N, 11°41' E . Leg. V. Grummann, 8. August 1958, det H. Sipman, 2013.

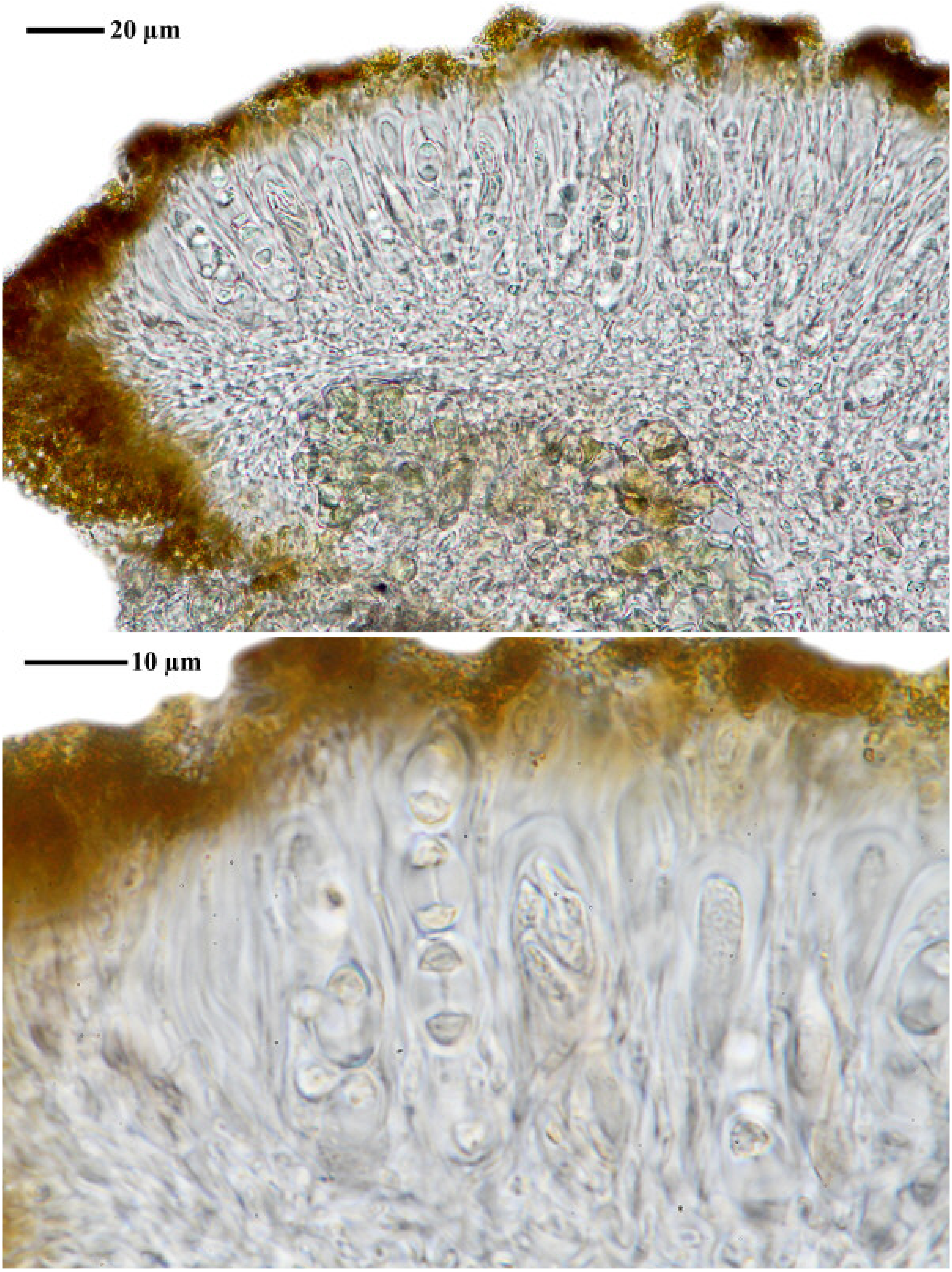


Caloplaca asserigena

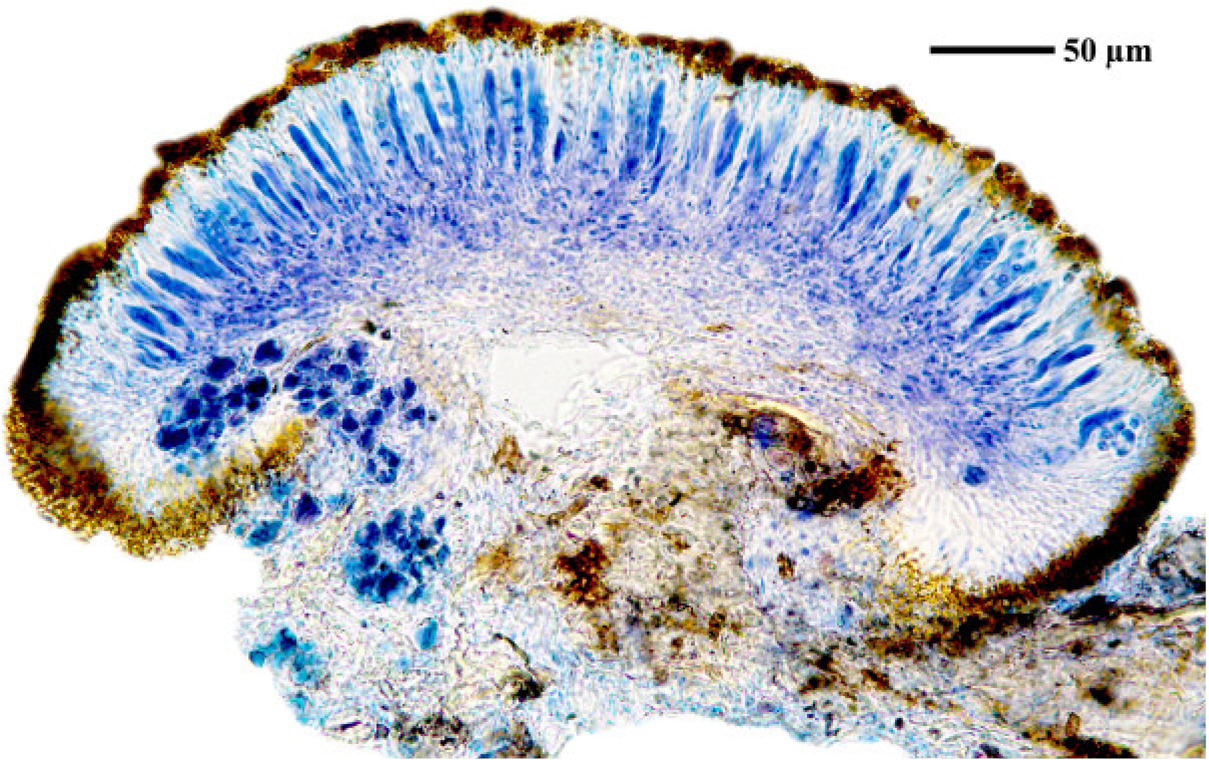
Caloplaca asserigena

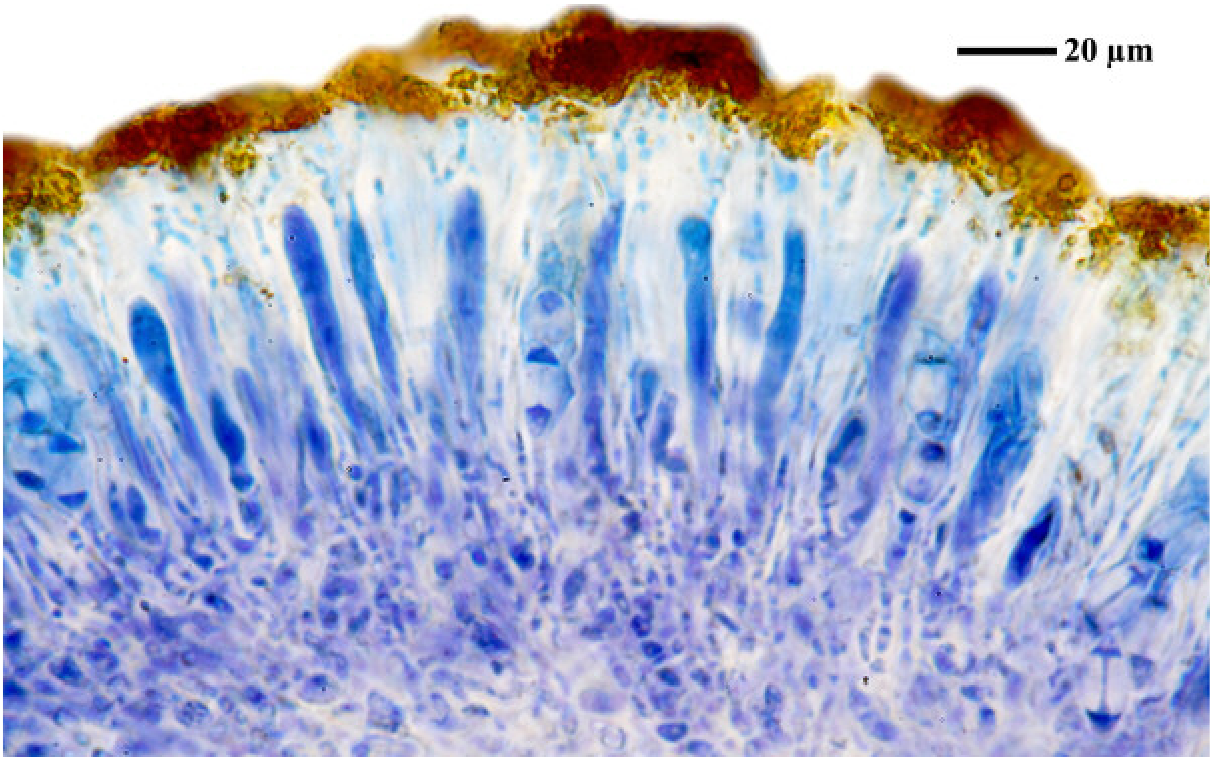


Caloplaca asserigena



Caloplaca asserigena





Caloplaca asserigena

Caloplaca atroflava (Turner) Mong.

On lava rocks.

[6929], Spanien, Kanarische Inseln, Gran Canaria; an einer feuchten mit viel Aeonium bewachsenen Felswand an der Straße von Ariñez zum Pinos de Galdar im Barranco del Charquillo; 28°01.327’ N, 15°35.272’ W, Höhe 1370 m. Leg. F. Schumm & U. Schwarz, 05.01.2000, det. A. Aptroot 2016.

Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On stones.

[13592], Griechenland, S-Kreta, Asteroussia Berge, zwischen Plora und Aghios Kirillos, dolomitisierte Kalkfelsen am Straßenrand, 34°59.038' N, 24°55.036' E, 380 m. Leg. F. Schumm & R. Düll, 27.10.2007, det. A. Aptroot 2016.

Caloplaca atroflava

Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On non-calcareous rocks.

[13938], Griechenland, N-Samos: nördlich des Mt. Lazarou oberhalb Monasterio Vronda, 37°46.251' N, 26°51.332' E, 500-580 m. Leg. F. Schumm, 19.05.2008, det. A. Aptroot 2016.

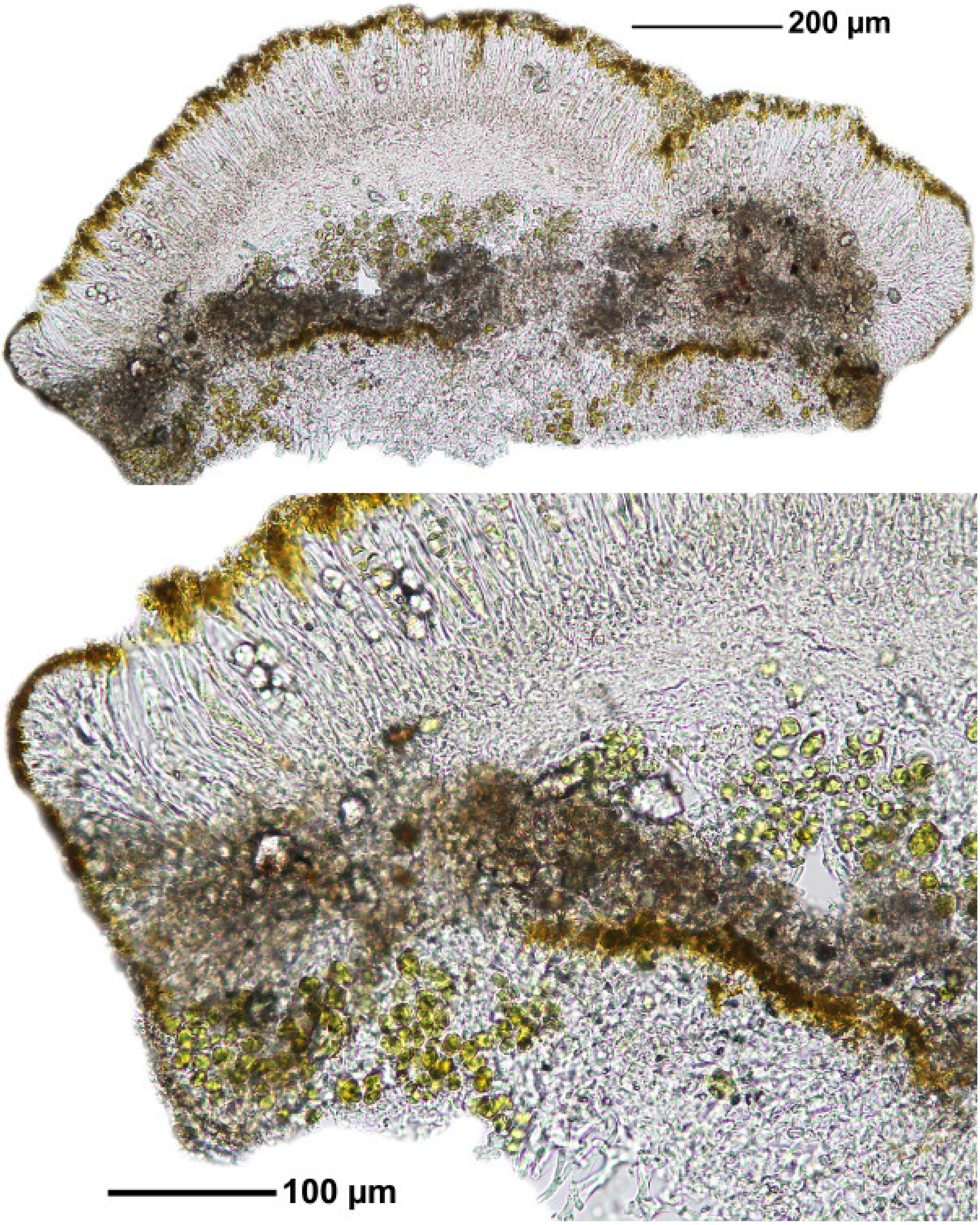
Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

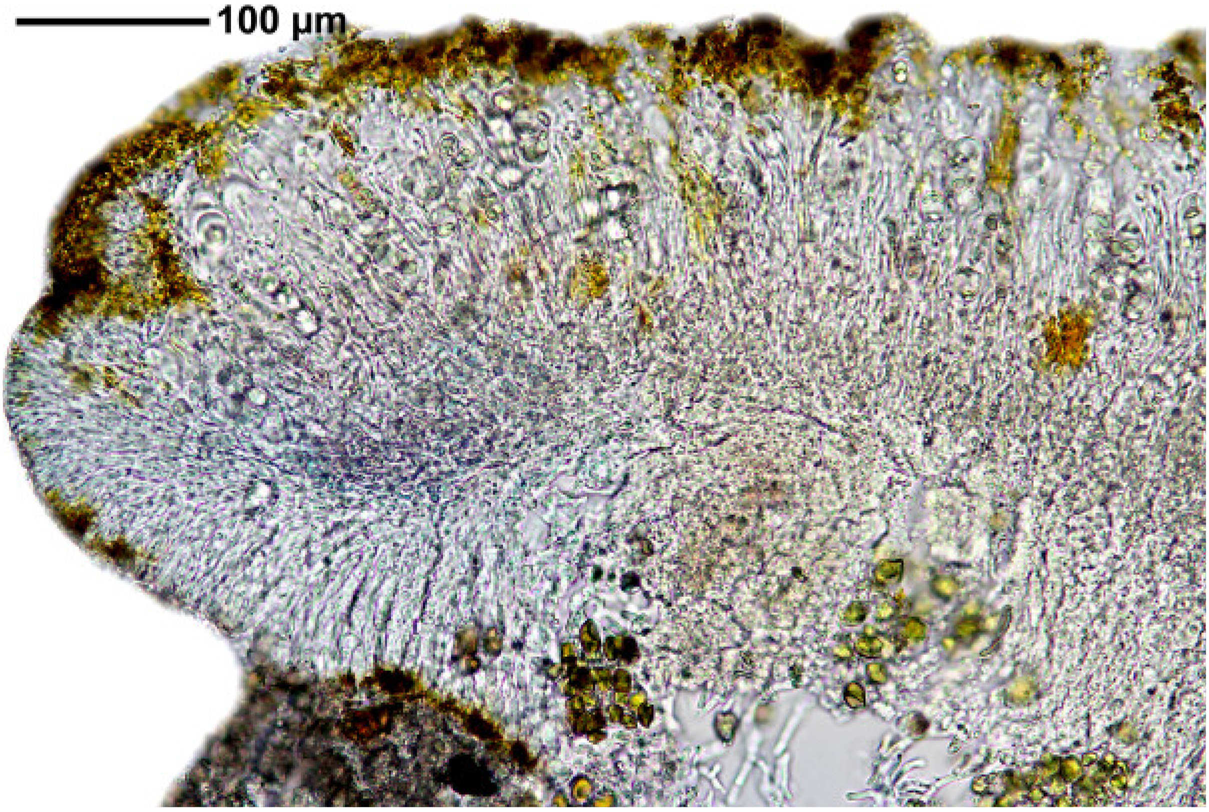
On rocks. Spores polarilocular, hyaline, 8/ascus, 15.5-19.5 x 11-16.5 µm, septum 7.5-8.5 µm.

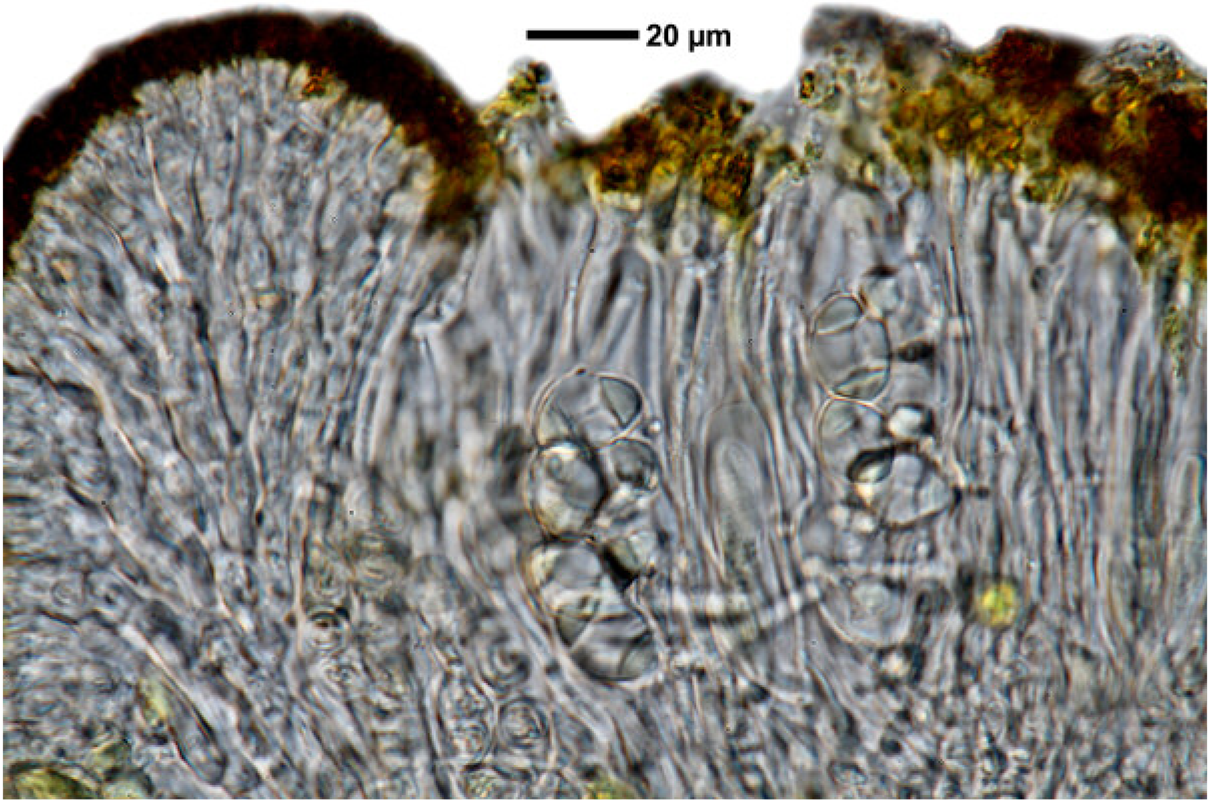
[14864], Zypern, Macheras Monastery; 34.94107° N, 33.18799° E, 874 m. Leg. F. Schumm & J.-P. Frahm 21.02.2009, det. A. Aptroot 2016.

Caloplaca atroflava

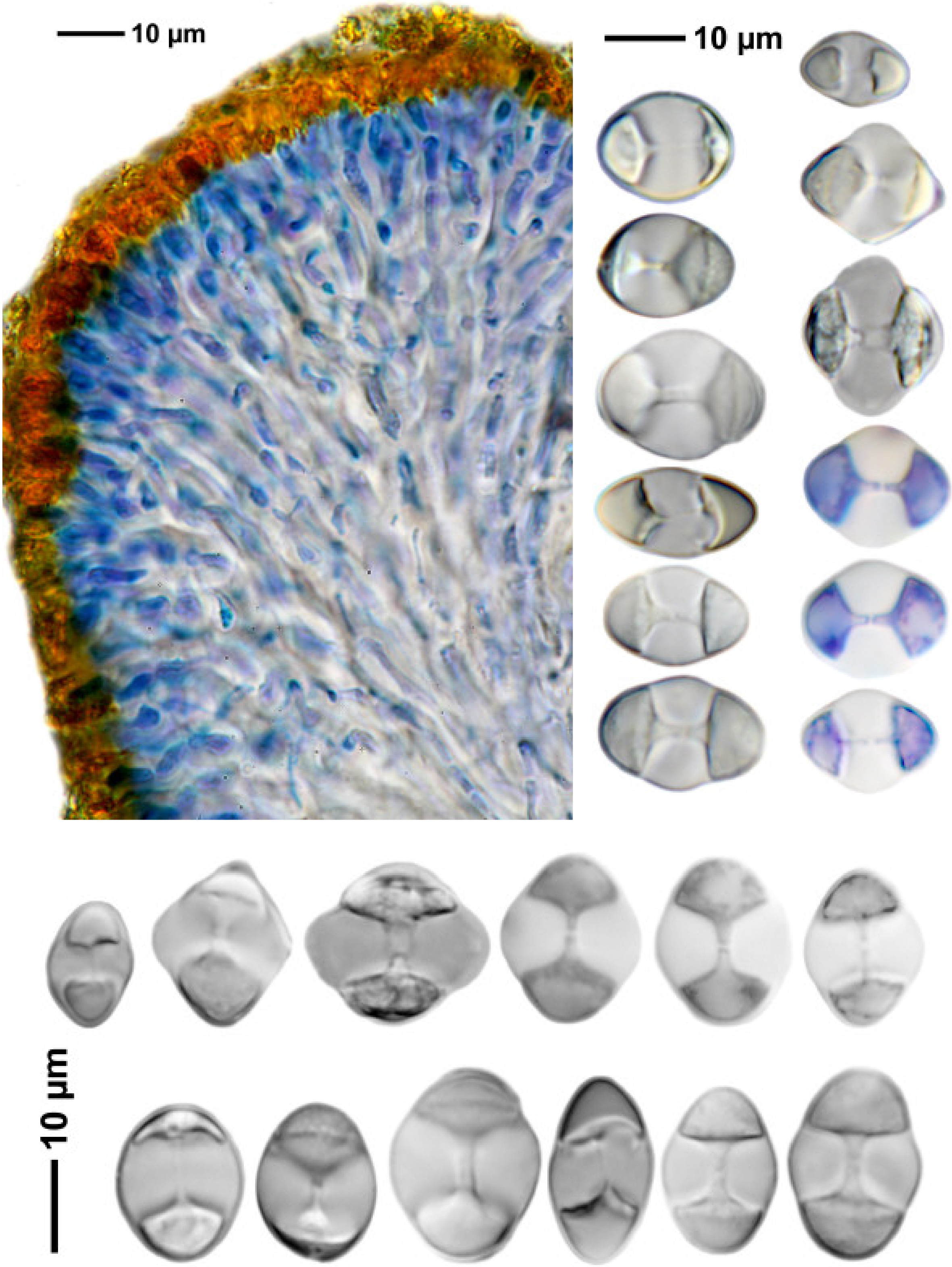


Caloplaca atroflava





Caloplaca atroflava

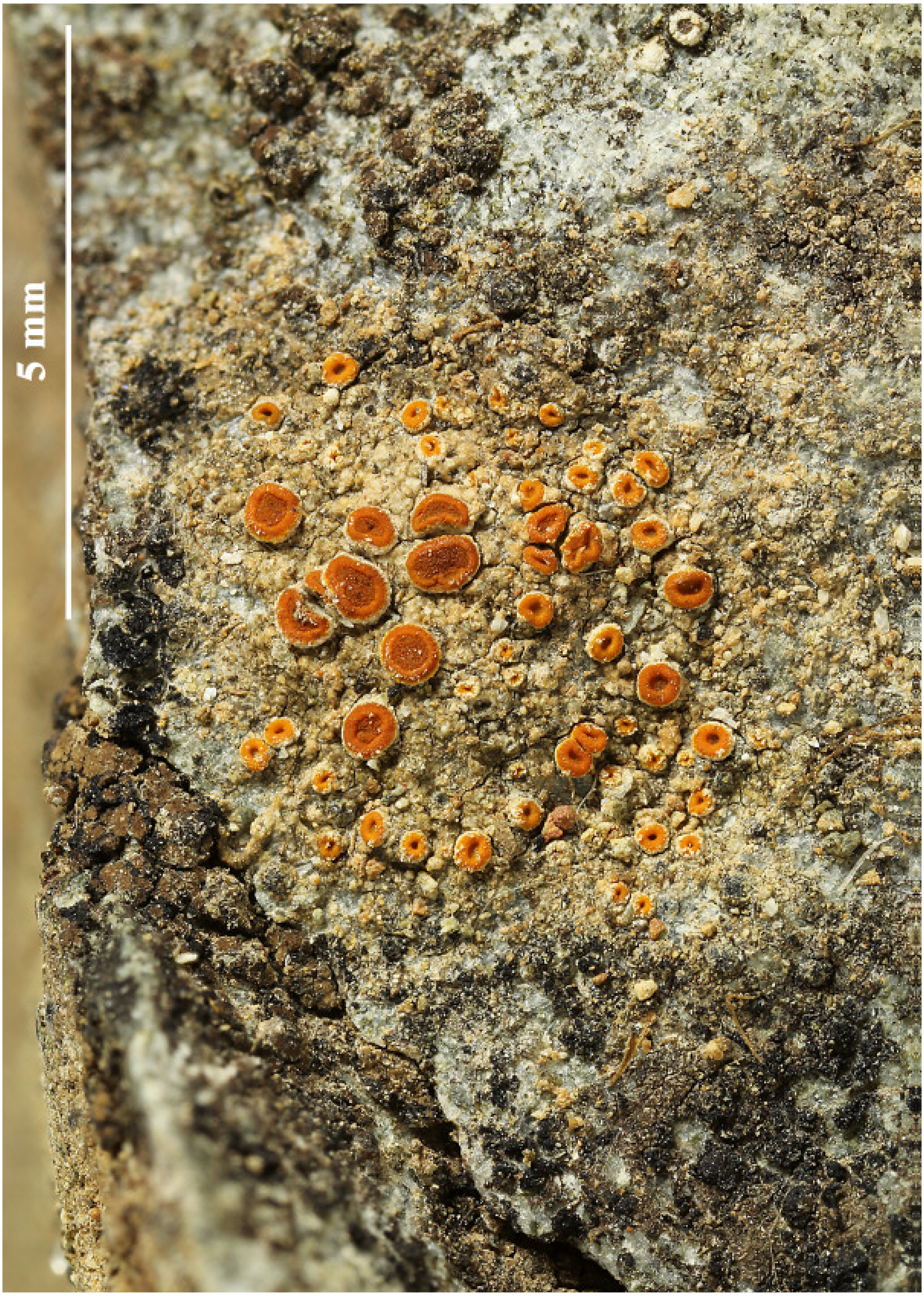


Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On rocks.

[14866], Zypern, Macheras Monastery; 34.94107° N, 33.18799° E, 874 m. Leg. F. Schumm & J.-P. Frahm. 21.02.2009, det. A. Aptroot 2016.



Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On rocks.

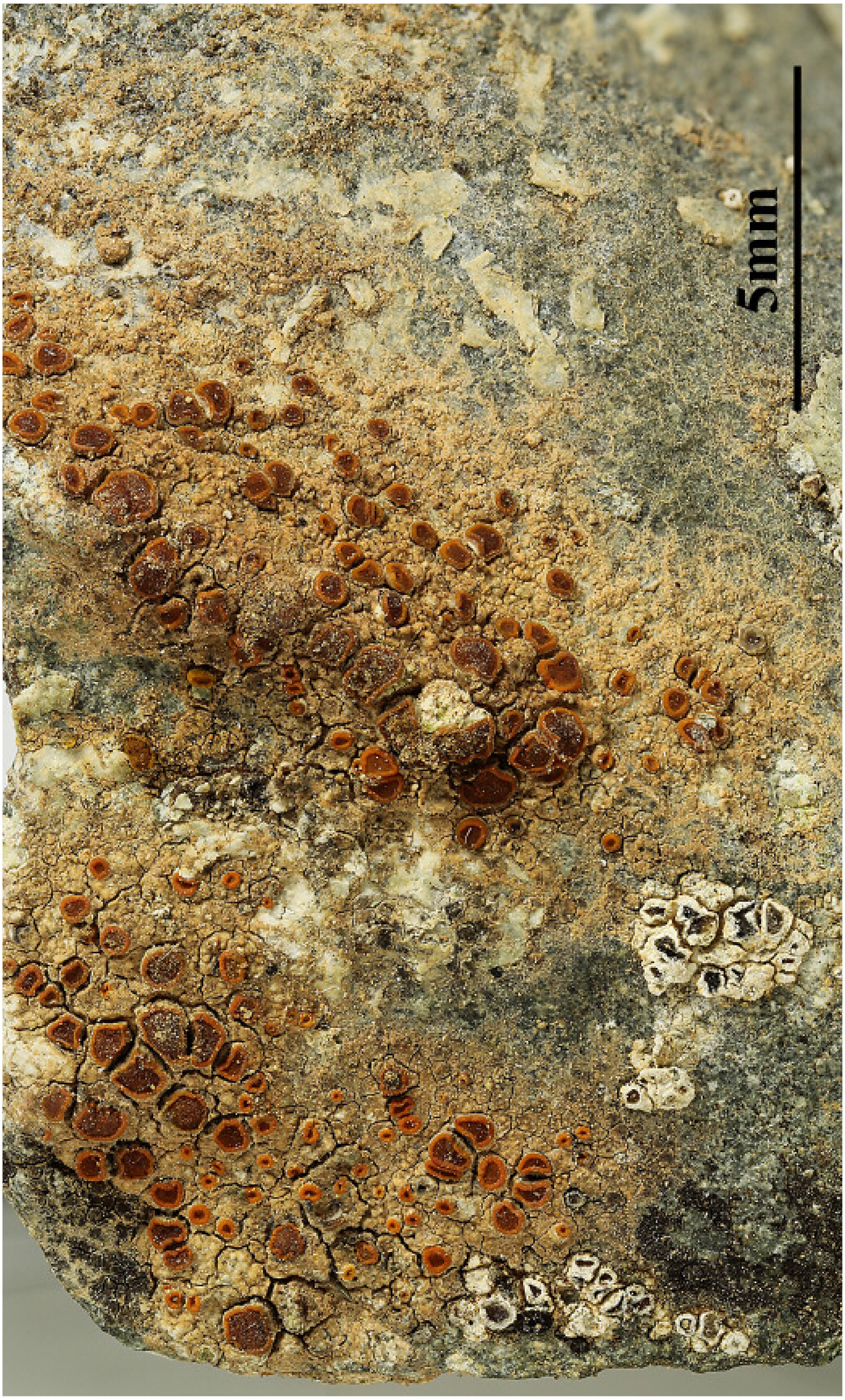
[14867], Zypern, Macheras Monastery; 34.94107° N, 33.18799° E, 874 m. Leg. F. Schumm & J.-P. Frahm, 21.02.2009, det. A. Aptroot 2016.

Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On rocks.

[14868], Zypern, Macheras Monastery; 34.94107° N, 33.18799° E, 874 m. Leg. F. Schumm & J.-P. Frahm, 21.02.2009, det. A. Aptroot 2016.



Caloplaca atroflava

Caloplaca atroflava (Turner) Mong.

On stones.

[19527], Spanien, Kanarische Inseln, Gran Canaria; trockener, nord-west-exponierter Geröllhang an der Straße zwischen Mogan und San Nicolas; Echium-Euphorbia-Kleinia Gesellschaft; 27°55.665' N, 15°44.864' W, Höhe 700 m. Leg. F. Schumm & U. Schwarz, 30.12.1999, det. A. Aptroot 2016.

Caloplaca atroflava

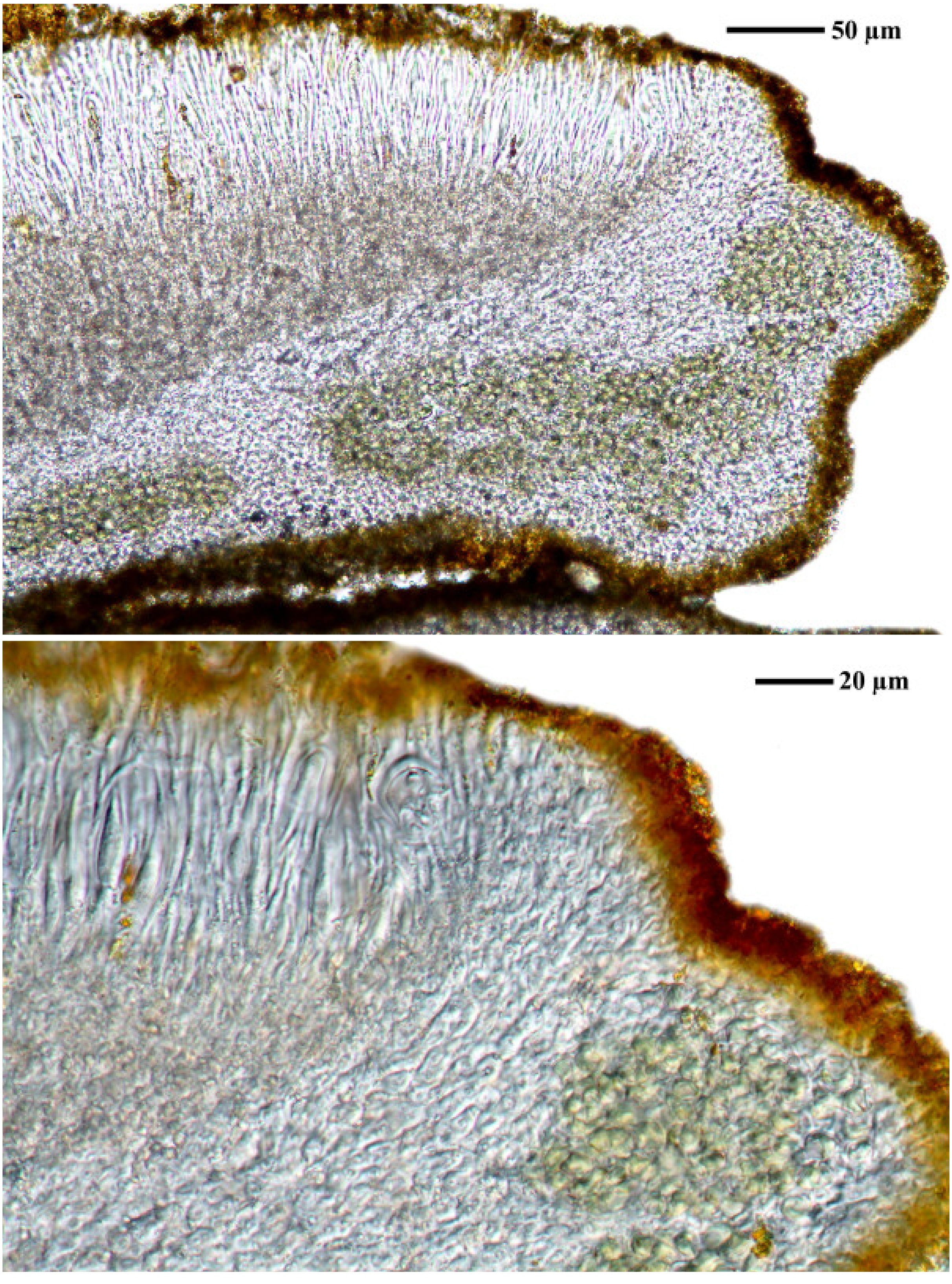
Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

Spores 8-9.2 x 5.5-8.5 µm, septum 3.3-4.4 µm (FS). On rocks. Lit. Hellbom in Bih. Kgl. Sv. Vetensk.-Akad. Handl. 16, afd. 3 (1): 60 (1890).

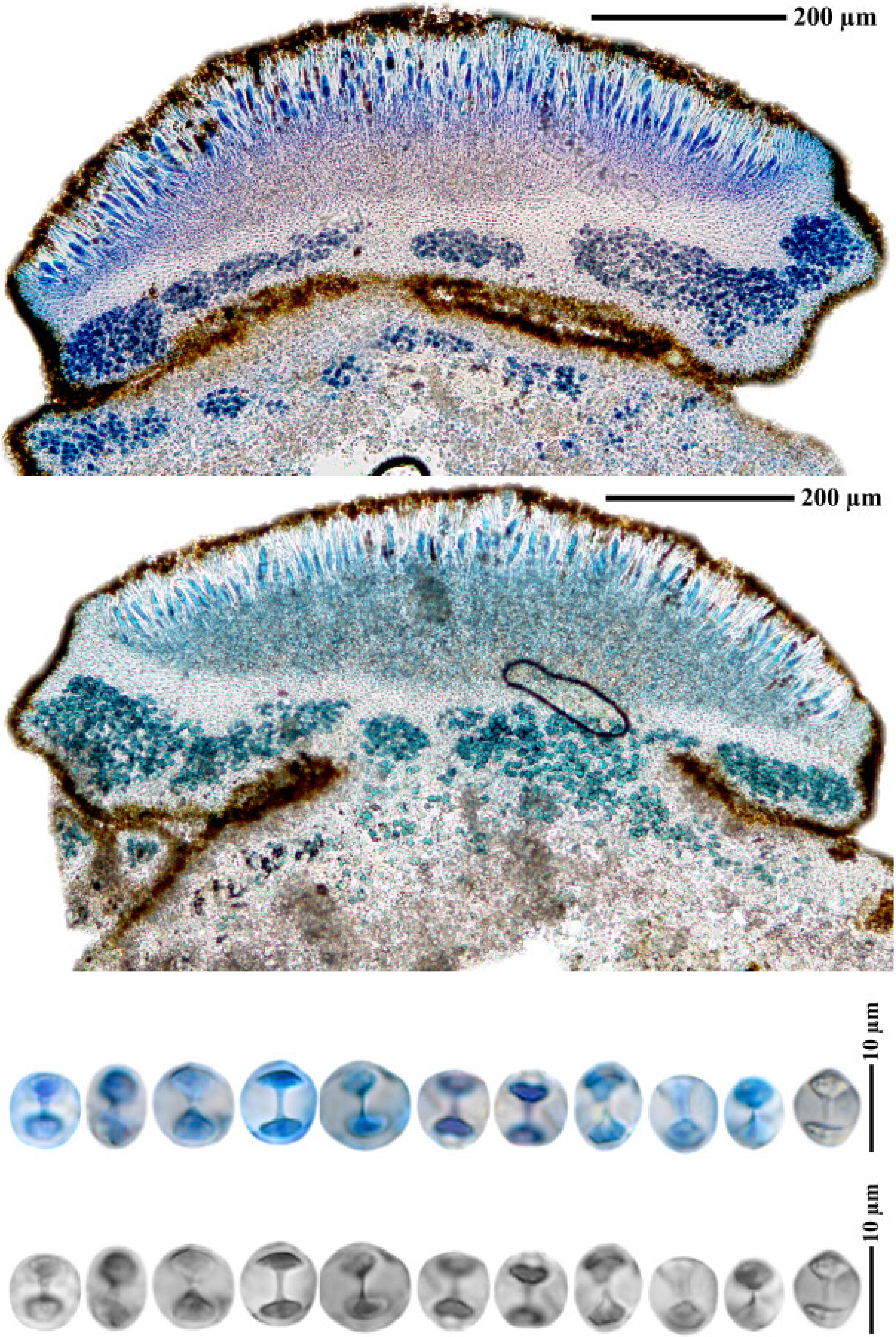
[19568], Bulgaria, Pontus, Distr. Balchik, prope pagum Tuzia, alt. 10-30 m., in saxosis cretaceis maritimis. Leg. A. Vězda, 19.07.1971. Vězda: Lichenes Selecti Exsiccati Nr. 1170.

Caloplaca aurantia

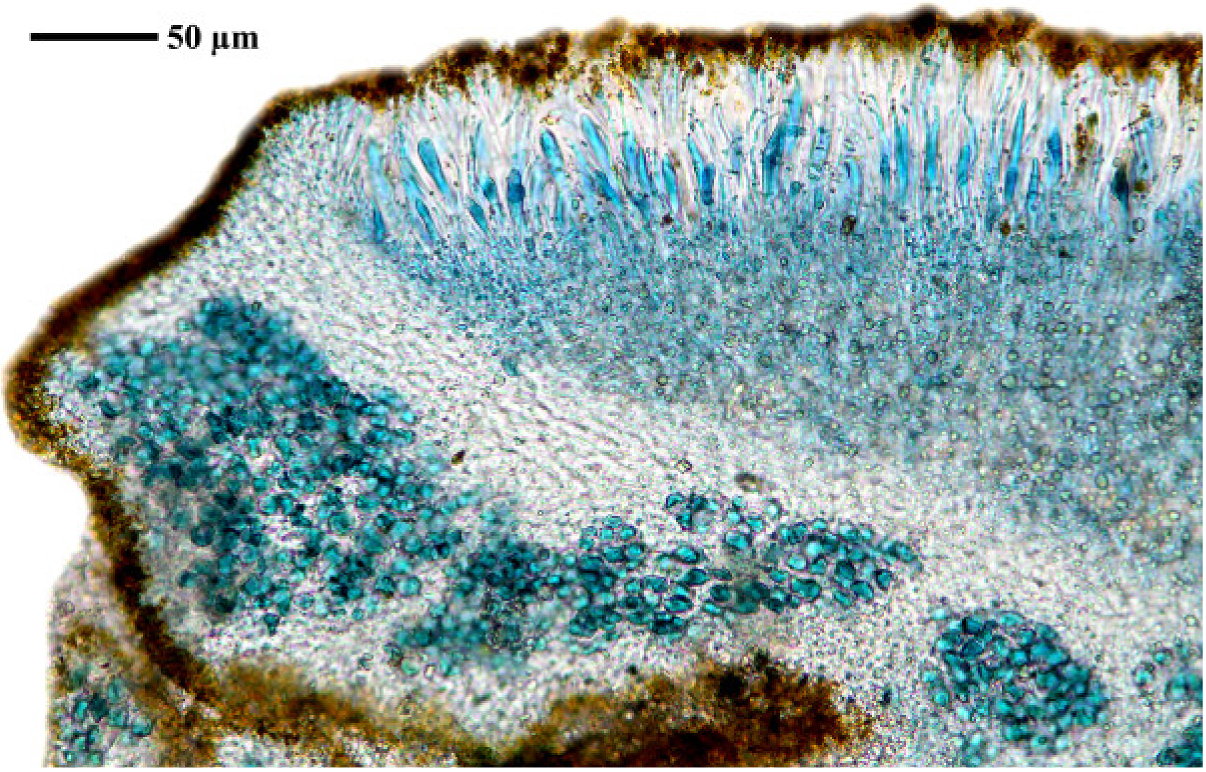
Caloplaca aurantia

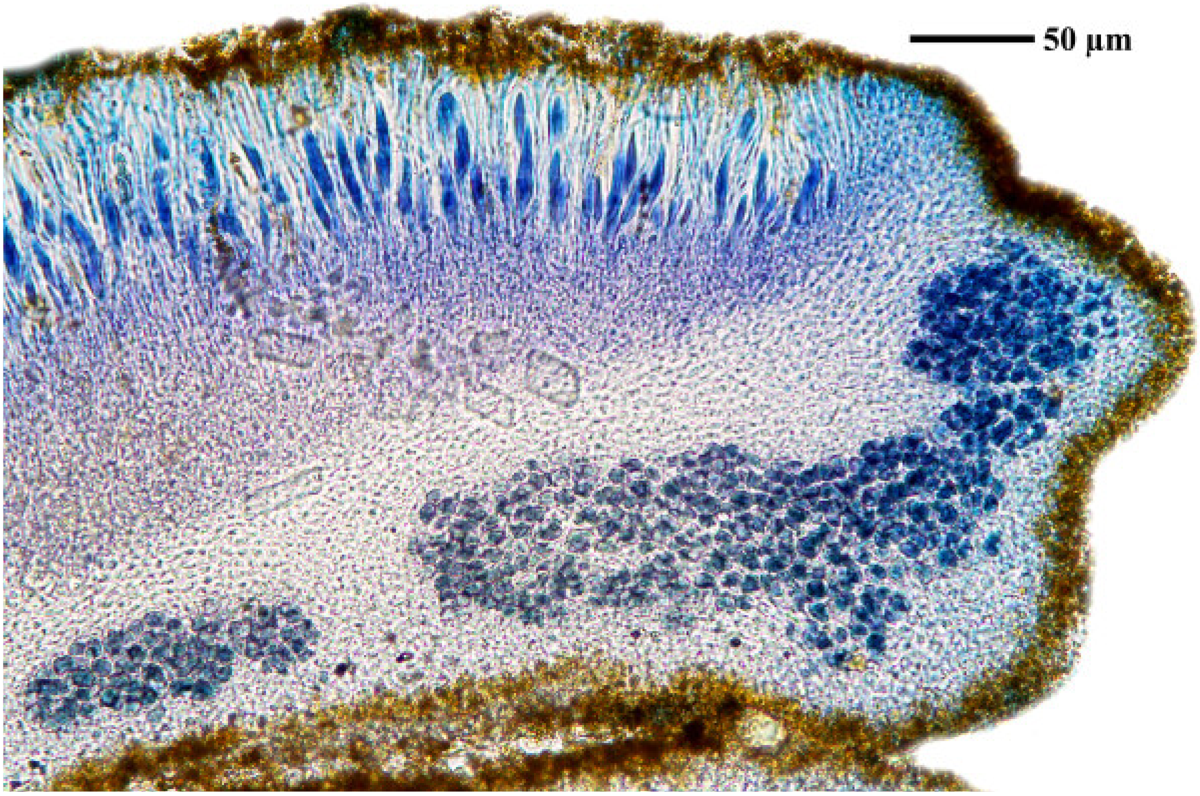


Caloplaca aurantia

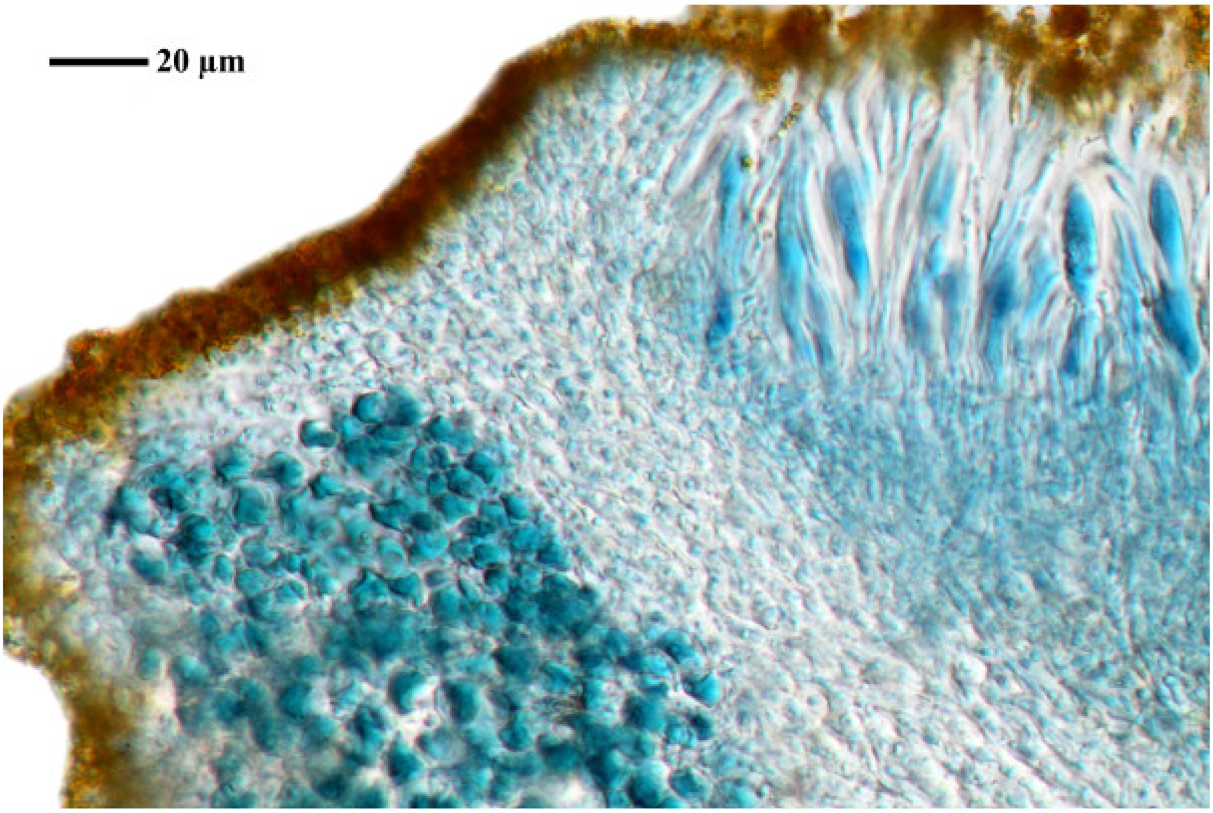


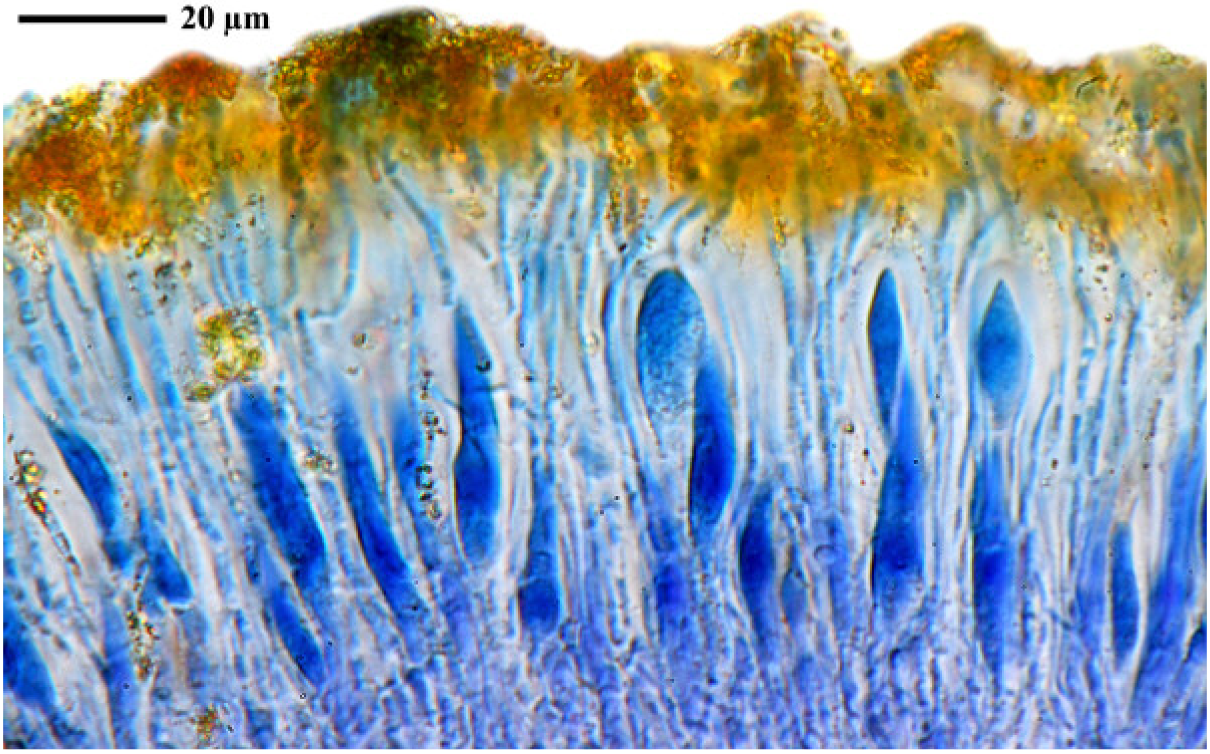
Caloplaca aurantia



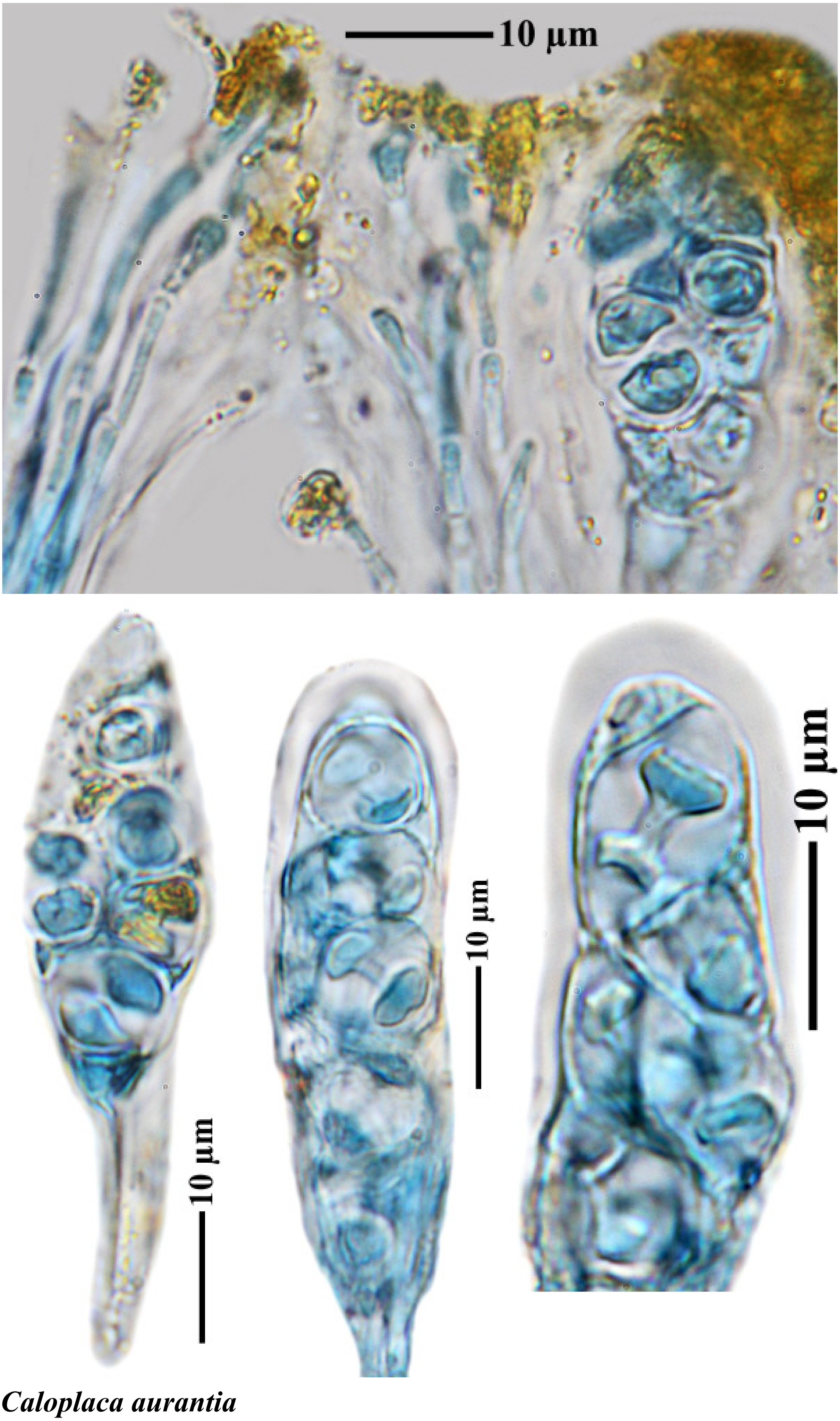


Caloplaca aurantia





Caloplaca aurantia

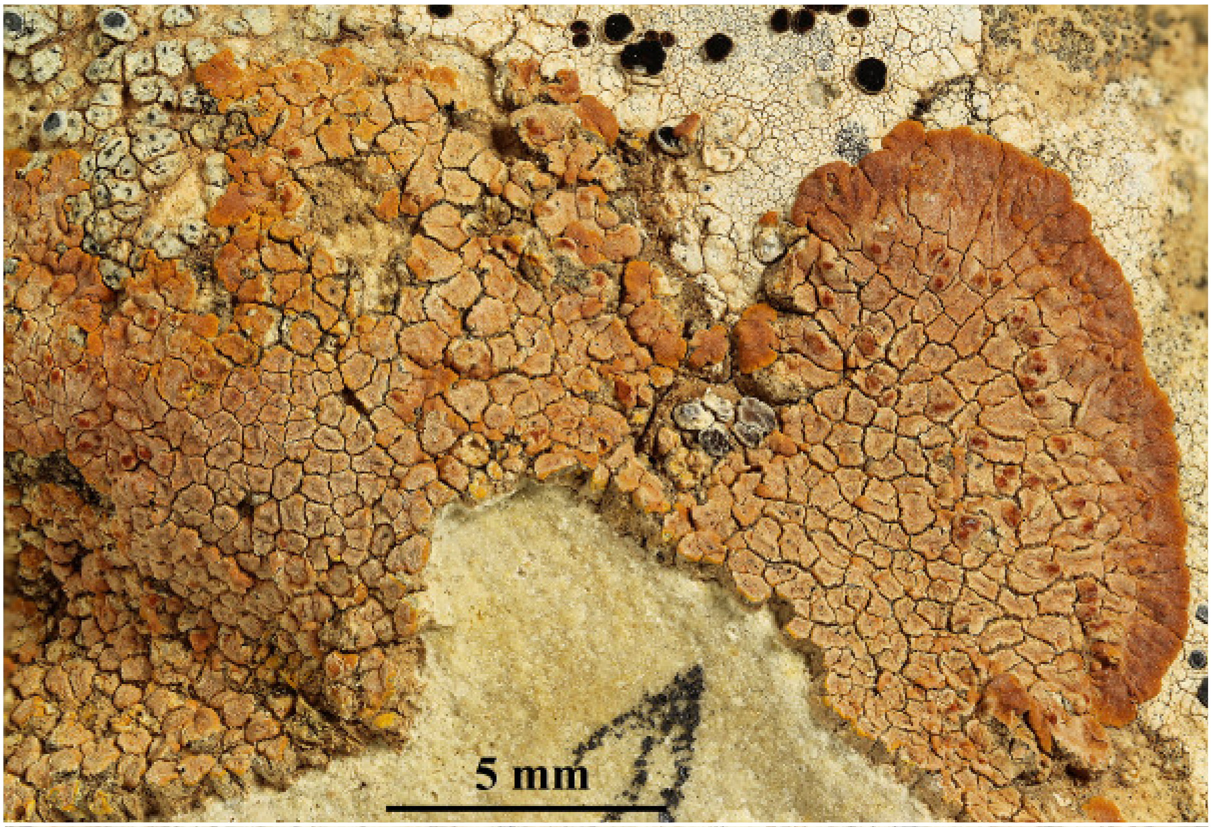


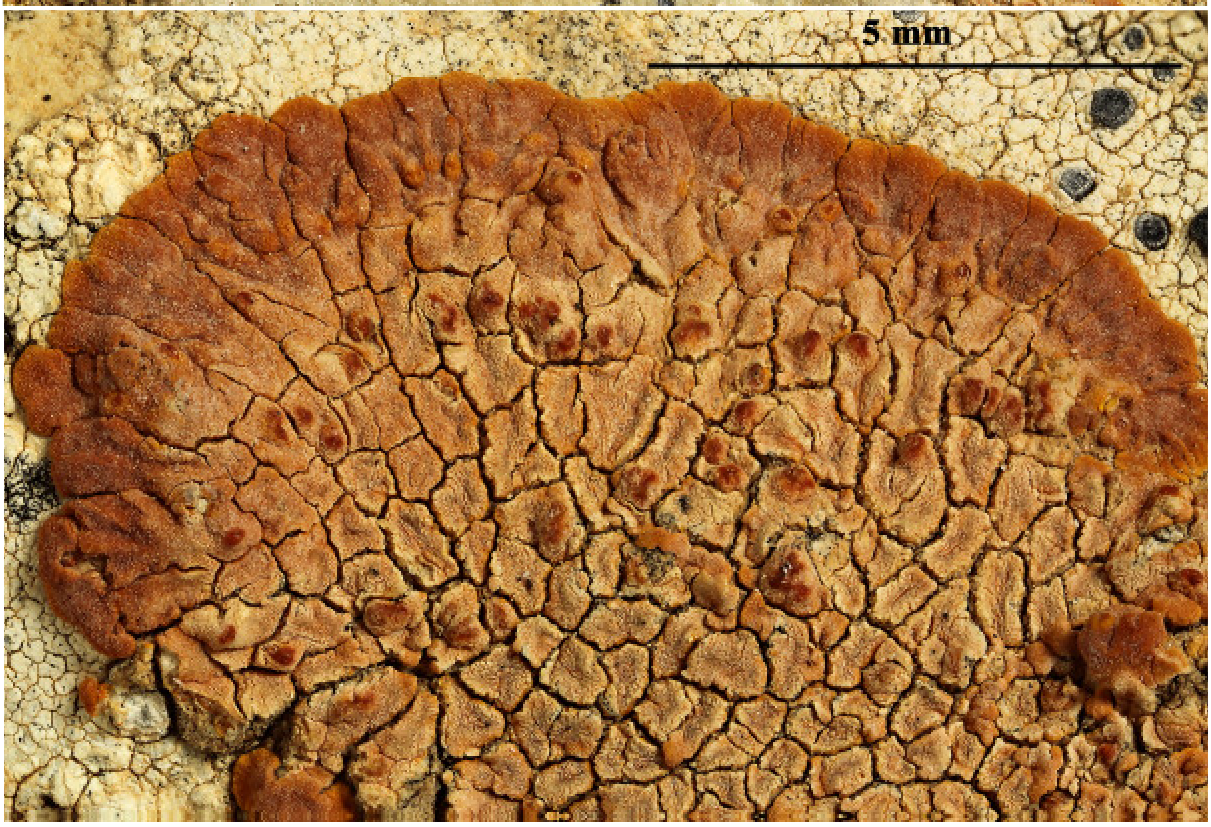
Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On calcareous rocks. Ascospores 12 x 6 µm

[2177], Tunesien, Cheninin, auf trockenen sonnigen Steinblöcken von ca. 50-100 cm Durchmesser auf einem NW-Hang, ca. 430 m. Leg. F. Schumm, 21.03.1973, det. A. Aptroot 2016.





Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On rocks.

[2184], Tunesien, Cheninin, auf trockenen sonnigen Steinblöcken von ca. 50-100 cm Durchmesser auf einem NW-Hang, ca. 430 m. Leg. F. Schumm, 21.03.1973, det. A. Aptroot 2016.

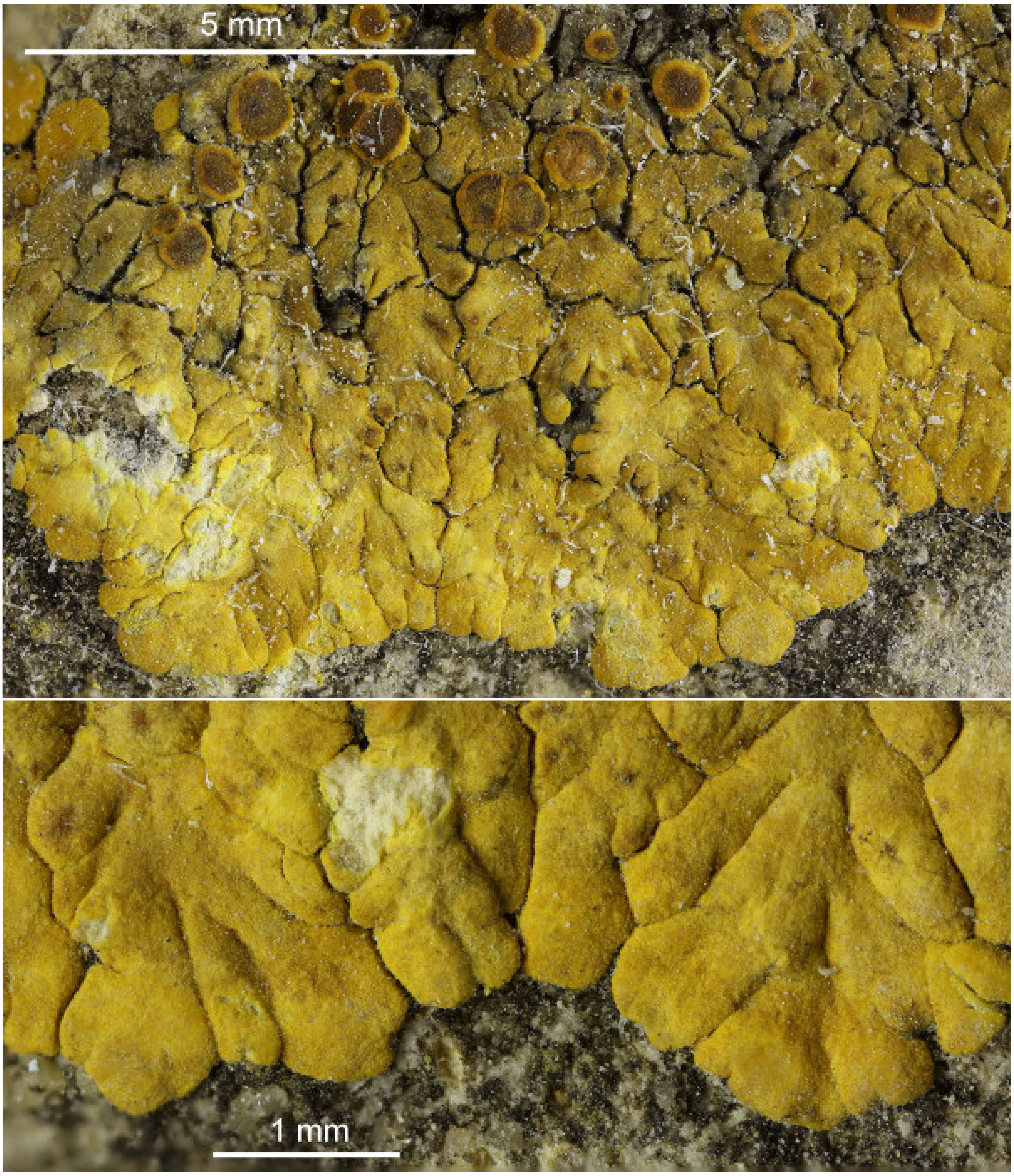
Caloplaca aurantia

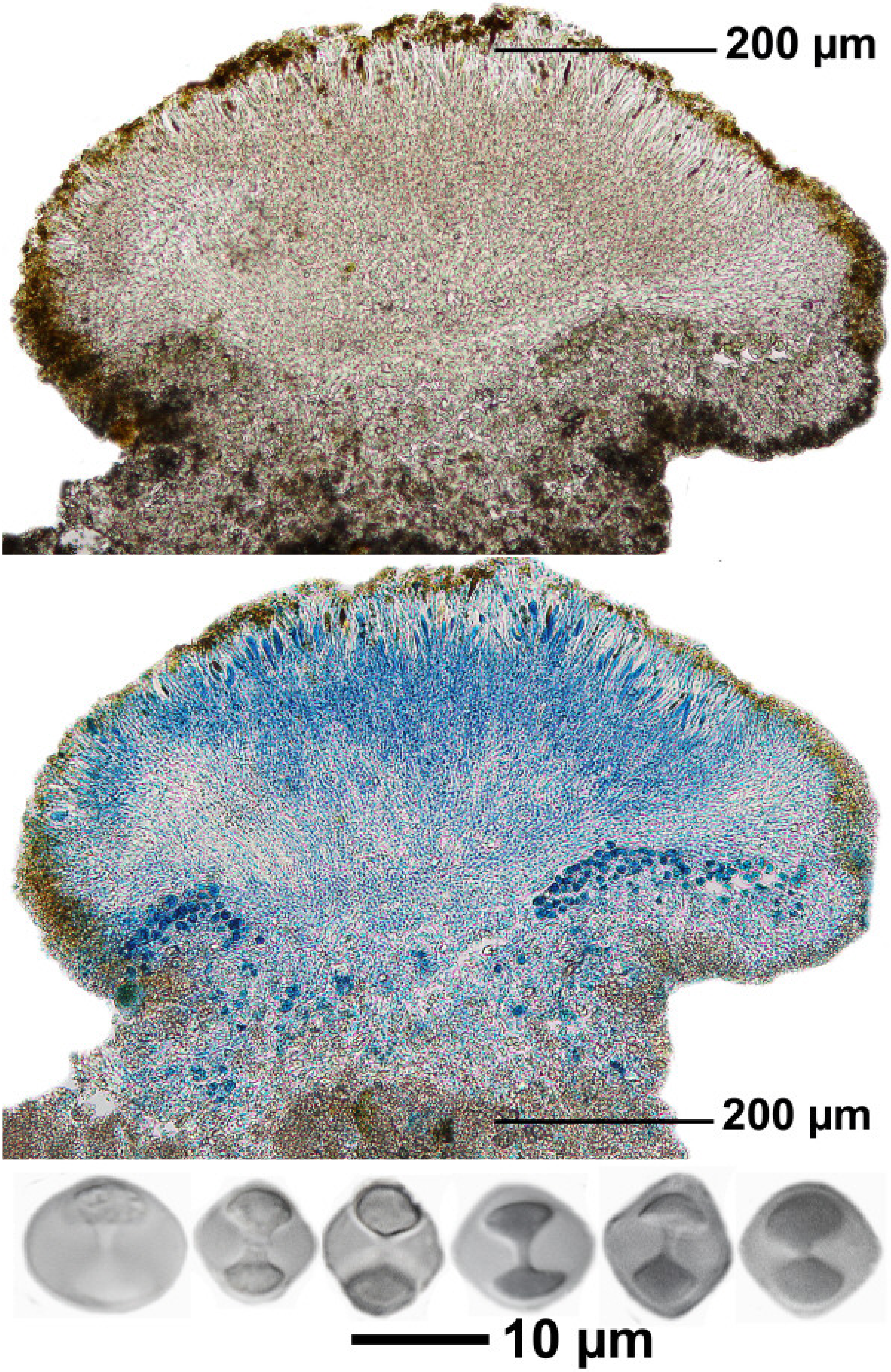
Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

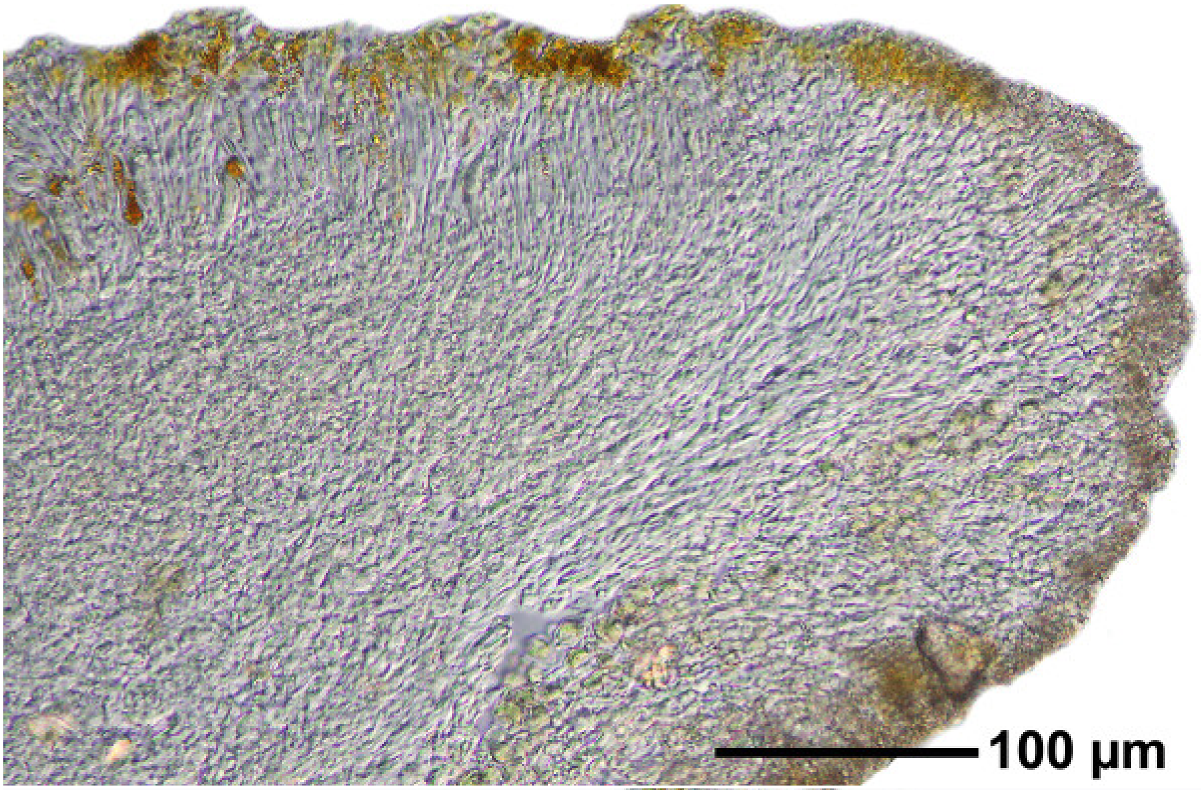
Thallus gelb bis orange, K+ rot, Randlappen dichtschließend, nicht gewölbt sondern flach der Unterlage angepreßt, 1,5-3 mm breit. Sporen polar-2-zellig, Septum nach außen bauchig vorspringend., 10-16 x 7-12 µm.

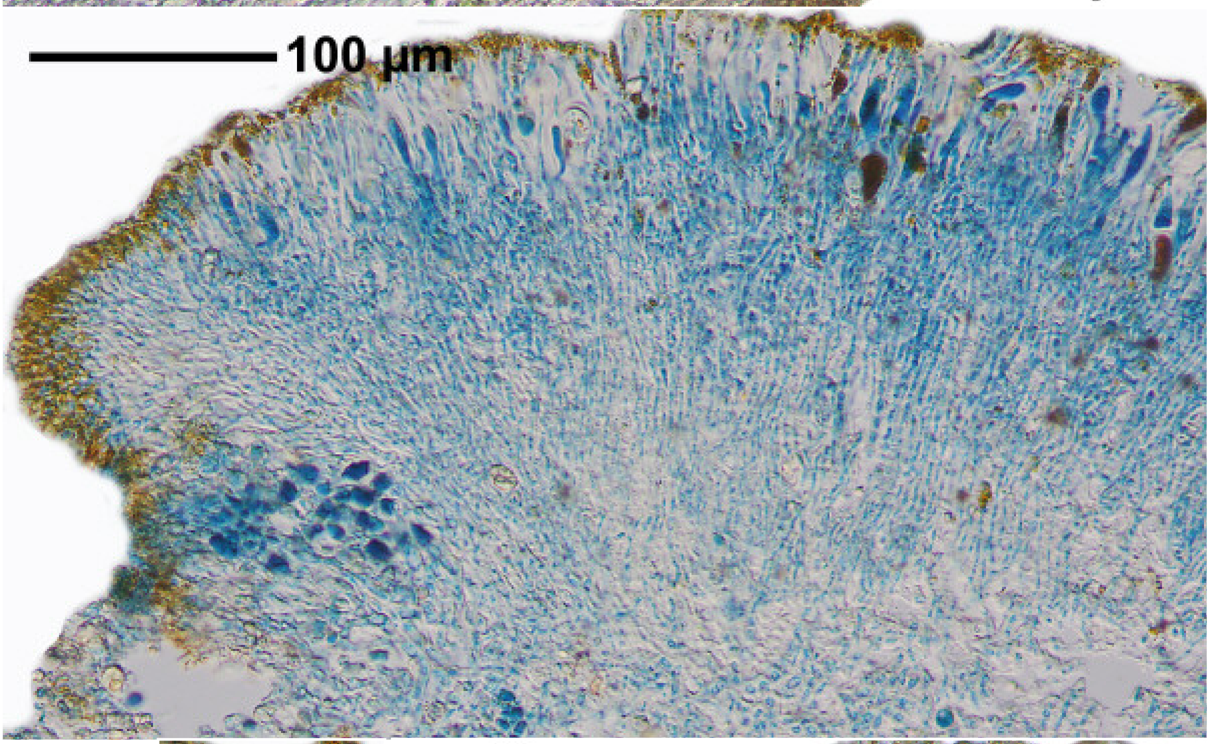
[2504], Germany, Baden-Württemberg, Schwäbische Alb, Kreis Heidenheim, nördlich Steinheim, an Neigung und Stirnflächen besonnter Kalkfelsen im *Aspicilietum calcareae* (Du Rietz) Klem., 550 m, SW, pH 8,1. Leg. et det. G. Follmann, Mai 1966. Lichenes Exsiccati Selecti a Museo Botanico Berolinensi Editi Nr. 61.

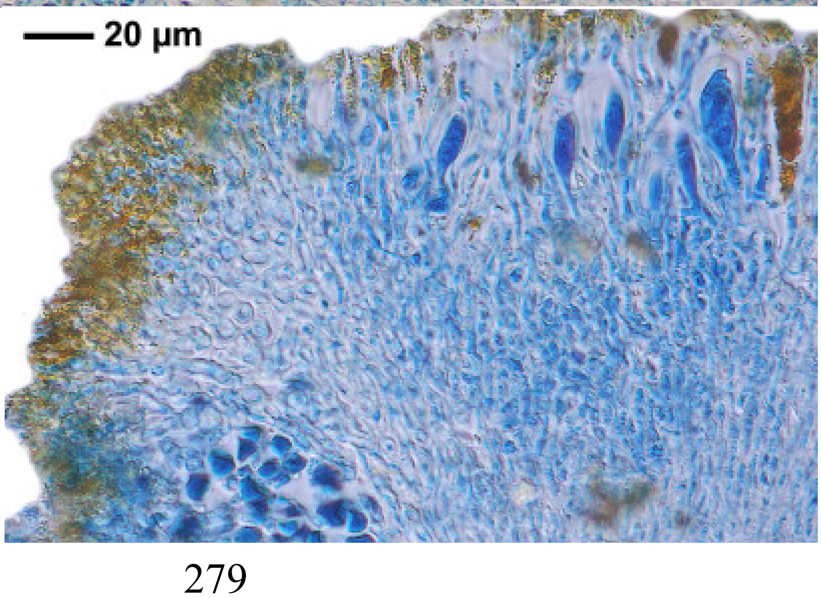




Caloplaca aurantia







Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

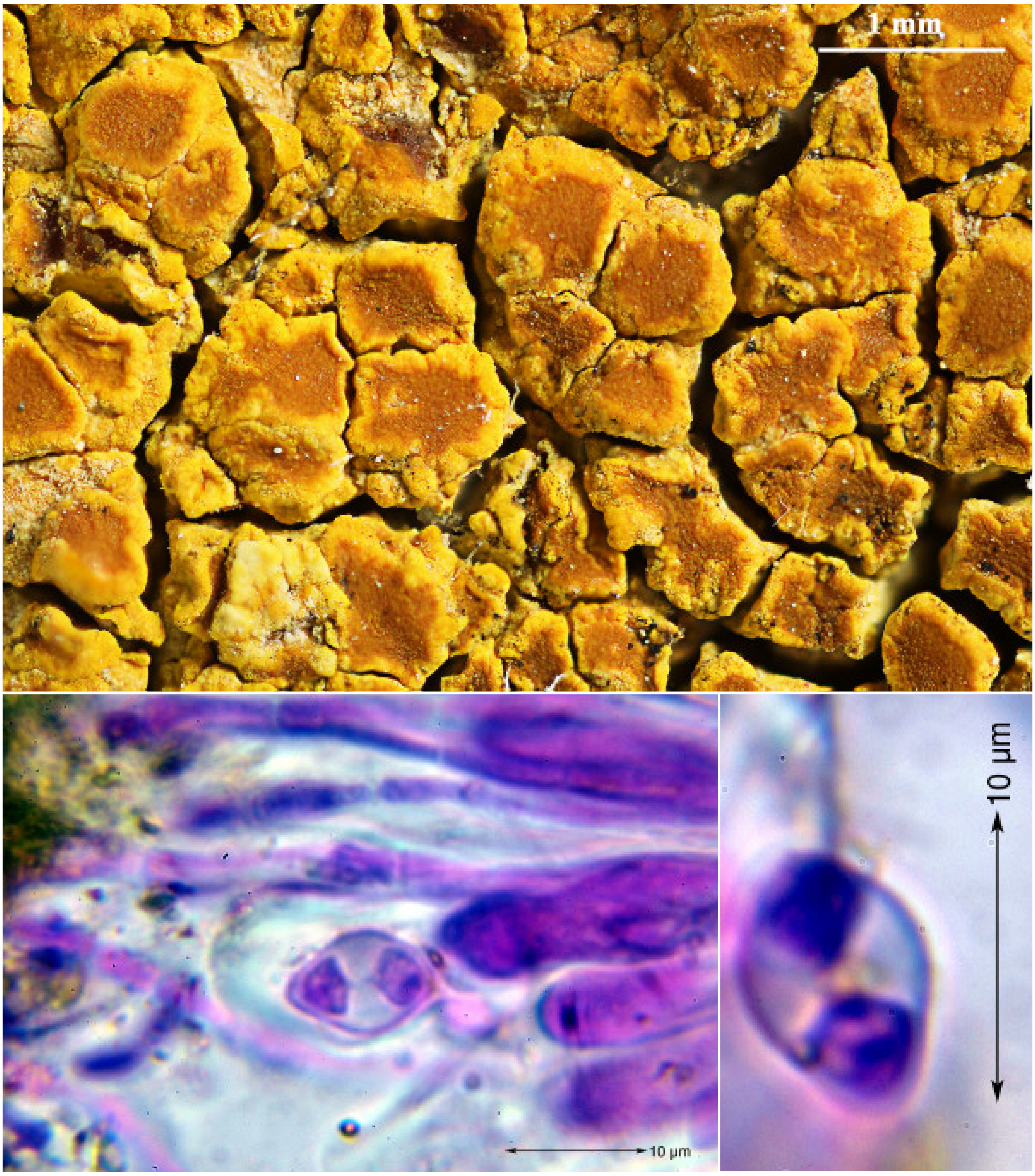
On rocks.

Thallus gelb bis rotorange, rosettig, bis ca. 5 cm groß, am Rand gelappt, im Zentrum areoliert; Randlappen flach, angepreßt. Isidien fehlen. Sorale fehlen. Apothecien zahlreich, 0,5-1 mm breit, Scheiben und Th. gleichfarbig. Sporen polar-2-zellig, 10-16 x 7-12 µm, bauchig aufgetrieben, zitronenförmig. Chemie: alle Teile K+ rot. Saxicol, auf Kalk, häufig auf Mauern.

[12279], Griechenland, N-Samos, bei Manolates südlich von Agios Konstandinos, 37°47.185' N, 26°49.533' E, 341 m, halbschattige bis besonnte Terrassenmauern. Leg. Schumm 02.05.2006, det. F. Schumm 05.2006.

Caloplaca aurantia

Caloplaca aurantia



Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On rocks

[12473], Griechenland, N-Samos, westlich von Avlakia bei der Kirche von Kambos, 37°48.160' N, 26°50.957' E, 75 m. Leg. F. Schumm & R. Düll, 09.05.2006, det. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

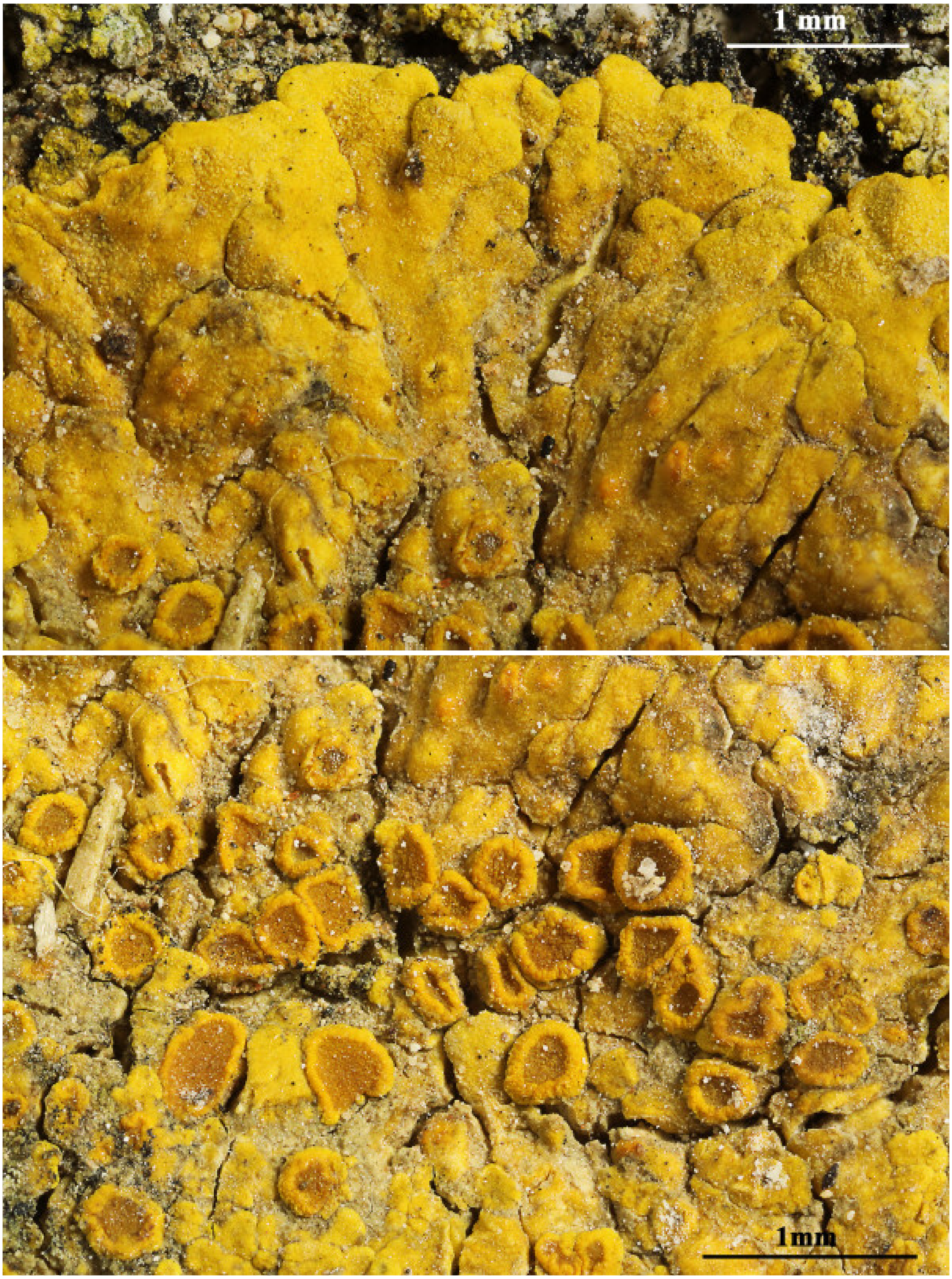
On rocks.

[13396], Griechenland, S-Kreta, Gebirgszug zwischen Pombia und Pigedakia, westl. des Gipfels Vigla, 34°59.880' N, 24°52.150' E, 420 m. Leg. F. Schumm & R. Düll, 16.10.2007, det. F. Schumm, conf. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

[13654], Malta, westl. Mellieha in der Oasam Barrani Schlucht, 35°57.485' N, 14°21.088' E, 80 m. Leg. F. Schumm & J.-P. Frahm 11.03.2008, det. F. Schumm, conf. A. Aptroot 2016.



Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

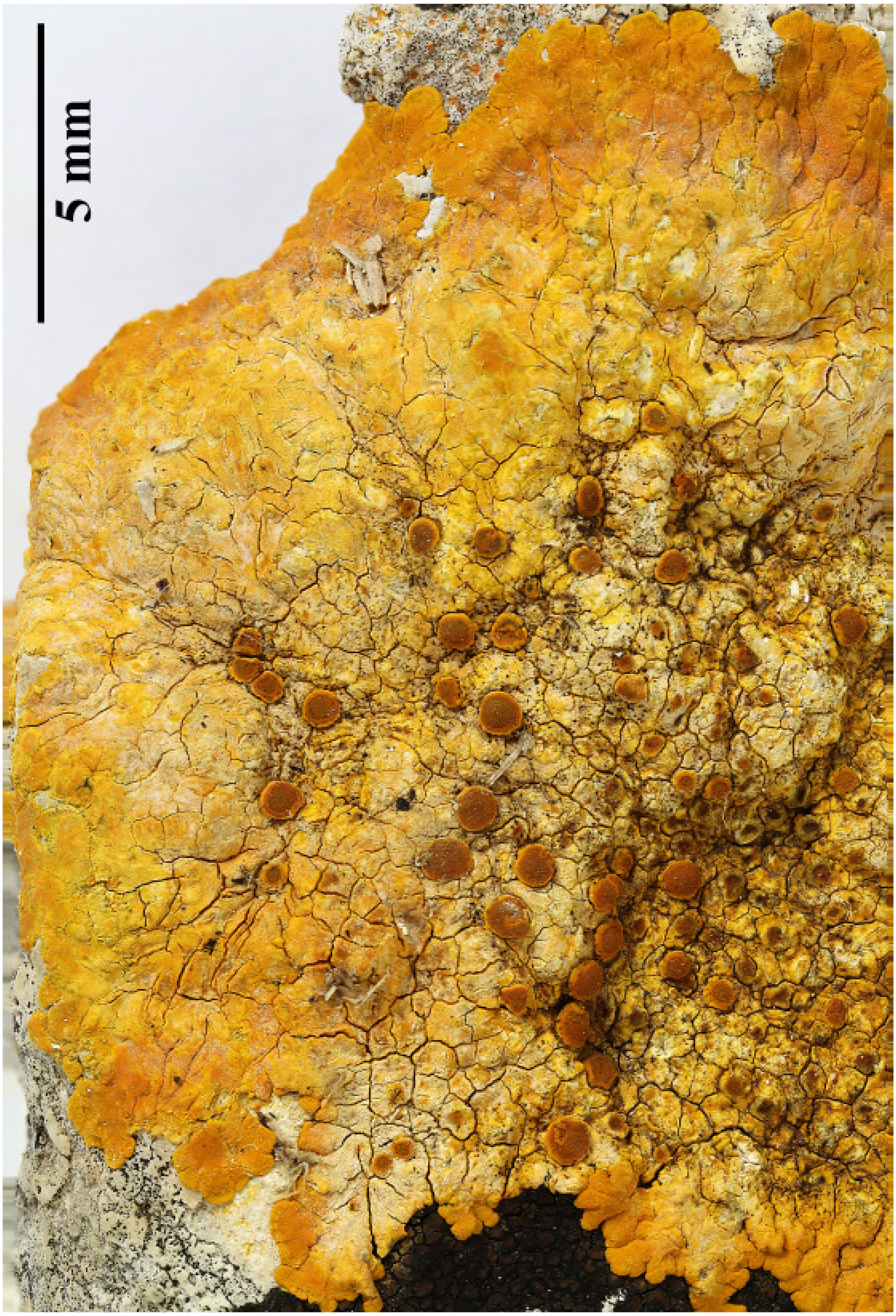
[13657], Malta, westl. Mellieha in der Oasam Barrani Schlucht, 35°57.485' N, 14°21.088' E, 80 m. Leg. F. & J.-P. Frahrm, 11.03.2008, det. F.Schumm, conf. A.Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

on calcareous rocks.

[13660], Malta, westl. Mellieha in der Oasam Barrani Schlucht, 35°57.485' N, 14°21.088' E, 80 m. Leg. F. Schumm & J.-P. Frahm, 11.03.2008, det. F. Schumm, conf. A. Aptroot.



Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

[13784], Malta, Wied Qirda südwestlich von Zebbug, 35°52.094'N, 14°30.27.297'E, 54 m. Leg. F. Schumm & J.-P. Frahm 15.03.2008, det. F. Schumm, conf. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

[13786], Malta, Wied Qirda südwestlich von Zebbug, 35°52.094'N, 14°30.27.297'E, 54 m. Leg. F. Schumm & J.-P. Frahm 15.03.2008, det. F.Schumm, conf. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

[13788], Malta, Wied Qirda südwestlich von Zebbug, 35°52.094'N, 14°30.27.297'E, 54 m. Leg. F. Schumm & J.-P. Frahm, 15.03.2008, det. F. Schumm, conf. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

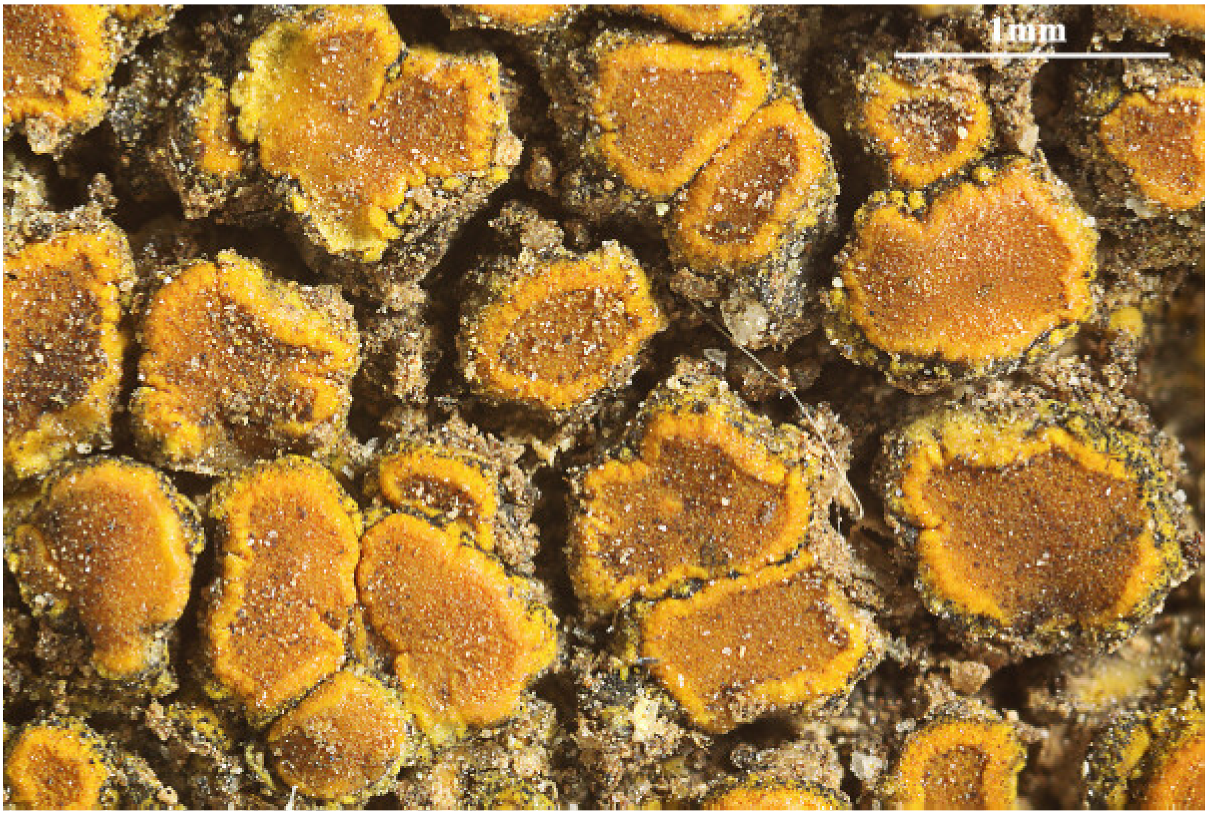
[13865], Griechenland, N-Samos, zwischen Kambos und Vourliotes, sonnige Ölbaumplantagen, 37°47.928' N, 26°50.967' E, 100 m. Leg. F. Schumm, 13.05.2008, det. A. Aptroot 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On rocks.

[13875], Griechenland, Ost-Samos, westlich von Kamara, 37°46.009' N, 27°01.428' E, 300 m. Leg. F. Schumm & R. Düll, 15.05.2008, det. H. Sipman 2016.



Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On rocks.

[13933], Griechenland, N-Samos, nördlich des Mt. Lazarou oberhalb Monasterio Vronda, 37°46.251' N, 26°51.332' E, 500-580 m. Leg F. Schumm, 19.05.2008, det. H. Sipman 2016.

Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On rocks.

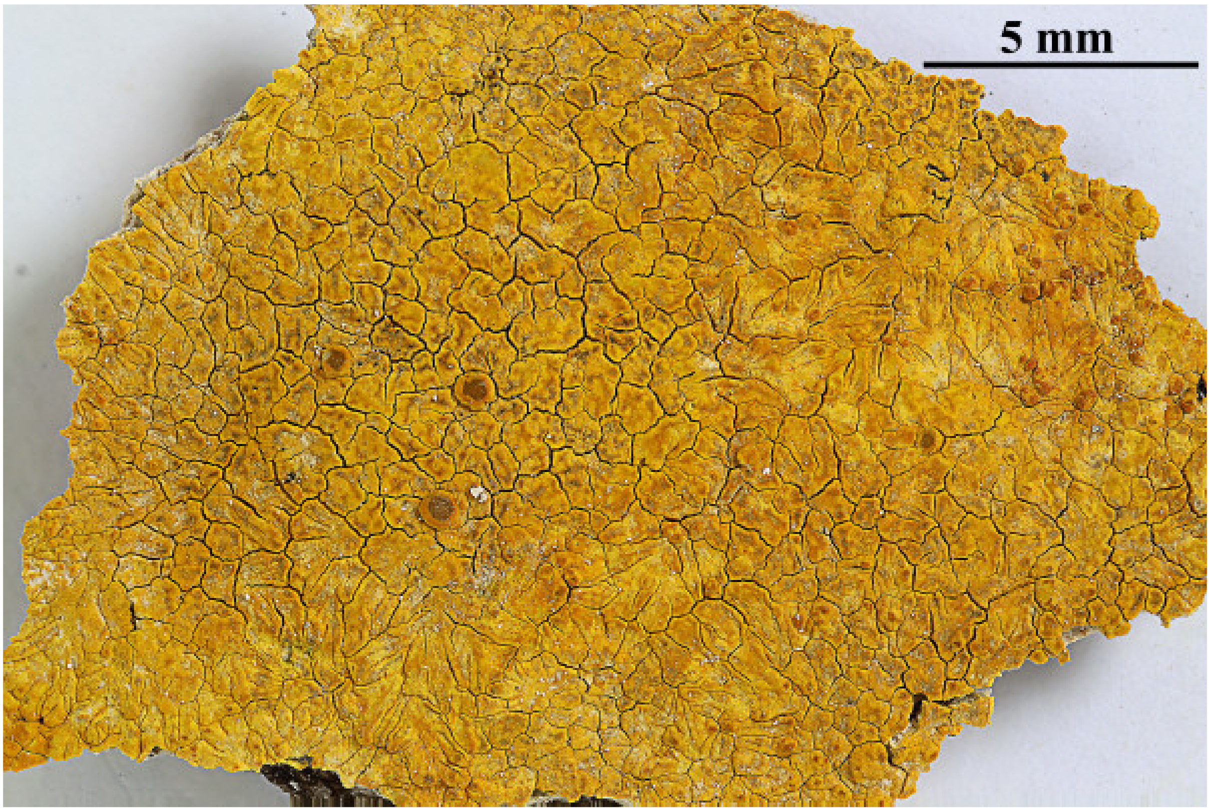
[16314], Mallorca (Süd): Zwischen San Marina und La Lova des Llatres, lichtoffener Straßenrand; 39.39117° N, 2.76329° E, 100 m. Leg. F. Schumm & J.-P. Frahm, 12.03.2010, det. H. Sipman 2016.

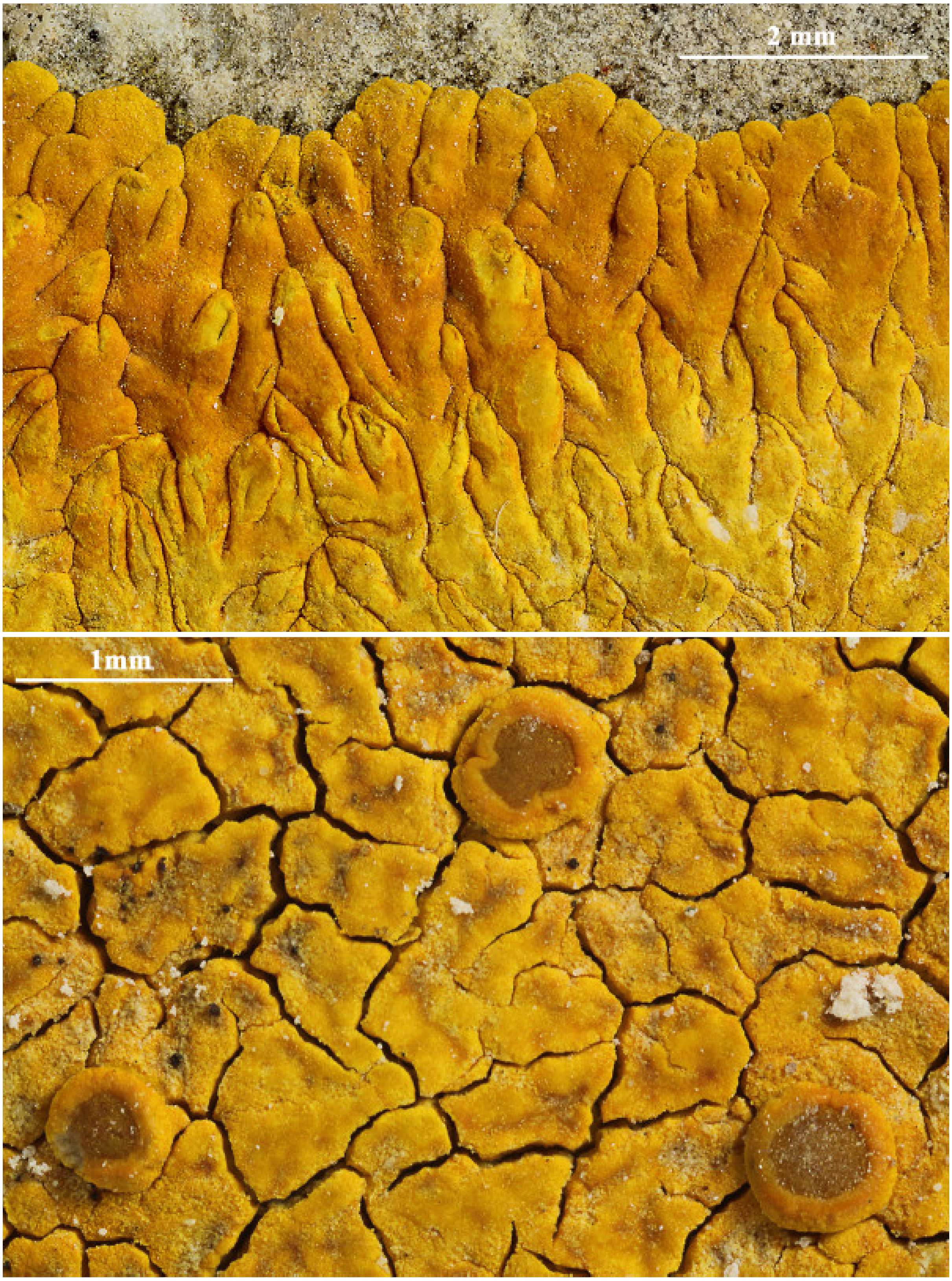
Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

On stones.

[16384], Mallorca (Nord): Orient, von Son Perot durch das Tal "Torrent de Cave Negra" in Richtung Santa Maria; 39.73306° N, 2.74282° E, 460 m, vorwiegend an Steinmauern. Leg. F. Schumm, J.-P. Frahm & M. Lüth, 13.03.2010, det. H. Sipman 2016.





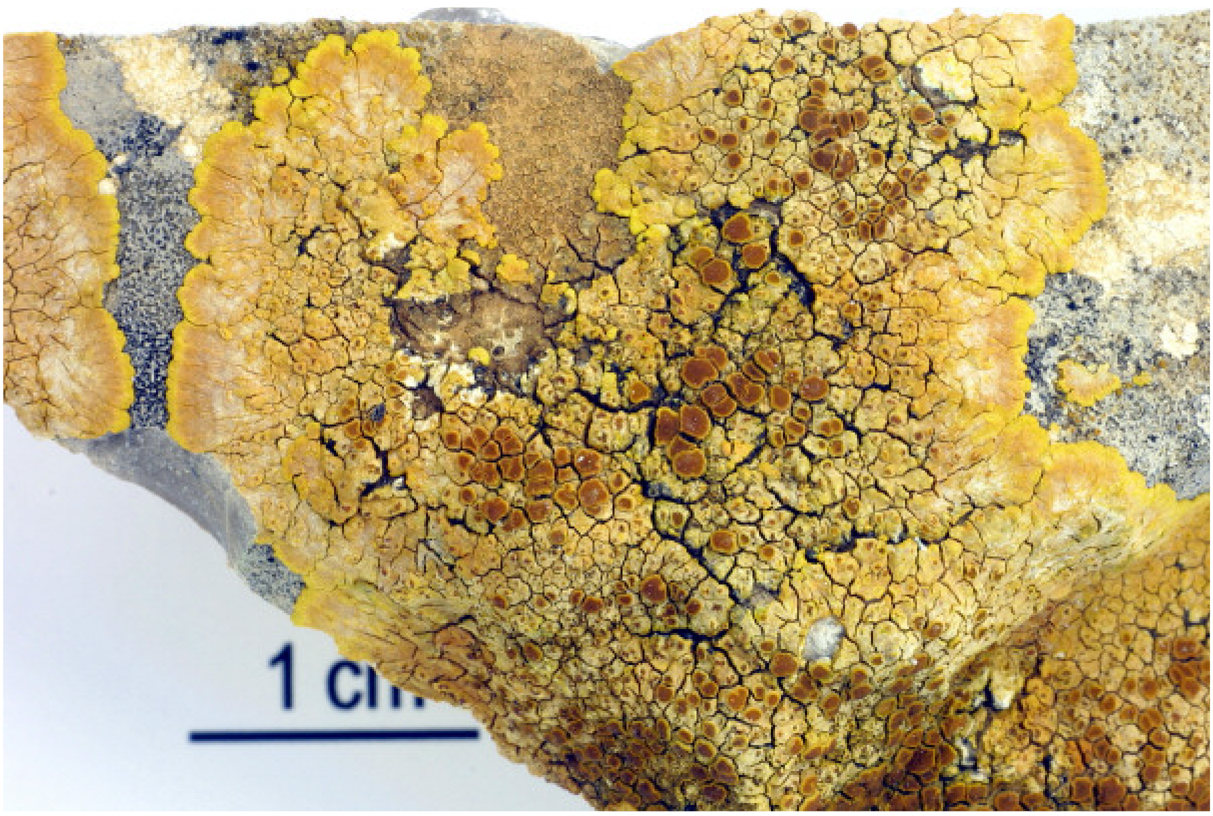
Caloplaca aurantia

Caloplaca aurantia (Pers.) Hellb.
[= *Variospora aurantia* (Pers.) Arup, Frödén & Søchting]

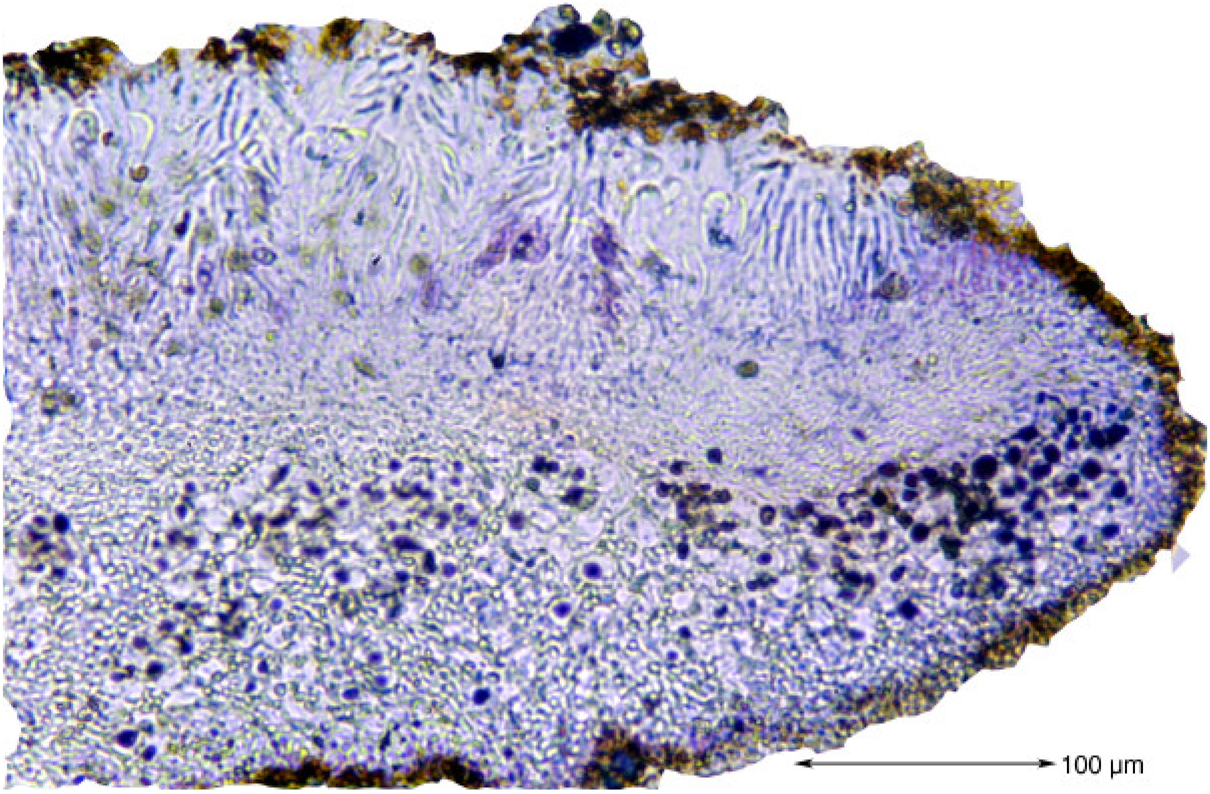
On rocks.

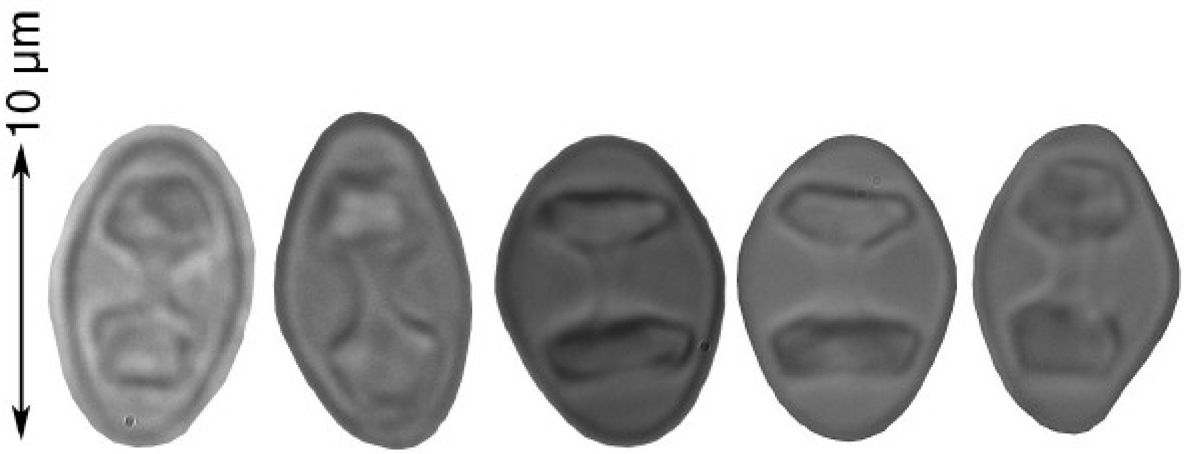
Thallus dicht angepresst, am Rand gelappt, rosettig; Randlappen dichtschließend, verwachsen, am Ende etwas verbreitert, flach, 2,3-3,0 mm lang, 0,4-0,7 mm breit; Zentrum areoliert; Areolen polygonal, 0,5-0,9 mm groß; Oberseite orangegelb, teils stark weiß bereift. Isidien fehlen; Sorale fehlen. Apothecien im Zentrum zahlreich, meist 1(2) je Areole, 0,6-0,9 mm breit, breit aufsitzend; Scheibe dunkelorange, dunkler als der Th.; Th.-rand hellorange, heller und etwas höher als die Scheibe, ganz, nicht gekerbt, ab und zu etwas verbogen, ca. 0,14 mm dick; Paraphysenenden 4-6(9) µm. Sporen zu 8 im Ascus, polar-2-zellig, breit ellipsoidisch, an den Septen nicht bauchig aufgetrieben, (8)11,3-12,5(16) x (3)6,7-8,3 µm, Septen 2,5-4 µm. Chemie: alle Teile K+ rot. Saxicol, photophil, nitrophil.

[13573], Griechenland, S-Kreta, Asteroussia Berge, Blockhalde nordöstlich von Ethia in Richtung Keraies, 34°59.526' N, 25°12.693' E, 830 m. Leg. Schumm & Düll 25.10.2007, det. Schumm 2008, conf. A.Aptroot 2ß19.



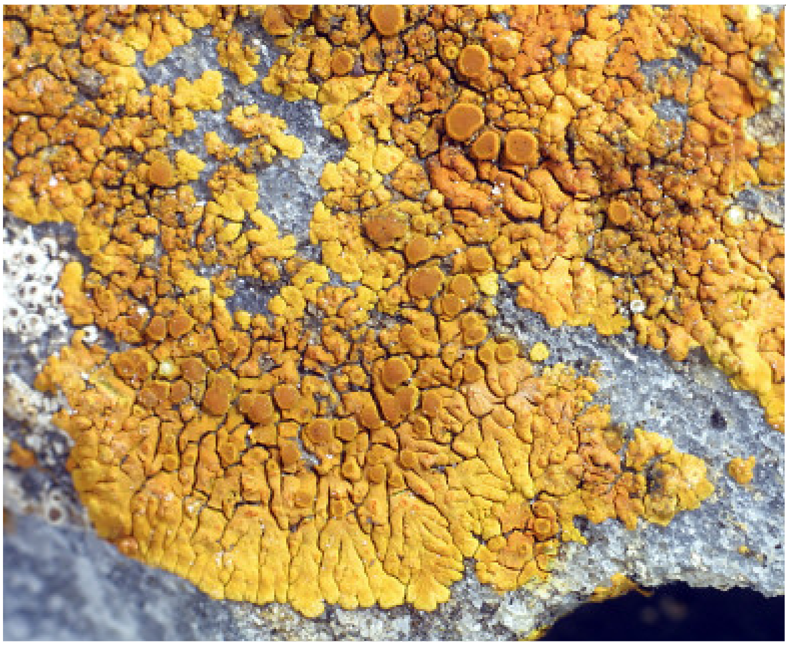
Caloplaca aurantia





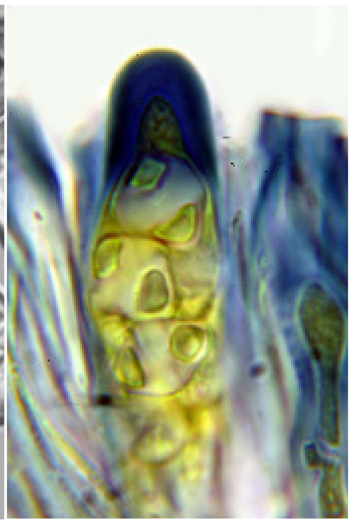
Caloplaca aurantia

Caloplaca aurantia [12279]

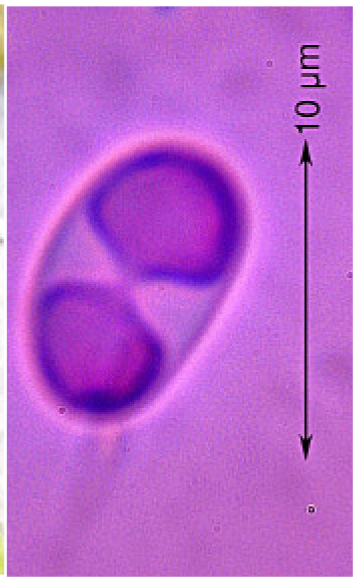



Caloplaca flavescens [11694]





Caloplaca saxicola [11722]



Caloplaca austromaritima Aptroot, Gumboski, M. Cáceres & F. Schumm sp. nov**.**

Mycobank No.: MB 830430
Diagnosis: littoral saxicolous *Caloplaca* with microsquamulose greenish yellow thallus and dark orange apothecia with granular orange pruina, the margin orange above but paler than the disc, greenish yellow at the side, incurved, distinctly elevated above the disc, and ascospores 12–14(–15) × 6–7 µm, around 2 times as long as wide, with 4–5 ìm thick septum.
Typus: Brazil, State of Santa Catarina, Municipality of Penha, Praia do Quilombo, West rock shore, 26º46'03"S, 48º38'27"W, on coastal granite, *c.* 10 m alt., 25 Oct 2011, *E. Gumboski & F. Beilke* 2899 (JOI—holotype).
Thallus crustose, corticate, covering rather indeterminate areas (locally a zone of many square meters), slightly shiny, greenish yellow, microsquamulose with flattened, slightly folded to lobate, rounded to angular areoles of *c*. 0.2–2.0 mm diam. and *c*. 0.1–0.8 mm high; algae chlorococcoid, cells *c*. 7–13 ìm diam. Symbiotic propagules absent.
Apothecia dispersed, sessile, round, 0.2–0.7 mm diam., 0.1–0.3 mm high; disc flat, dark orange with granular orange pruina; margin orange above but paler than the disc, greenish yellow at the side, incurved, distinctly elevated above the disc, *c.* 0.1 mm wide. *Excipulum* paraplectenchymatous, upper 10–15 ìm with orange crystals, internally hyaline, without algae; hypothecium filled with algae. *Hymenium* not inspersed, *c*. 75–95 ìm high; subhymenium hyaline, *c*. 50–75 ìm high; epihymenium with orange crystals, *c*. 7–12 ìm high; KOH+ blood red; paraphyses *c*. 2–2.5 ìm thick, sparingly branched only at the tips, which are obscured by the copious crystals. *Ascospores* 8/ascus, hyaline, ellipsoid, polardiblastic, 12–14(–15) ìm × 6–7 ìm, around 2 times as long as wide, with 4–5 ìm thick septum. *Pycnidia* orange, convex, 0.1–0.2 mm diam. *Conidia* not observed.
Chemistry. Thallus KOH+ blood red. TLC: parietin.
Ecology and distribution. On littoral granite. Only known from Brazil.

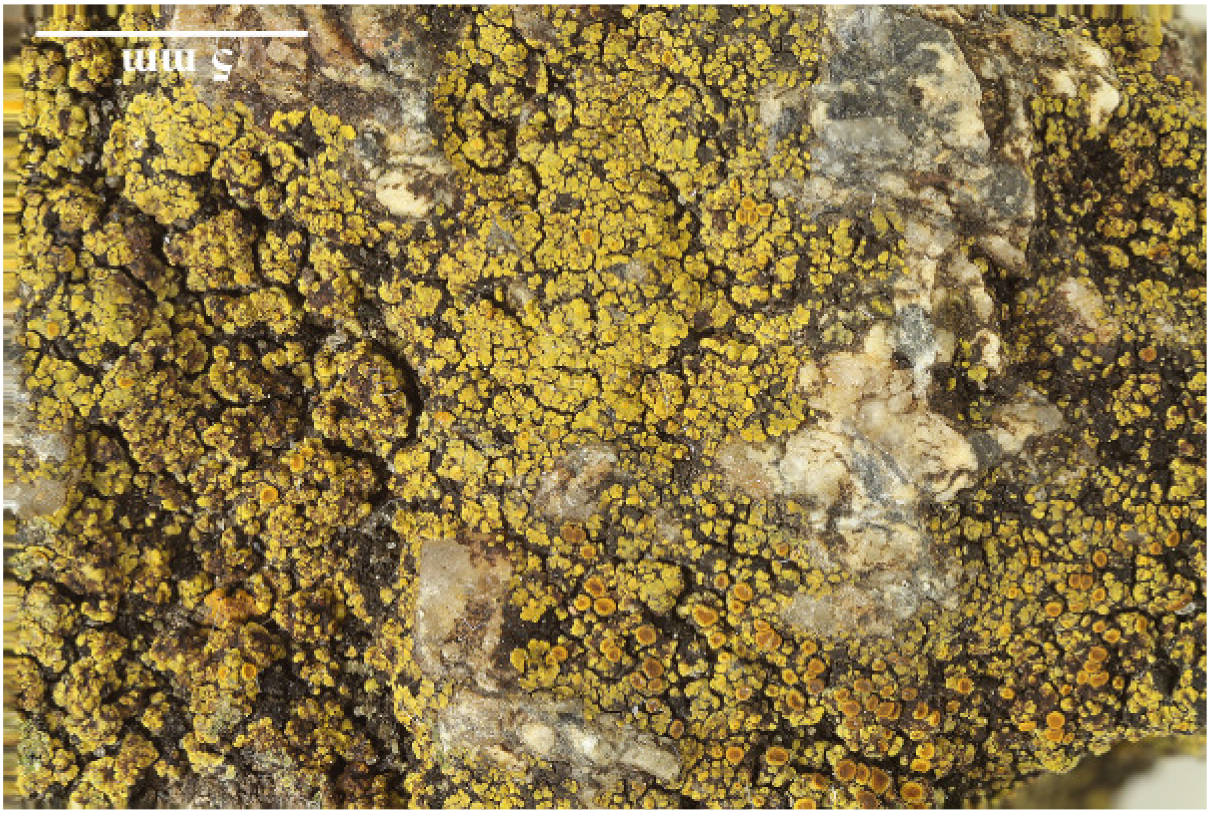
Discussion. This new species is somewhat similar to *Caloplaca chapadensis* (malme) Zahlbr., which differs by the ornage thallus and the non-littoral habitat, and to *Caloplaca maritima* B. de Lesd., which has a more continuous thallus, usually surrounded by a prothallus.

Additional specimens examined. **Brazil:** *State of Paraná*: Municipality of Matinhos, Ilha das Tartarugas, on rocky shore, 21 Mar 2010, *E. Gumboski & F. Beilke* 1849b, 1849f (JOI); Municipality of Guaratuba, west rock shore, 02 Set 2011, *E. Gumboski & F. Beilke* 2555 (JOI). *State of Rio Grande do Sul*: Municipality of Torres, Morro do Farol, 11 Nov 2011, *E. Gumboski; S. Eliasaro & F. Beilke* 3132 (JOI). *State of Santa Catarina*: Municipality of Penha, Praia do Quilombo, West rock shore, 26º46'03"S, 48º38'27"W, 25 Oct 2011, *E. Gumboski & F. Beilke* 2897, 2898, 2900, 2901, 2902, 2911, 2912, 2940, 2986, 2990, 2992, 2997 pr. p. (JOI); Municipality of São Francisco do Sul, S of Prainha, 26˚14'06" S, 48˚30'05" W, 8 Oct 2015, *M. E. S. Cáceres & A. Aptroot* 27917, 27906 (ABL).

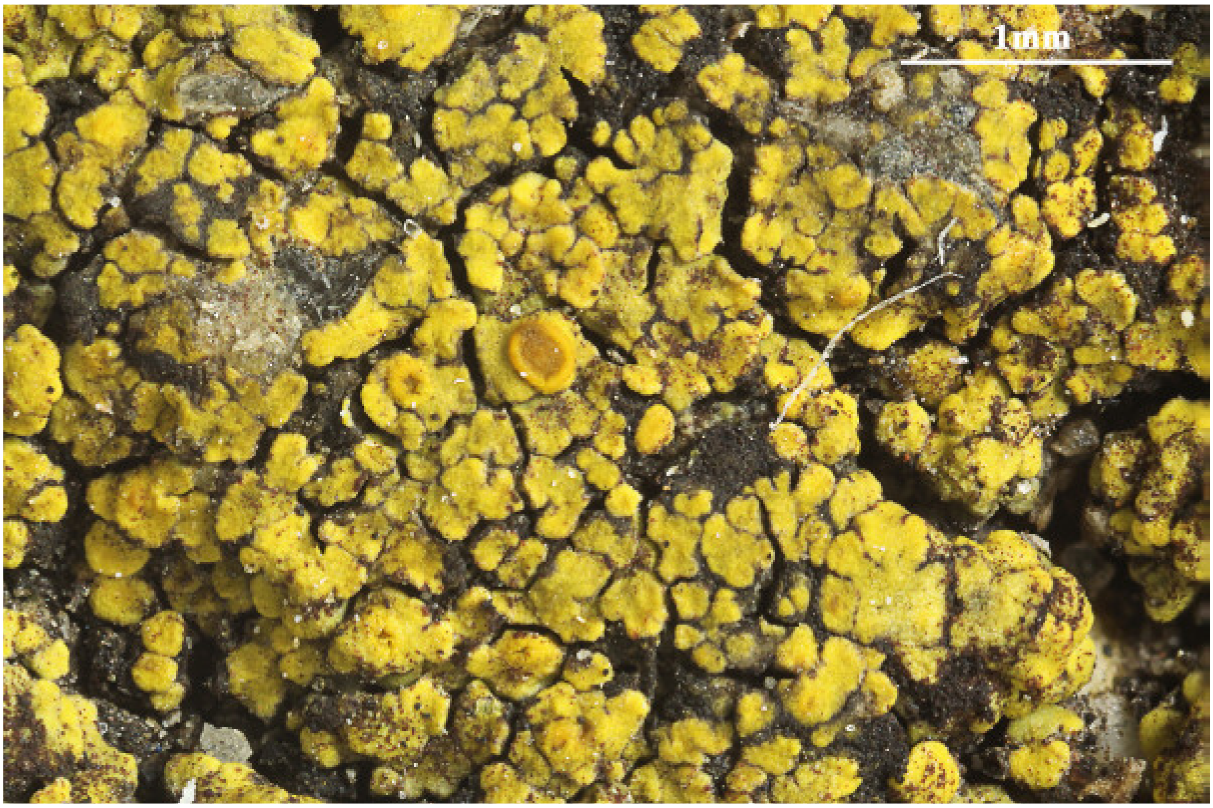
Caloplaca austromaritima

Spores polarilocular, hyaline, 8/ascus, 15.5-17(-19.5) x (5.5-)7-8.5 µm, septum 5.5-6.5 µm.

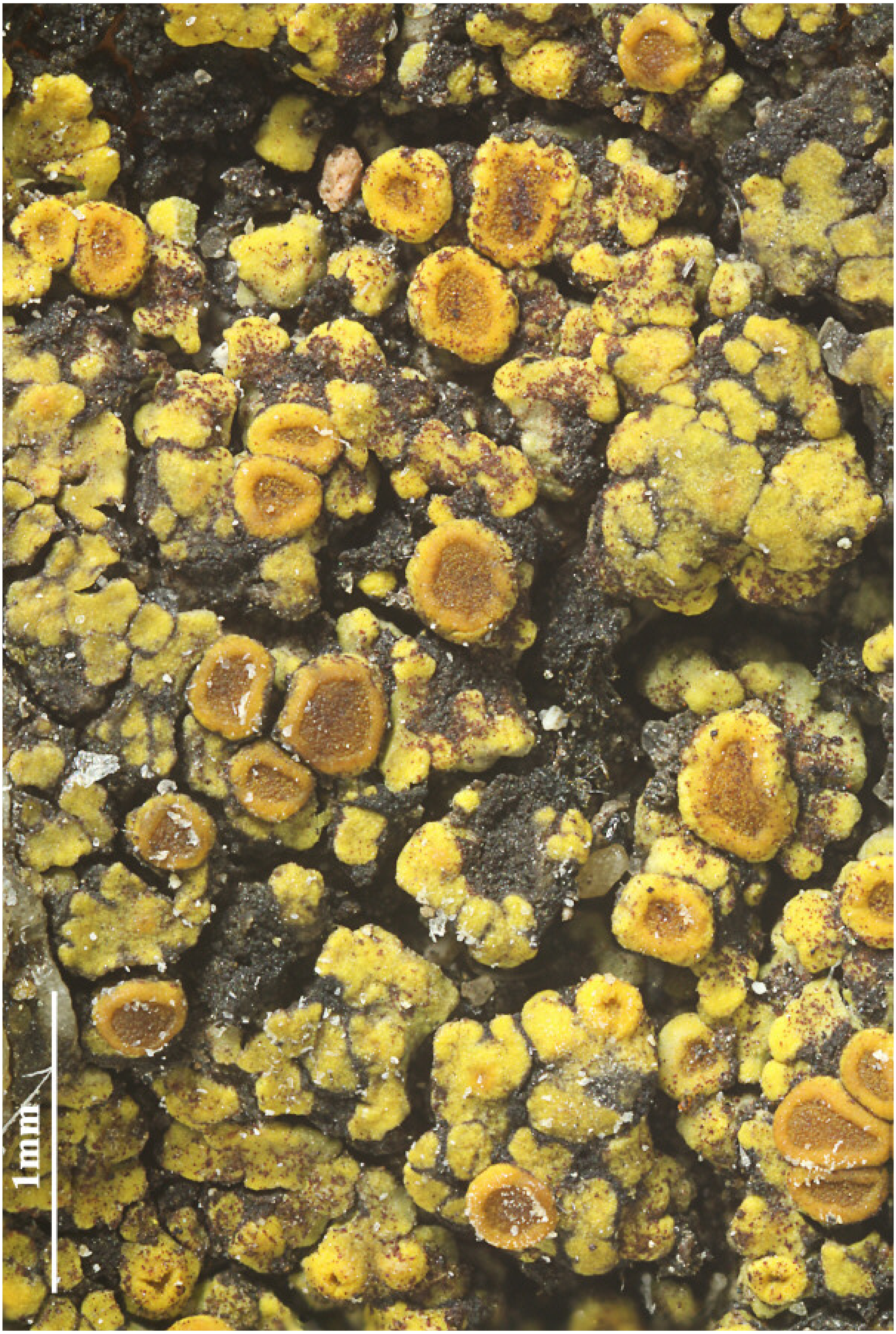
[ABL ISE27917], Brazil, Santa Catarina, São Francisco do Sul, S of Prainha, 26°14’06’’ S, 48°30’05’’ W, c. 10 m, on coastal granite. Leg. M.E.S. Cáceres & A. Aptroot, 8.10.2015, det. A. Aptroot 2015.



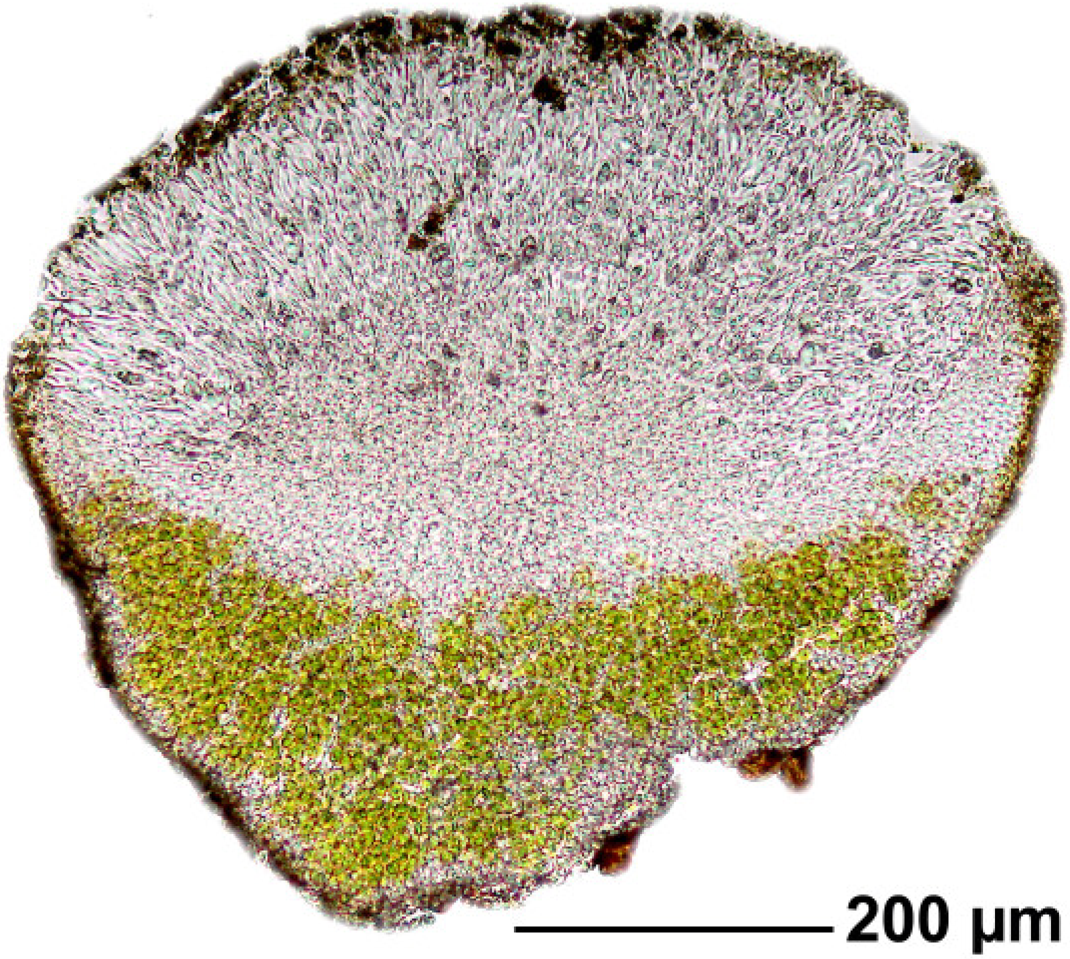
Caloplaca austromaritima

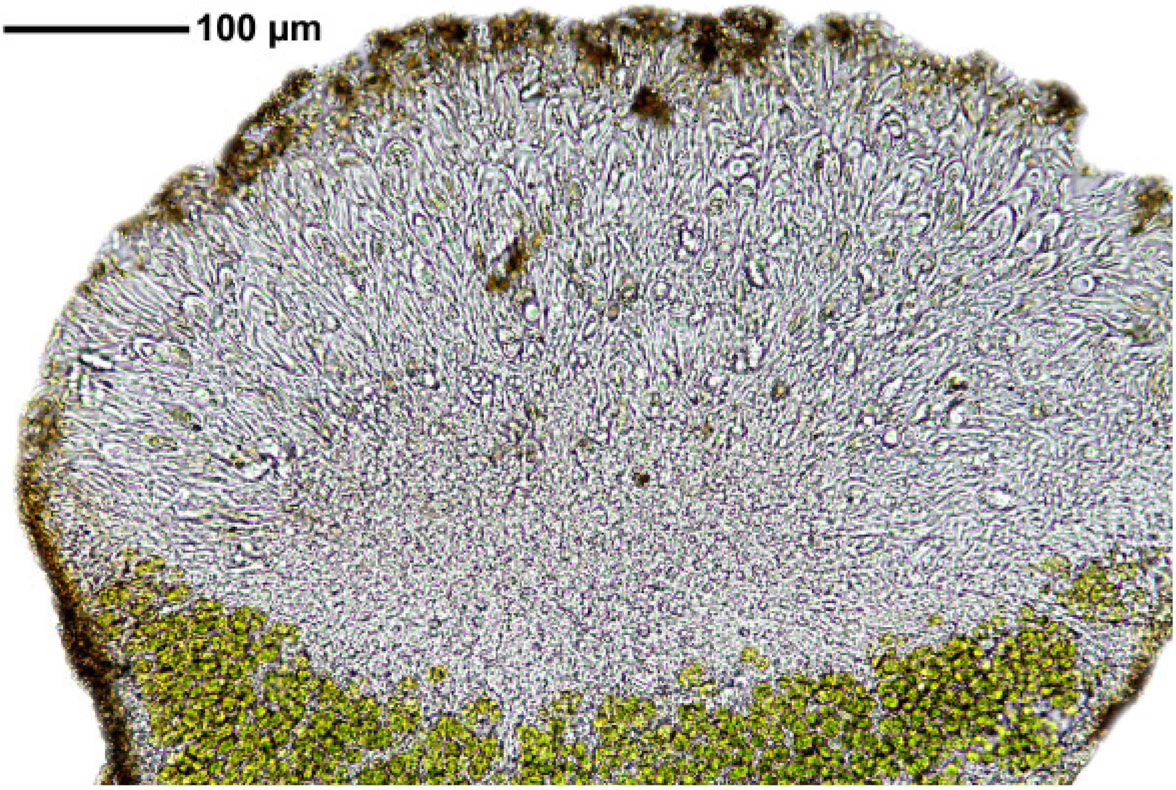


Caloplaca austromaritima

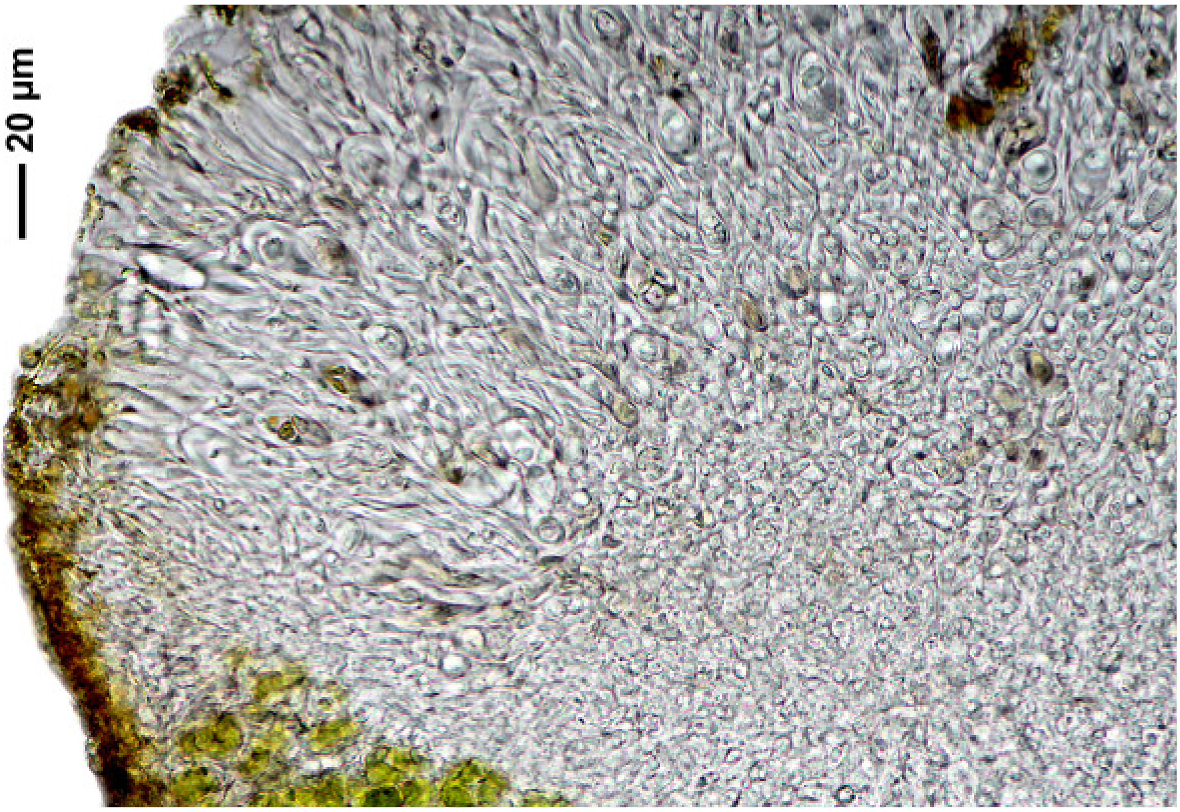


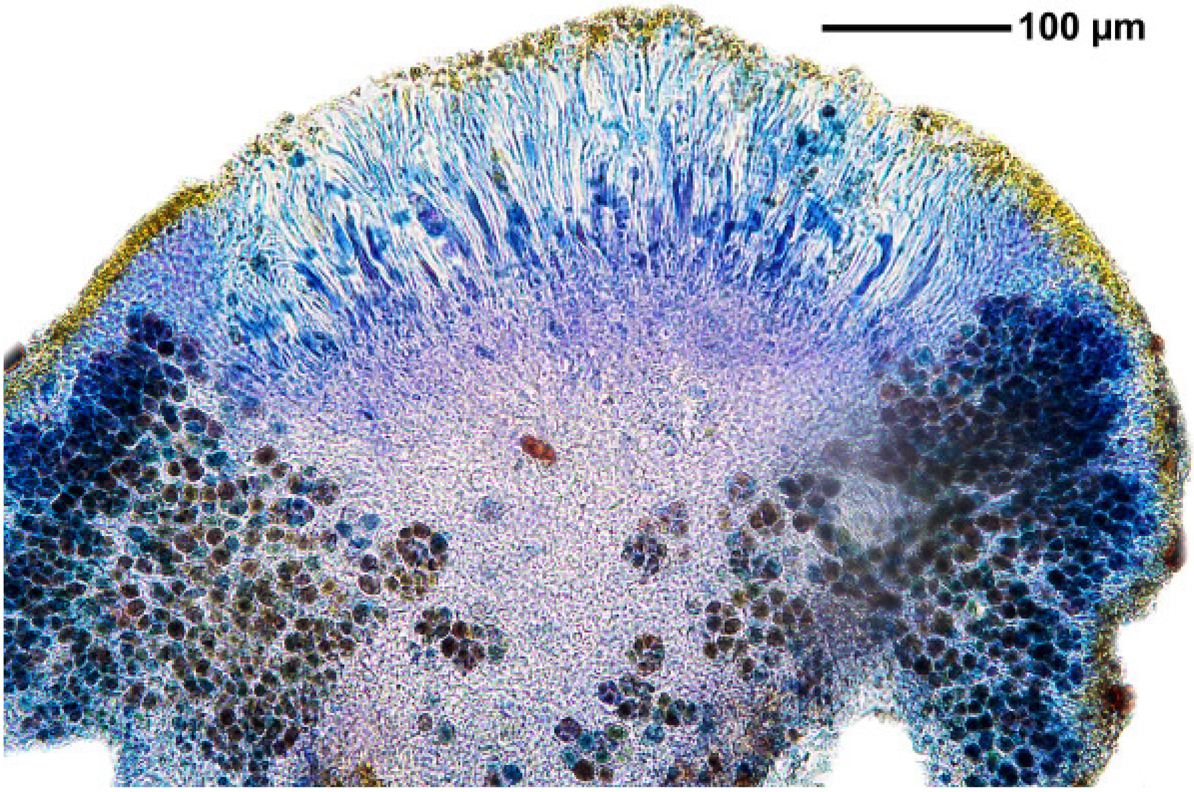
Caloplaca austromaritima



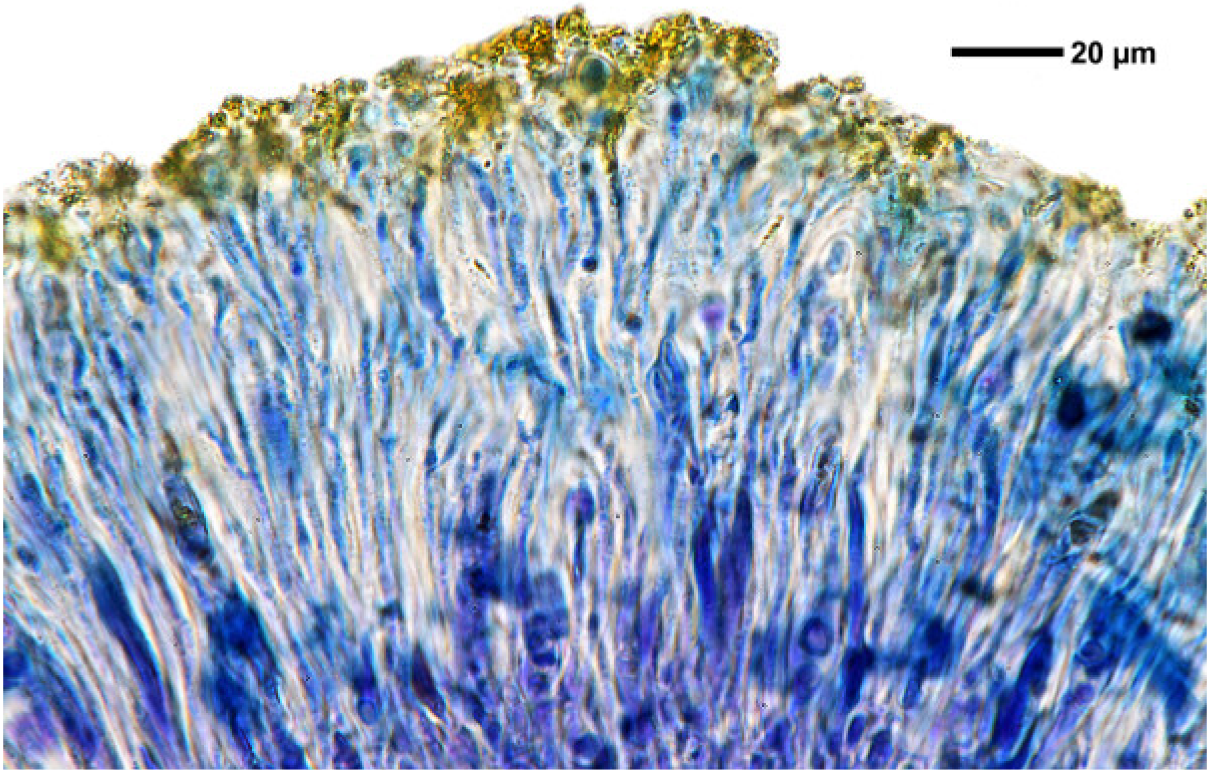


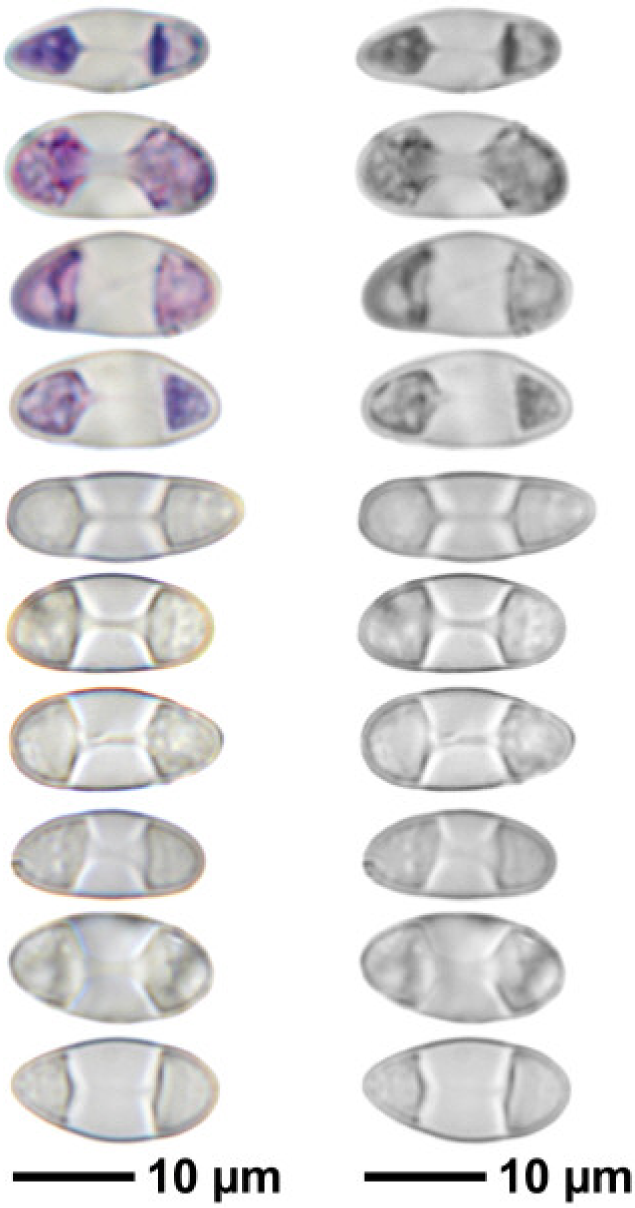
Caloplaca austromaritima





Caloplaca austromaritima



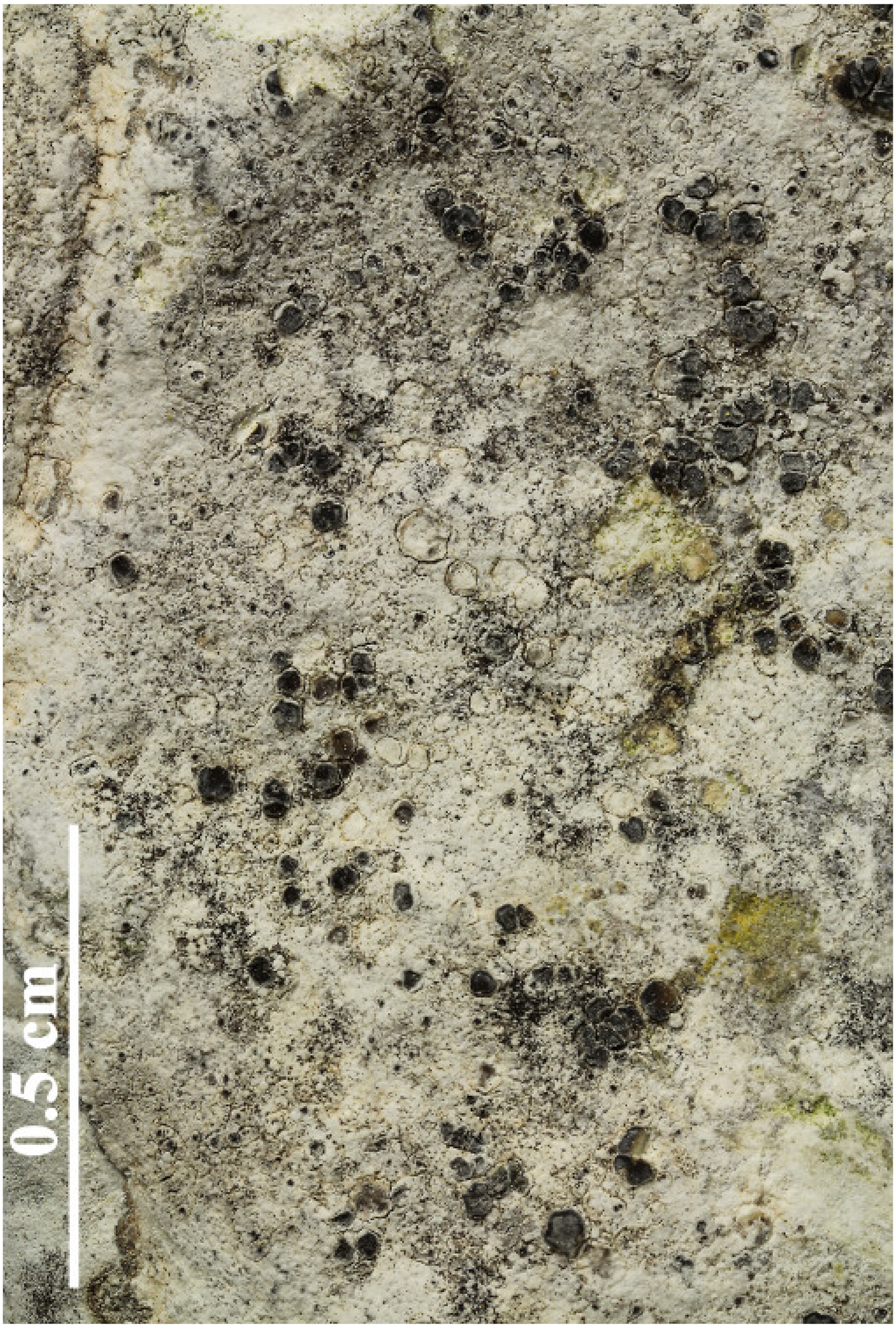


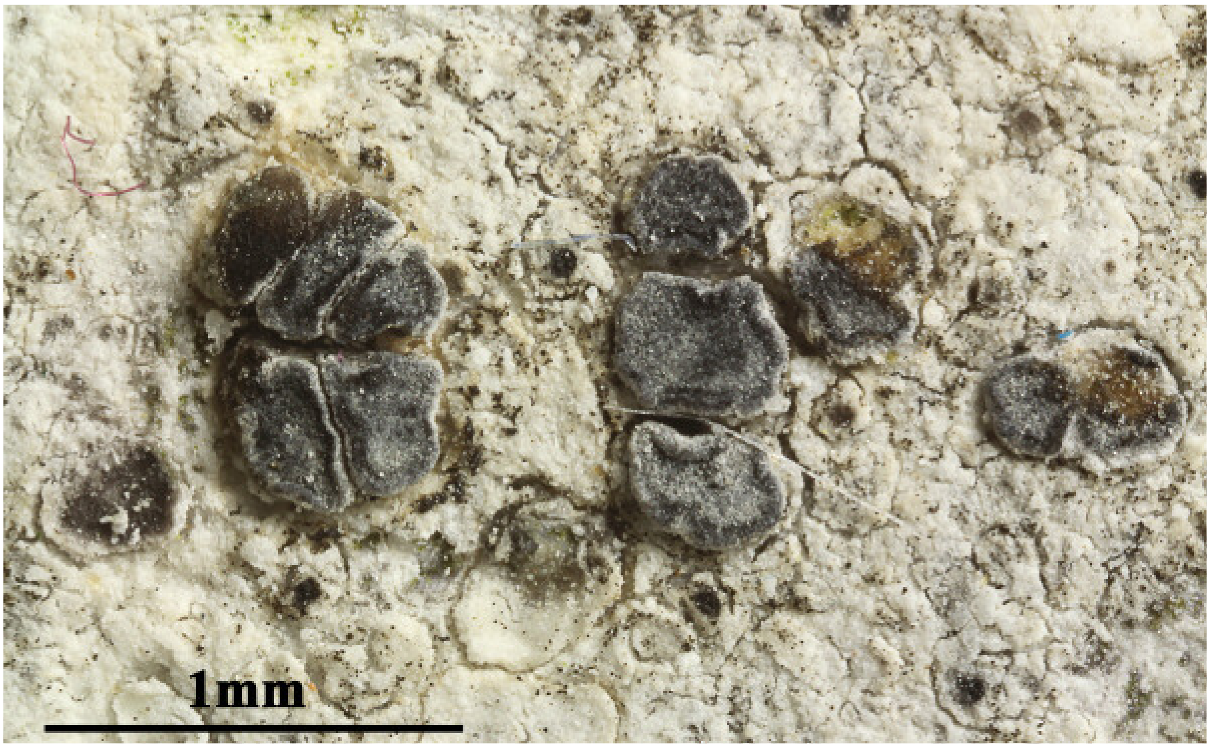
Caloplaca austromaritima

Caloplaca badioreagens Tretiach & Muggia, HOLOTYPUS, Lichenologist 38(3): 224 (2006)
[= *Pyrenodesmia badioreagens* (Tretiach & Muggia) Søchting, Arup & Frödén, Nordic Journ. Bot. 31(1): 73 (2013)]

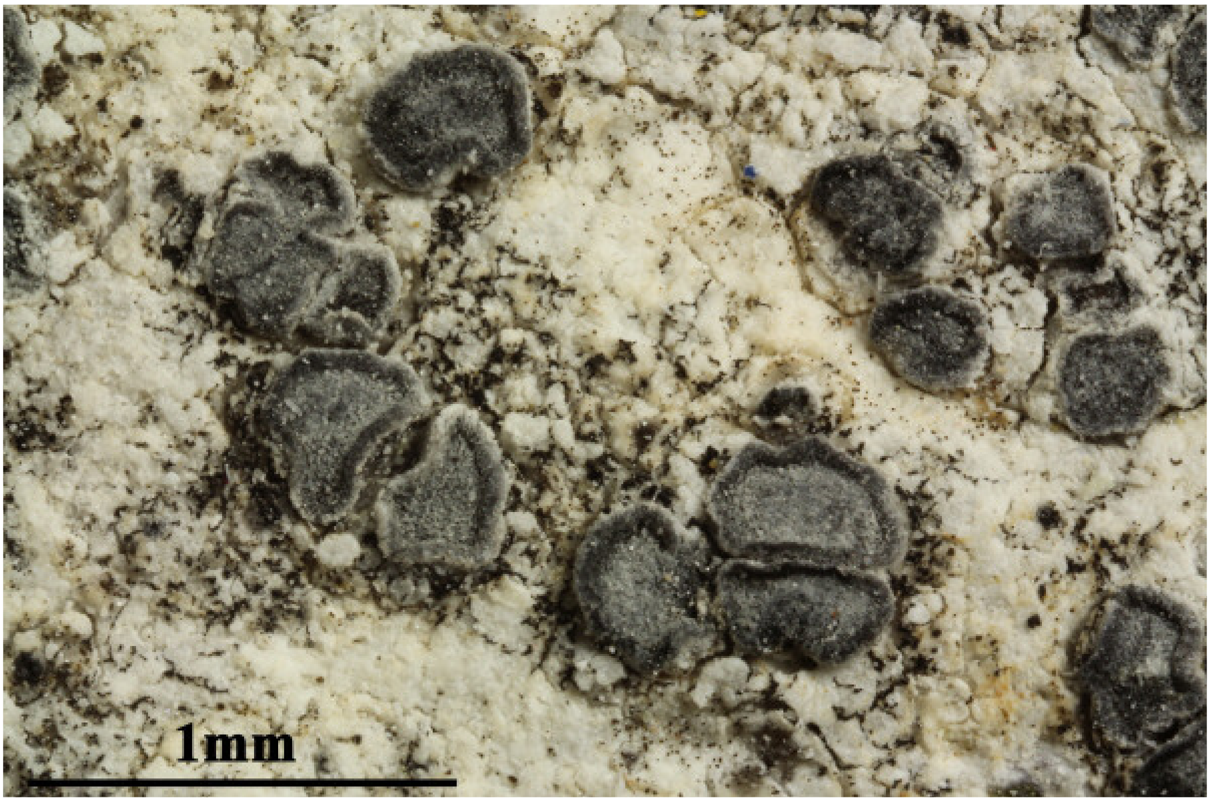
Spores 12-12.5 x 6.7.5 µm, septum 3 µm

[TSB_36413], Italy, Puglia, Prov. Foggia, Gargano Peninsula, Monte Sant'Angelo near the Church of Santa Maria di Pulsano, on limestone. Leg. M. Tretiach & L. Muggia, 03.06.2004 .





Caloplaca badioreagens



Campione n. I 4

dimensioni spore: larghezza – lunghezza - setto.

6/7,5 12/12,5 3 µ

spessore parafisi: 3-4 µm

ramificazione parafisi: assente

cristalli nell' epitecio (pochissimi) – imenio – subimenio

presenza di alghe nell'excipulo: SI NO

note: K+, spore evidenti, apoteci pruinosi e bluastri, non perfettamente circolari (vedi anche le altre uguali a questa) tallo bianco, pnt bianco con bordo esterno nero.

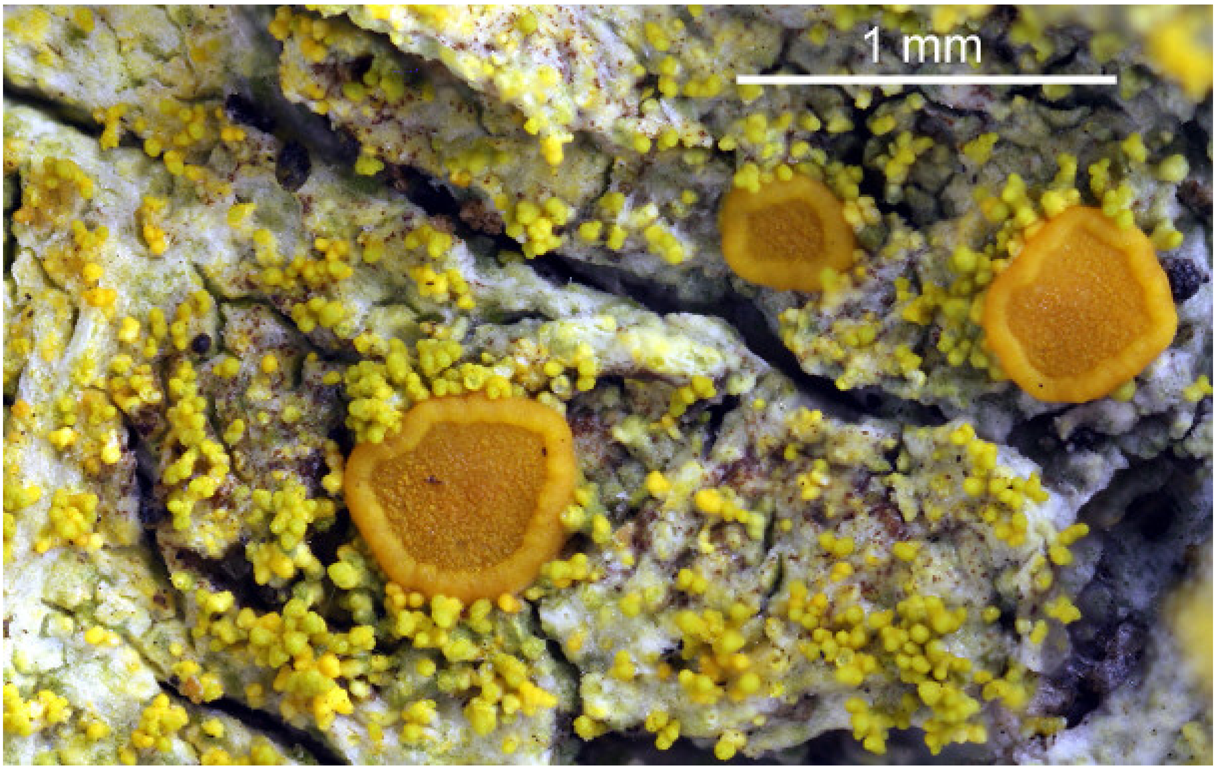
3/6/04 GARGANO 3

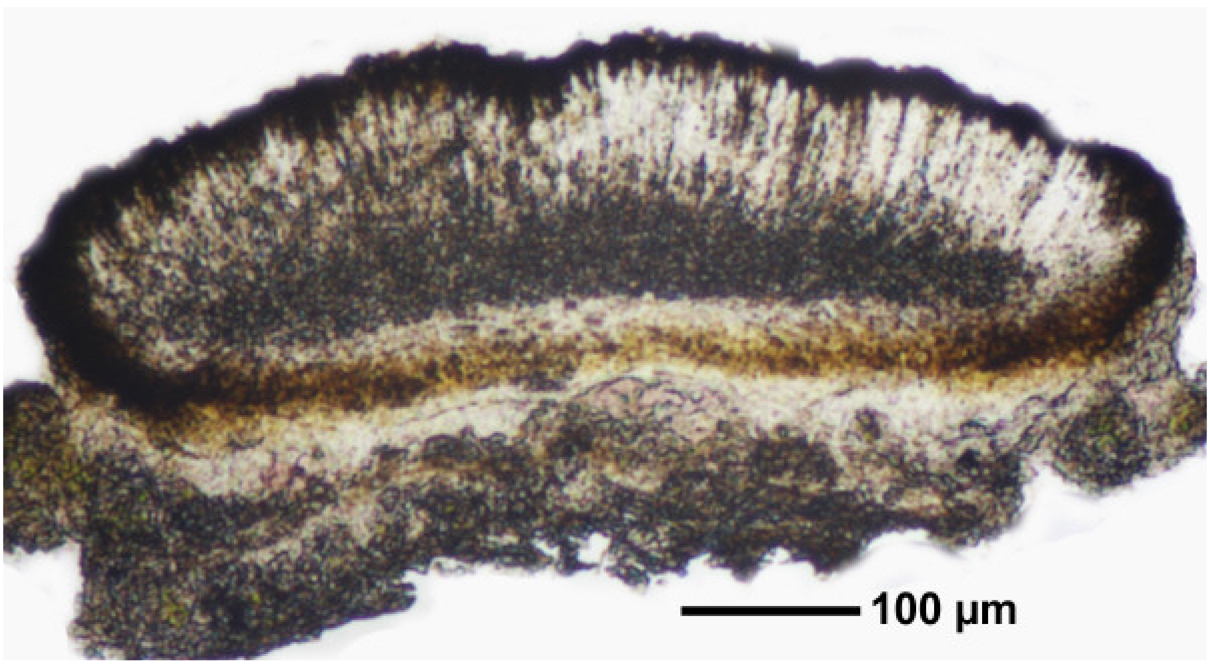
Caloplaca badioreagens

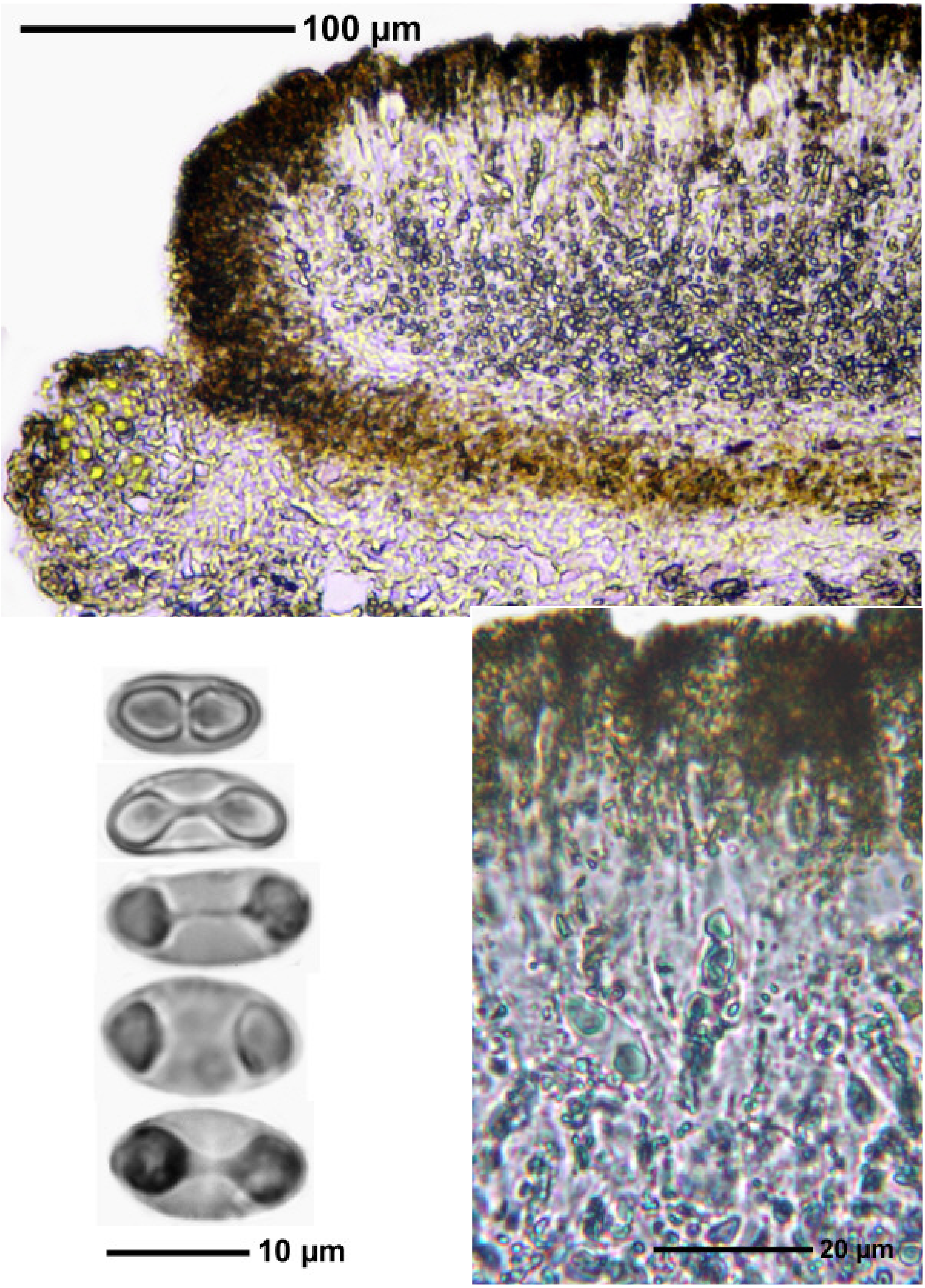
Caloplaca bassiae (Ach.) Zahlbr.
[= *Caloplaca isidiosella* (Cromb.) Sant.]
[= *Caloplaca malaënsis* (Räs.) D.D.Awasthi]

Thallus greenish to yellowish. Isidia cylindrical, at least partly yellow-orange. Apothecia rare, orange (darker than the Isidia), without algae in the apothecia. Corticolous. Pantropical. Lit. Wetmore (2004).

[14615], Seychelles, Mahe, Westspitze, Anse Jasmin Estate (Hotel Auberge des Seychelles), 4°38.648' S, 55°23.111' E, ca. 20 m. Leg. Schumm & Frahm 08.10.2008, det. A. Aptroot 2008.







Caloplaca bassiae

Caloplaca bassiae (Ach.) Zahlbr.
[= *Gyalolechia bassiae* (Ach.) Søchting, Frödén & Arup]

On bark.

[19611], Sri Lanka, Central Province, Pidurutalagala Mountain, Nuwara Eliya, 7°00' N, 80°46' E, 2525 m, montane forest. Leg. G. Weerakoon, P. Wolseley & A. Aptroot, 9.03.2015, det. A. Aptroot.

Caloplaca bassiae

Caloplaca bassiae (Ach.) Zahlbr.
[= *Gyalolechia bassiae* (Ach.) Søchting, Frödén & Arup]

On bark.
Die Isidien sind so spärlich unf kurz dass mir dieser Name recht grenzwertig erscheint ? FS

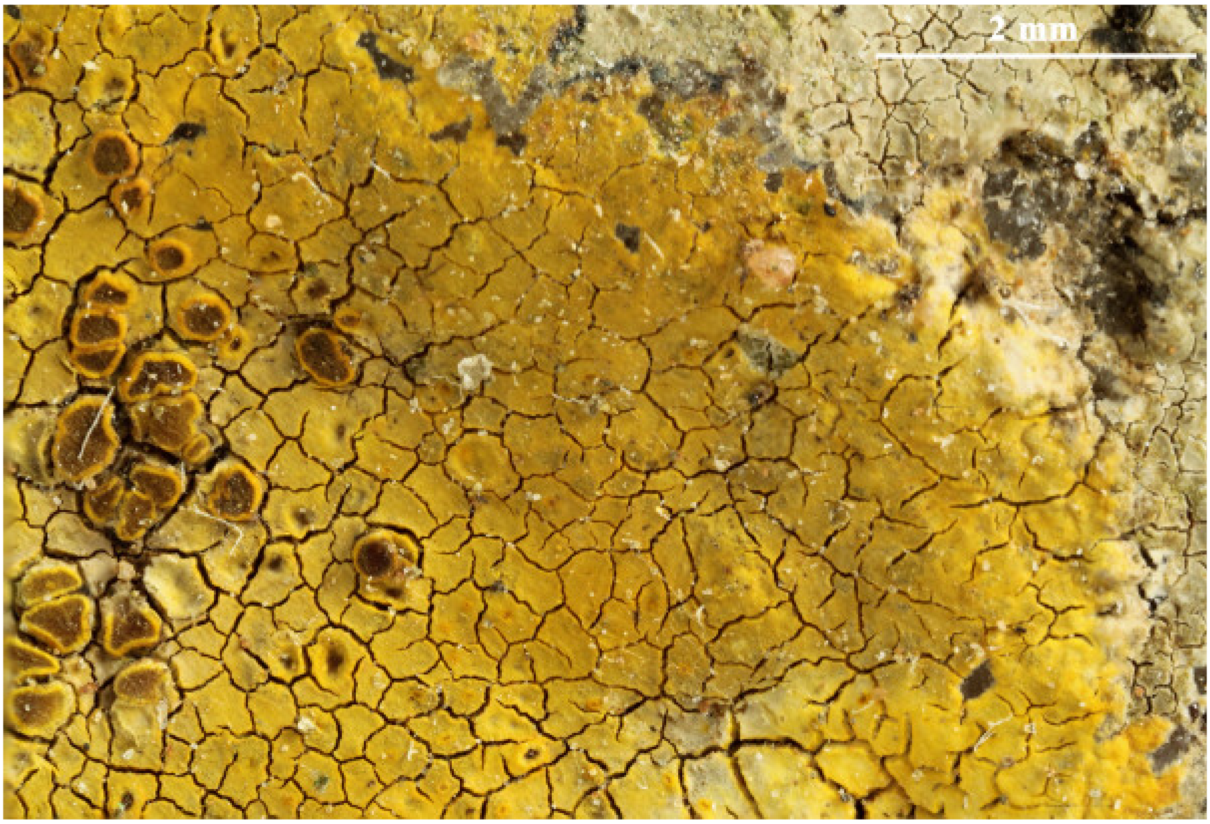
[19614], Sri Lanka, North Western & North Central Provinces, Wilpattu National Park, 8°25-31' N, 79°59-80' E, 43-74 m, dry low scrub monsoon forest with tall emergent. Leg. G. Weerakoon (No: WL41), P. Wolseley & Omal Arachchige, 28.02.2015, det. A. Aptroot 2016.

Caloplaca bassiae

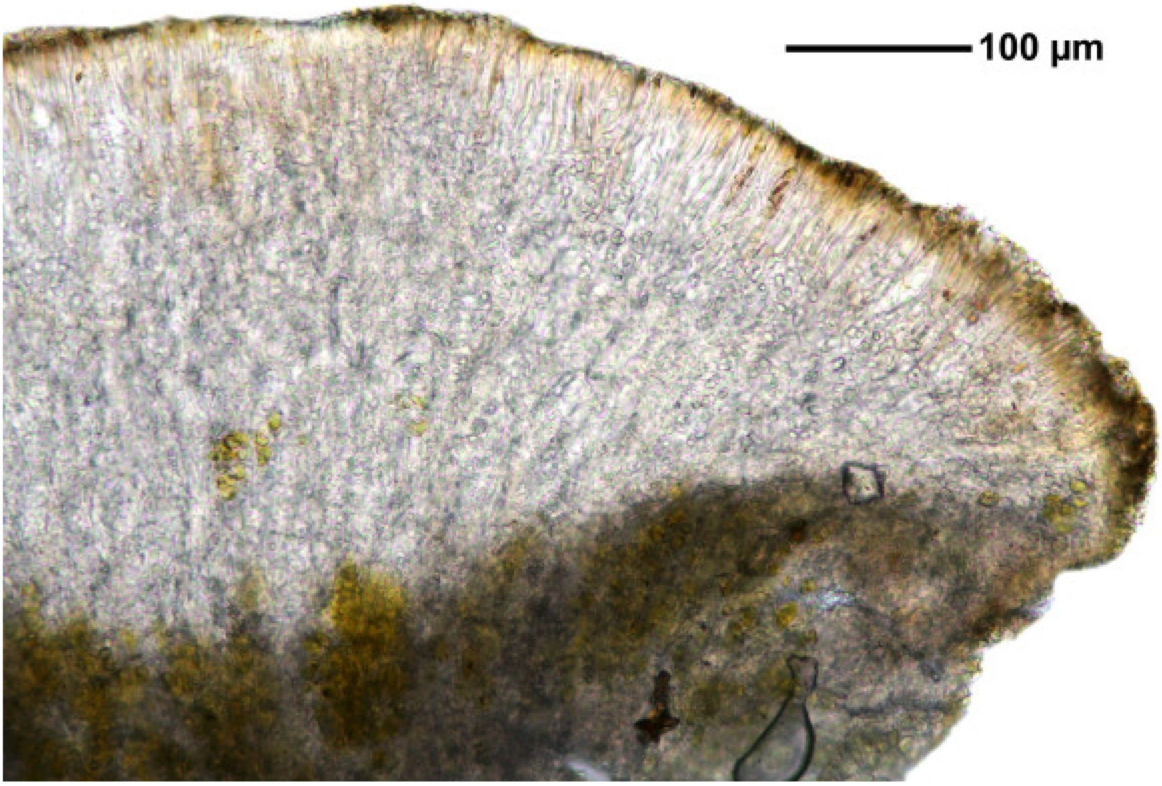
Caloplaca baueri (Müll.Arg.) Zahlbr.

On rocks. Spores polarilocular, hyaline, 8/ascus, 14.5-17 x 7.5-9 µm, septum 6-7 µm.

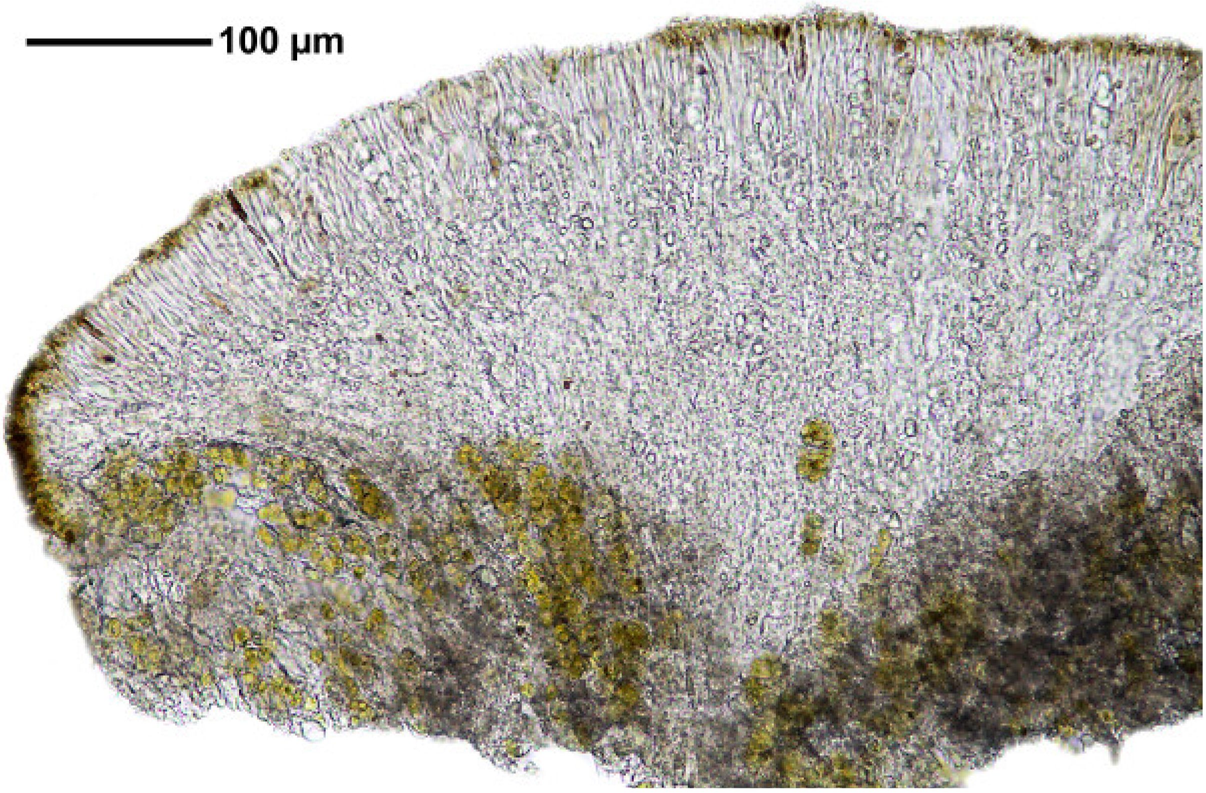
[ABL Paraguay41], Paraguay, Dep. Concepcion, Estancia Recife, 22°10’ S, 57°31’ W. Leg. U Drechsel, 15-17.02.2014, det. A. Aproot.

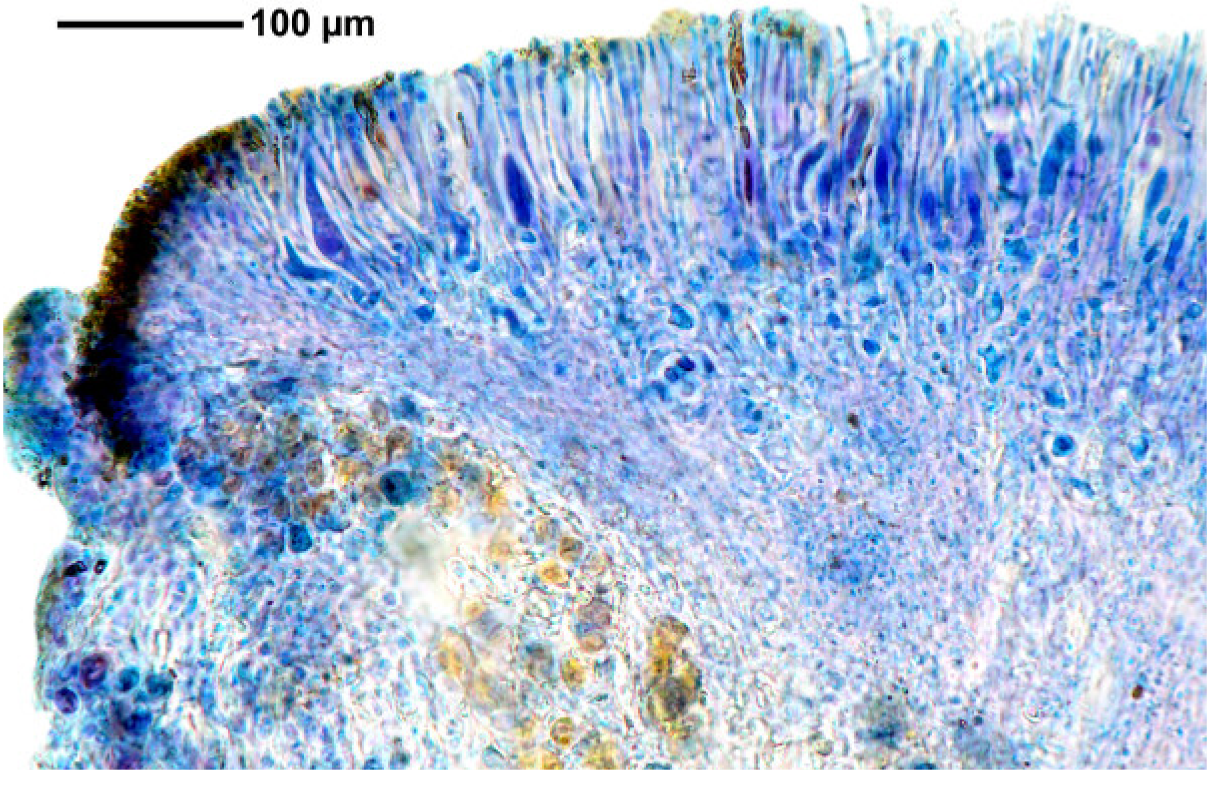


Caloplaca baueri

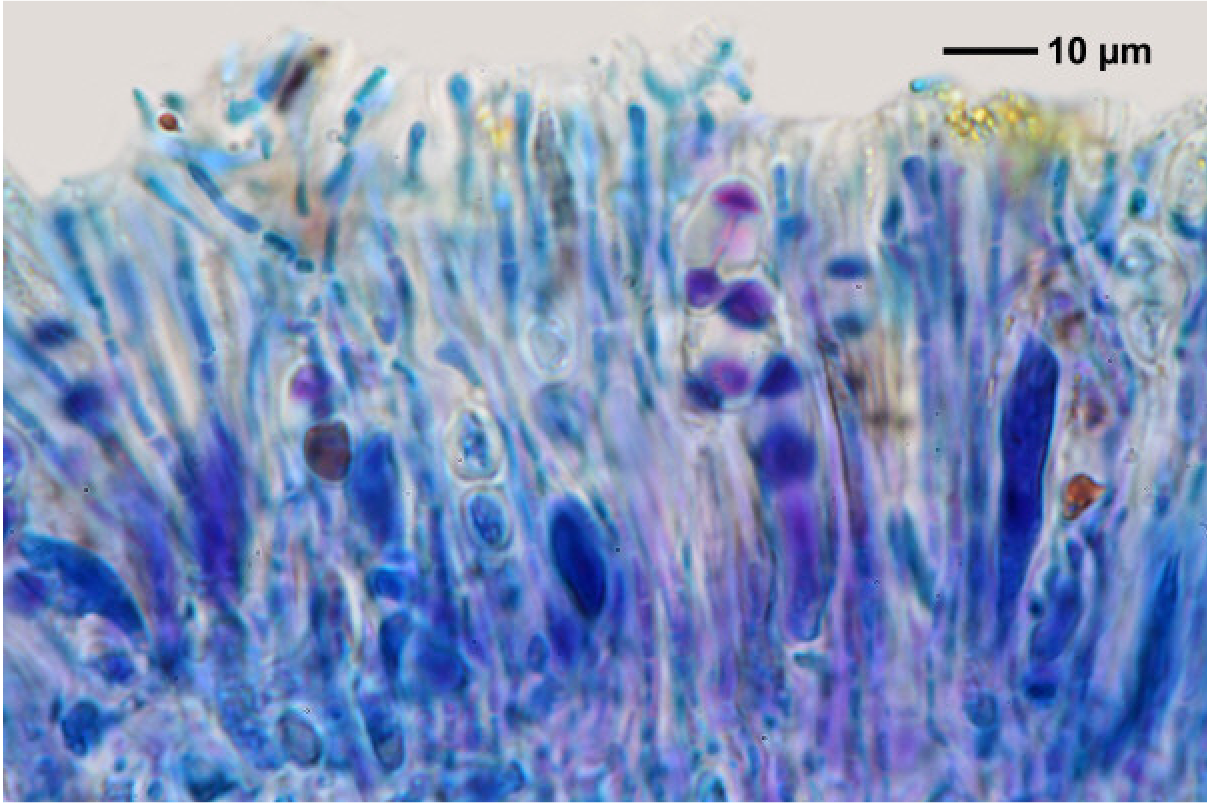


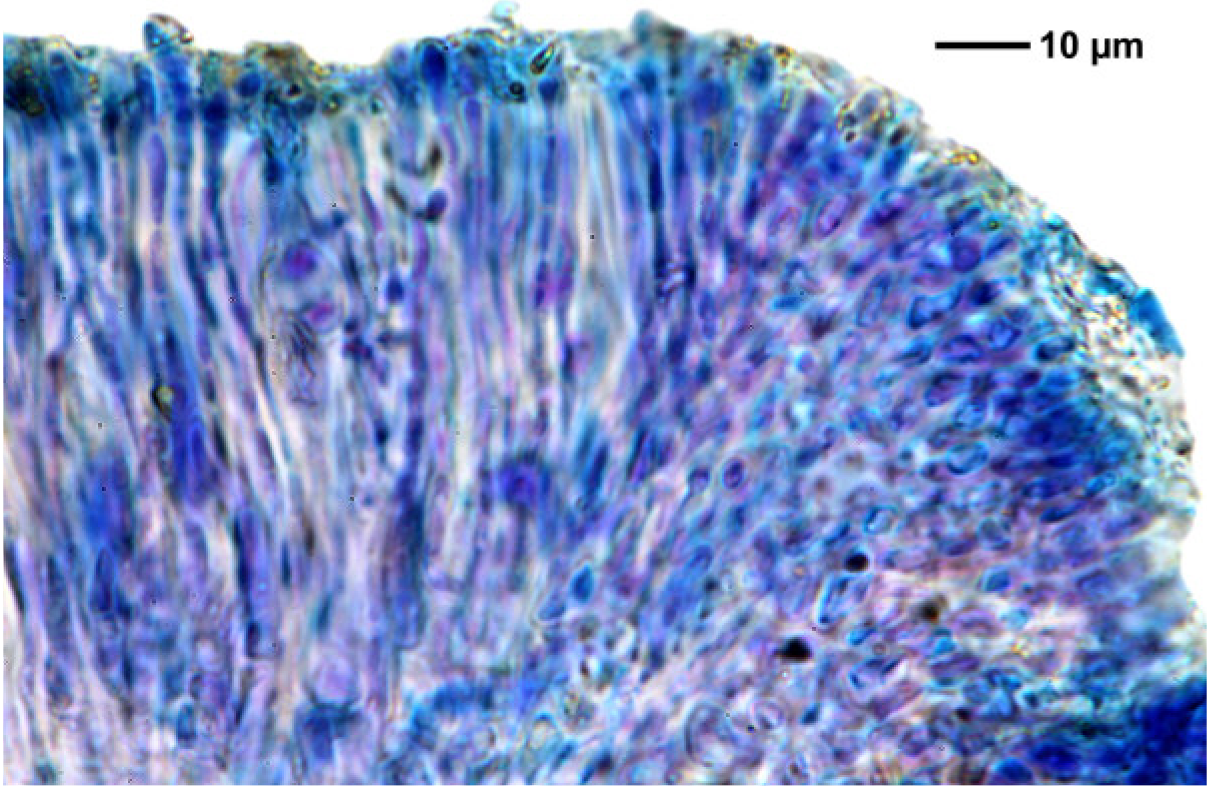
Caloplaca baueri



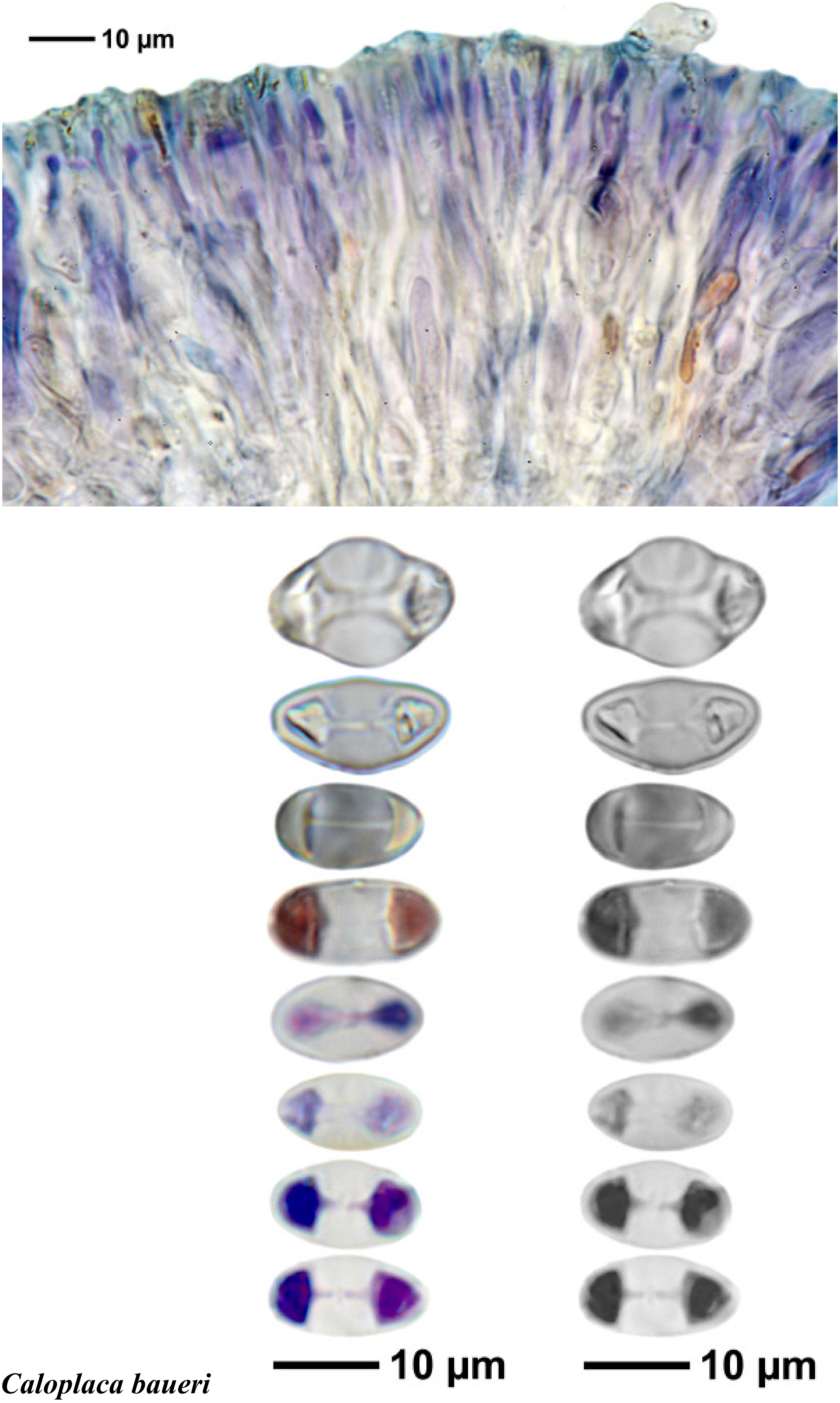


Caloplaca baueri





Caloplaca baueri

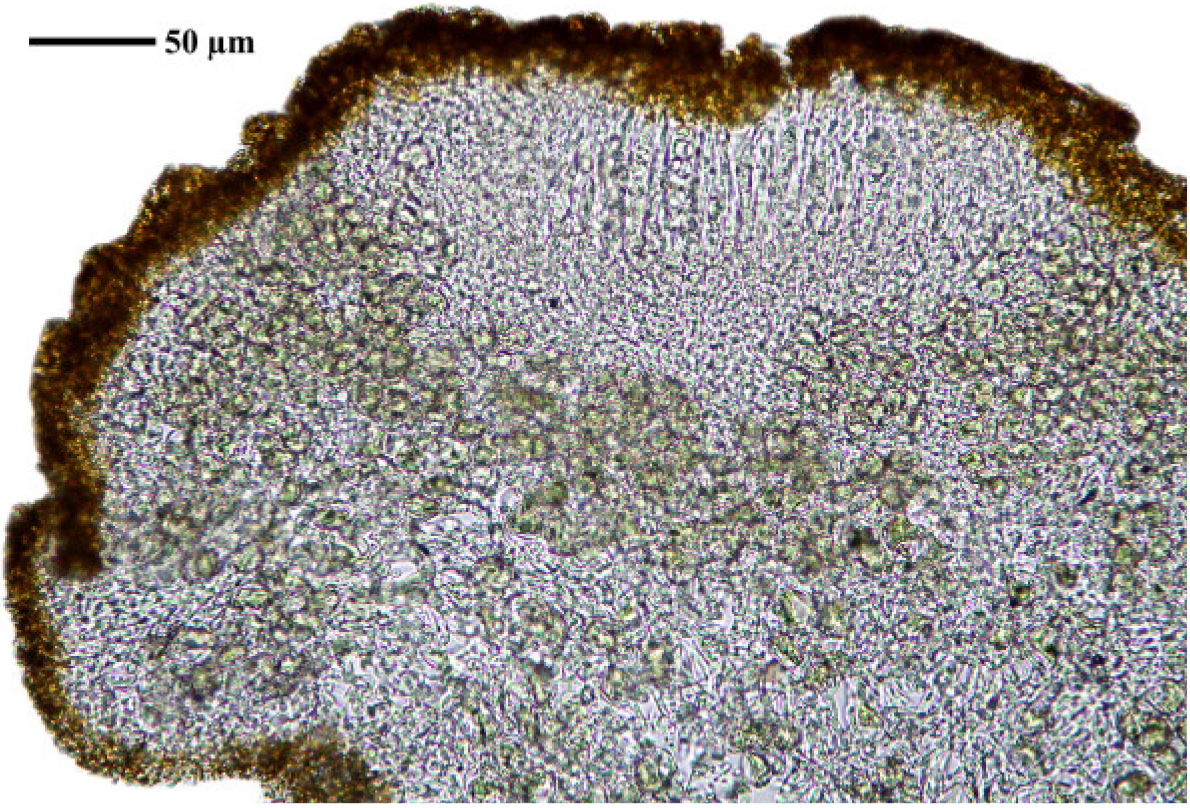


Caloplaca baueri

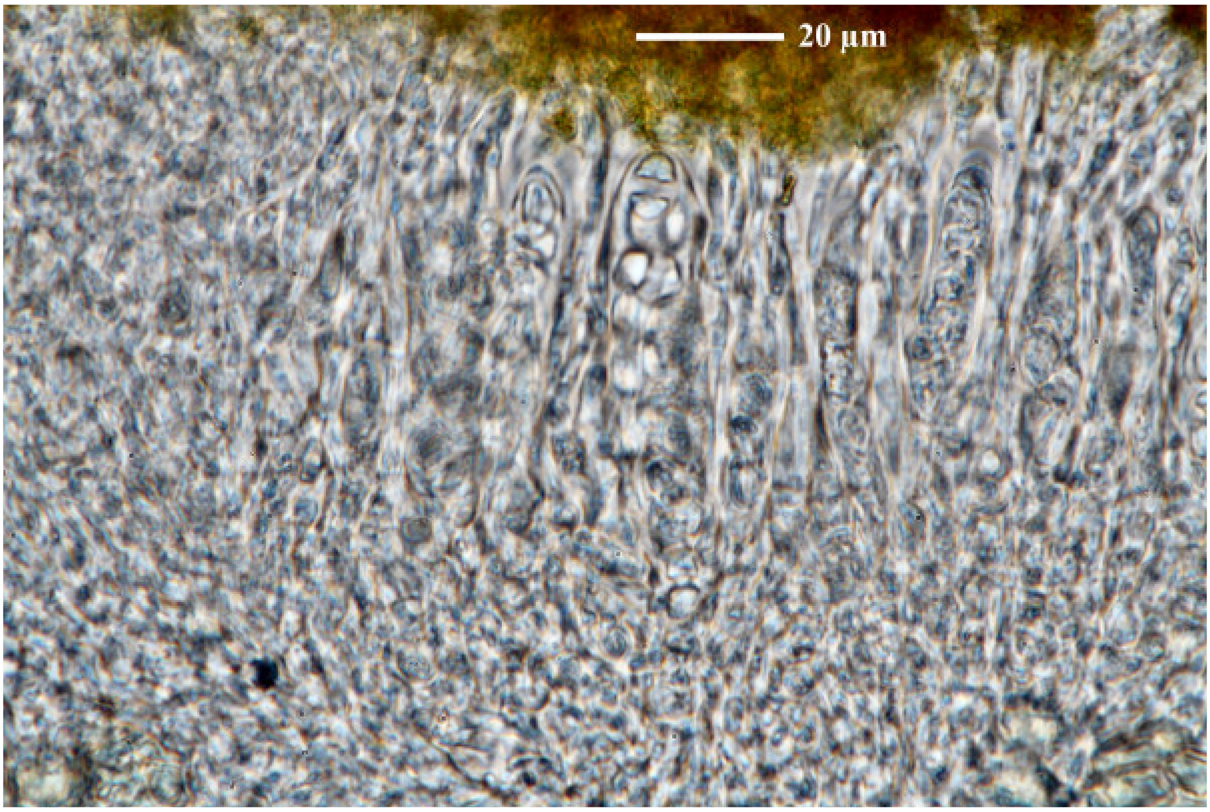
Caloplaca biatorina (A. Massal.) J. Steiner, Annls mycol. 8(2): 239 (1910)
[= *Calogaya biatorina* (A. Massal.) Arup, Frödén & Søchting, Nordic Jl Bot. 31(1): 38 (2013)]

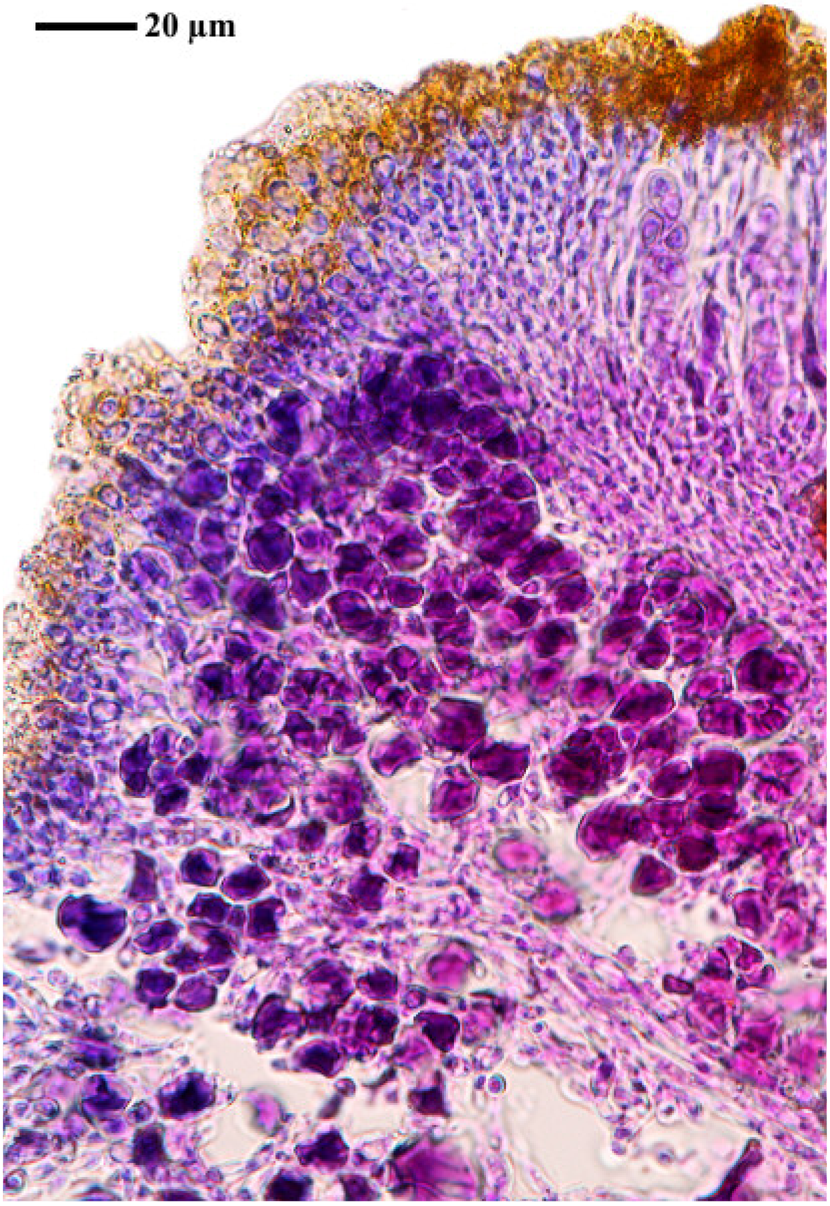
[LIAF_11], Afghanistan, Prov. Bamyan, Band-i-Amir, ca. 50 m oberhalb des islamischen Heiligtums, S-Kante der Terrasse, 67°10.5' E, 34°49' N, ca. 2950 m, Freistehende Felsköpfe aus Kalktuffen der Amir-Schichten. Leg. M. Steiner (Ste 19/1), 12.05.1970. LICHENOTHECA AFGHANICA NR. 11.

Caloplaca biatorina

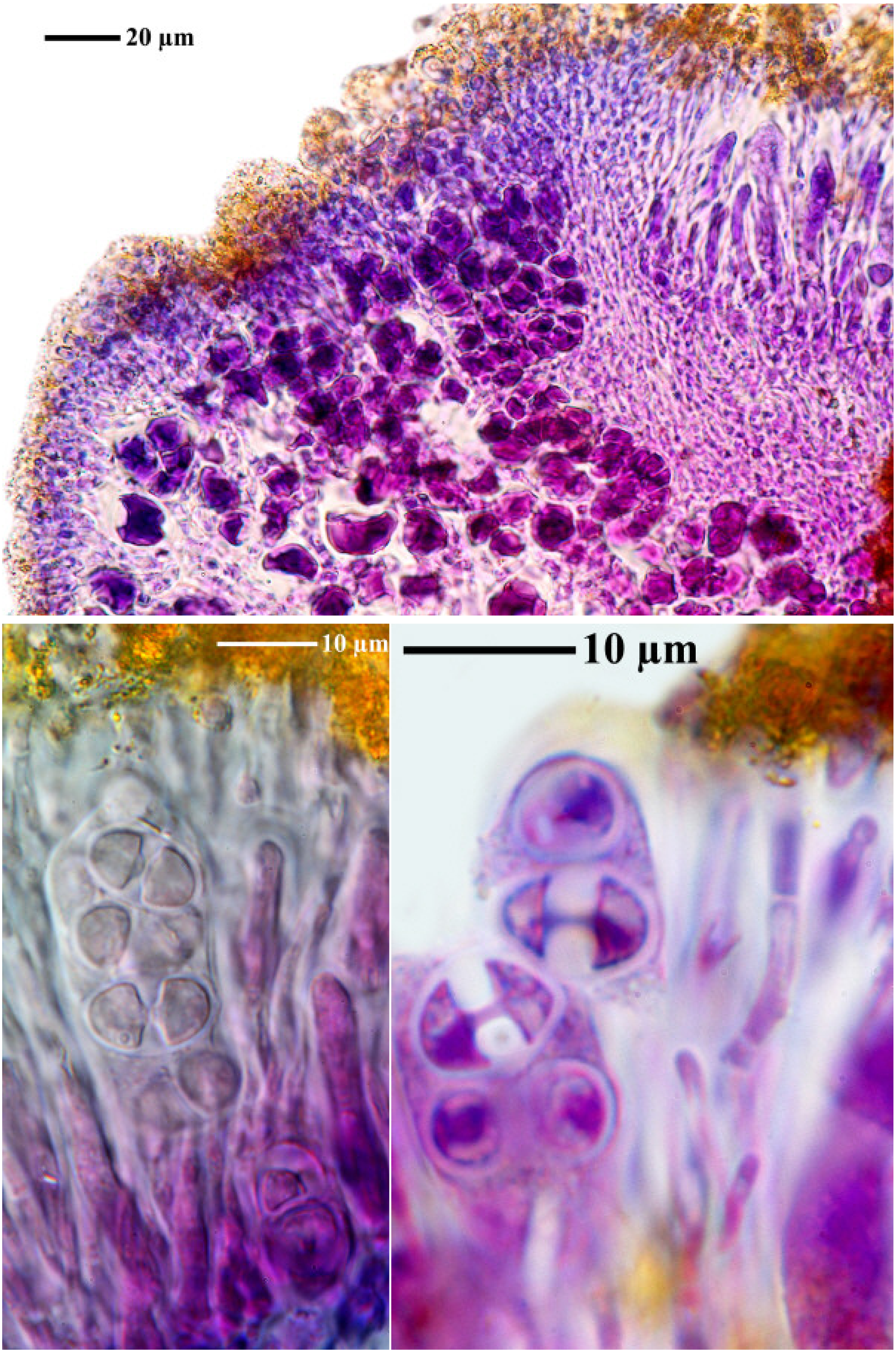


Caloplaca biatorina

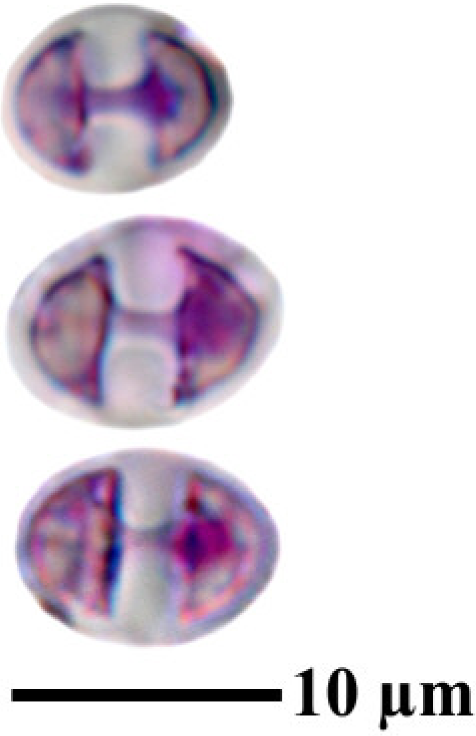


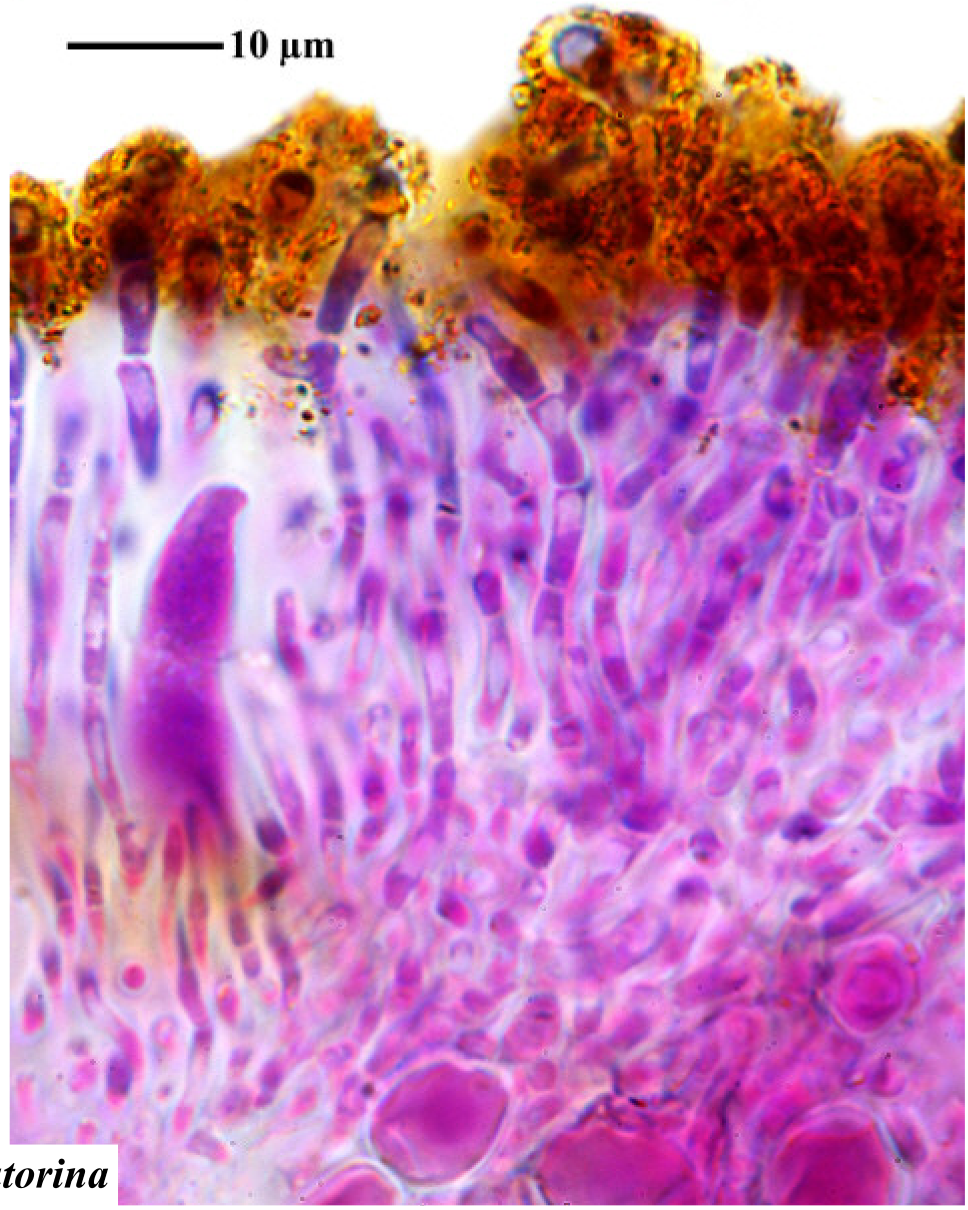


Caloplaca biatorina

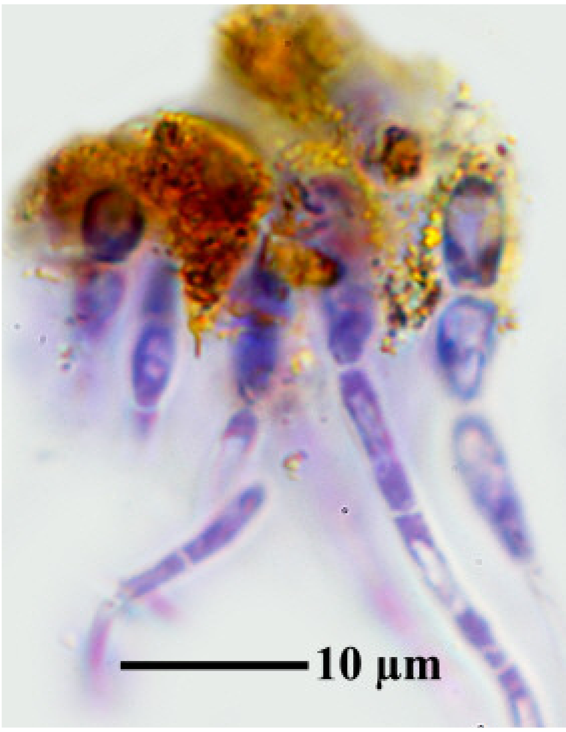


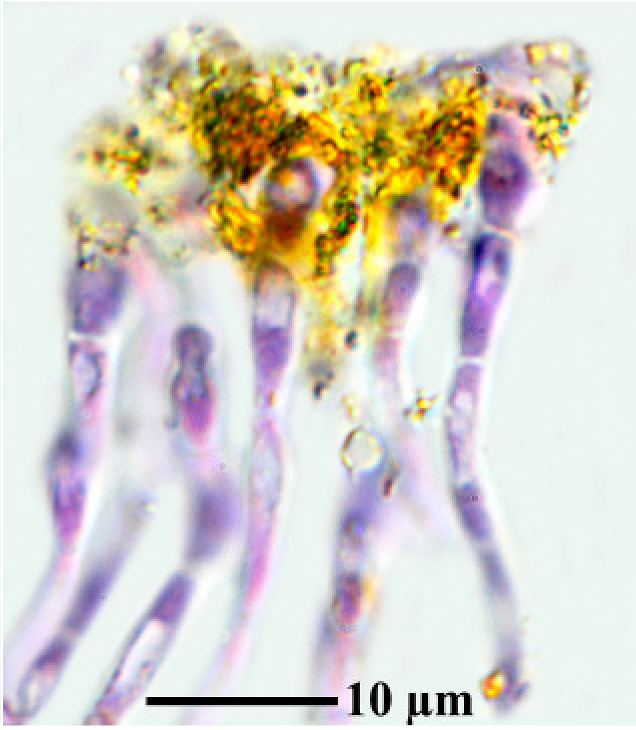
Caloplaca biatorina

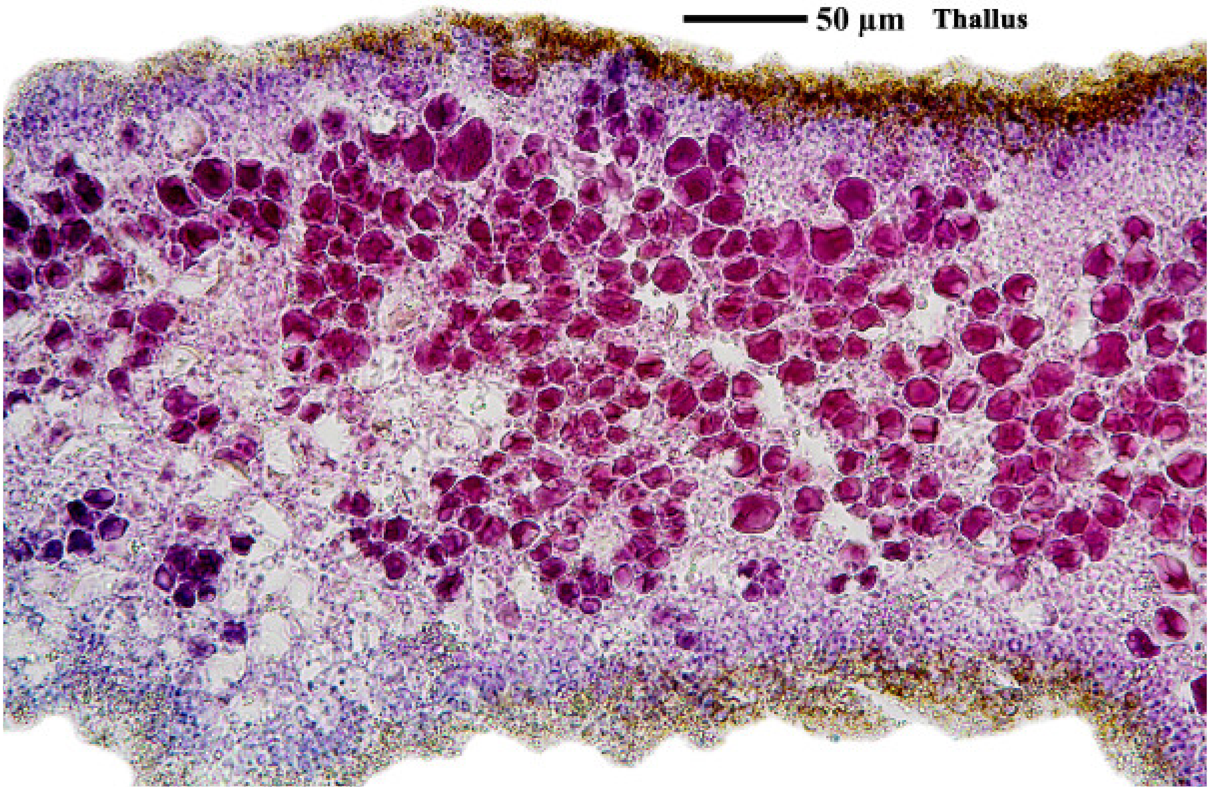




Caloplaca biatorina





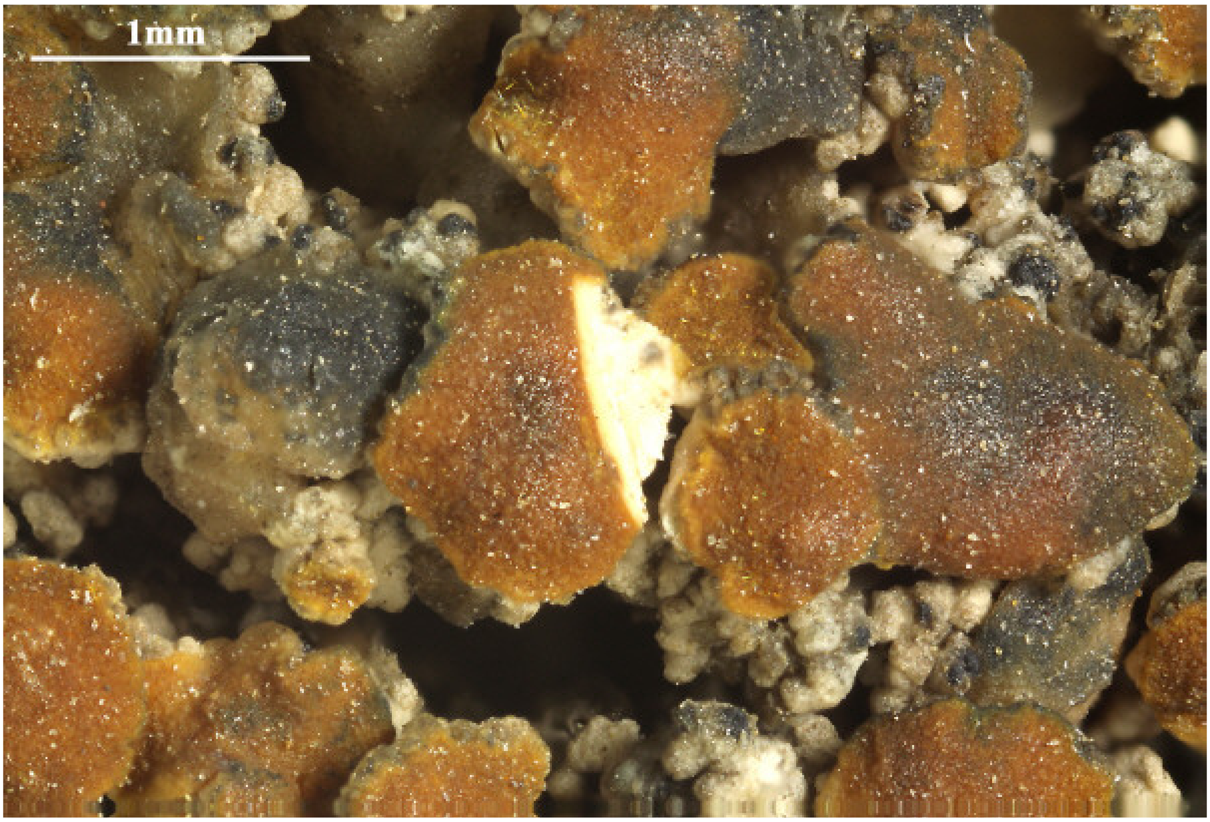


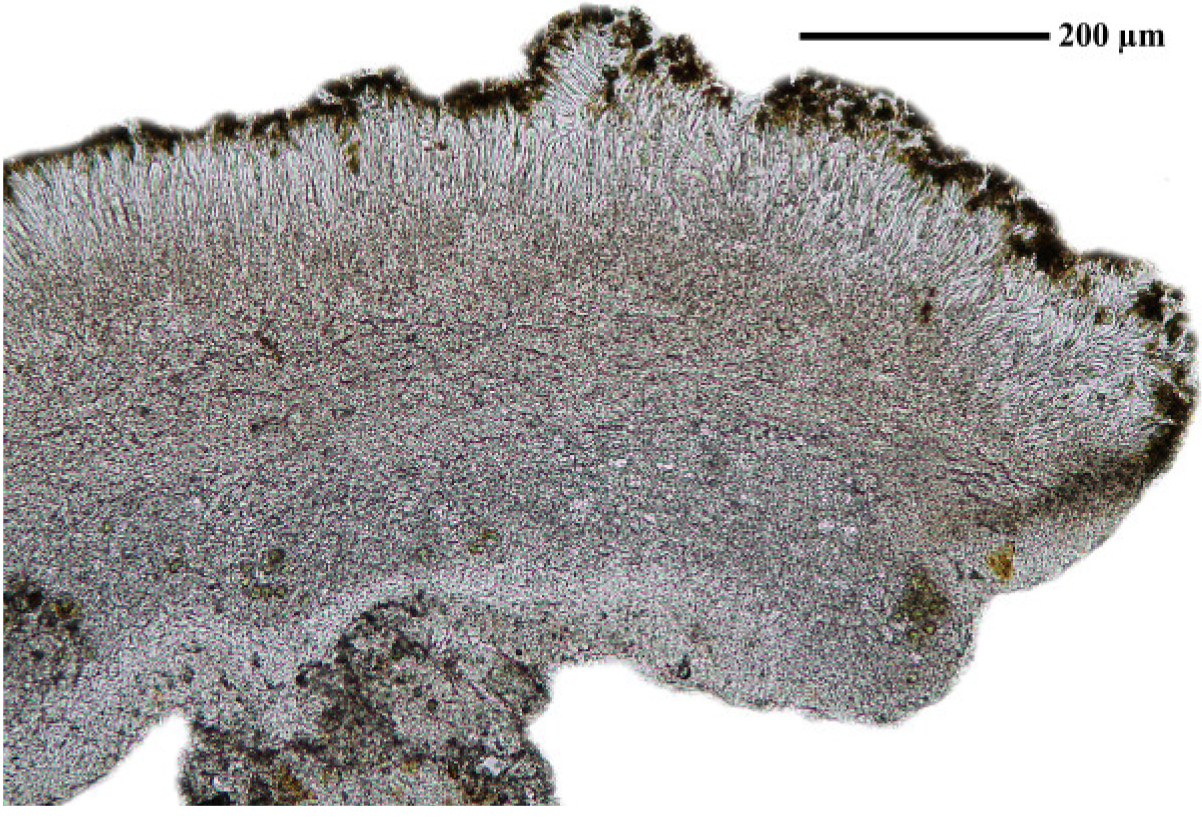
Caloplaca biatorina

Caloplaca blastenioides Zahlbr.

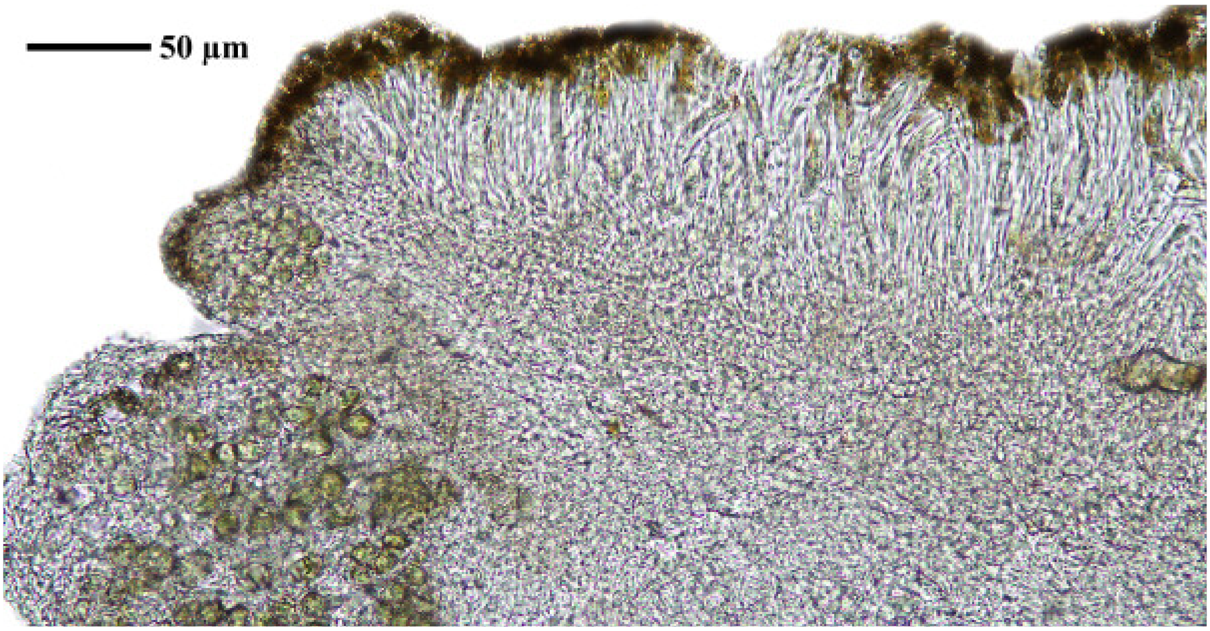
[BR5030035490854], Antarctica, South Shetland Islands, Deception Island, Fumarole Bay, 0.5 km SW of Argentine Station, small hill between lagoon and lake, 800 m, from sea, on volcanic stones. 62°58’59” S, 60°42’45-50” W. Leg. W.O. van der Knaap (114-10), 15.1.1991, det. A. Aptroot,1991. EXPEDITION OF ARCTIC CENTRE, GRONINGEN, THE NETHERLANDS.

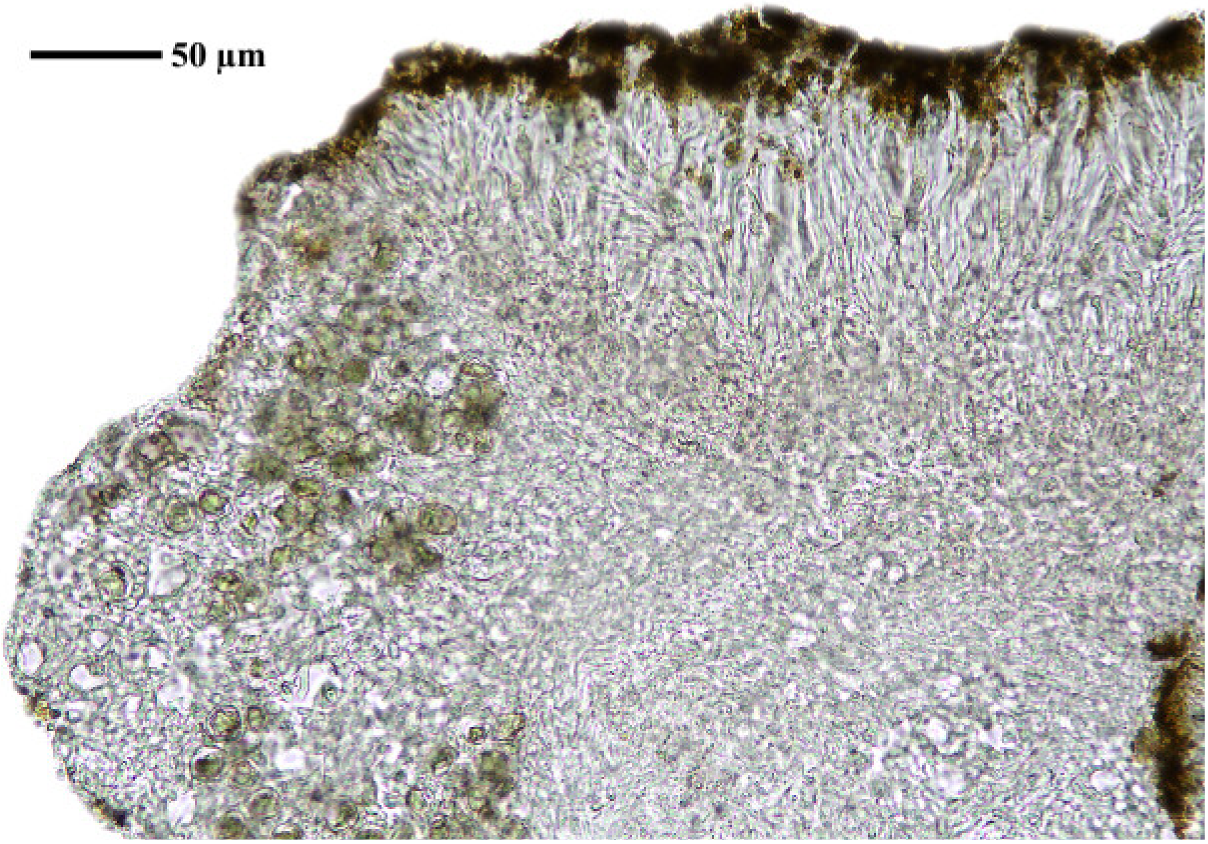
Caloplaca blastenioides



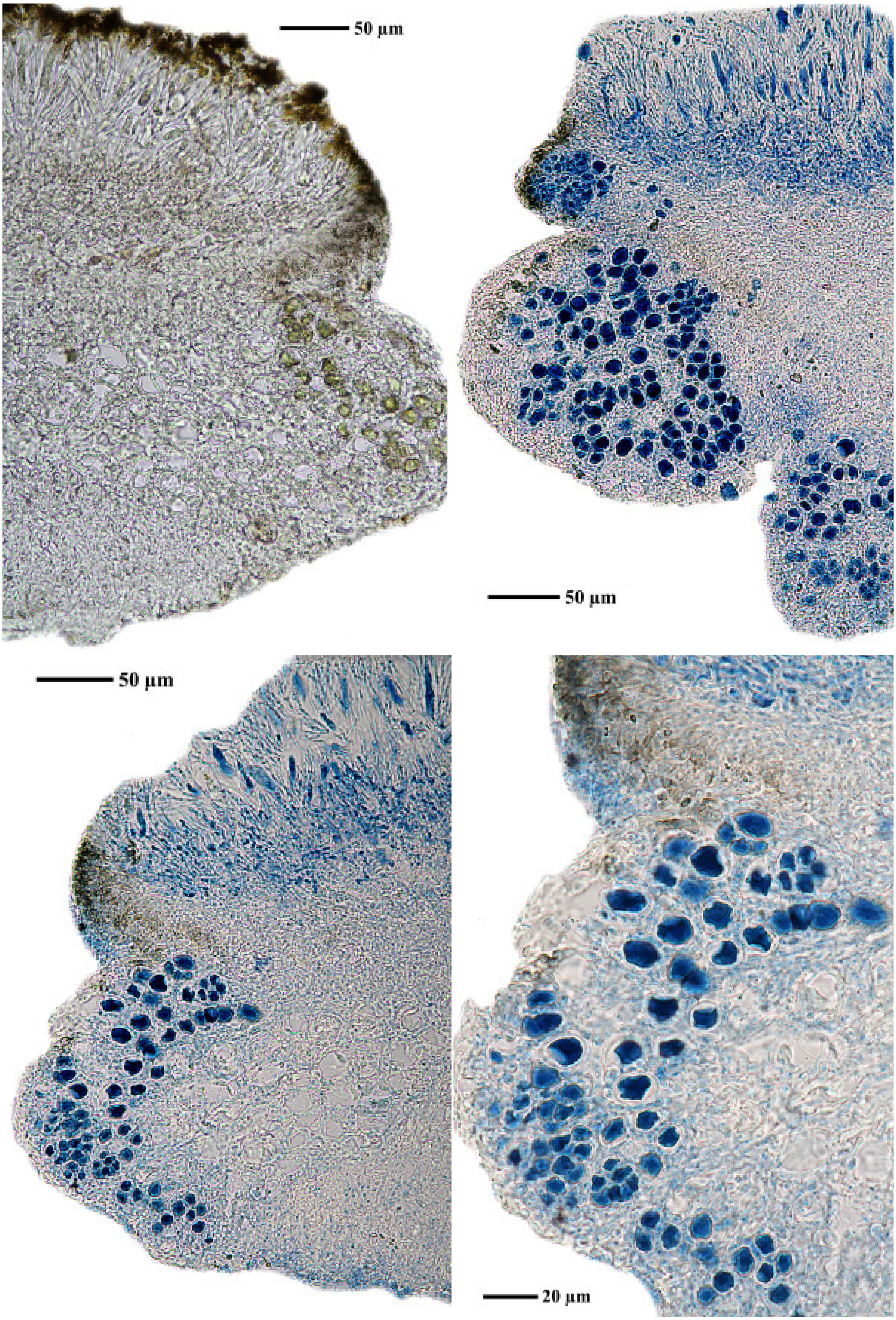


Caloplaca blastenioides

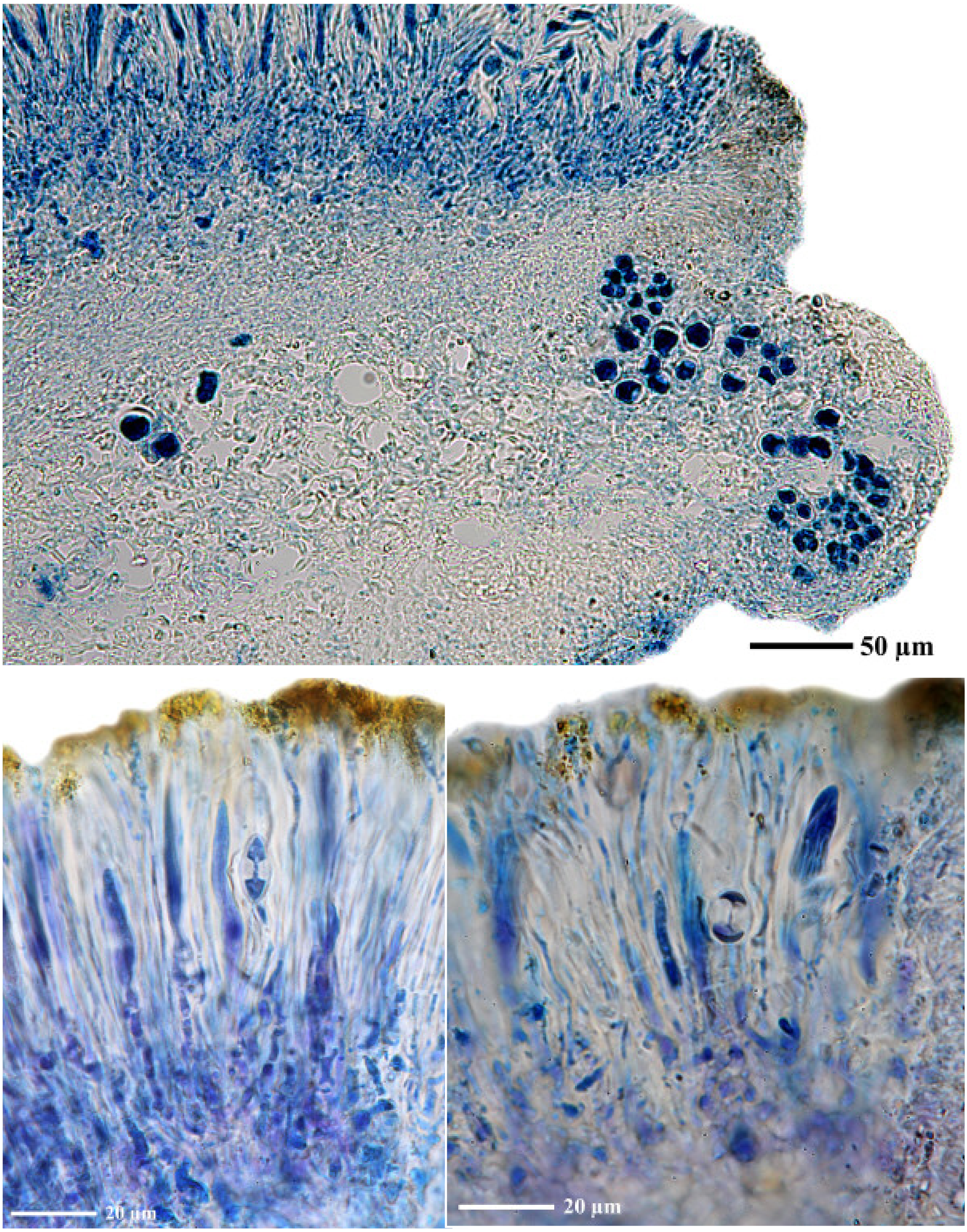


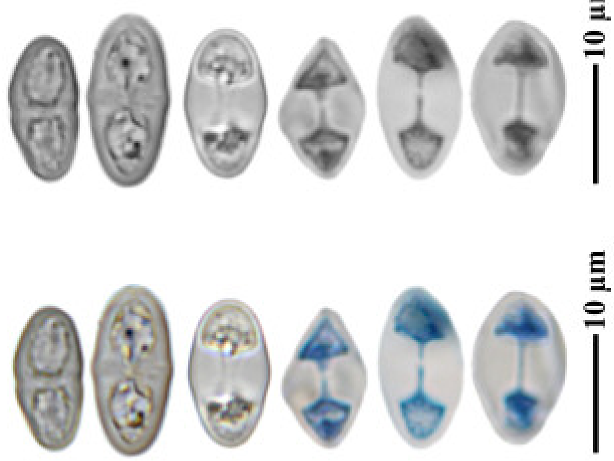


Caloplaca blastenioides



Caloplaca blastenioides



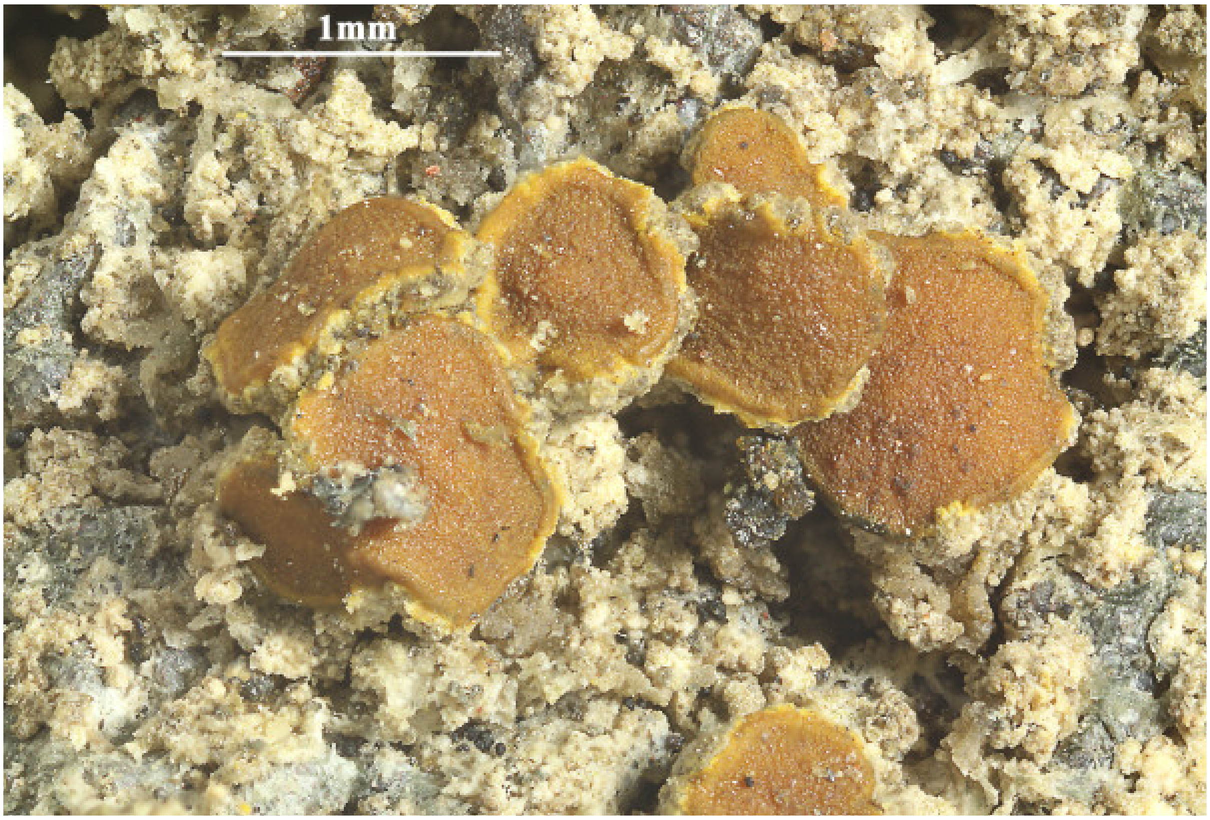


Caloplaca blastenioides

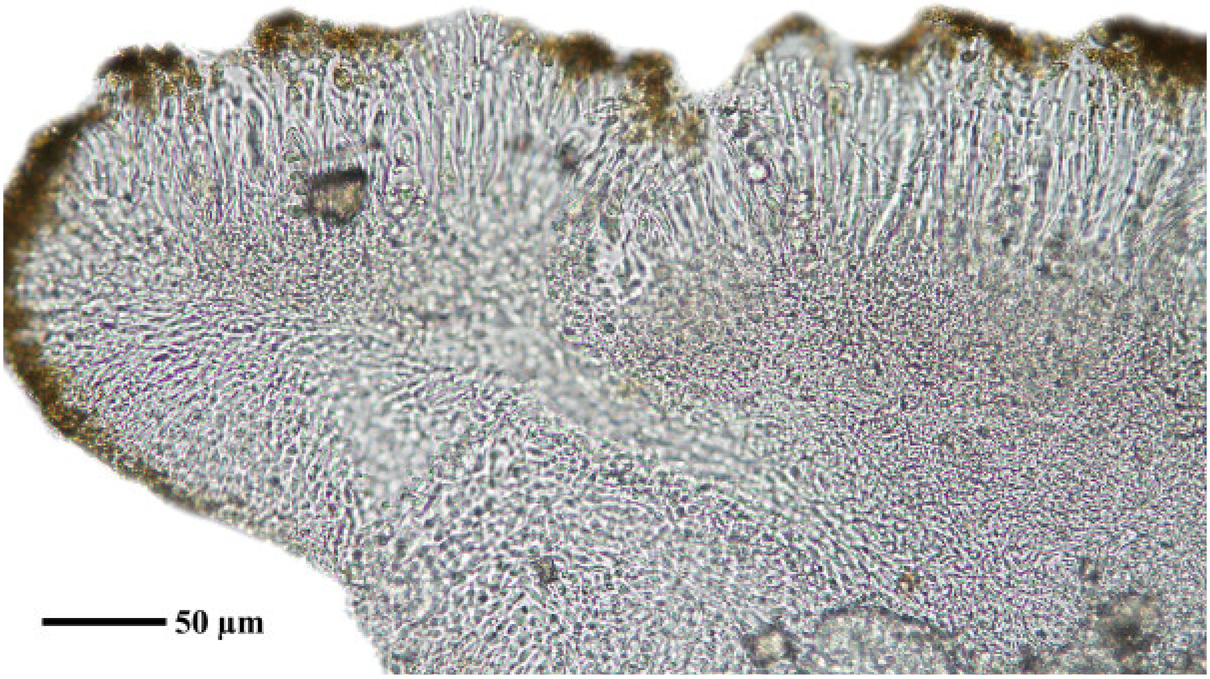
Caloplaca blastenioides Zahlbr.

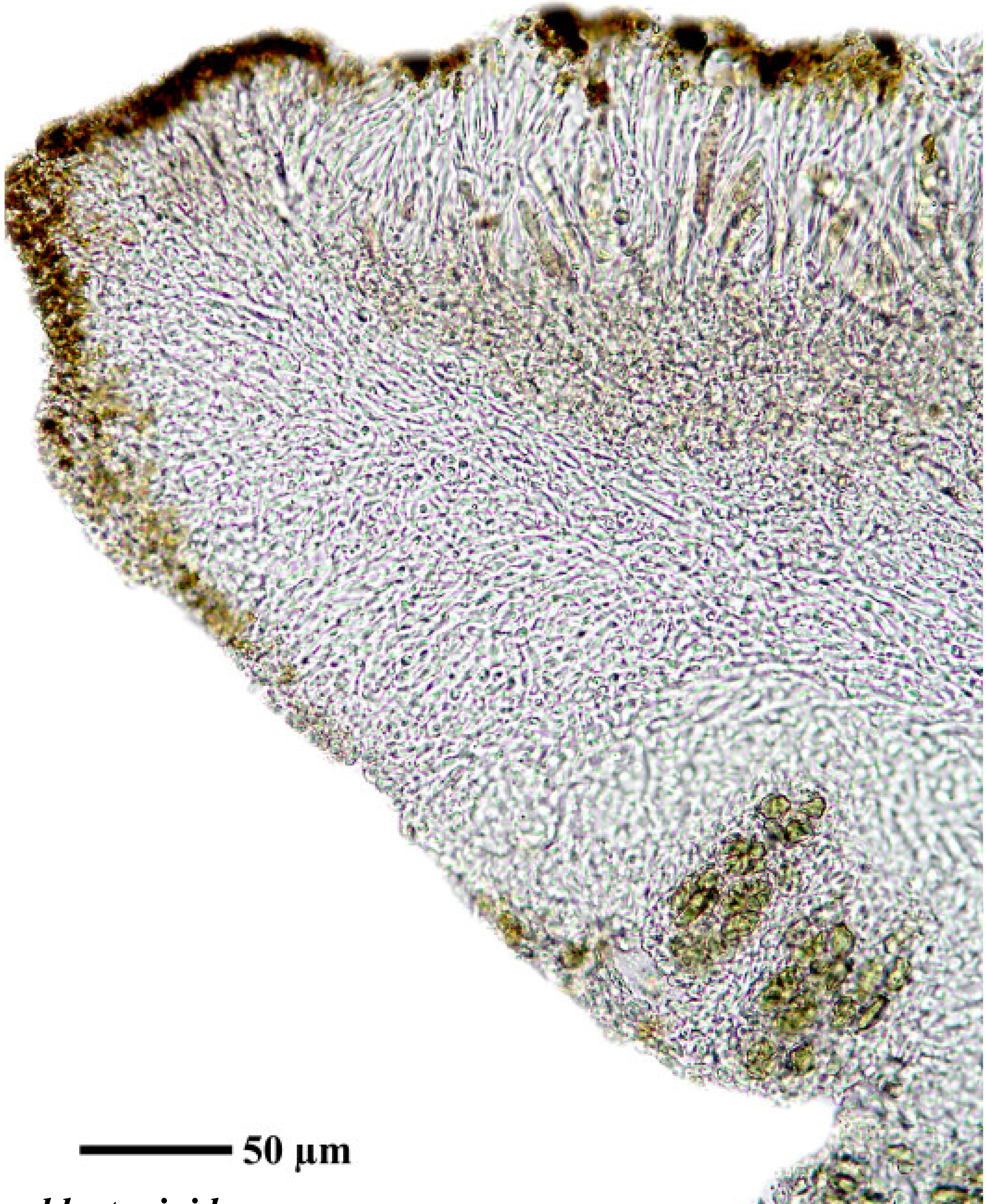
Spores 14-17 x 9-10.5 µm, septum 5.5-6 µm.

[BR5030035491868], Antarctica, South Shetland Islands, Deception Island, Collins Point, N-exposed slope 600 m SE of beacon, 200 m from sea, on volcanic stones. 63°00'09" S, 60°35'00" W, 20-50 m. Leg. W.O. van der Knaap (120-08), 18.1.1991, det. A. Aptroot,1991. EXPEDITION OF ARCTIC CENTRE, GRONINGEN, THE NETHERLANDS.

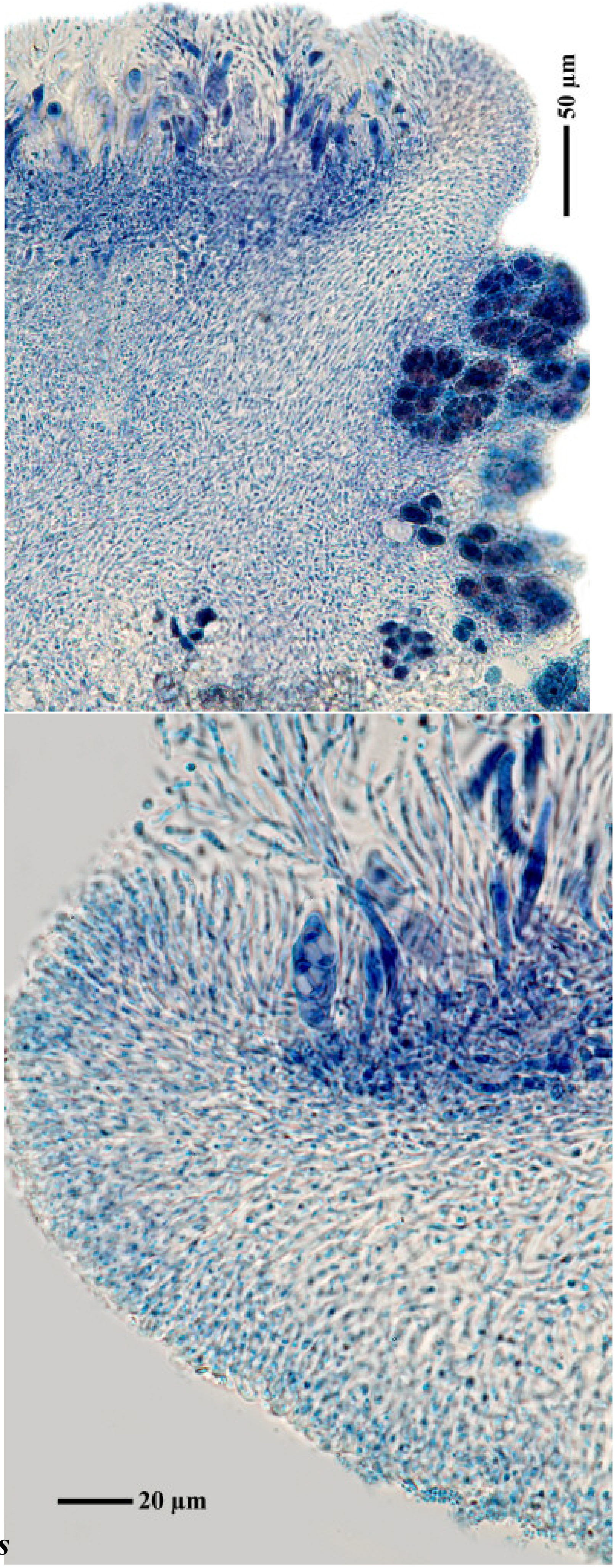


Caloplaca blastenioides

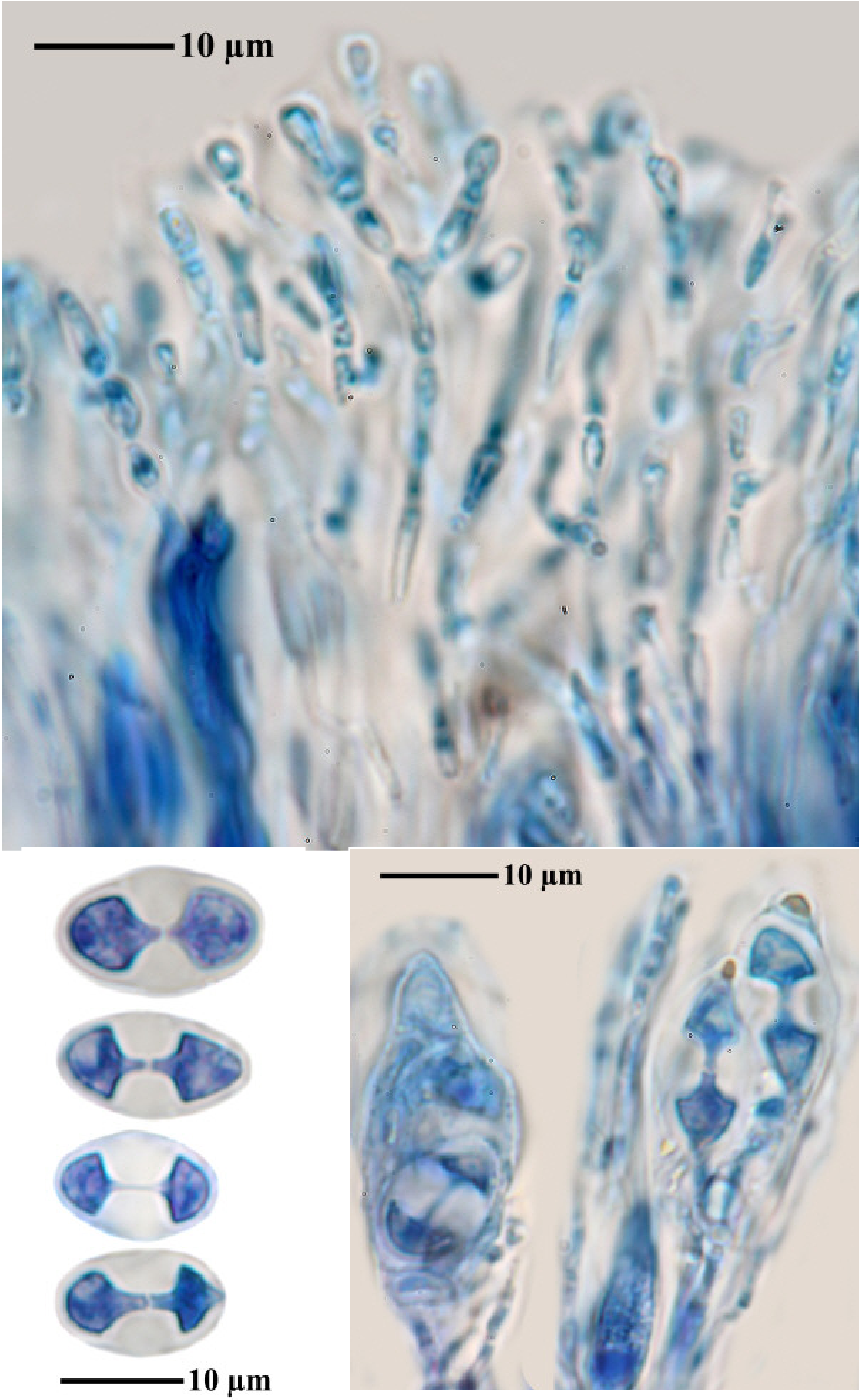




Caloplaca blastenioides



Caloplaca blastenioides



Caloplaca blastenioides

Caloplaca blastidiomaritima Aptroot, Gumboski M. Cáceres & F. Schumm sp. nov.

Mycobank No.: MB 830431

Diagnosis: littoral saxicolous *Caloplaca* with areolate yellow thallus with abundant blastidia on the margins of the areoles, which are paler yellow than the thallus and not corticate; individual granules 50–85 ìm diam.

Typus: Brazil, State of Santa Catarina, Municipality of Florianópolis, Barra da Lagoa, on rocky shore, on coastal granite, *c.* 10 m alt., 18 Apr 2010, *E. Gumboski; A. Gerlach & L. F. Oliveira* 1863 (JOI—holotype).

Thallus crustose, corticate, covering rather indeterminate areas, slightly shiny, orange yellow, areolate with bullate to somewhat flattened, angular areoles of *c*. 0.3–1.0 mm diam. and 0.1–0.3 mm thick, which are occasonally a bit elongated at the thallus margin; algae chlorococcoid, cells *c*. 6–11 ìm diam. *Blastidia* abundant, on the margins of the areoles, paler yellow than the thallus, not corticate; individual granules 50–85 ìm diam. *Apothecia* and *Pycnidia* not observed.

Chemistry. Thallus KOH+ blood red. TLC: parietin.

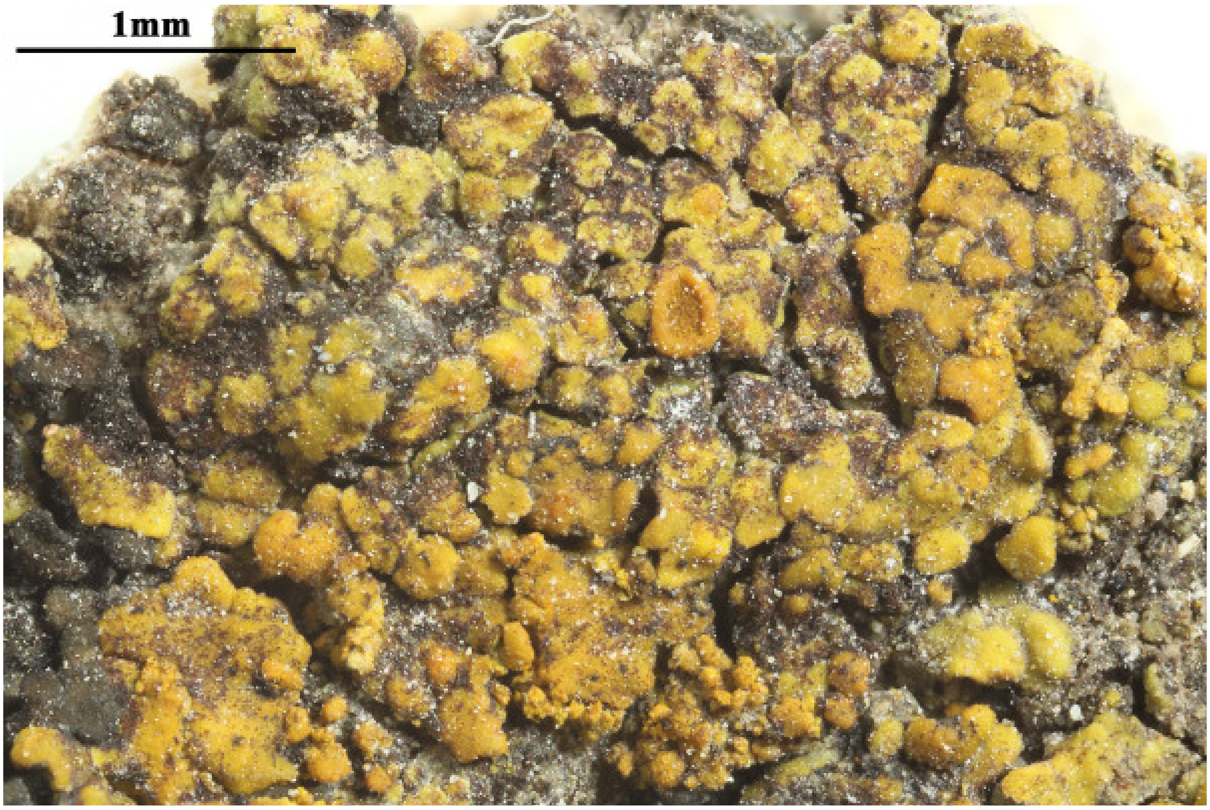
Ecology and distribution. On maritime granite in the supralittoral zone. Only known from Brazil.

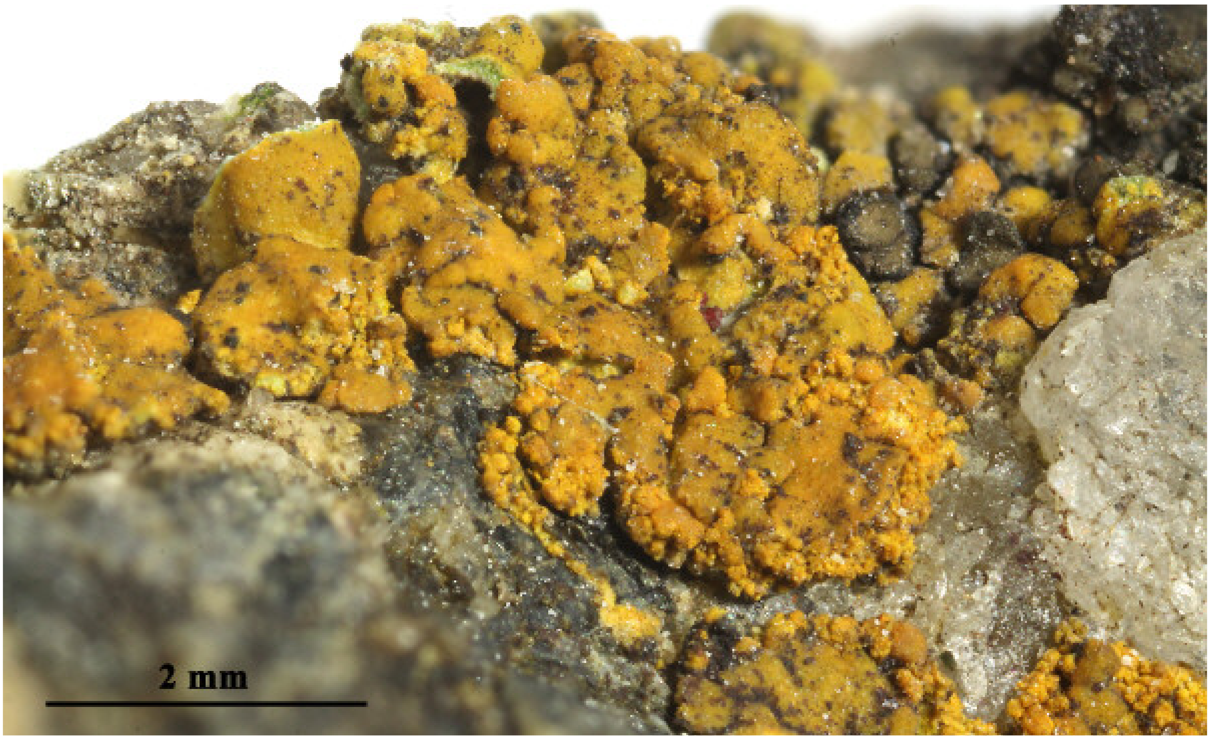
Discussion. This new species is somewhat reminiscent of some morphs of *Caloplaca microthallina* Wedd. from which it differs by the usually smaller squamules with realtively larger and higher blastidia.

Additional specimen examined. **Brazil:** *State of Paraná*: Municipality of Guaratuba, west rock shore, 2 Sept 2011, *E. Gumboski & F. Beilke* 2565 (JOI). *State of Santa Catarina*: Municipality of São Francisco do Sul, N of Prainha, 26˚13'44" S, 48˚29'54" W, on coastal granite, *c.* 10 m alt., 9 Oct 2015, *M. E. S. Cáceres & A. Aptroot* 27964 (ABL); Municipality of São Francisco do Sul, S of Prainha, 26˚14'06" S, 48˚30'05" W, on coastal granite, *c.* 10 m alt., 8 Oct 2015, *M. E. S. Cáceres & A. Aptroot* 27919 (ABL).

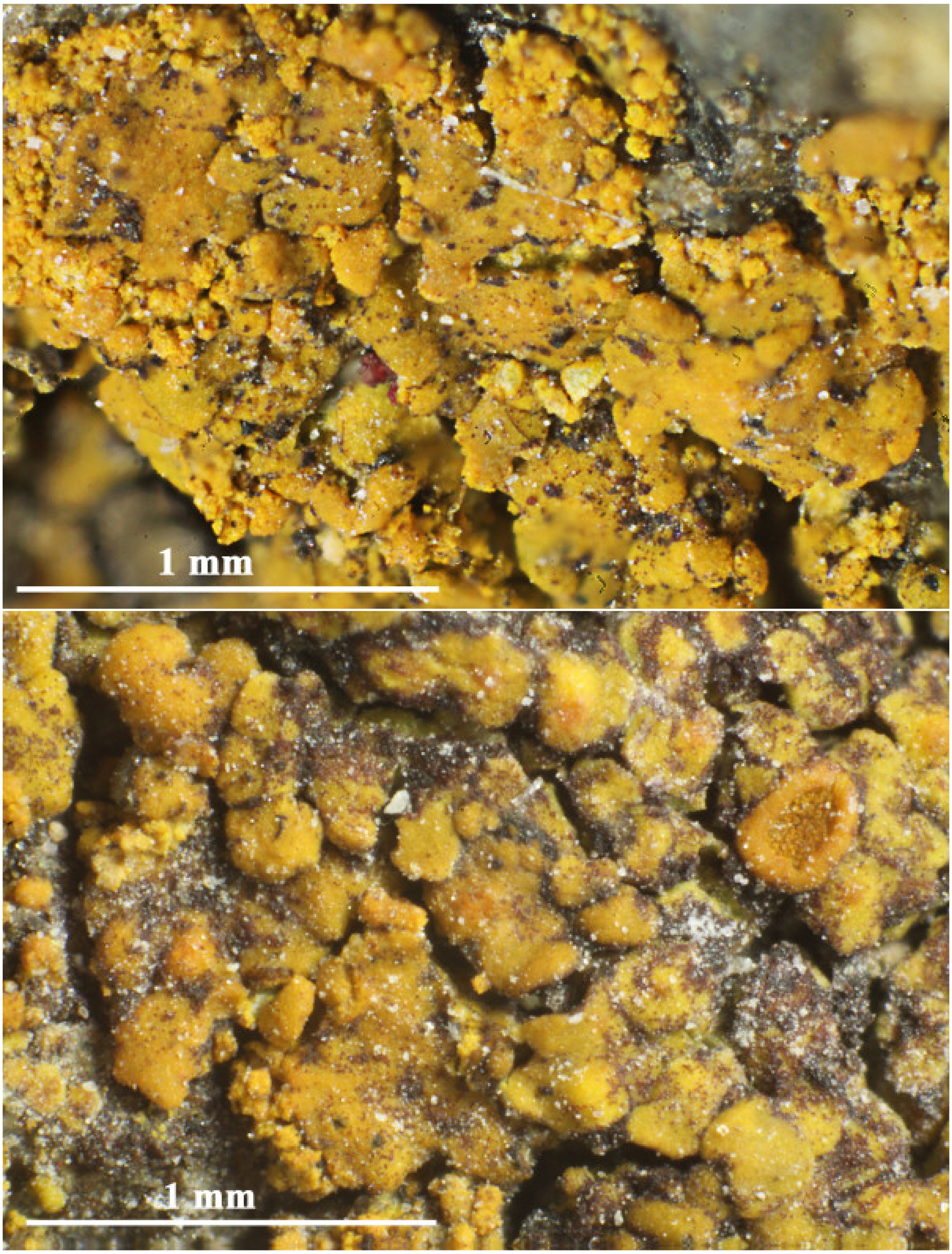
Caloplaca blastidiomaritima Aptroot, Gumboski M. Cáceres & F. Schumm sp. nov.

[ABL ISE27919], Brazil, Santa Catarina, São Francisco do Sul, S of Prainha, 26°14’06’’ S, 48°30’05’’ W, c. 10 m, on coastal granite. Leg. M.E.S. Cáceres & A. Aptroot, 8.10.2015, det. A. Aptroot 2015.





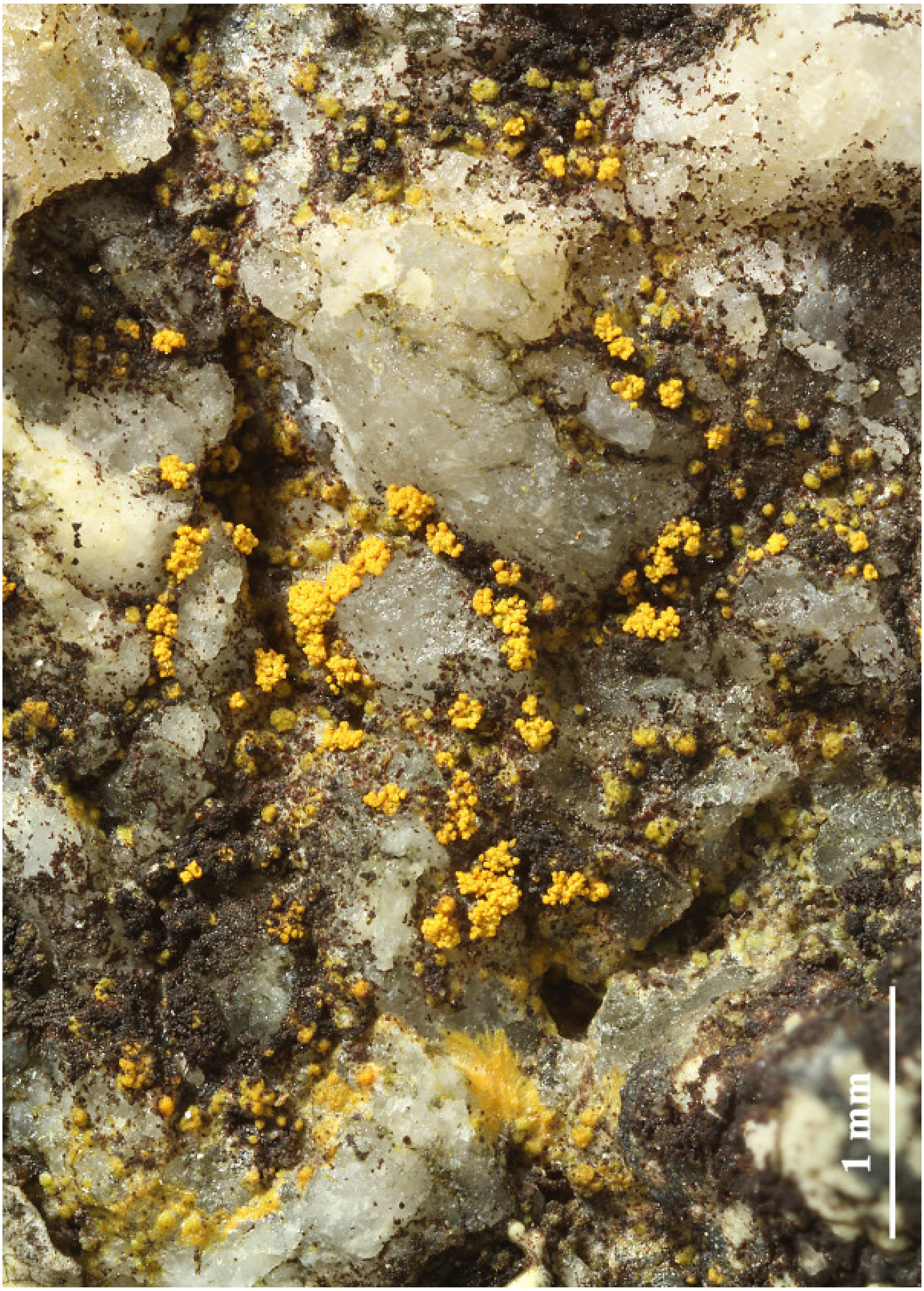
Caloplaca blastidiomaritima

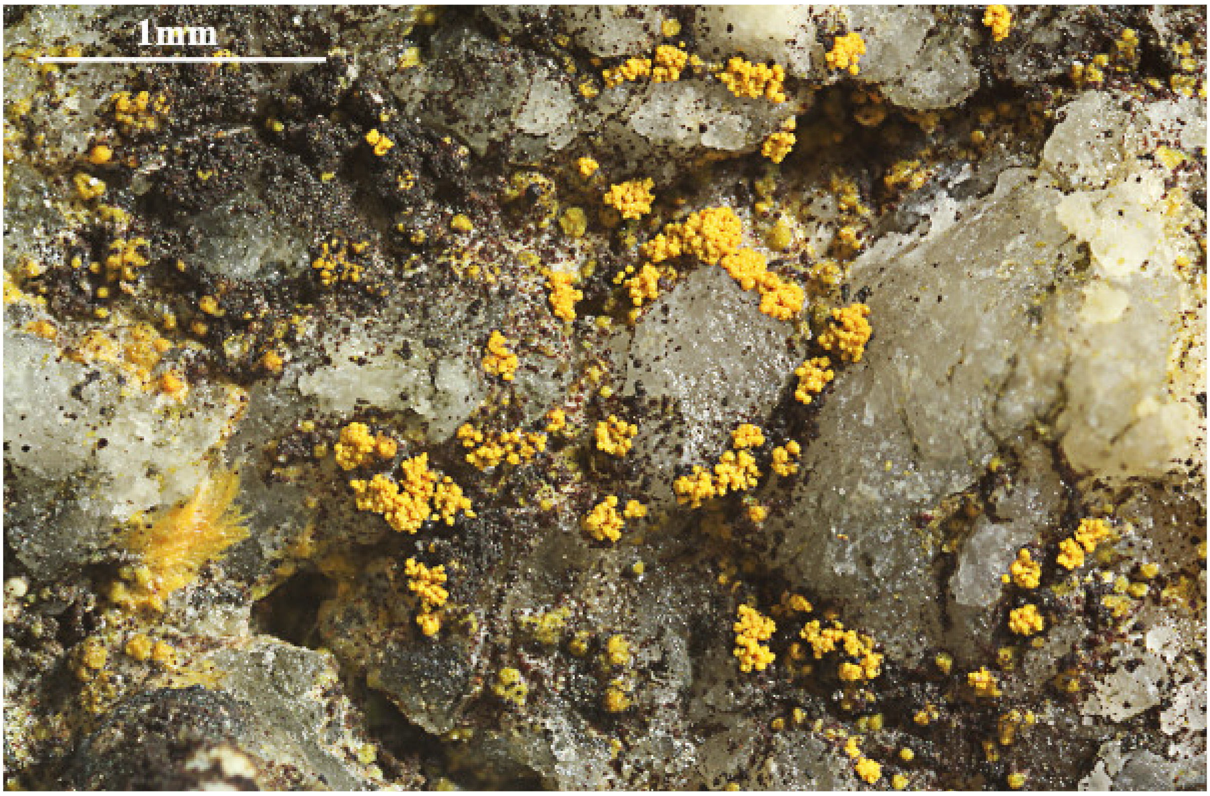


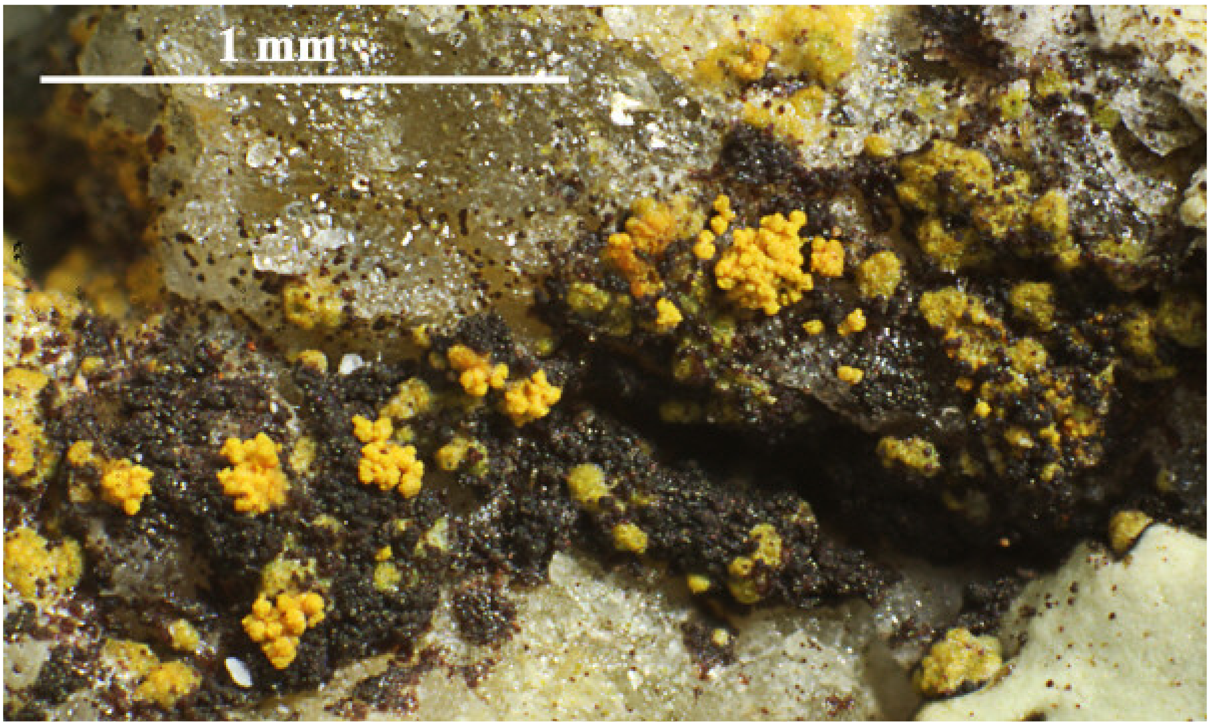
Caloplaca blastidiomaritima

Caloplaca blastidiomaritima Aptroot, Gumboski M. Cáceres & F. Schumm sp. nov.

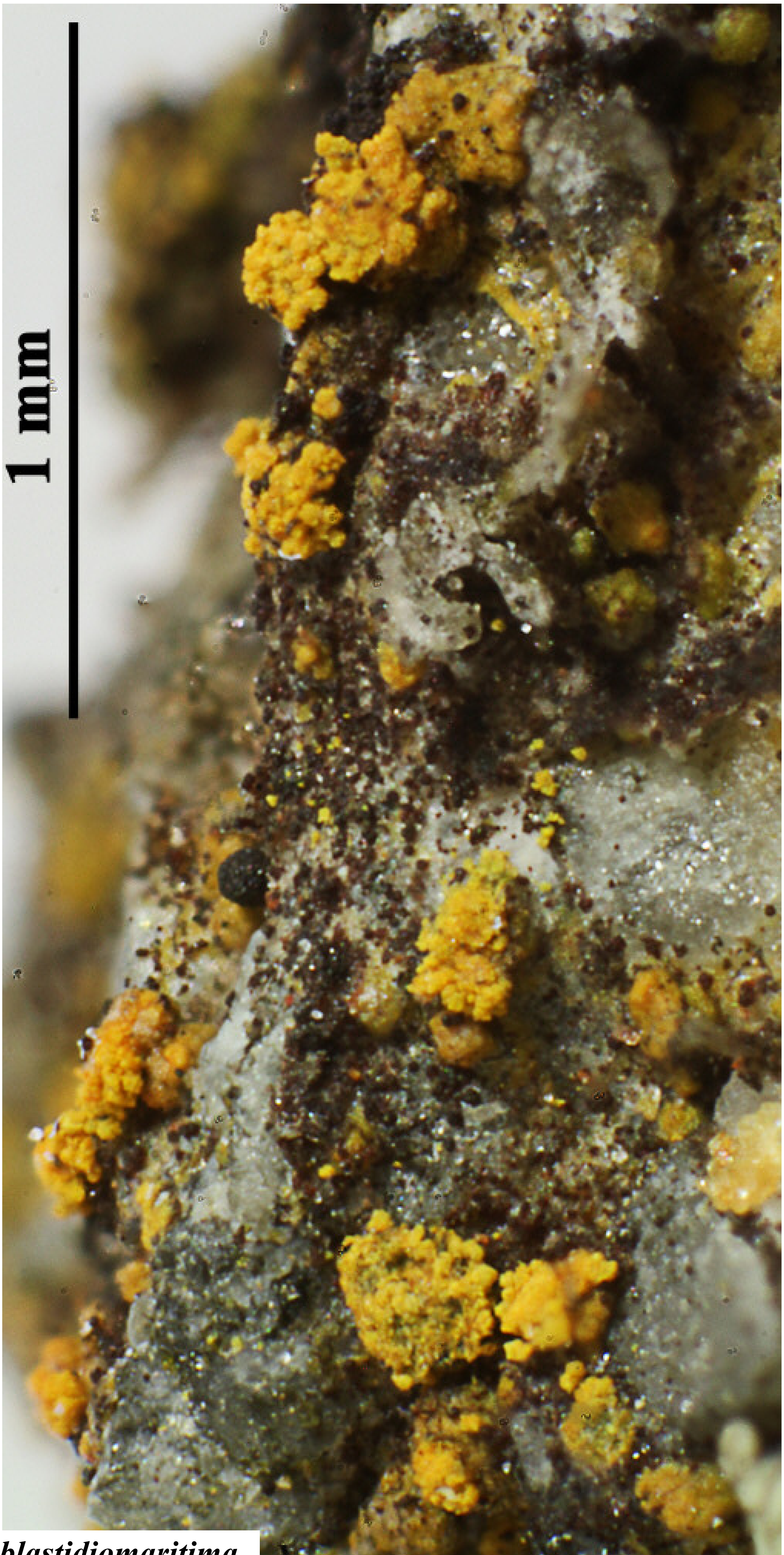
[ABL ISE27932], Brazil, Santa Catarina, São Francisco do Sul, S of Prainha, 26°14’06’’ S, 48°30’05’’ W, c. 10 m, on coastal granite. Leg. M.E.S. Cáceres & A. Aptroot, 8.10.2015, det. A. Aptroot 2015.







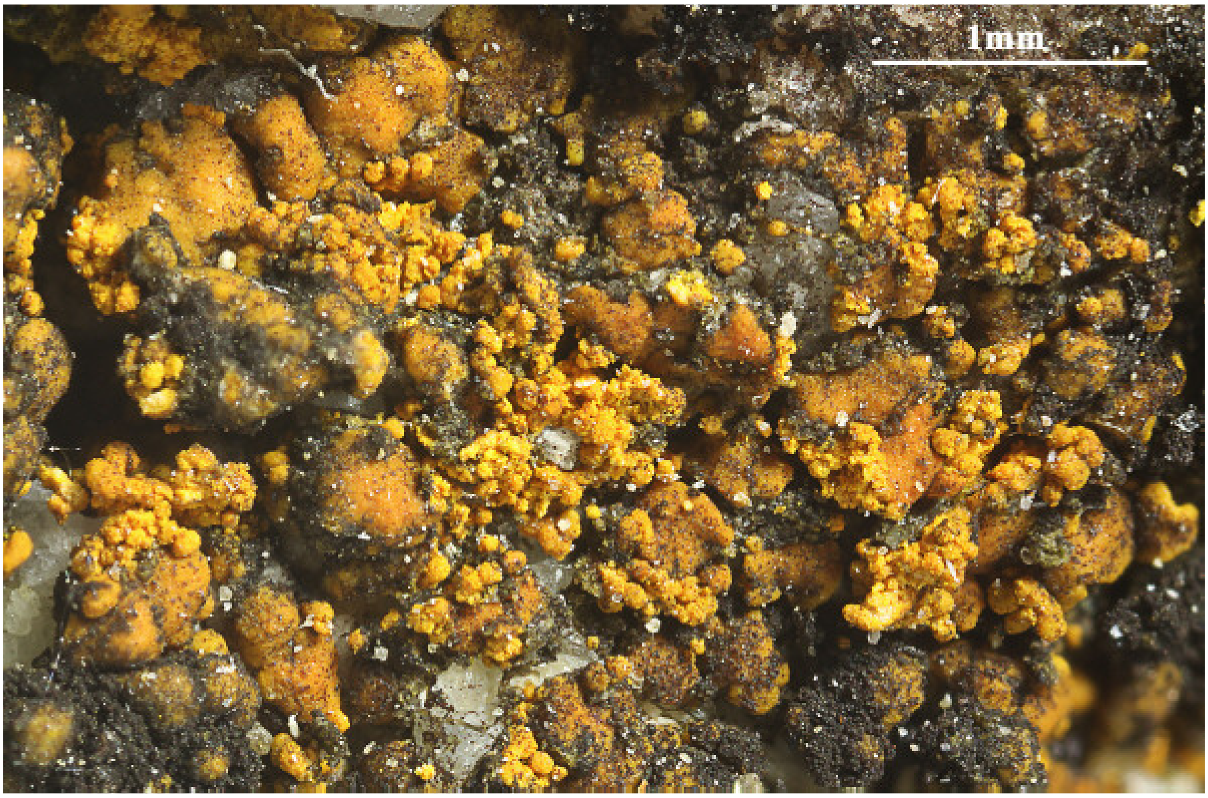
Caloplaca blastidiomaritima



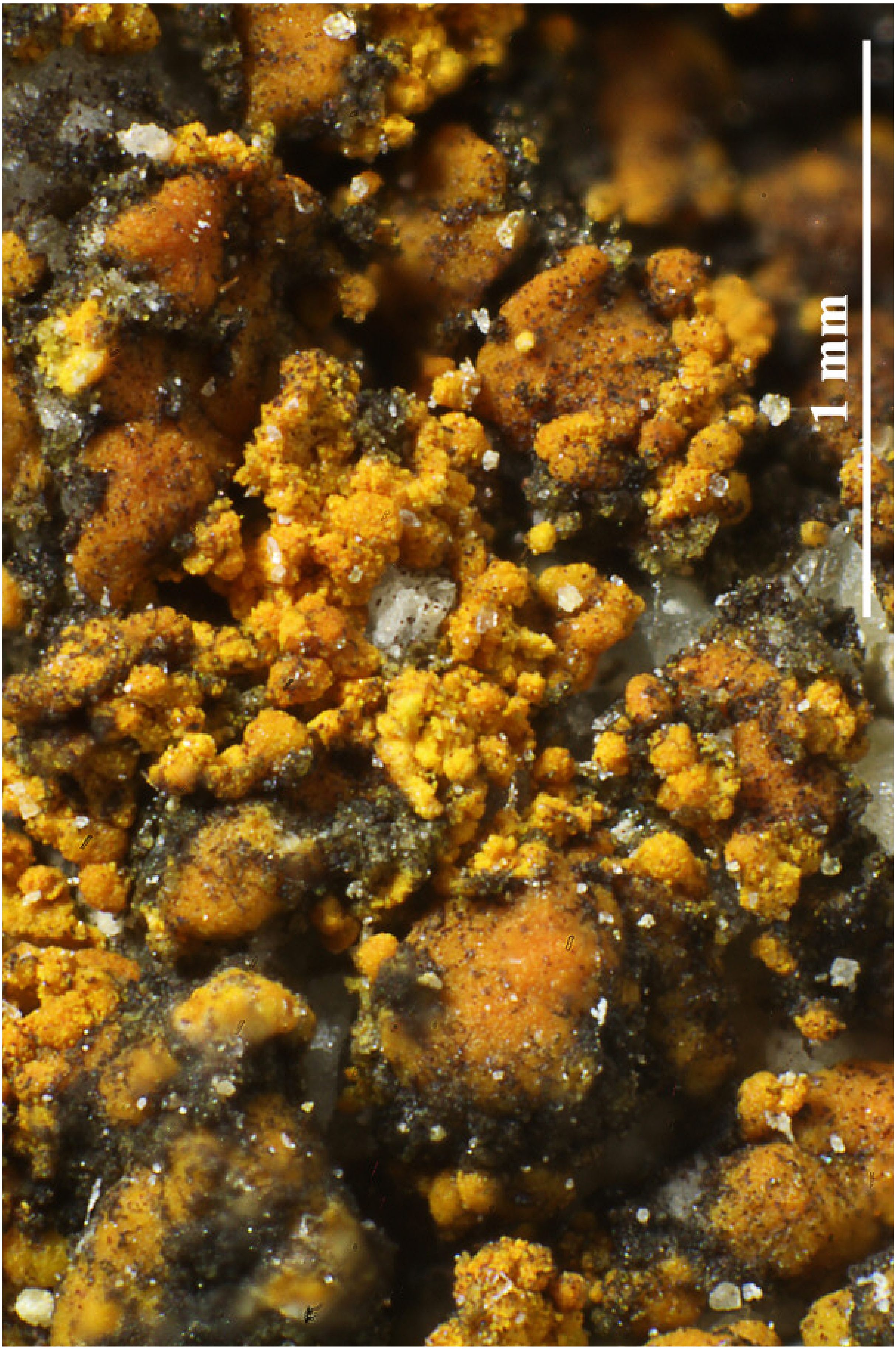
Caloplaca blastidiomaritima

Caloplaca blastidiomaritima Aptroot, Gumboski M. Cáceres & F. Schumm sp. nov.

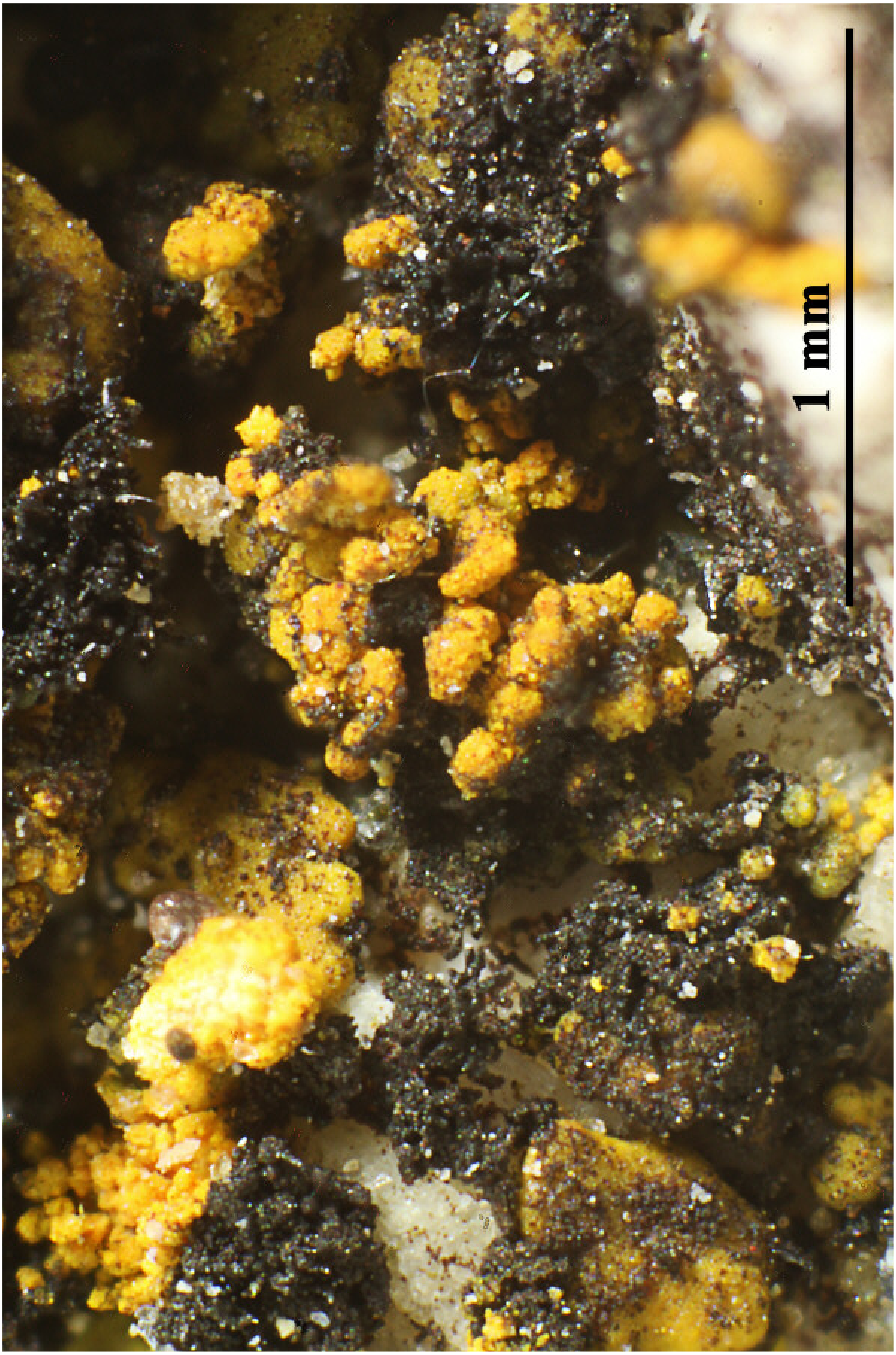
[ABL ISE27964], Brazil, Santa Catarina, São Francisco do Sul, N of Prainha, 26°13’44’’ S, 48°29’54’’ W, c. 10 m, on coastal granite. Leg. M.E.S. Cáceres & A. Aptroot, 9.10.2015, det. A. Aptroot 2015.



Caloplaca blastidiomaritima



Caloplaca blastidiomaritima



Caloplaca blastidiomaritima

Caloplaca bolacina (Tuck.) Herre
[= *Polycauliona bolacina* (Tuck.) Arup, Frödén & Søchting]

On rocks.

[16715], Mexico, Baja California Sur, 27 km south of San Ignacio (2,1 km SW of El Alamo), on hillside at juncture of Magdalena and Vizcaino regions of Sonoran Desert, elev. 110 m, 27°07' N, 112°57' W. Leg. C. M. Wetmore (No. 70255), 21.03.1992.

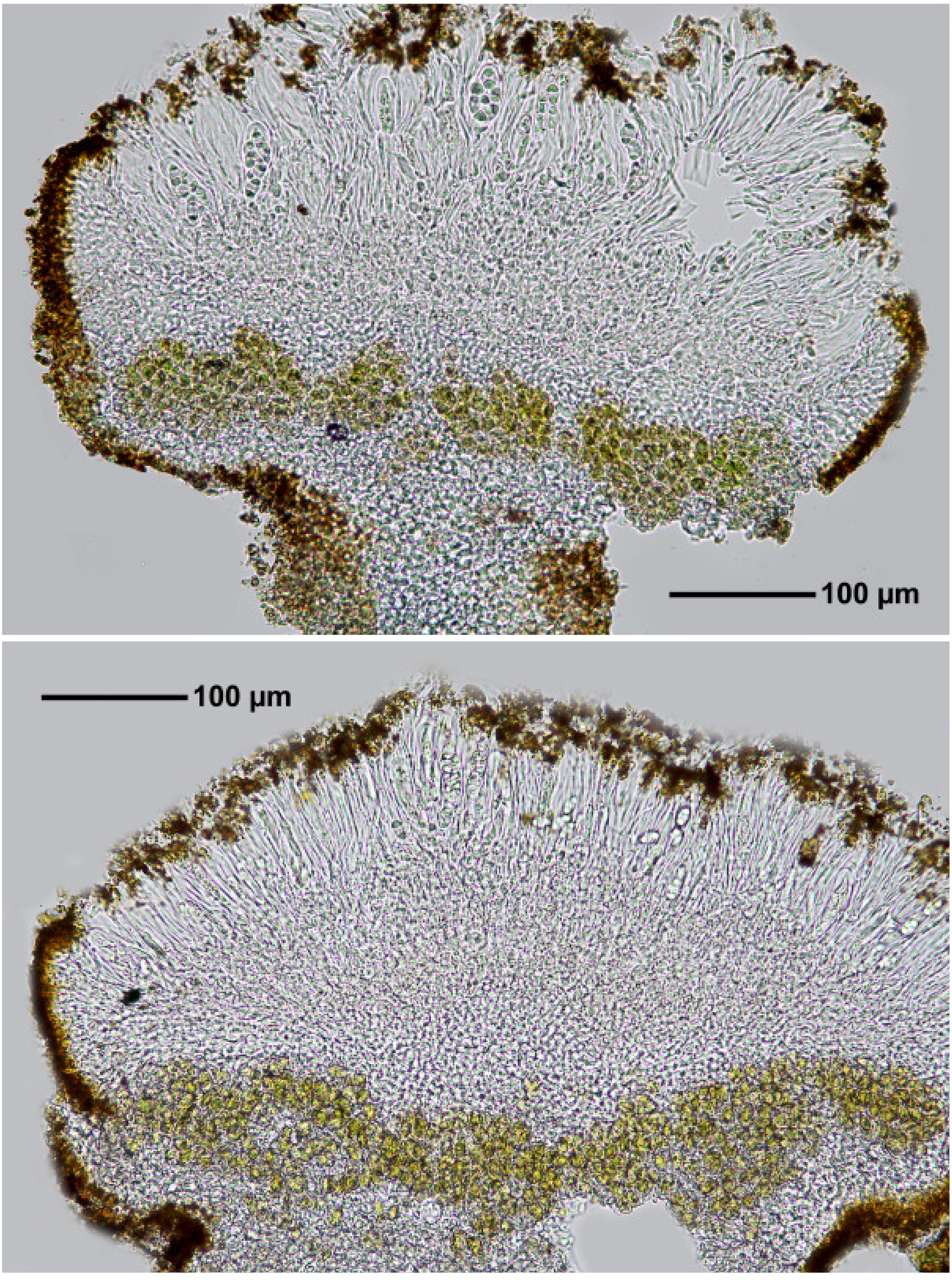
Caloplaca bolacina

Caloplaca bolacina (Tuck.) Herre
[= *Polycauliona bolacina* (Tuck.) Arup, Frödén & Søchting]

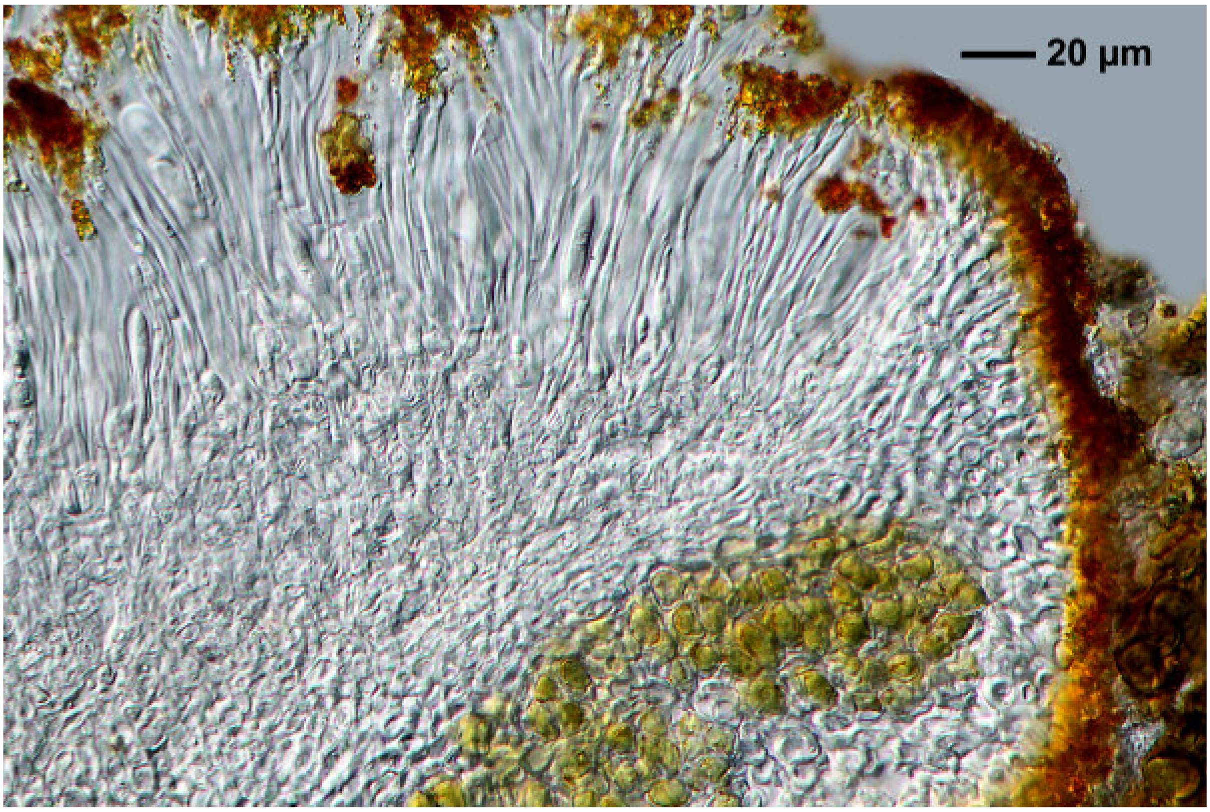
On lava rocks. Spores polarilocular, hyaline, 8/ascus, 14-16 x 7.5-9.5 µm, septum 5.5-7 µm.

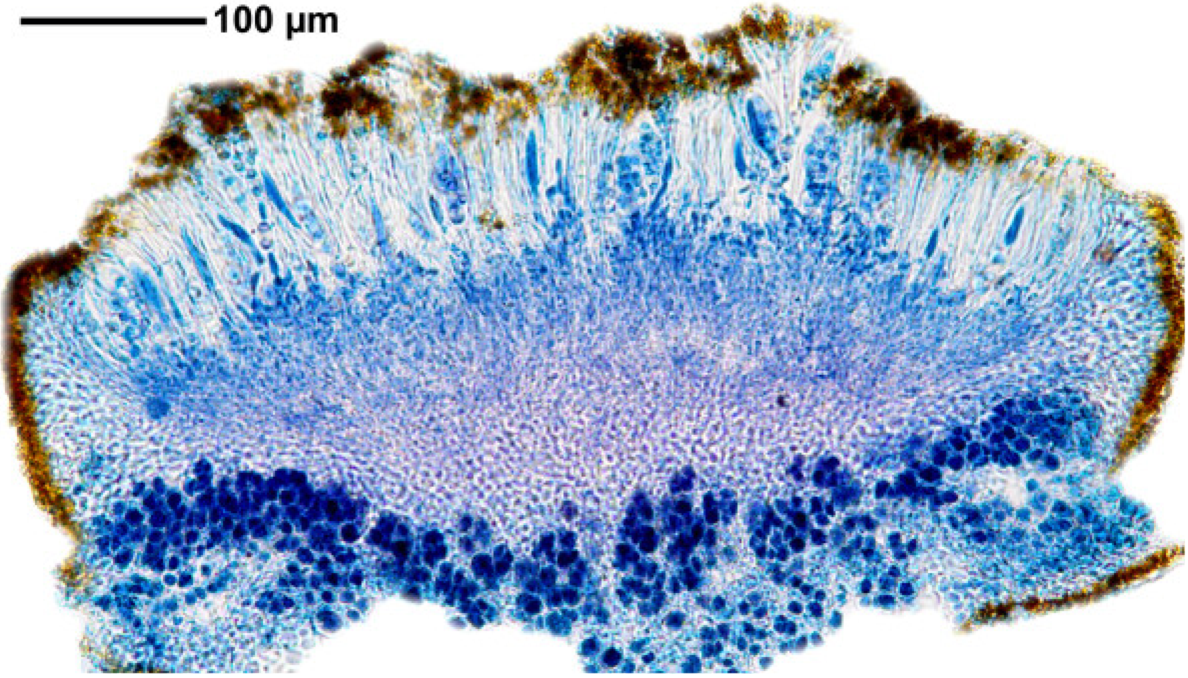
[ABL 65167], Ecuador, Galápagos Islands, Isabela Island, Cerro Alcedo, outer E-exposed slope just below the crater rim (ISA 12), fern-sedge-zone, basalt outcrops, SE-exposed slope with scattered shrubs of *Tournefortia rufo-sericea, Opuntia insularis, Lantana peduncularis* and occasional trees of *Zanthoxylum fagara*, on lava, 0°25'17'' S, 91°05'08'' W, 1077 m. Leg and det. A. Aptroot, 08.03.2006.

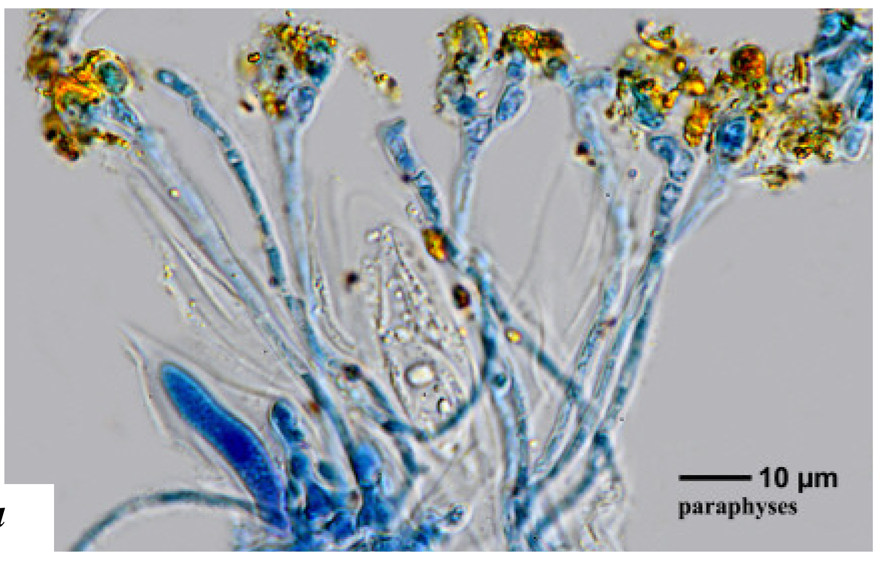
Caloplaca bolacina



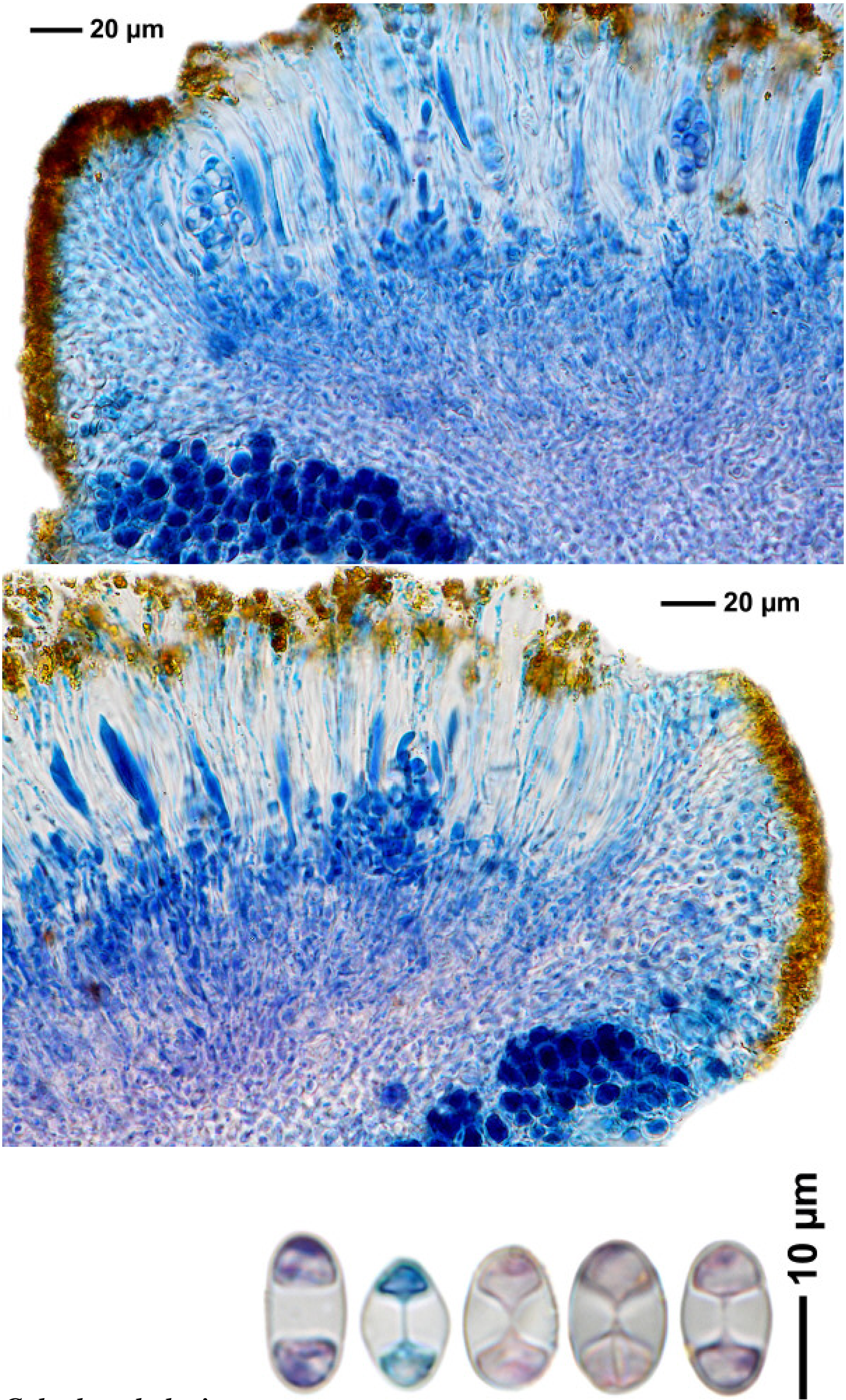
Caloplaca bolacina



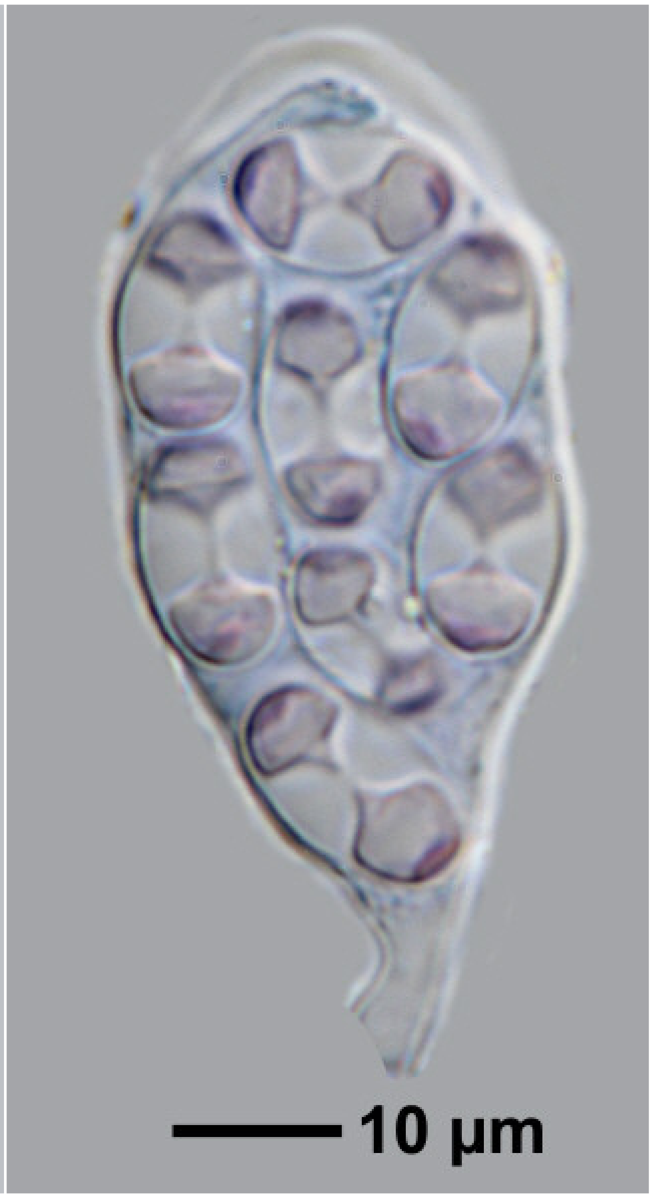


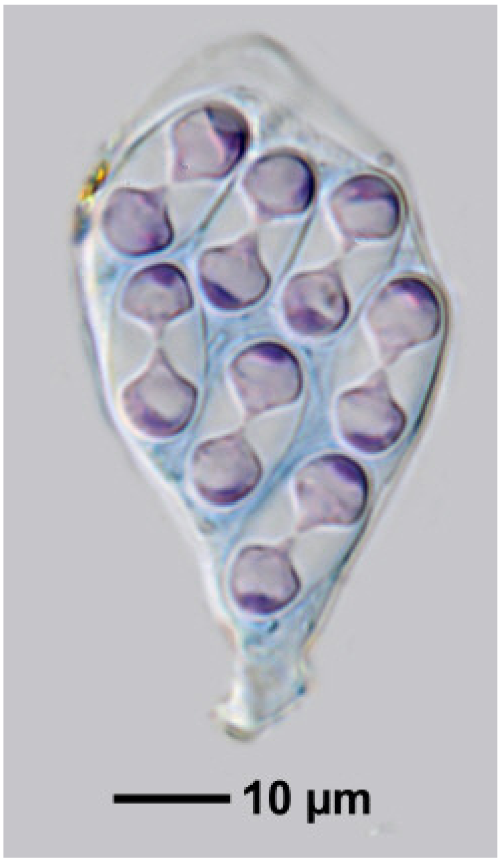


Caloplaca bolacina



Caloplaca bolacina





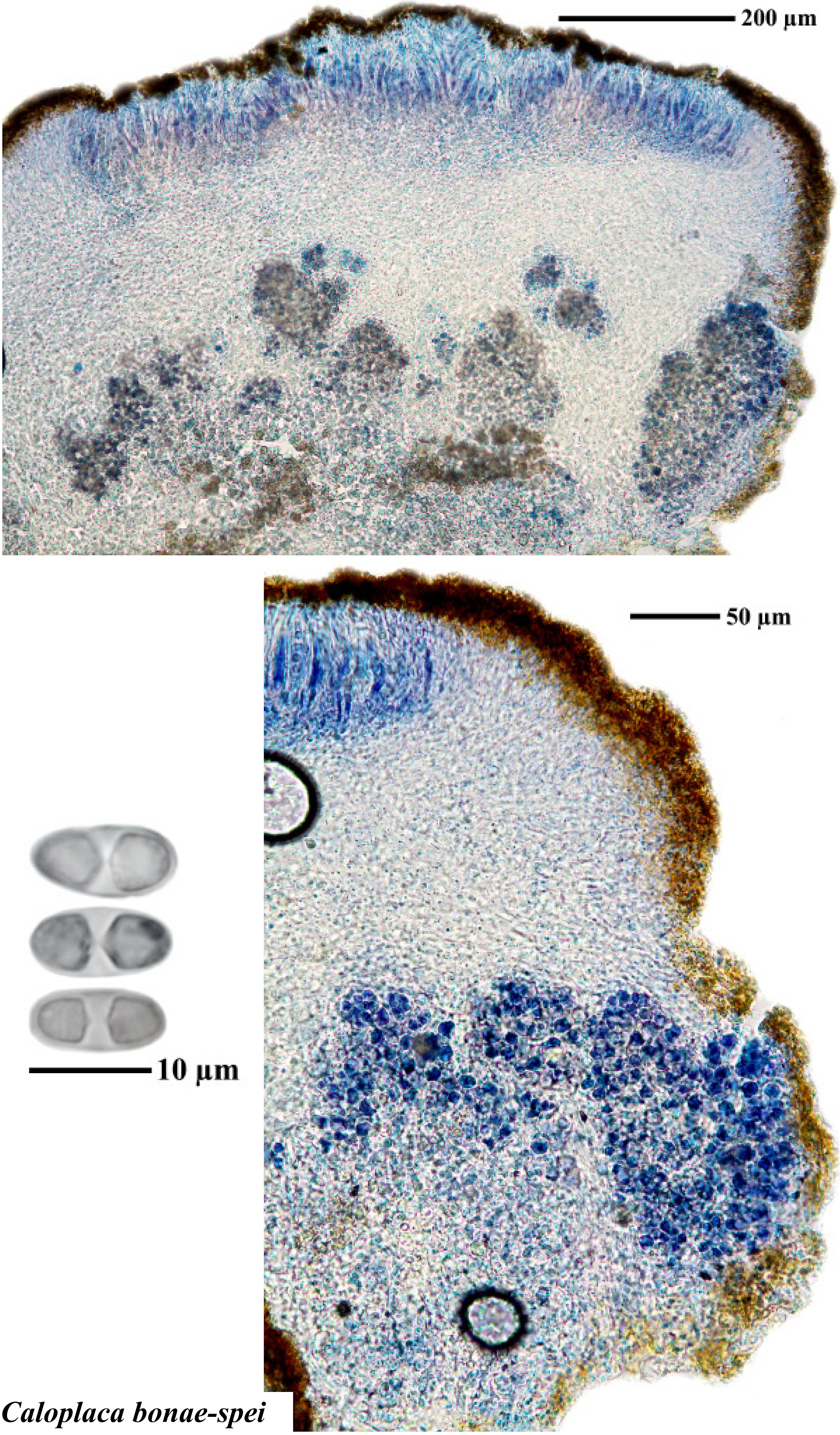
Caloplaca bolacina

Caloplaca bonae-spei Almb. & Poelt
[= *Teloschistopsis bonae-spei* (Almb. & Poelt) Frödén]

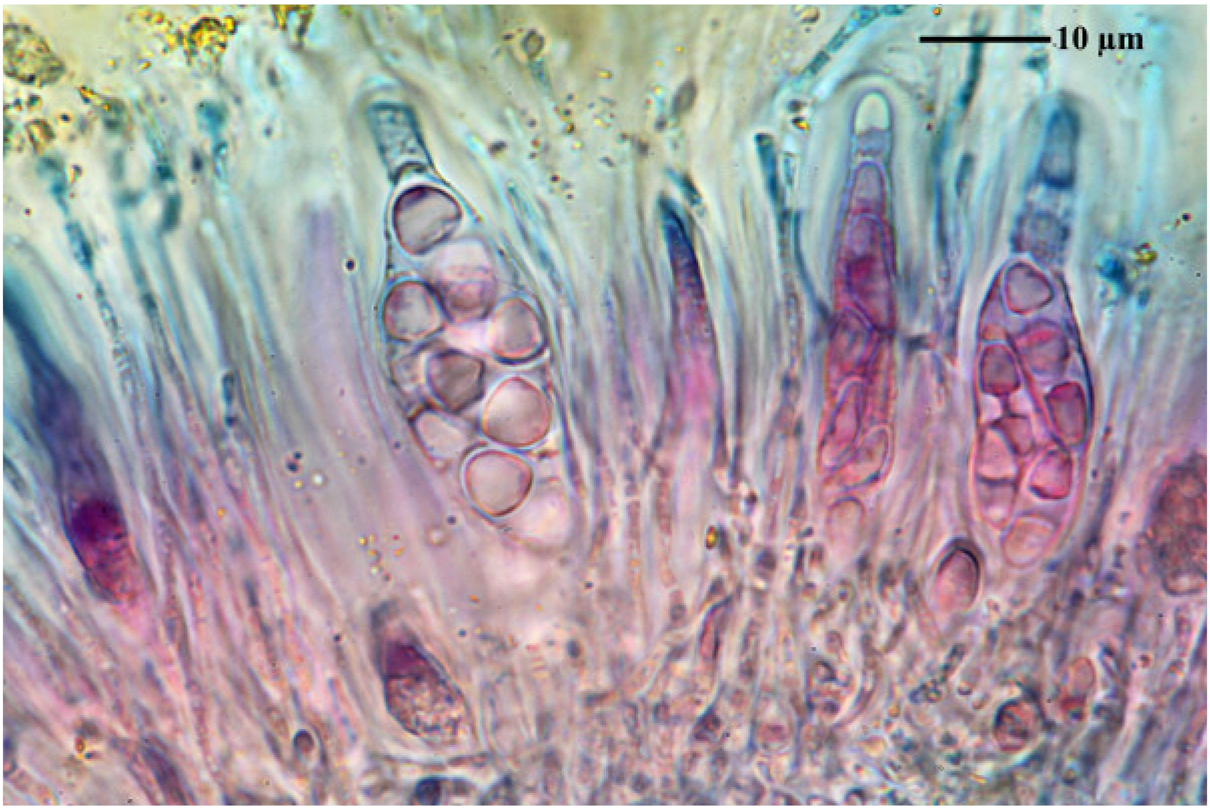
Spores 11-12 x 5-6 µm, septum 2-2.4 µm

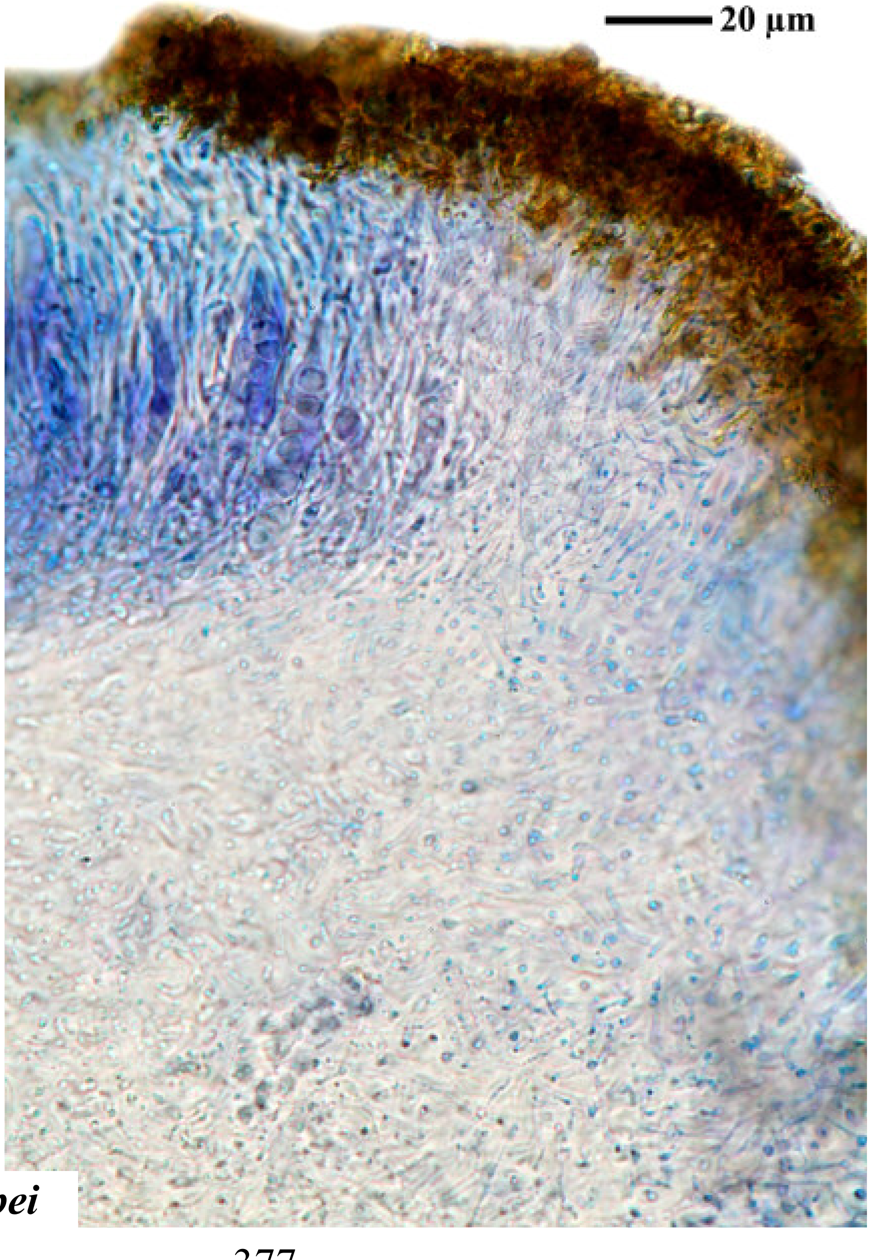
[BR5030040664219], South Africa, Cape Province, Vanrhynsdorp District, Strandfontein (grid 3118 CC), on coastal rocks. Leg. O. Almborn & I. Kärnefelt (8414-1), 29. Jan. 1984. ALMBORN: LICHENES AFRICANI NO, 104.

Caloplaca bonae-spei



Caloplaca bonae-spei



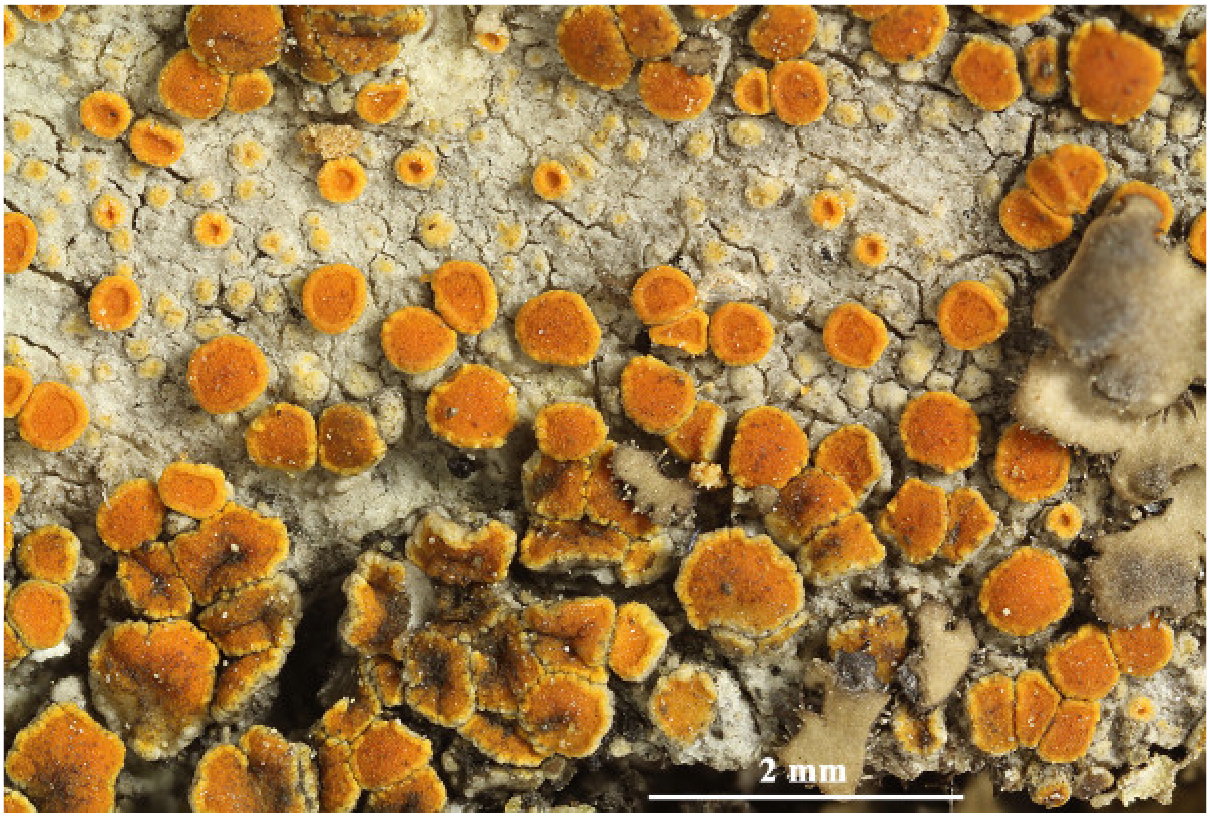


Caloplaca bonae-spei

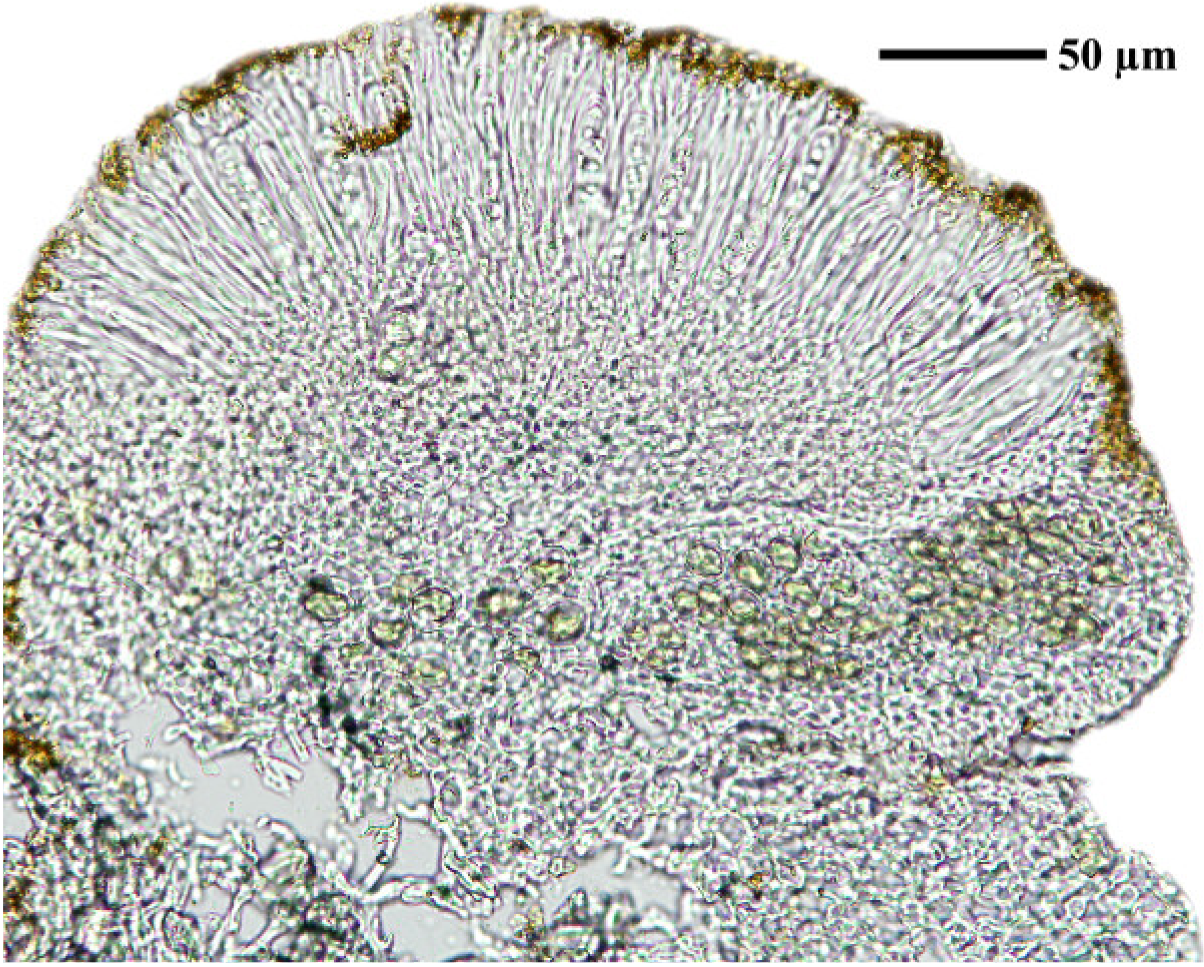
Caloplaca borealis (Vain.) Poelt

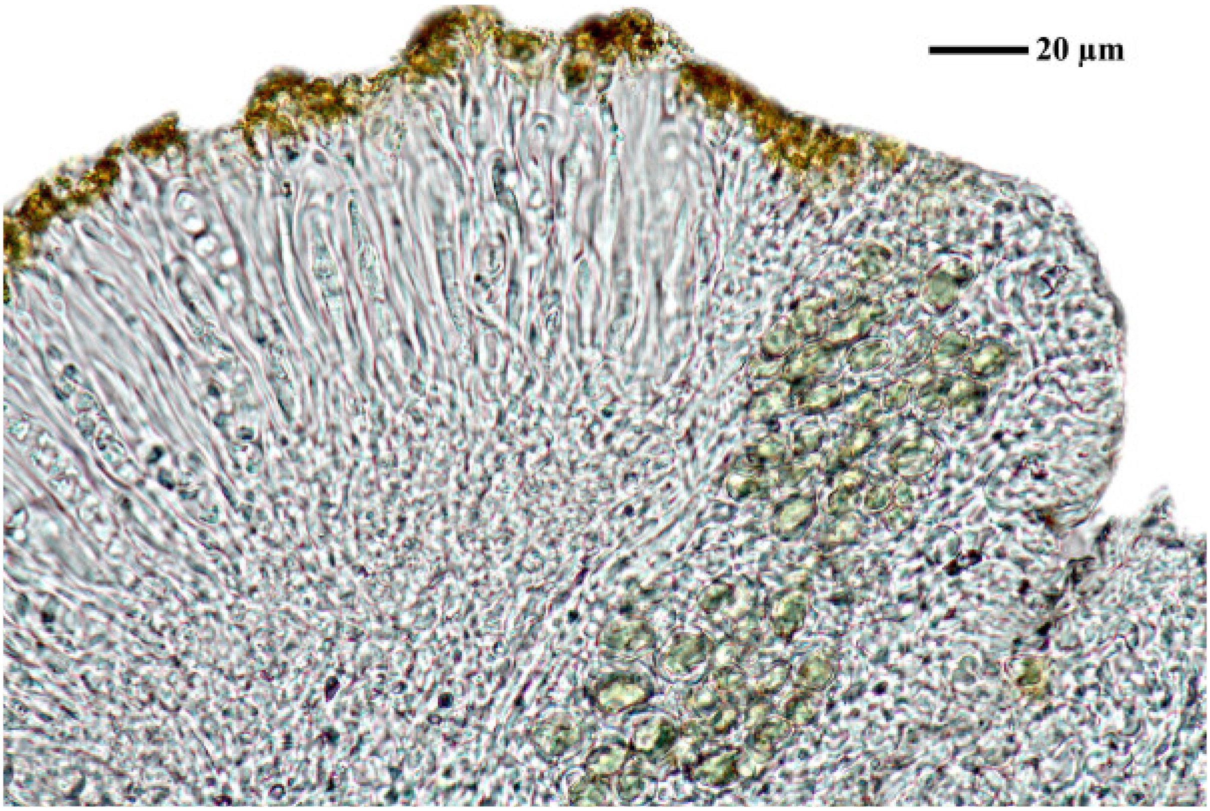
Spores 10-12 x 3-6 µm, septum 4-5 µm, 8/ascus (AA); spores 9.6-10 x 7.1-7.4 µm, septum 3.9-4.3 mm (FS).

[BR5030040665223], Sweden, Uppland, Gamla Uppsala 2 km N of Uppsala, on Populis tremula, 50 m. Leg. A. Aptroot (15803),

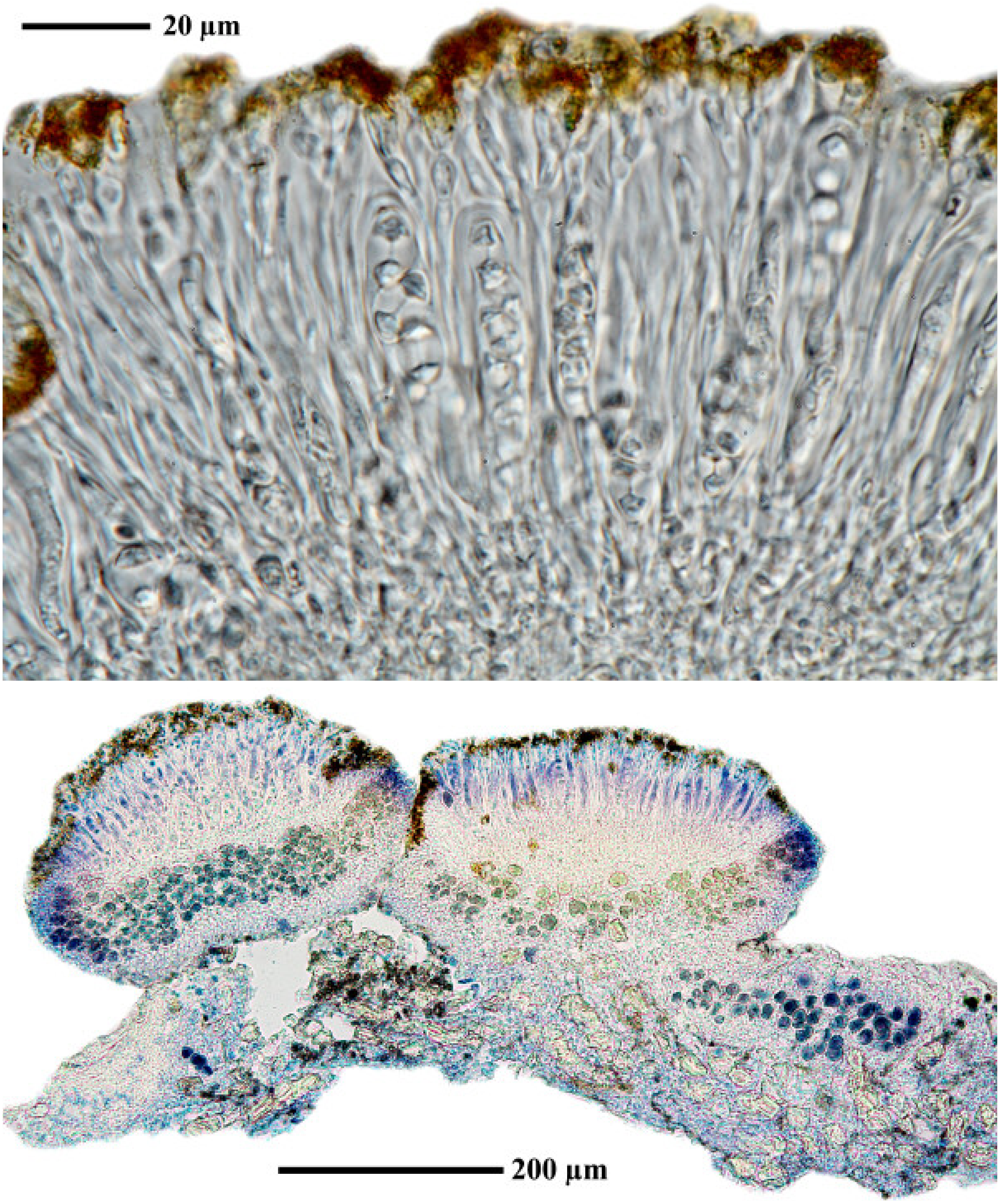


Caloplaca borealis

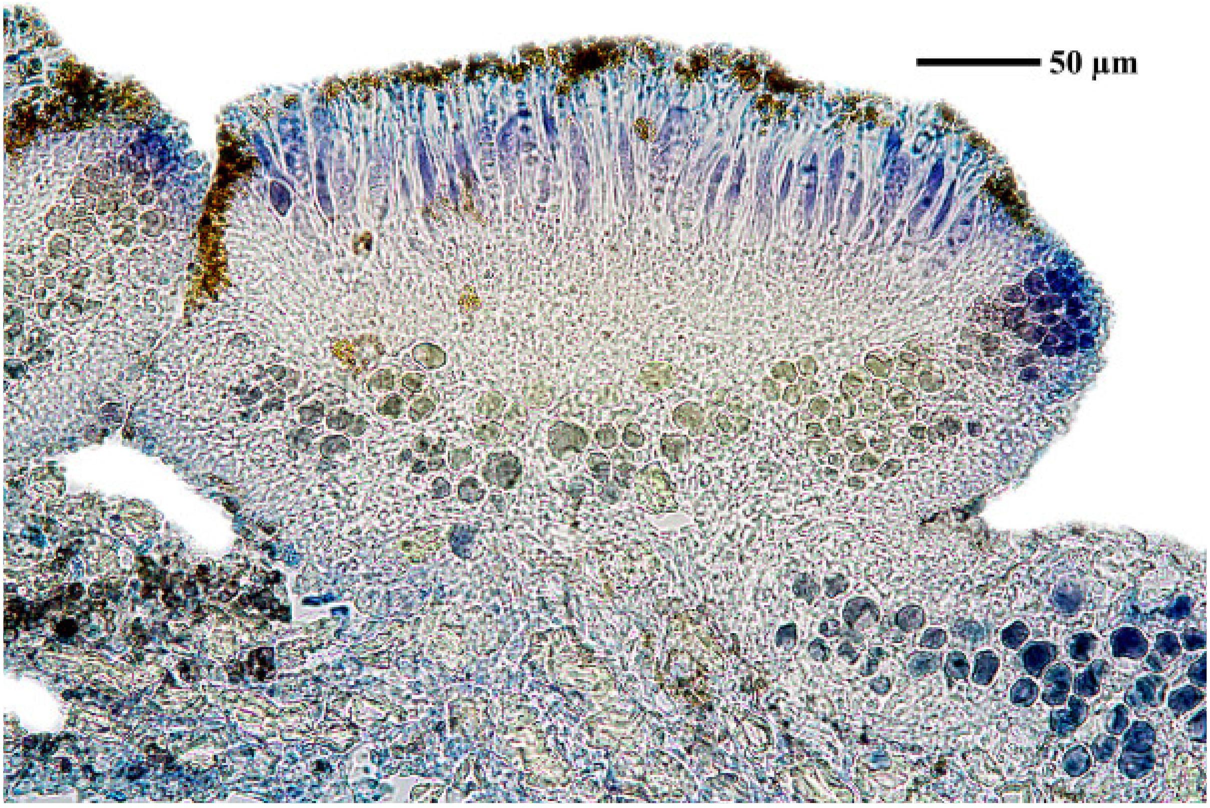


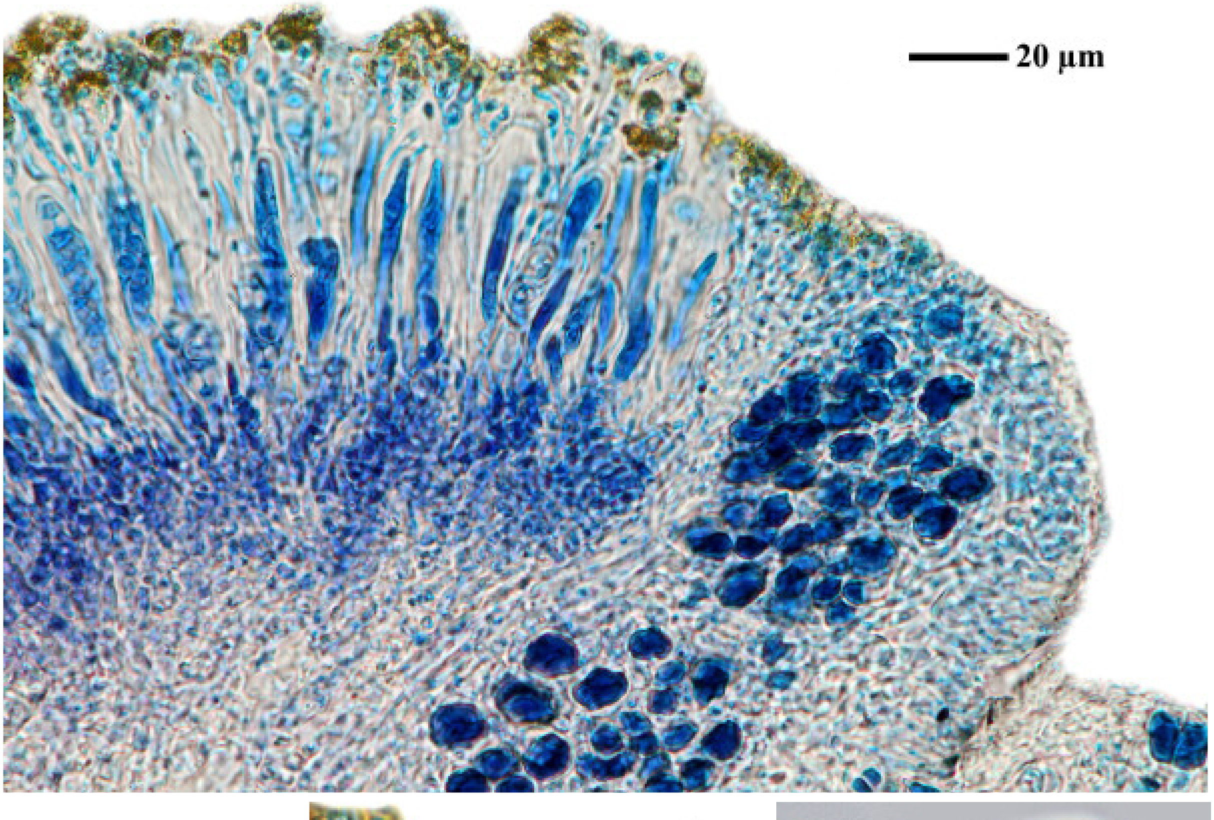


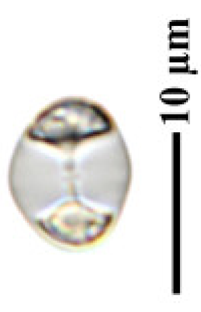
Caloplaca borealis

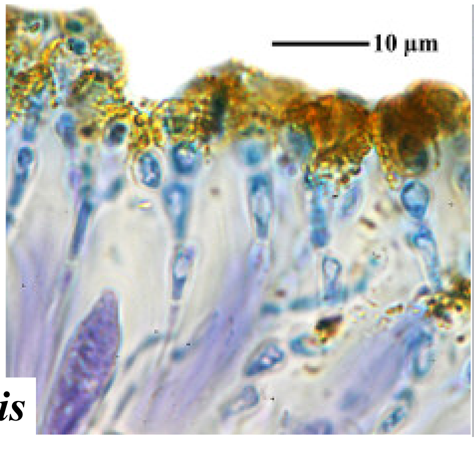


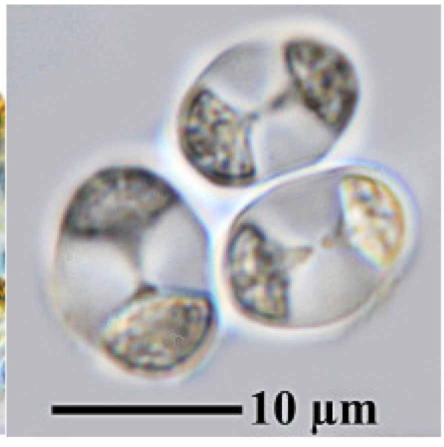
Caloplaca borealis



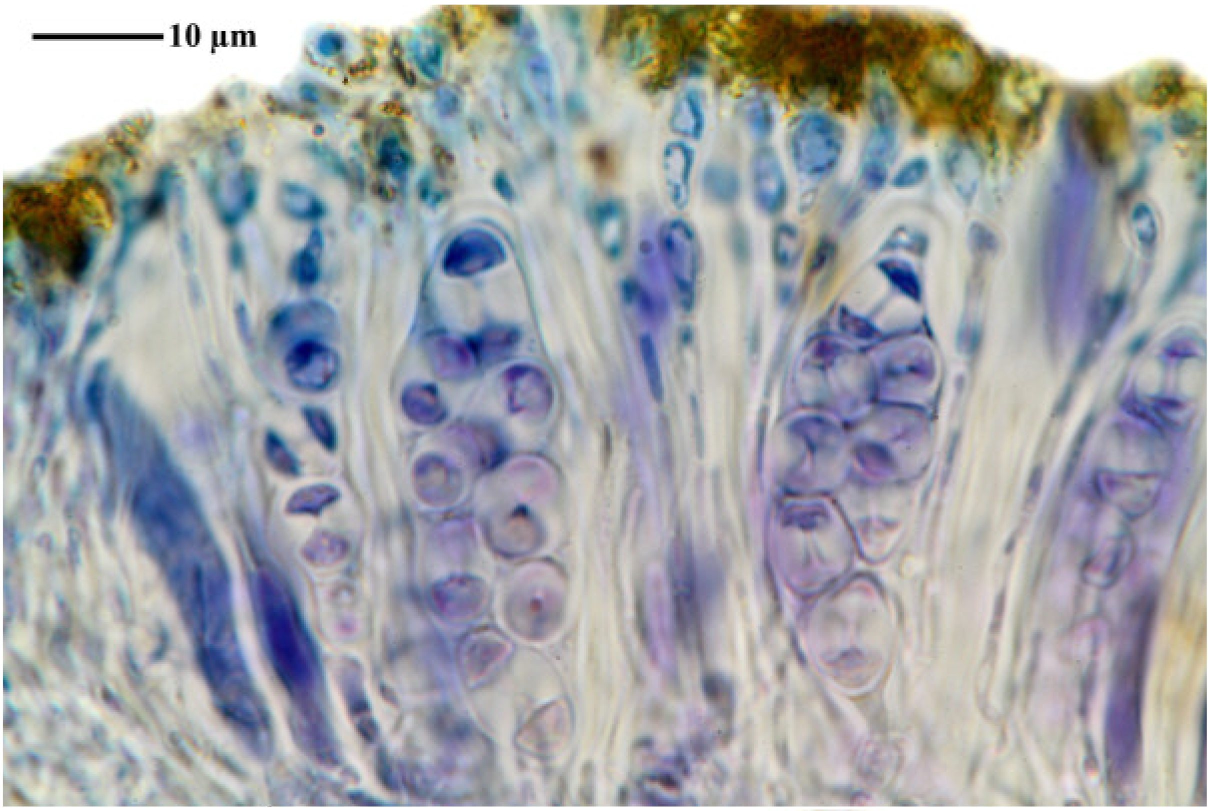


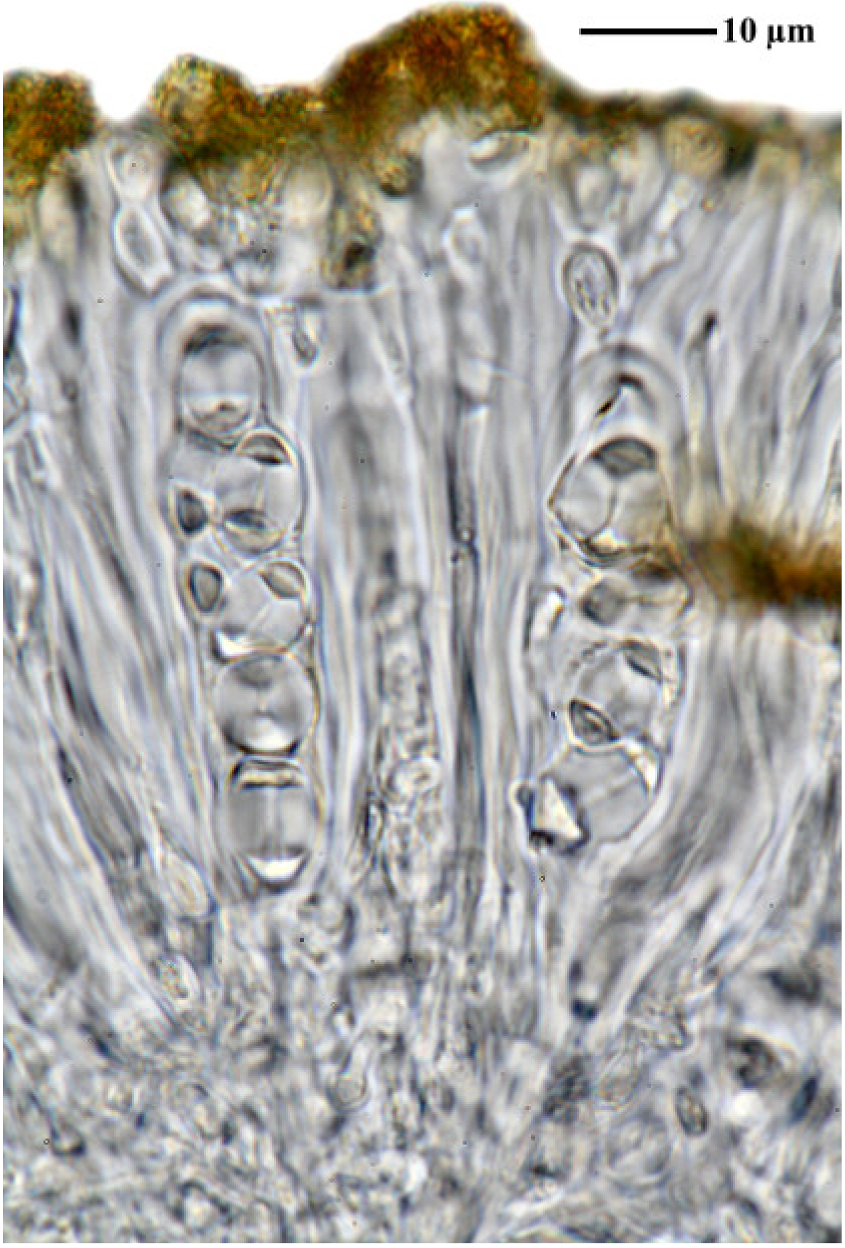






Caloplaca borealis



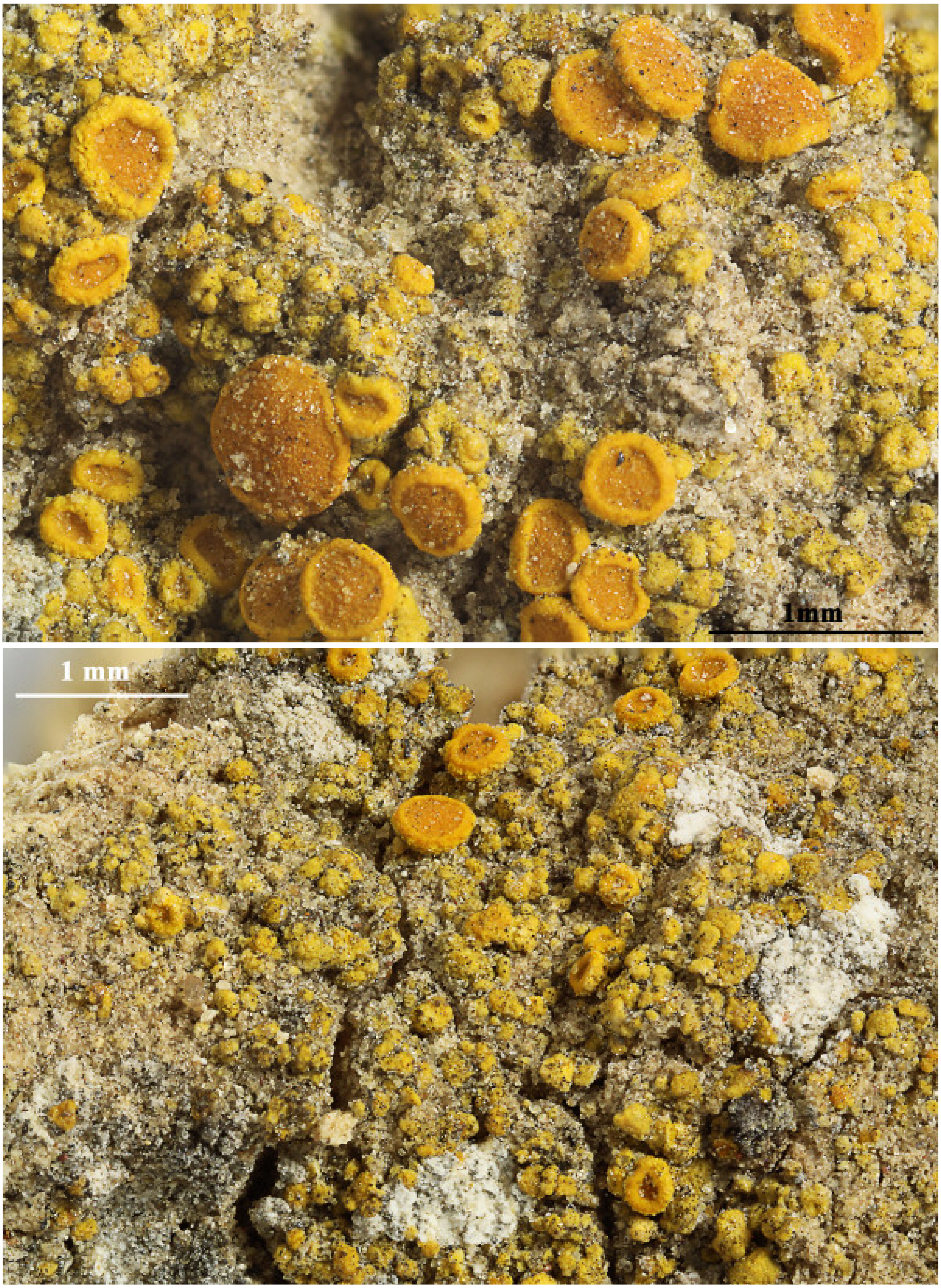


Caloplaca borealis

Caloplaca borysthenica Khodos. & S.Y. Kondr.
[= *Xanthocarpia borysthenica* (Khodos. & S.Y. Kondr.) Frödén, Arup & Søchting]TOPOTYPE

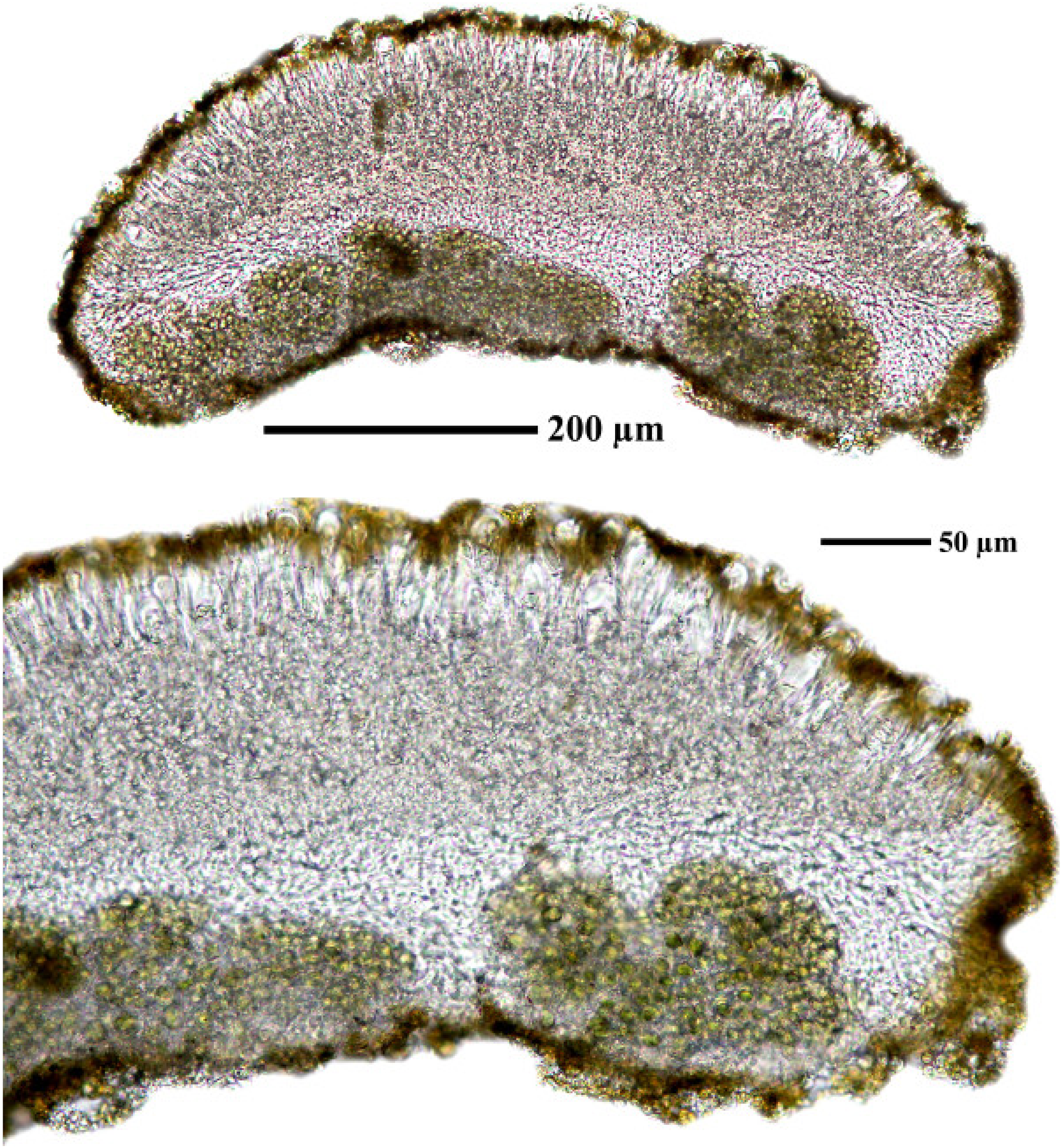
Spores 15 x 6-8 µm, septum 2-2.5 µm (FS).

[B 60 0187266], Ukraine, Kherson region, Belozerka, close to Shirokaya Balka village, loess gorge to maritime lake Dneprovskyi liman, on sun-exposed loess slopes with restricted plant cover, 46°34.6' N, 32°11.1' E, 10-20 m. Leg. J. Vondrák, J., 12.10.2009, det. J. Vondrák. VONDRáK: SELECTED EXSICCATES OF CALOPLACA NO 29.

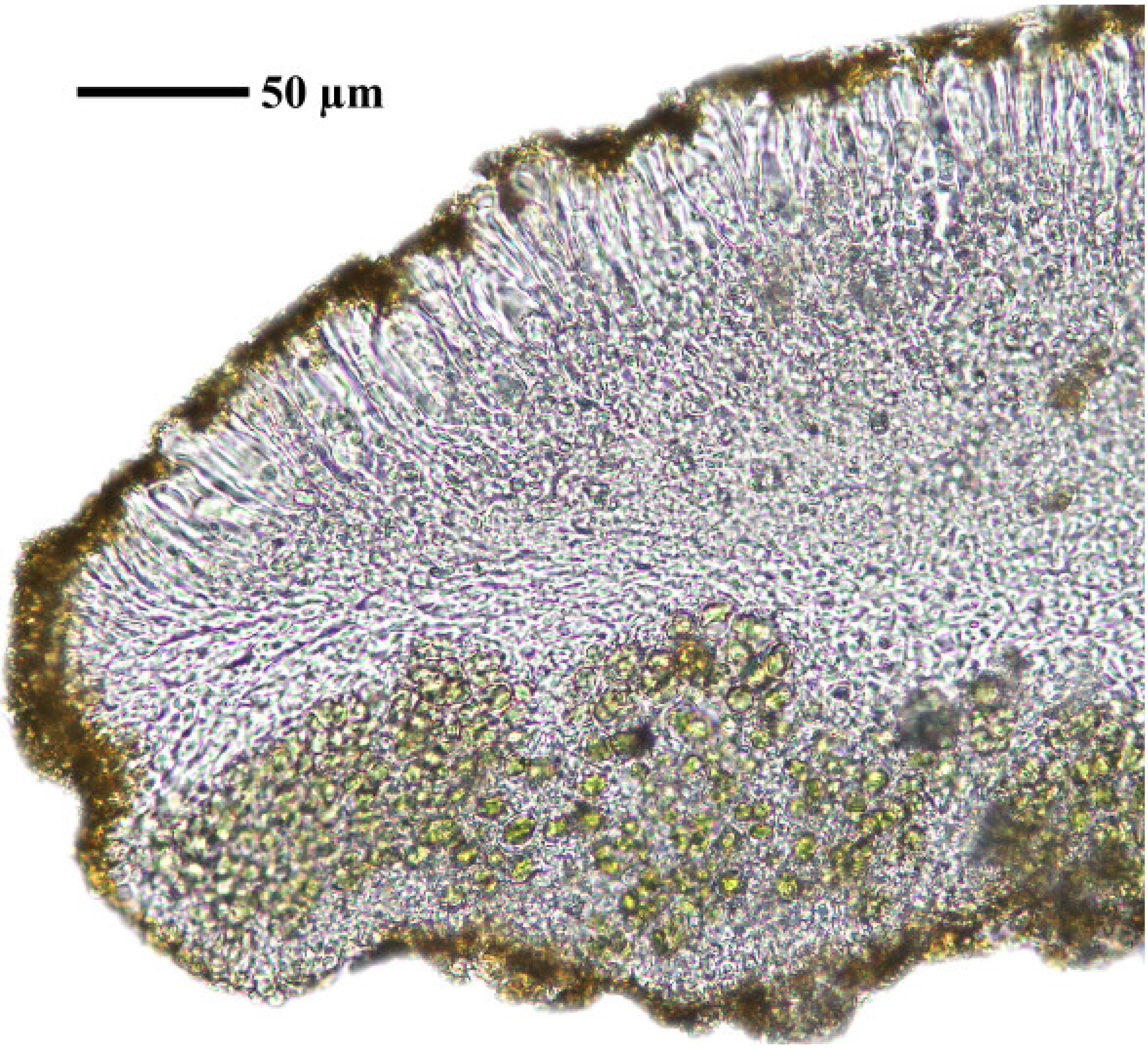


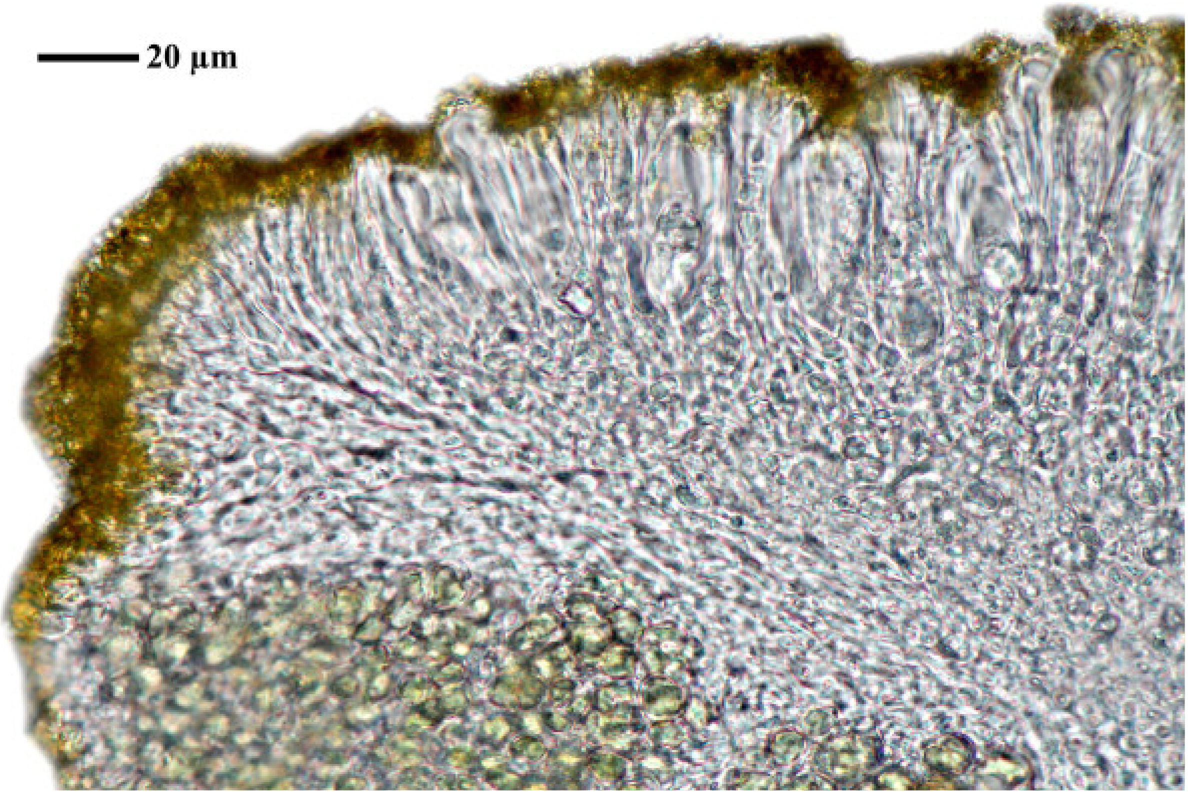
Caloplaca borysthenica

Caloplaca borysthenica

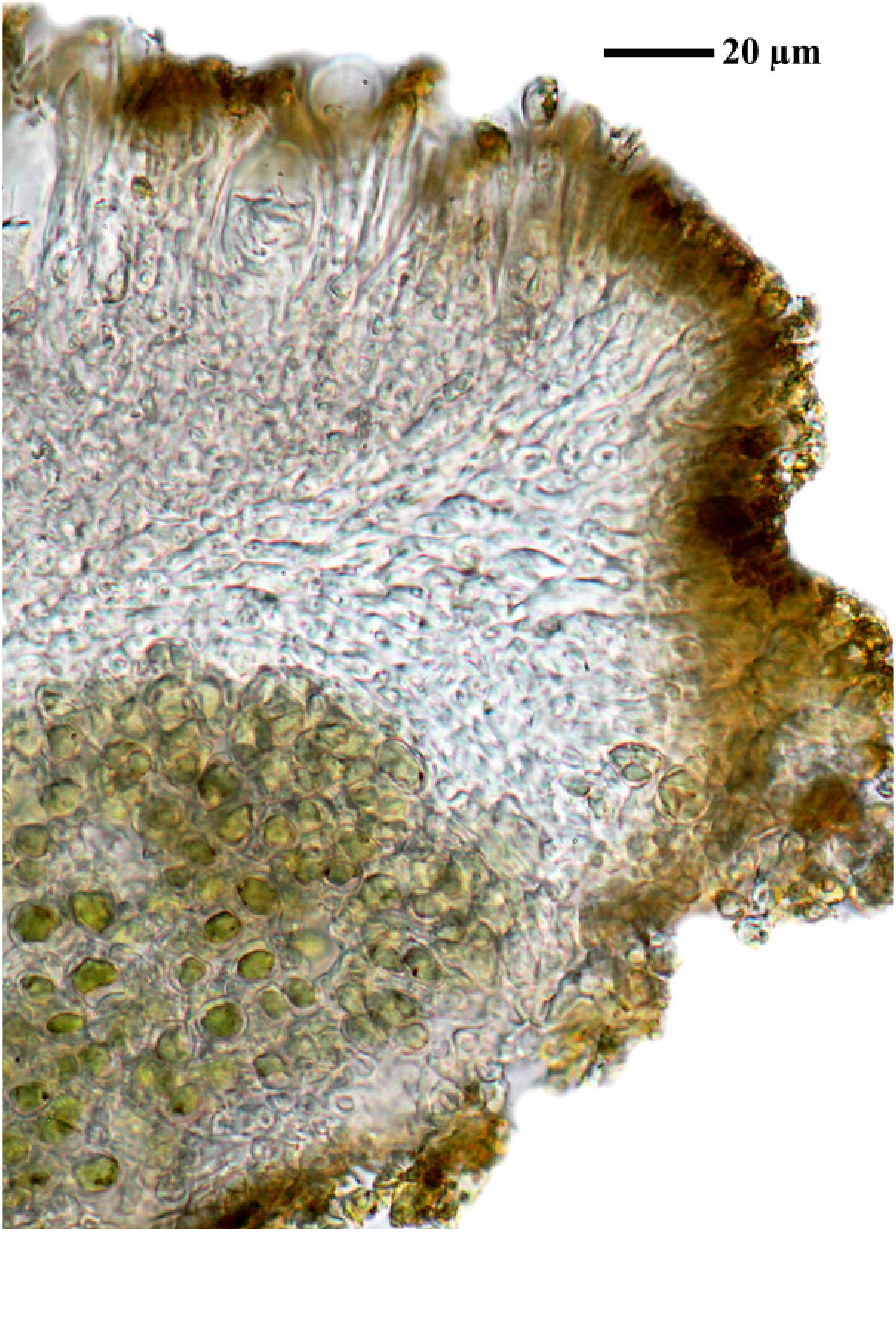


Caloplaca borysthenica

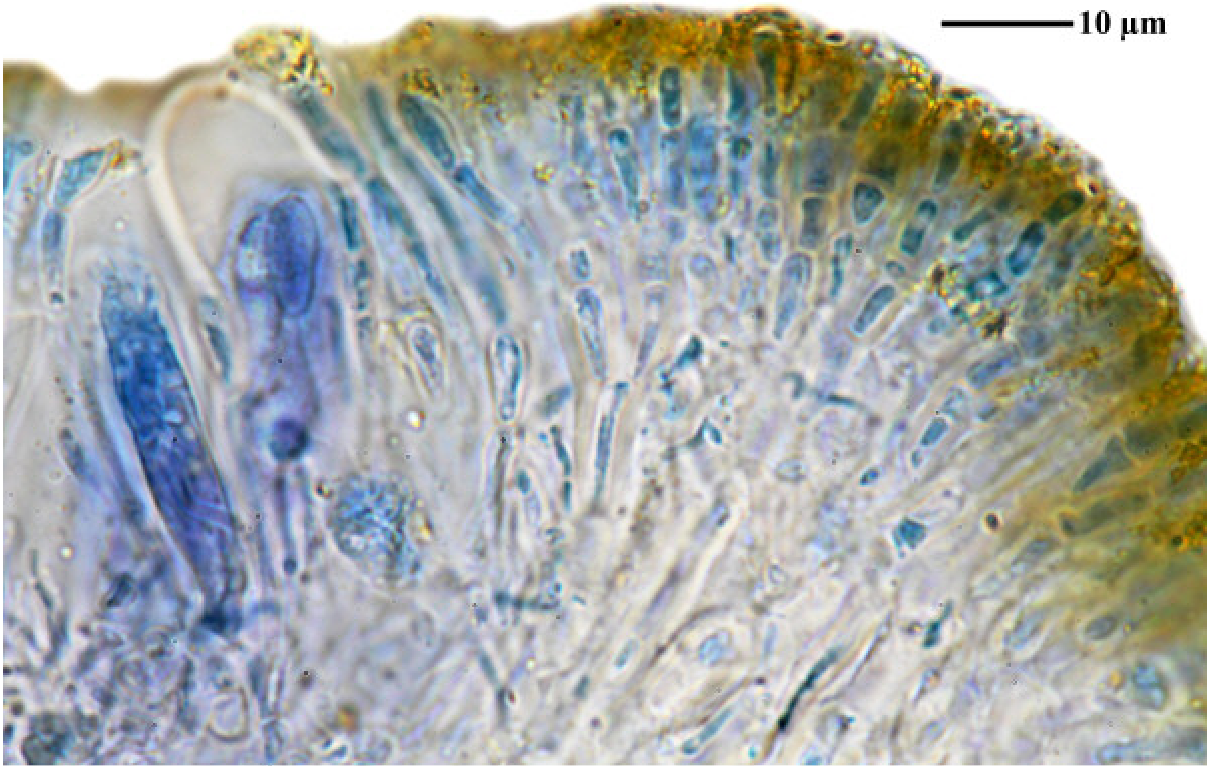


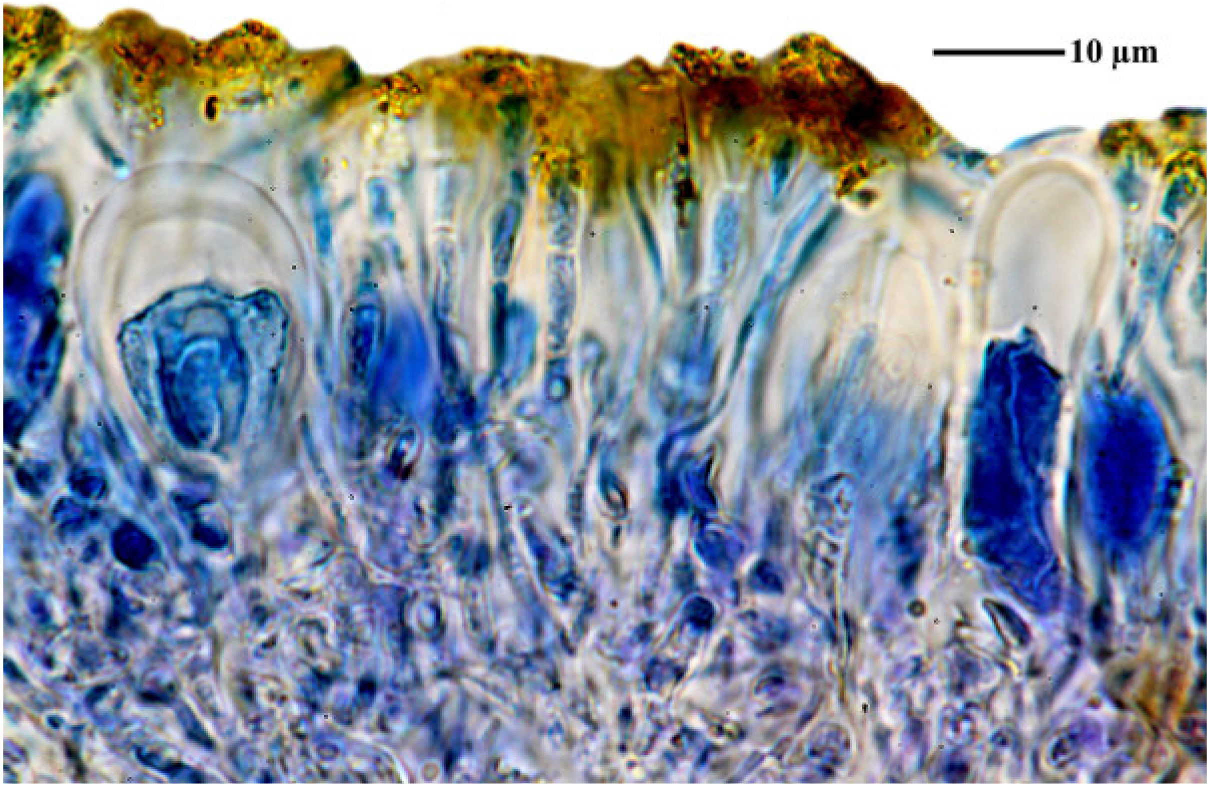


Caloplaca borysthenica

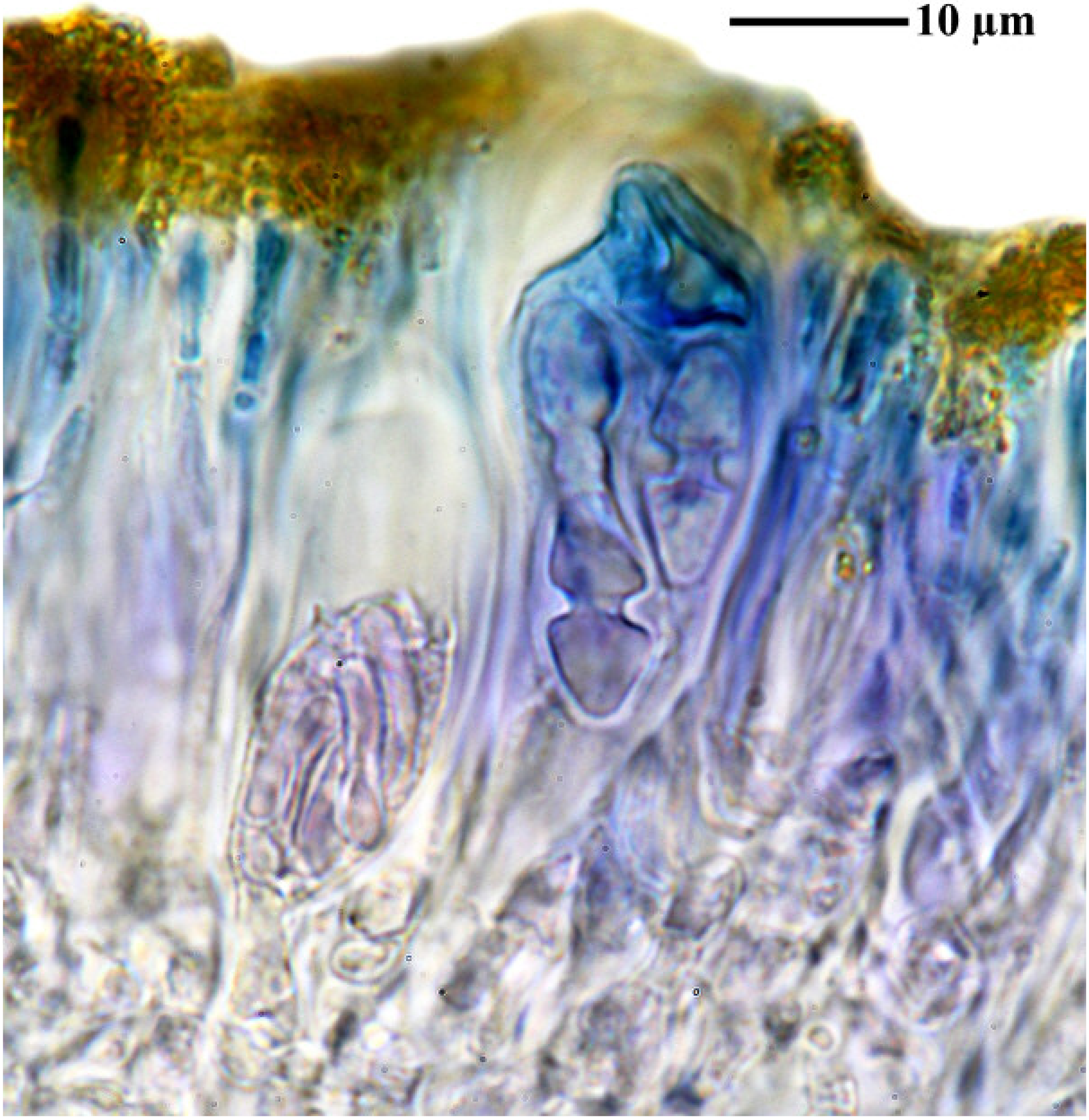


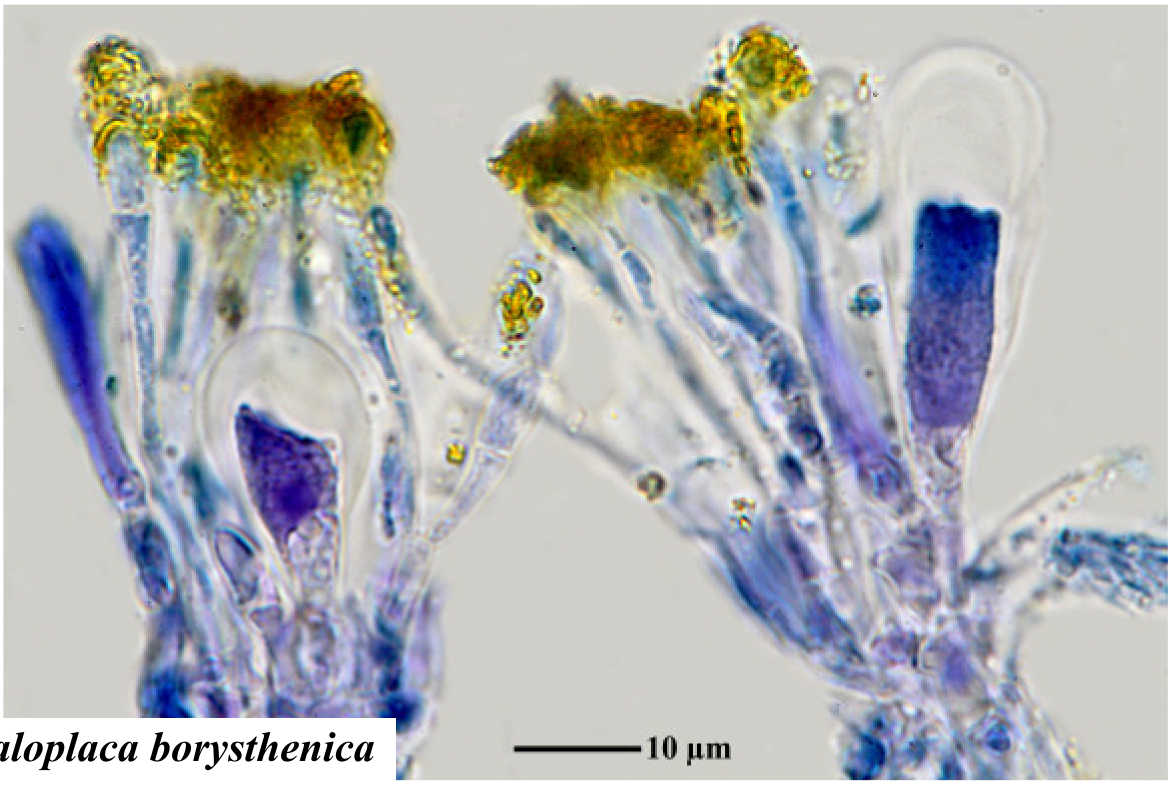
Caloplaca borysthenica



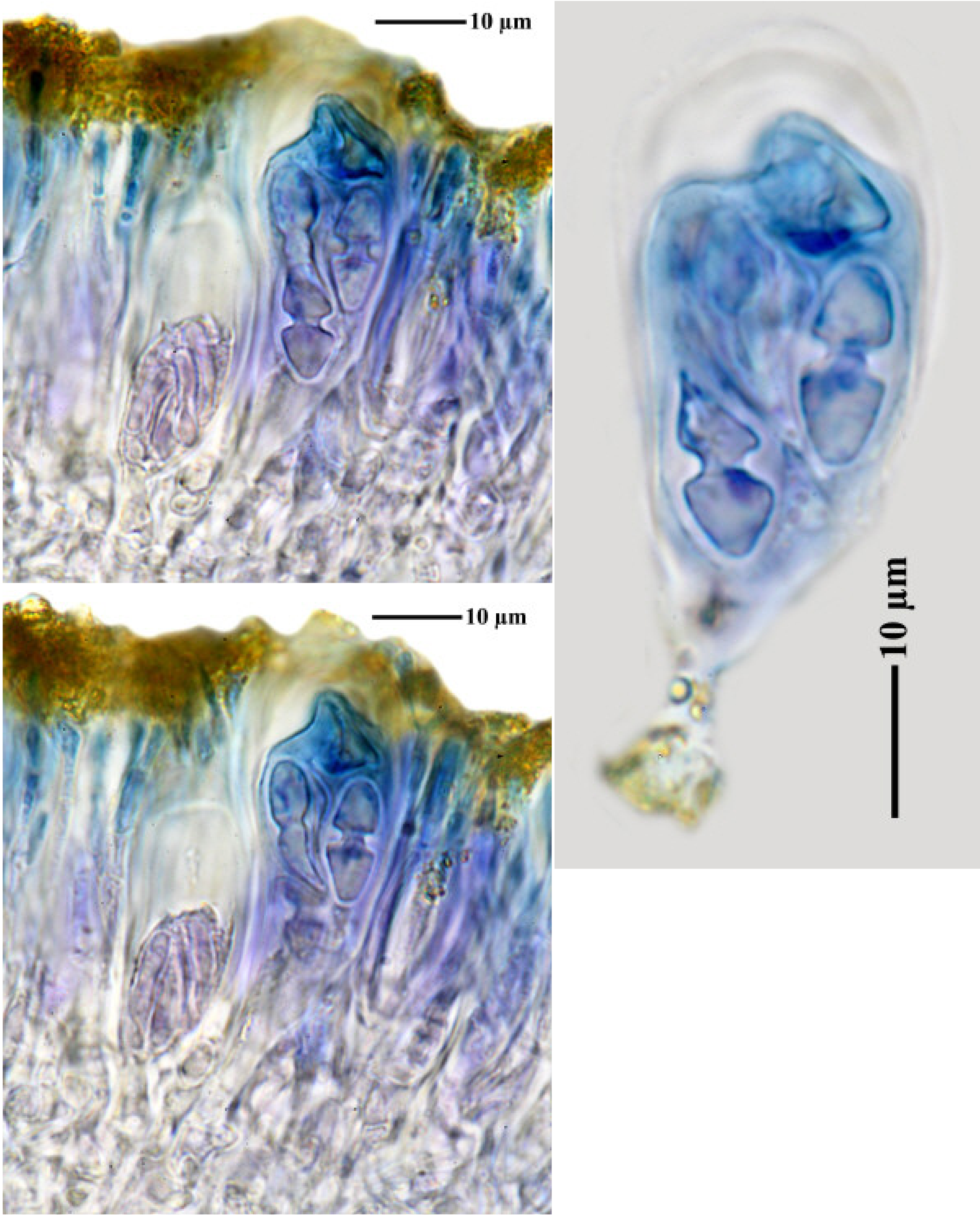


Caloplaca borysthenica





Caloplaca borysthenica

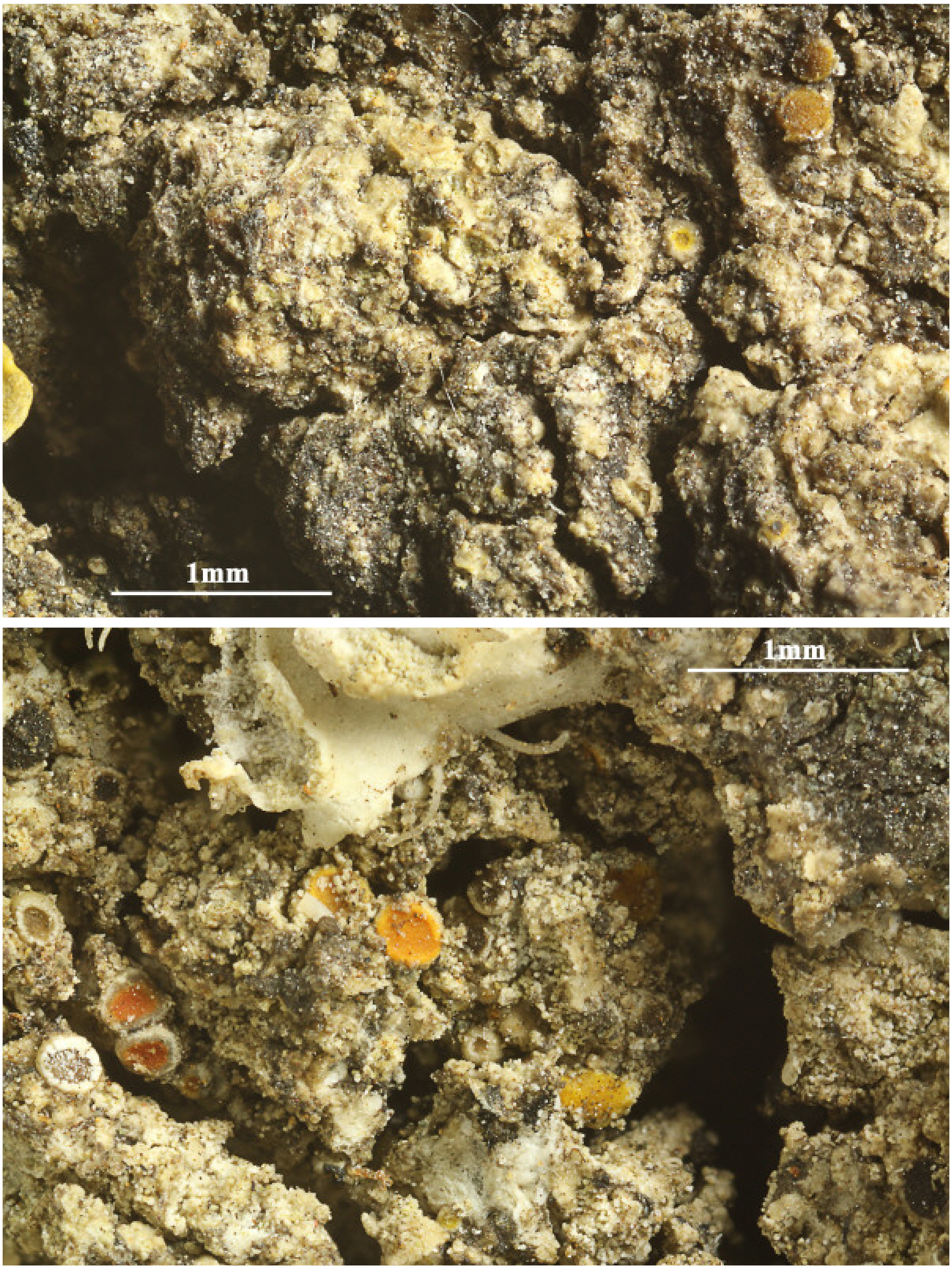


Caloplaca borysthenica

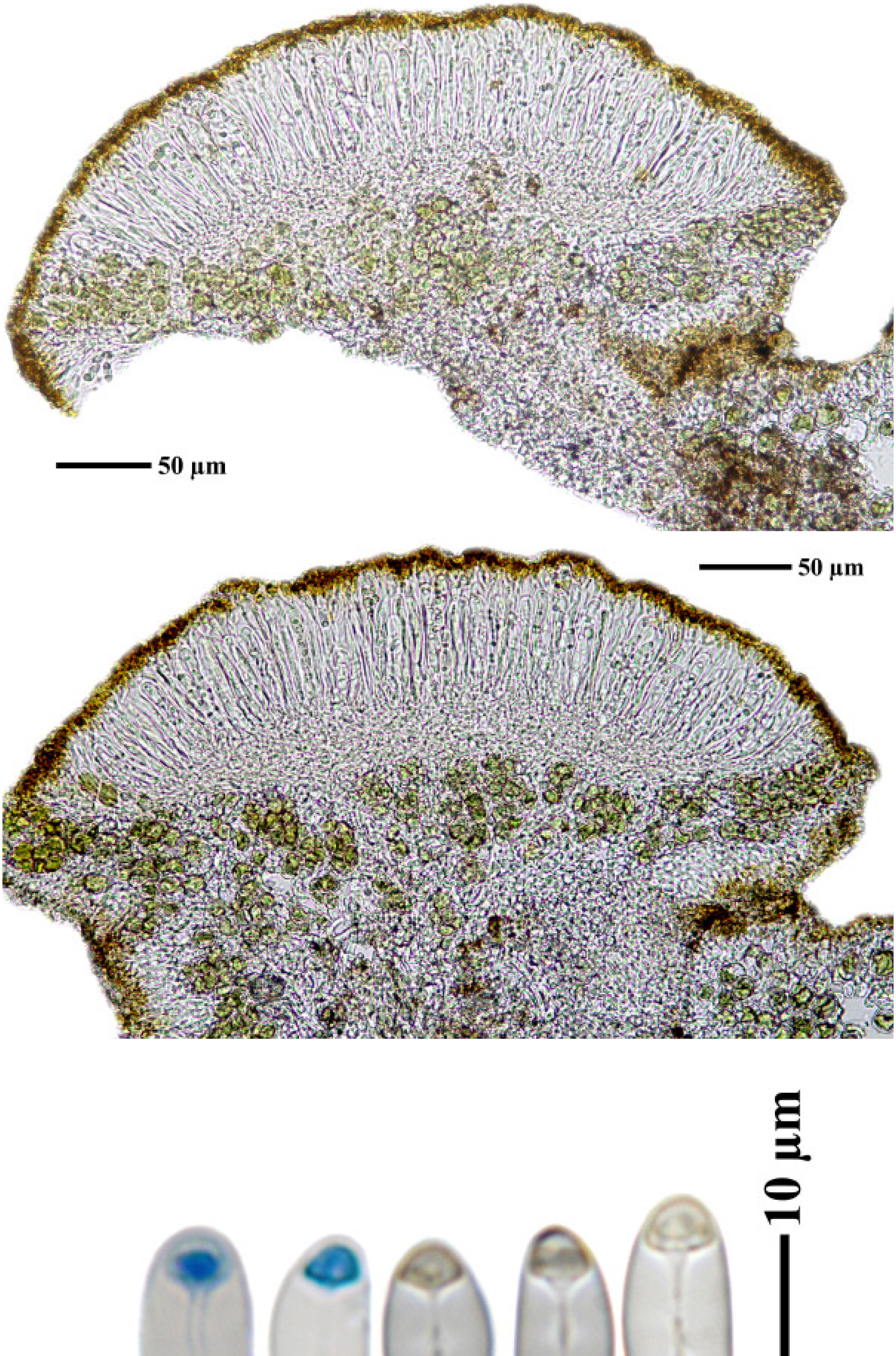
Caloplaca boulyi (Zahlbr.) M. Steiner & Poelt

Spores 10-12 x 5-5.3 mm, septum 6.2-6.5 µm (FS). On bark. Lit. Steiner, M. & Poelt,J. in Pl. Syst. Evol. 140: 169 (1982).

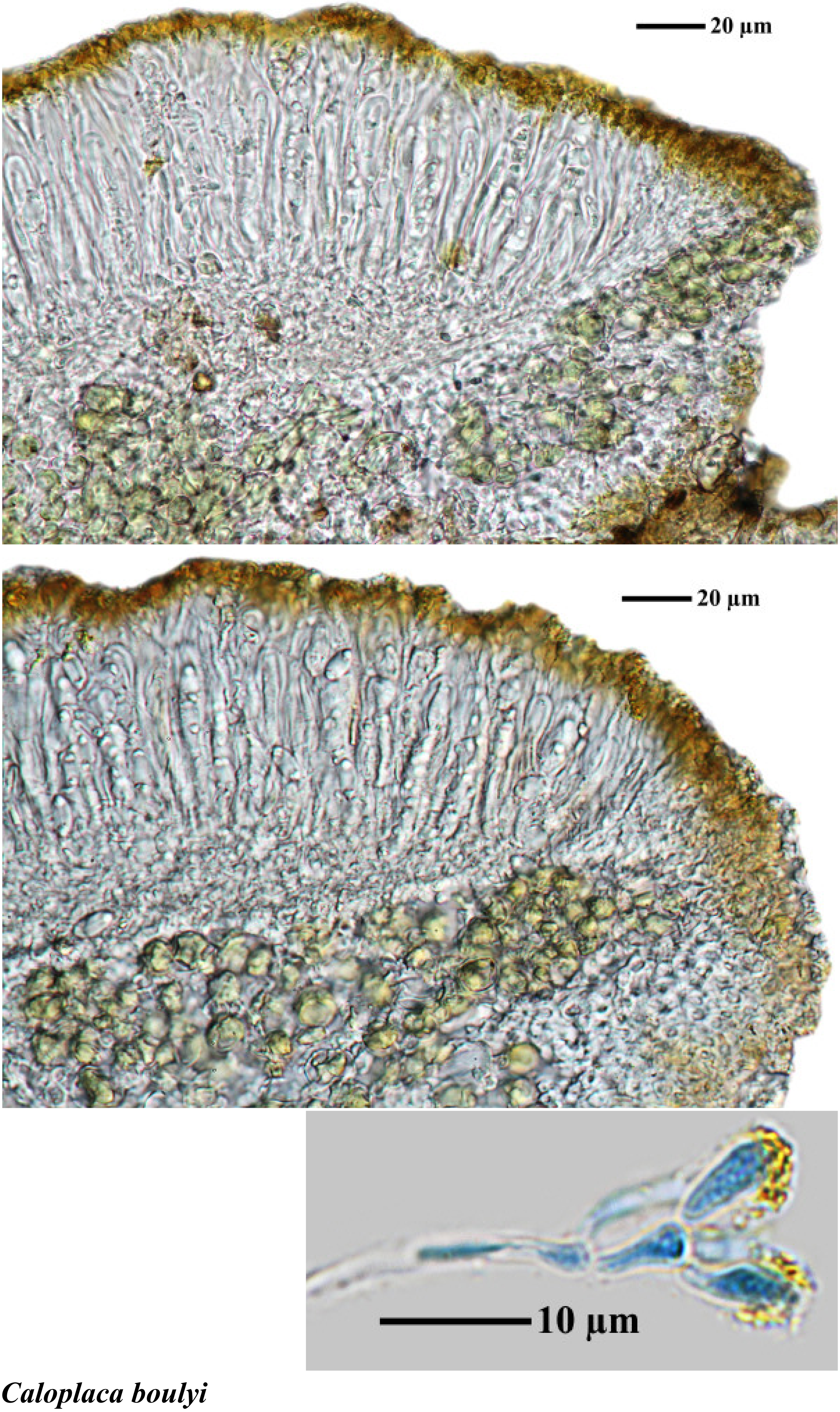
[19569], Italia, Sardinia, Distr. Cagliari, Barumini, prope "nuraghe" Su Nuraxi, ca. 150 m, ad corticem arborum (*Amygdalus communis*). Leg. P.L. Nimis, C. Roux, M. Tretjak et A. Vězda, 1.09.1989. Vězda: Lichenes Selecti Exsiccati Nr. 2355.



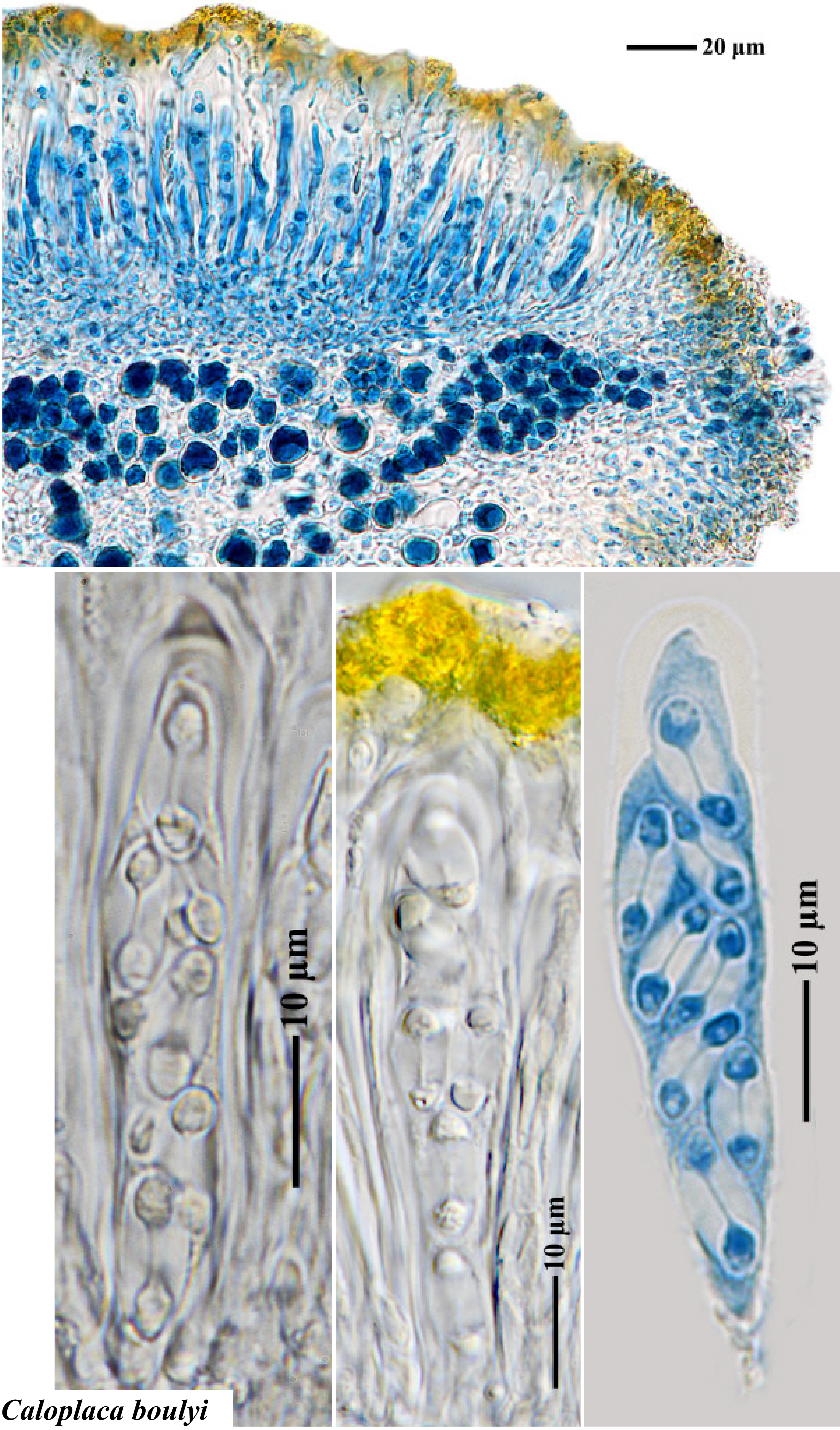
Caloplaca boulyi



Caloplaca boulyi



Caloplaca boulyi

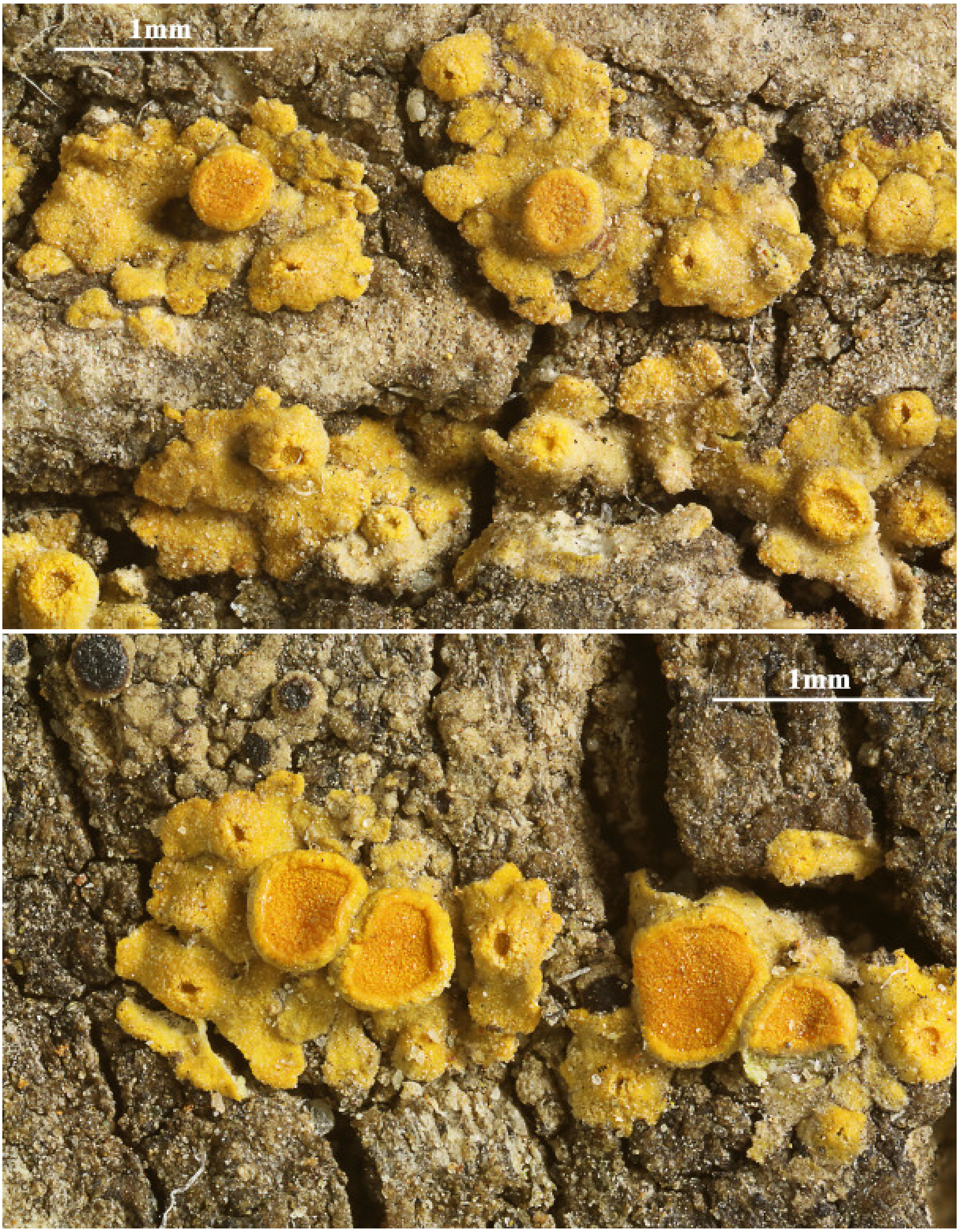


Caloplaca boulyi

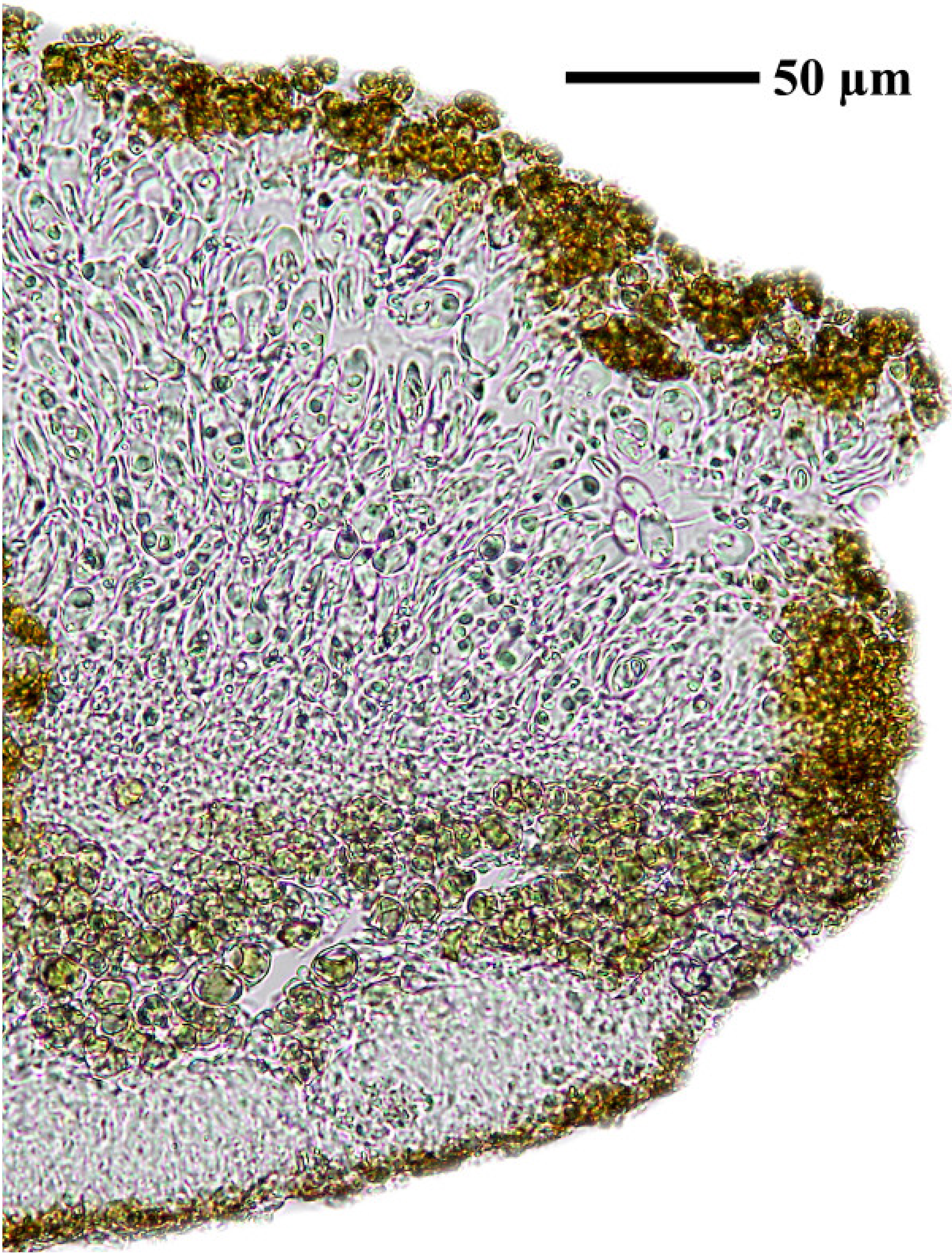
Caloplaca boulyi (Zahlbr.) M. Steiner & Poelt

Spores 11-13 x 6-7.4 µm, septum 4-6.5 µm, 8/ascus (FS)

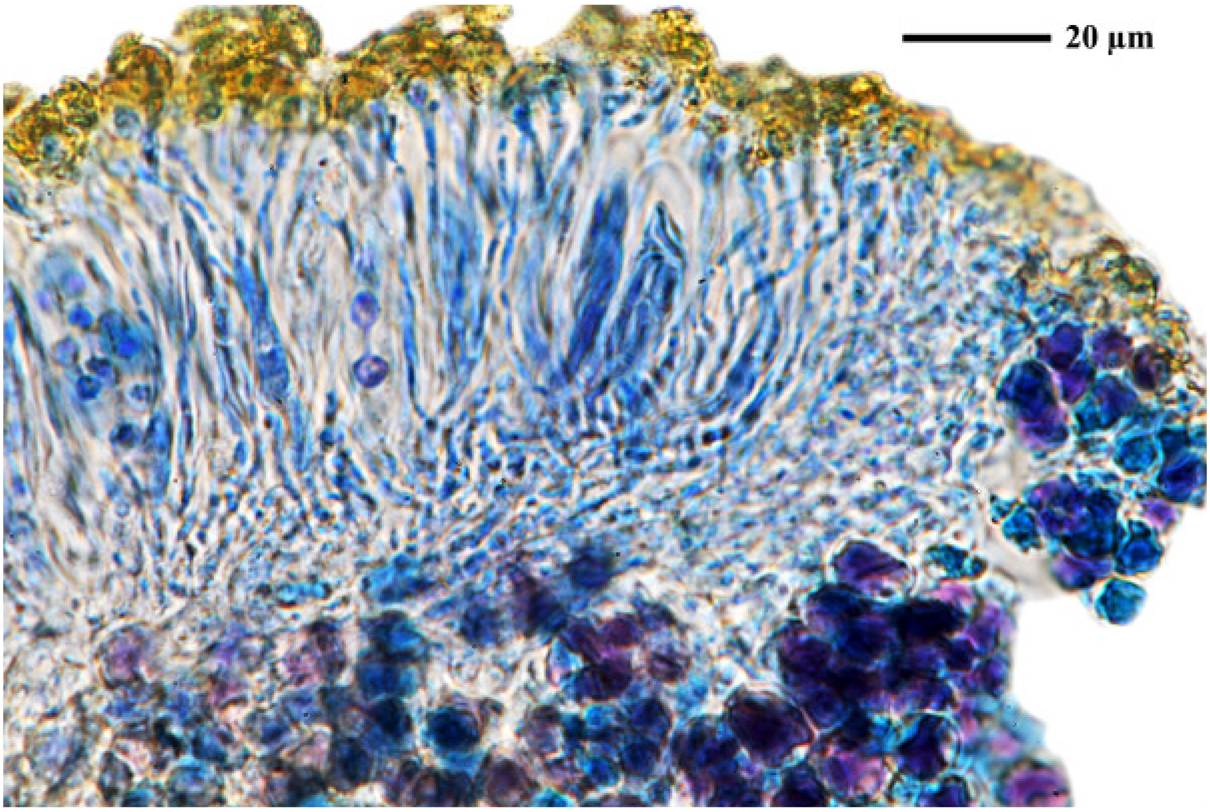
[B 60 0144872], Syria, Muhafazat Aleppo, meadows along Euphrates river at bridge near Turkish border E of Jarablos, *Populus euphratica* riverside forest, arable fields, road banks, on Salix-bark, accomp. *Lecanora horiza, Lecania sipmanii*. 36°49.27' N, 38°02.03' E, 400 m. Leg. L. Zedda (S-232), 3. April 1999, det. H. Sipman

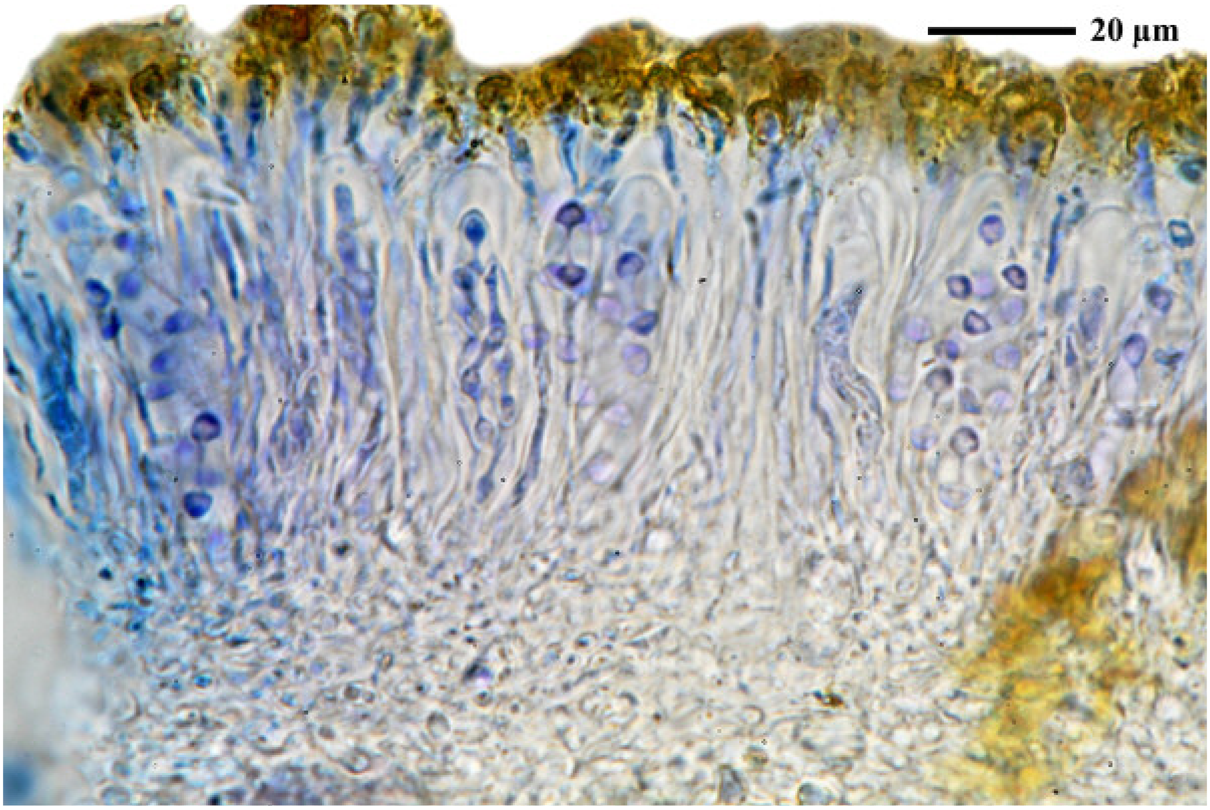


Caloplaca boulyi

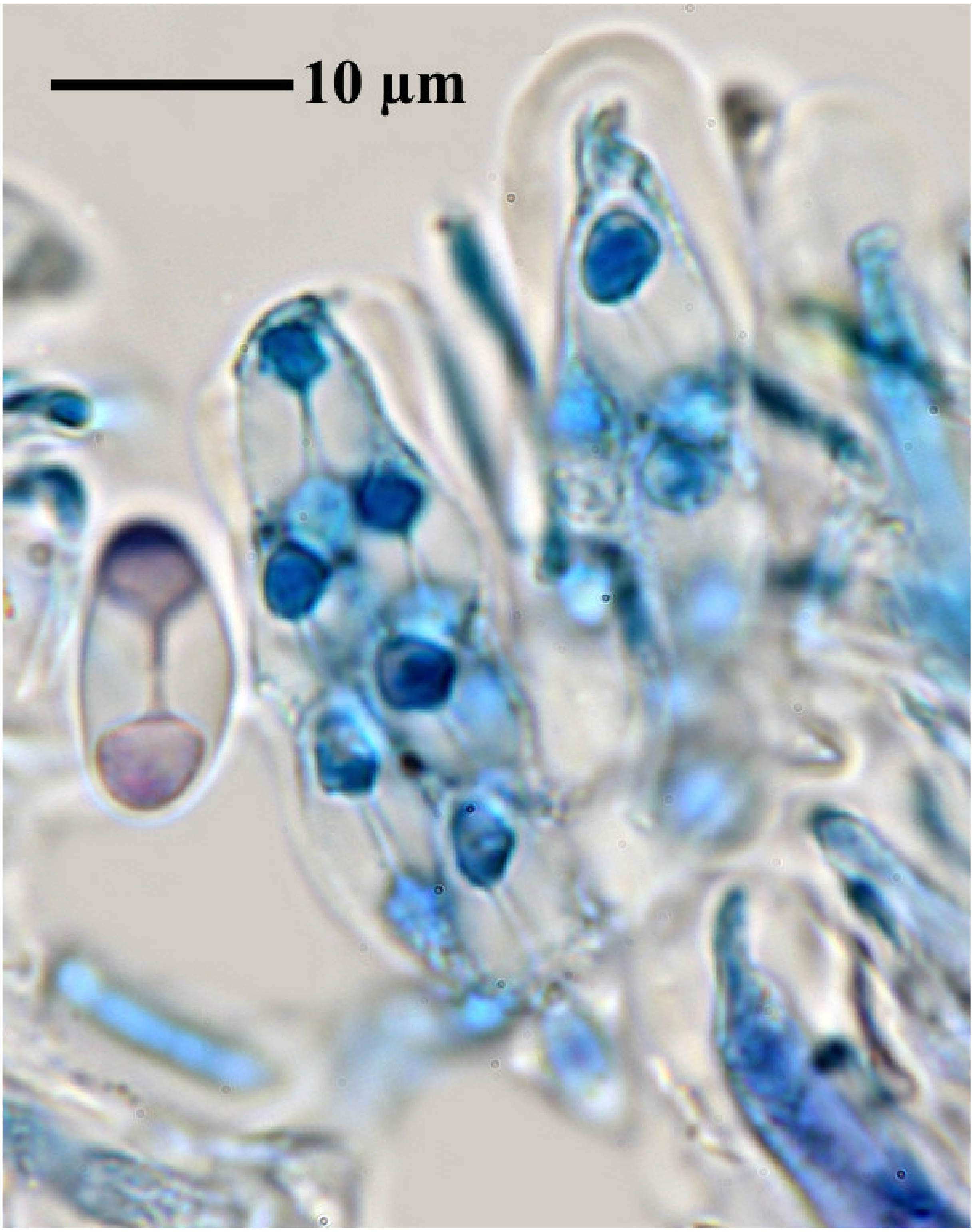


Caloplaca boulyi





Caloplaca boulyi

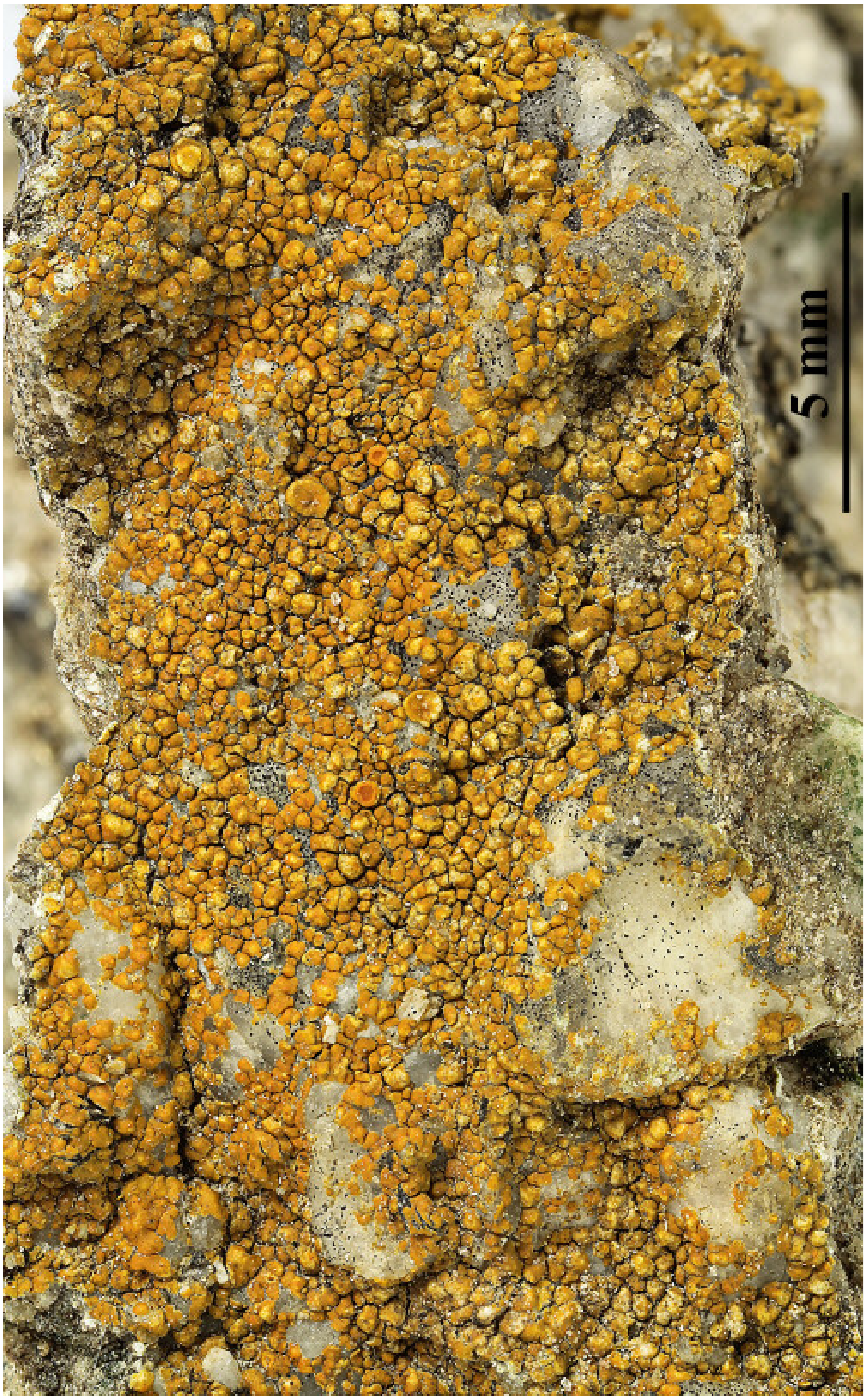


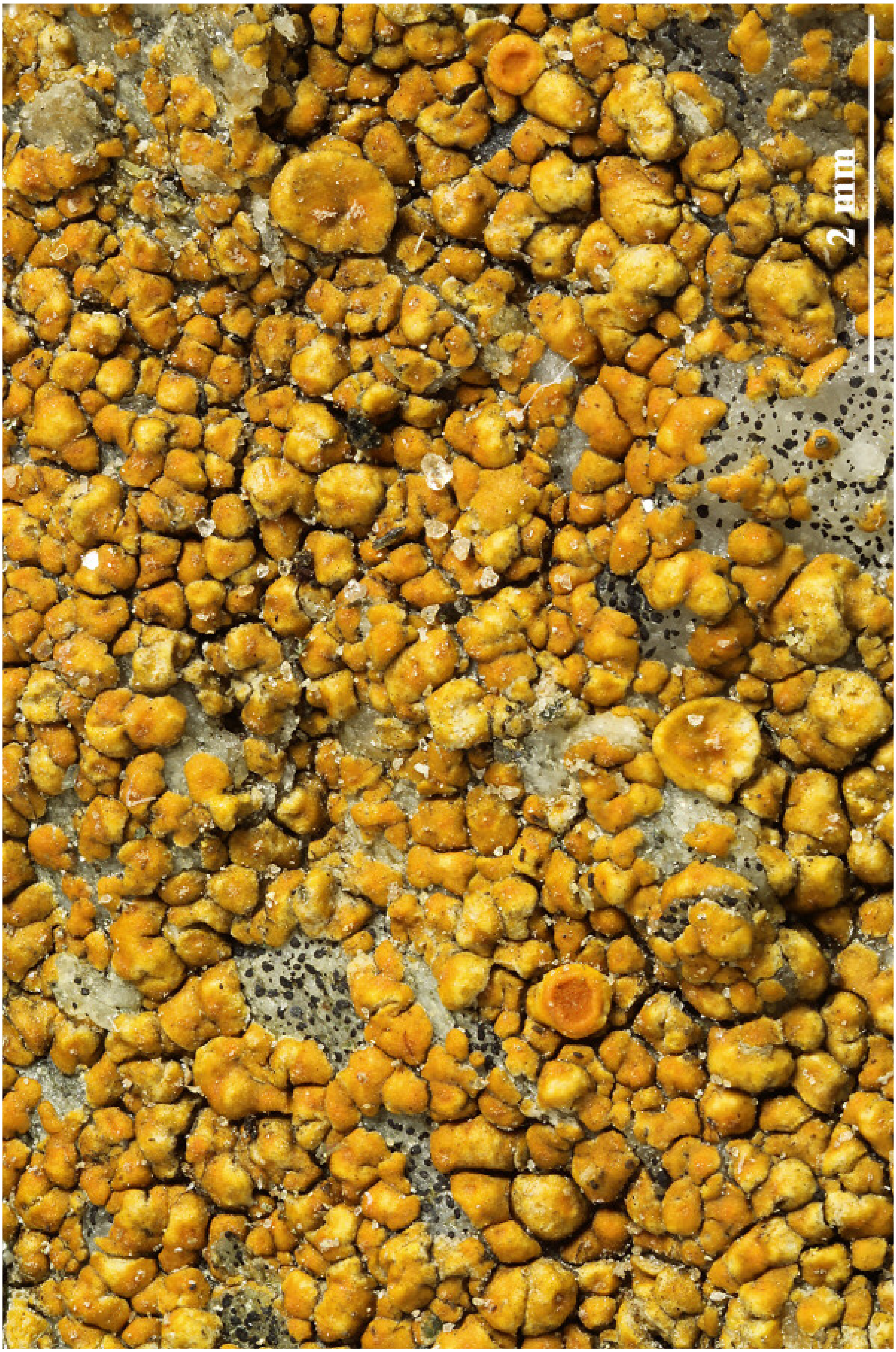
Caloplaca boulyi

Caloplaca brachyloba (Müll.Arg.) Zahlbr.

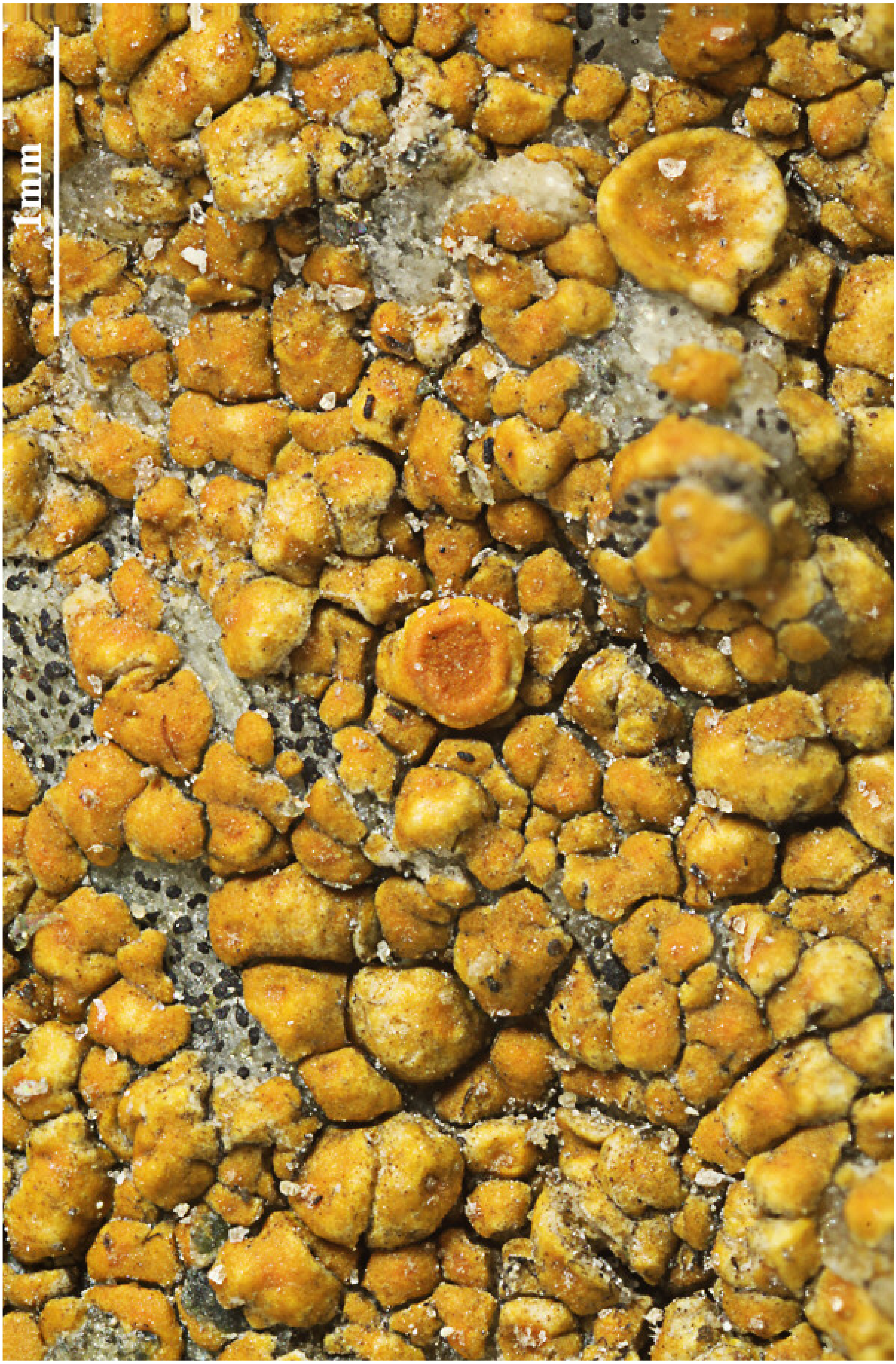
On non calcareous-rocks. Spores polarilocular, hyaline, 8/ascus, 13.5-16.5 x 6.5-7 µm, septum 5 µm.

[ABL 21371], Brazil, Ceará, Quixadá, Açude Cedró, trilha da Galinha, 04°58' S, 39°03' W, 250 m, on gneiss in Caatinga. Leg. M. Cáceres & A. Aptroot, 31.03.2014, det. A. Aptroot 2014.

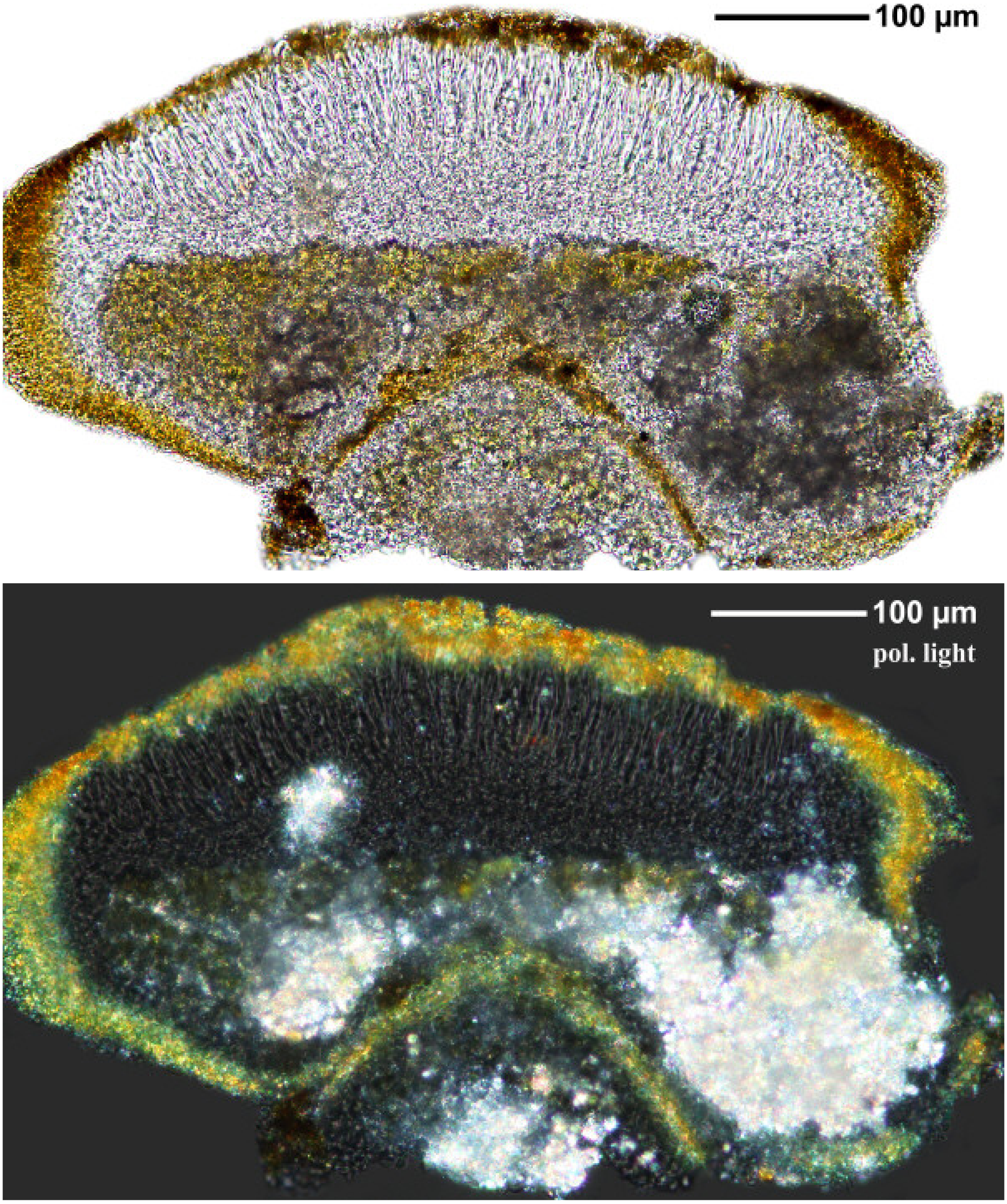




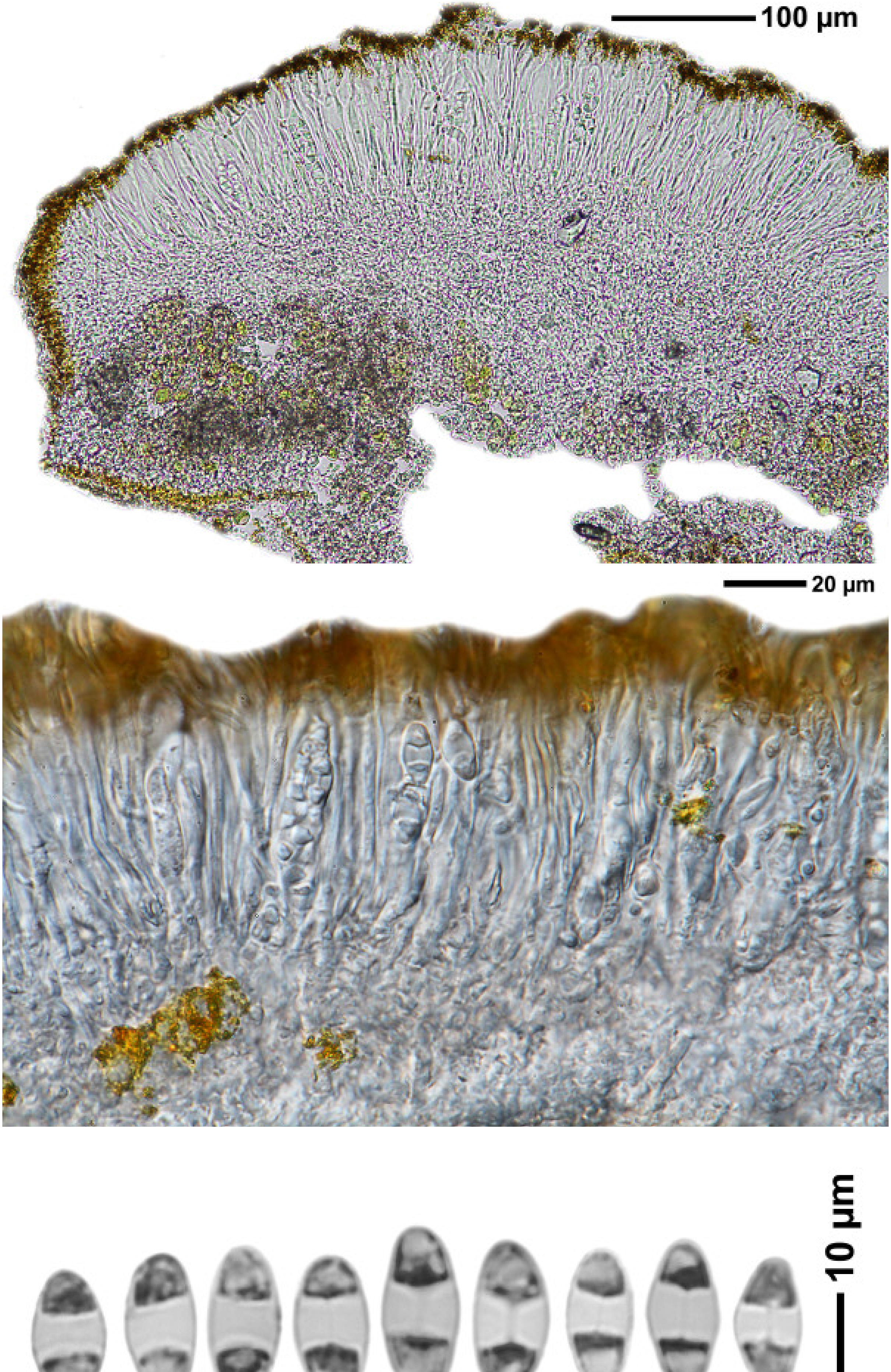
Caloplaca brachyloba



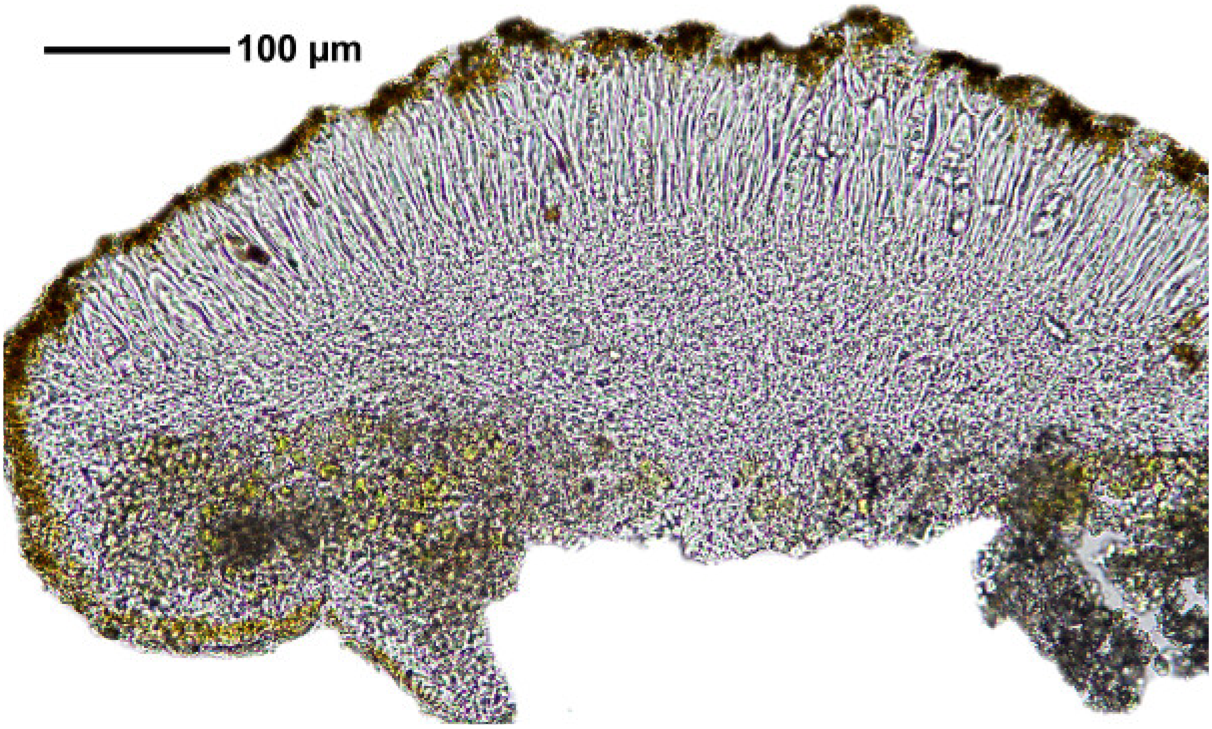
Caloplaca brachyloba

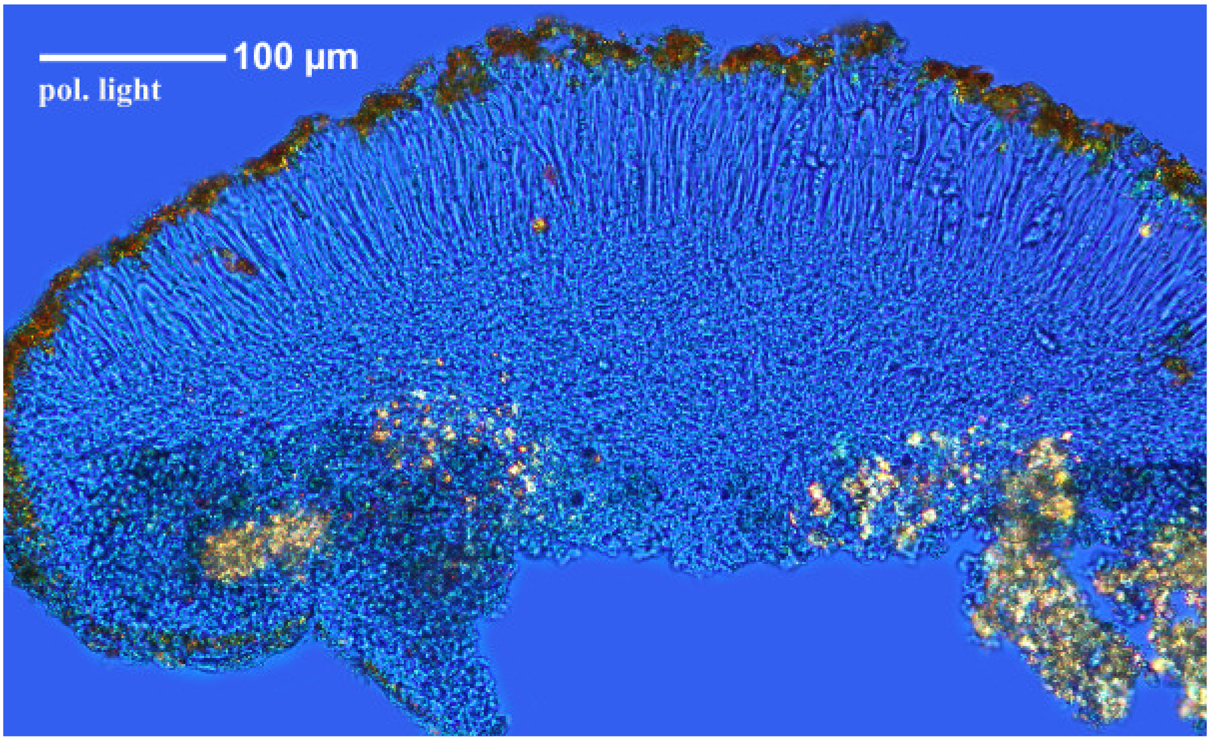


Caloplaca brachyloba

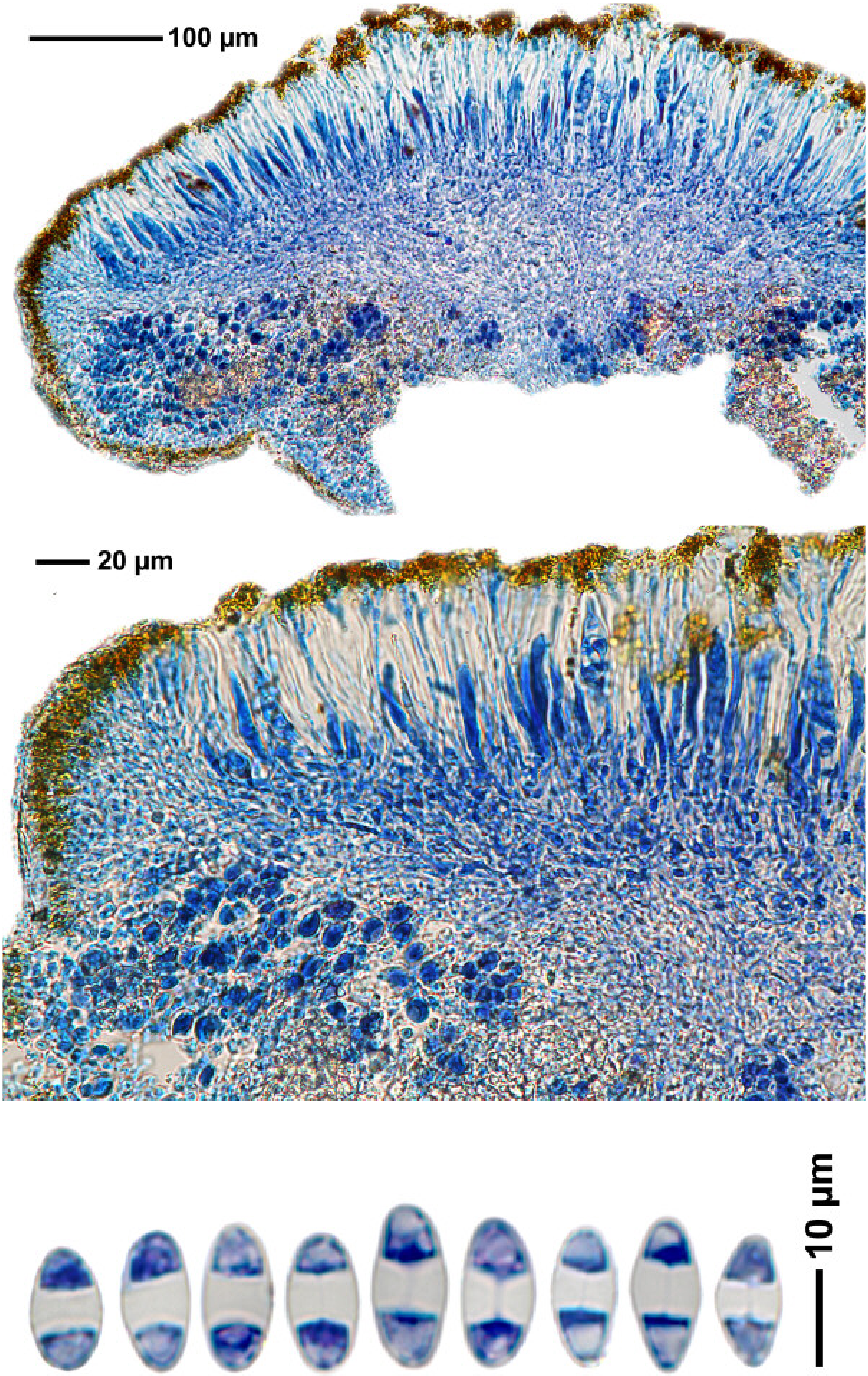


Caloplaca brachyloba





Caloplaca brachyloba

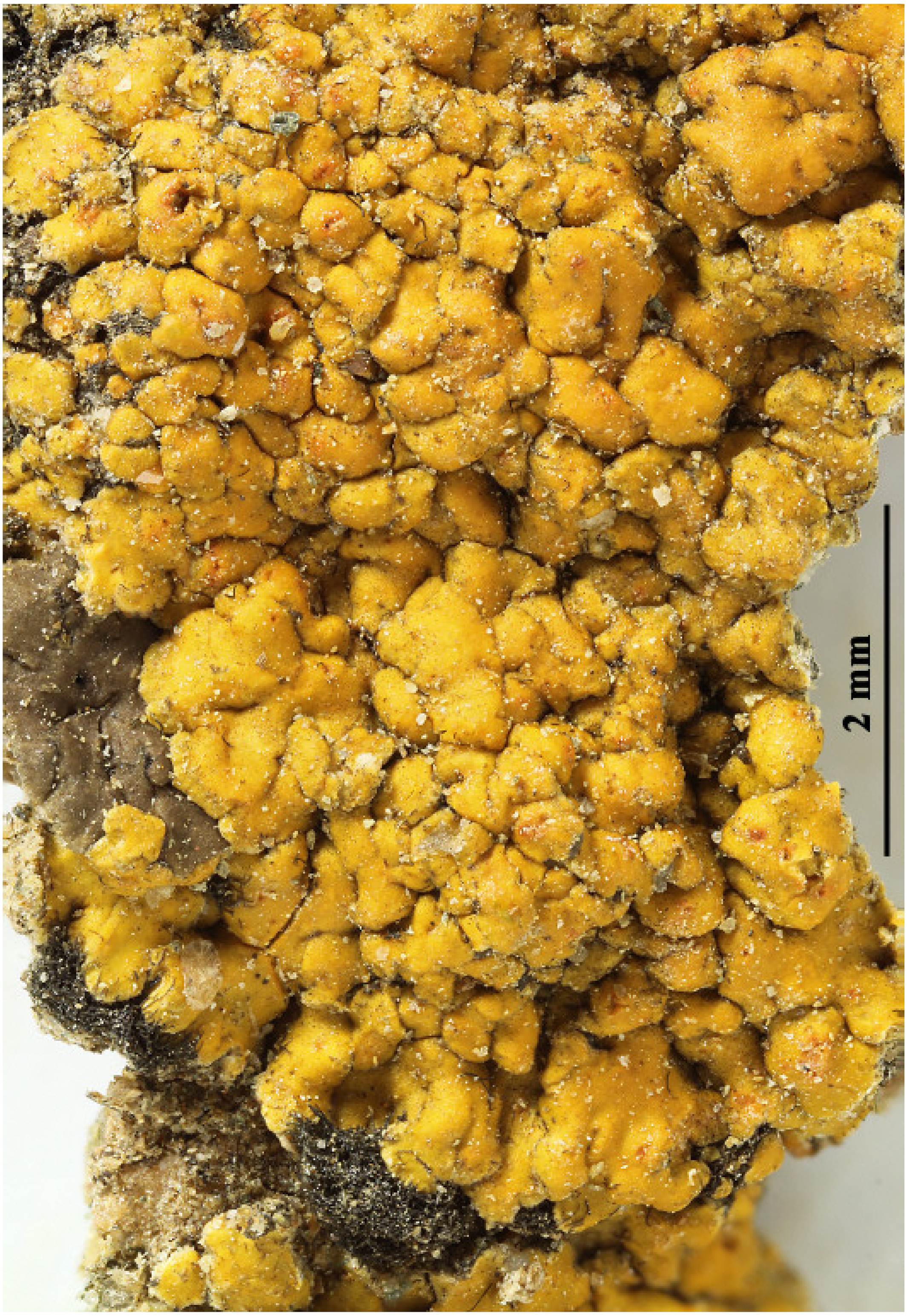


Caloplaca brachyloba

Caloplaca brachyloba (Müll.Arg.) Zahlbr.

On stones.

[ABL 21394], Brazil, Ceará, Quixadá, Açude Cedró, trilha da Galinha, 04°58’ S, 39°03’ W, 250 m, on gneiss in Caatinga. Leg. M. Cáceres & A. Aptroot, 31.03.2014, det. A. Aptroot 2014.

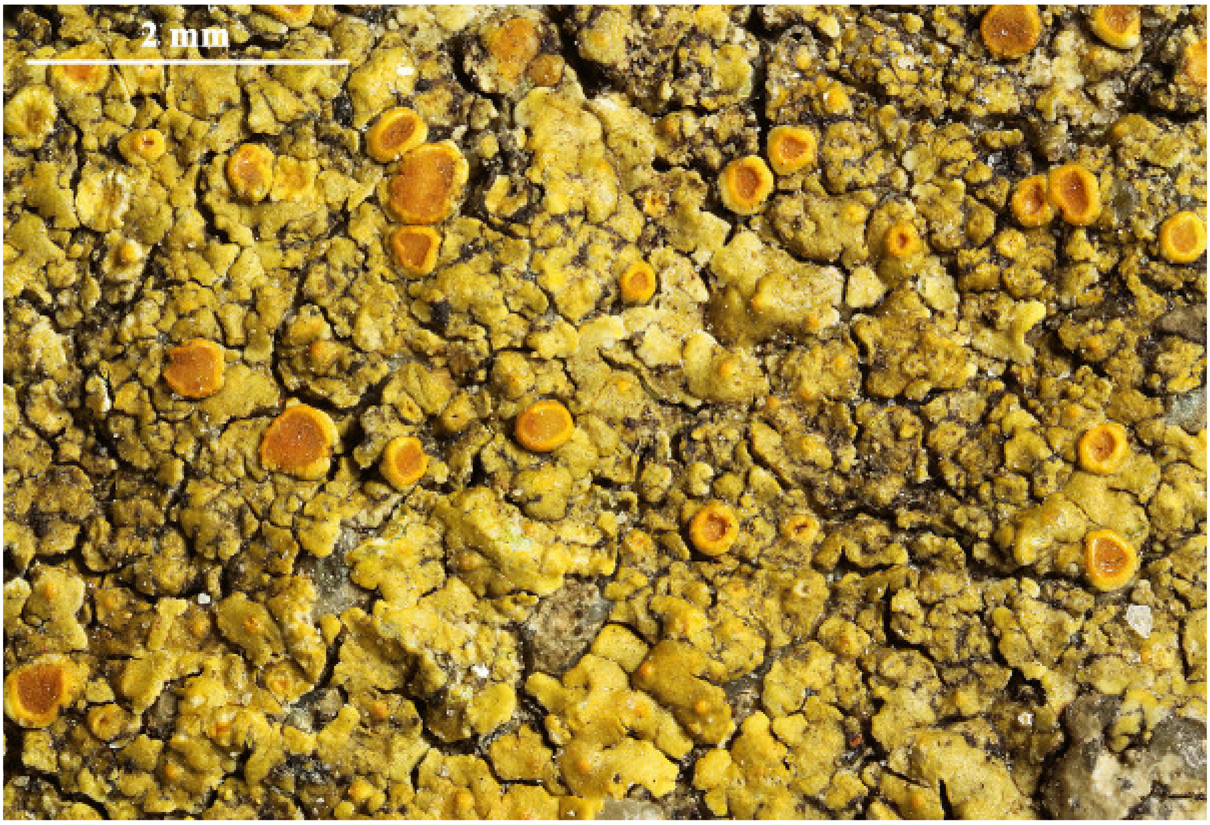


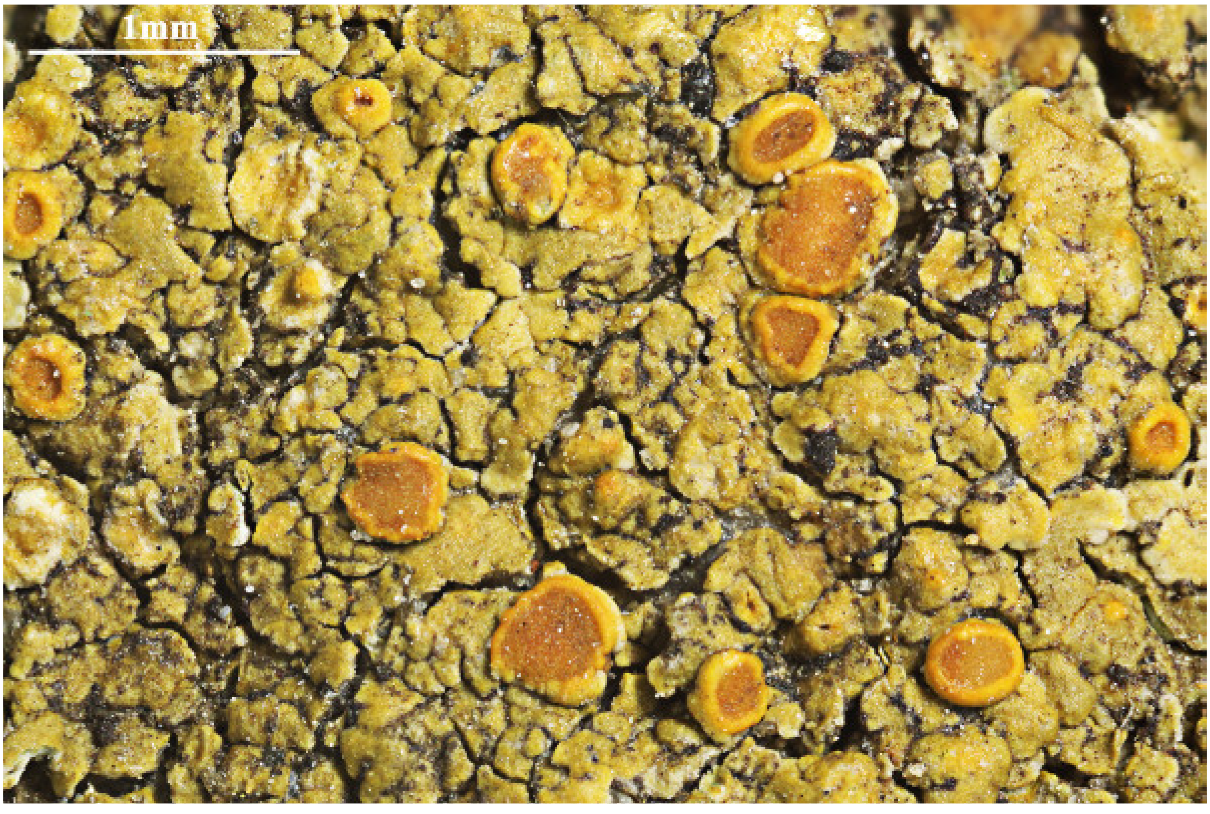
Caloplaca brachyloba

Caloplaca brachyloba (Müll.Arg.) Zahlbr.

On stones.

[ABL 21423] Brazil, Ceará, Quixadá, Serra do Estevão, near chapel, 04°55’44” S, 39°08’50” W, 250 m, on schistose rock in Caatinga. Leg. M. Cáceres & A. Aptroot, 1.04.2014, det. A. Aptroot 2014.





Caloplaca brachyloba

Caloplaca brachyloba

Caloplaca brattiae W.A. Weber
[= *Polycauliona brattiae* (W.A. Weber) Arup, Frödén & Søchting]
ISOTYPUS

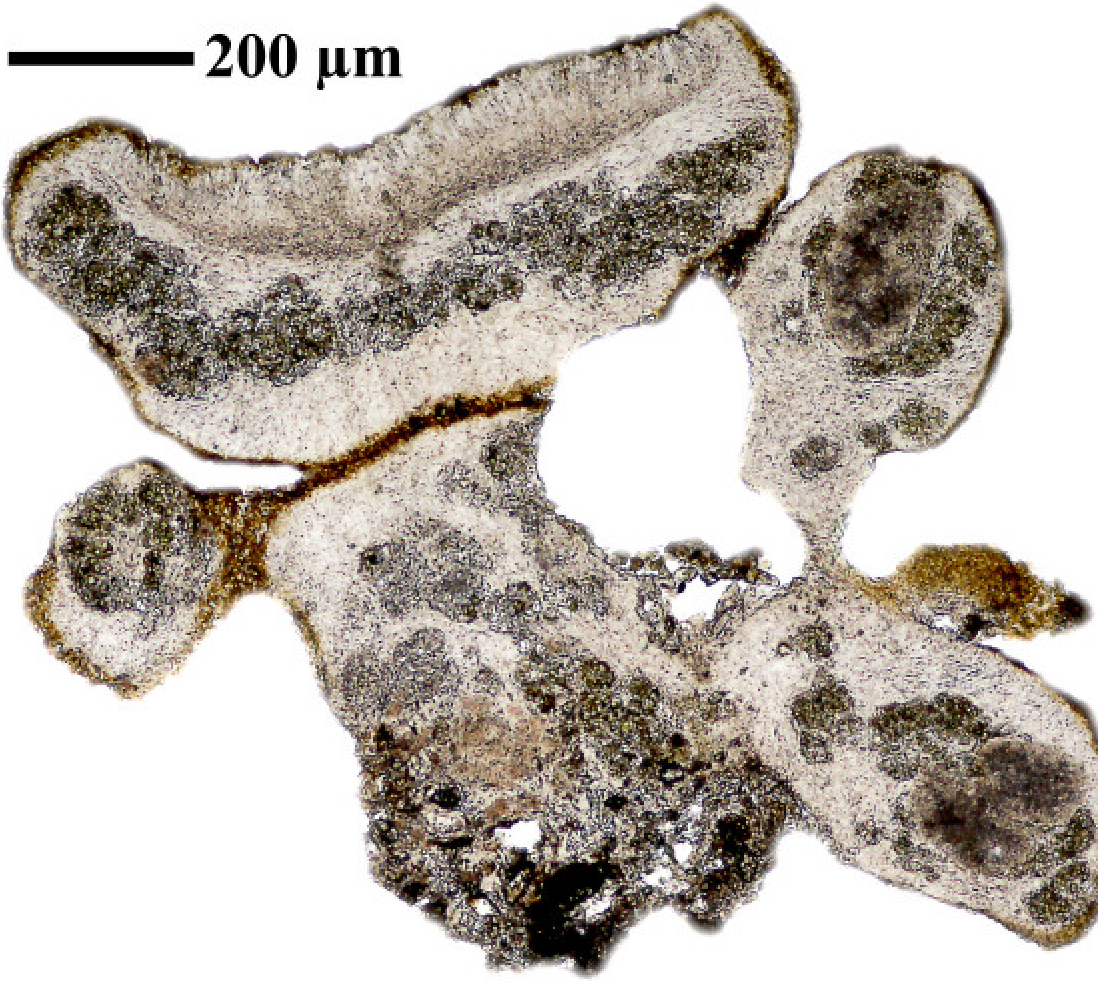
[B 60 0152231], U.S.A., California, Santa Barbara County, Chanel Islands, Santa Cruz Island, west end of the Island, on top of the rocky headland just above the spray zone, ca. 50-100 m; an almost pure stand dominating the level or gently sloping area; occurring with *Caloplaca rosei* Hasse and sometimes overgrown with *Xanthoria candelaria*. 34°01' N, 119°52' W. Leg. W.A. Weber & C. Bratt, 8. January 1986. WEBER: LICHENES EXSICCATI NO 660.

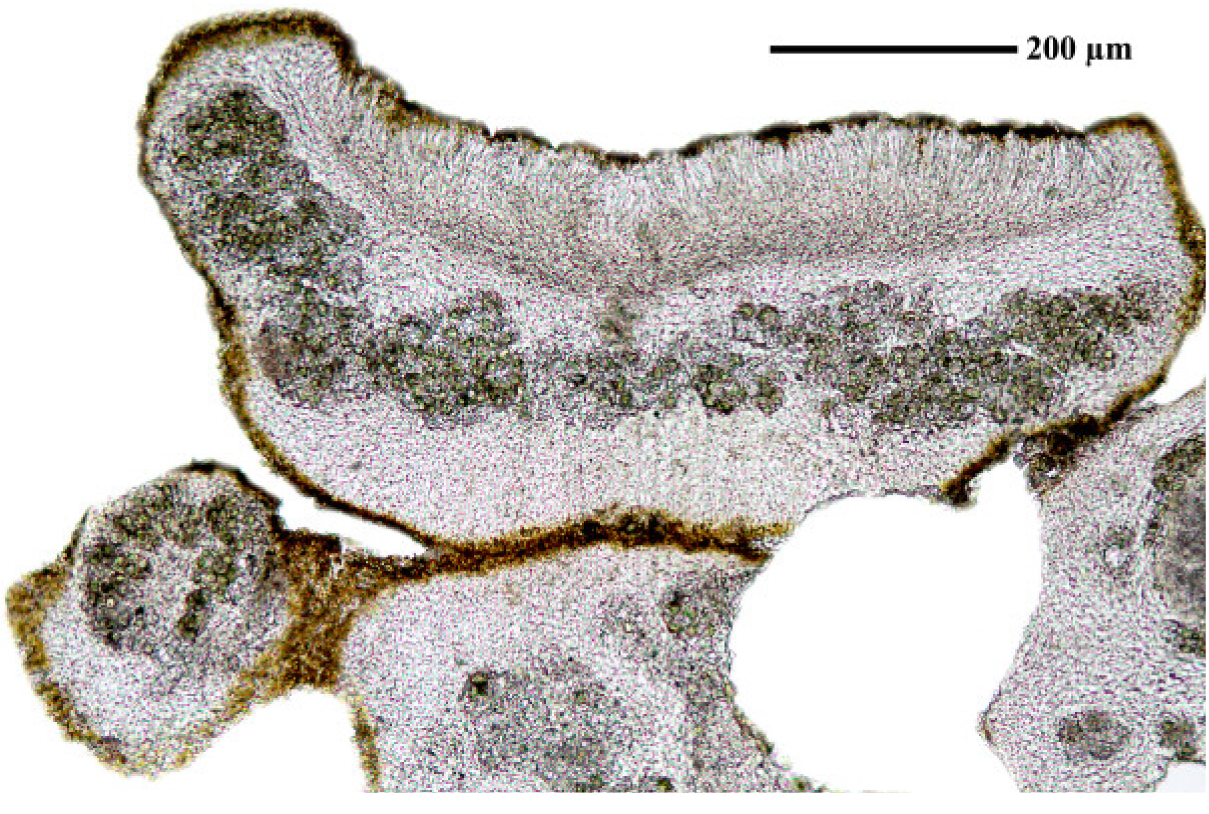
Caloplaca brattiae

Caloplaca brattiae

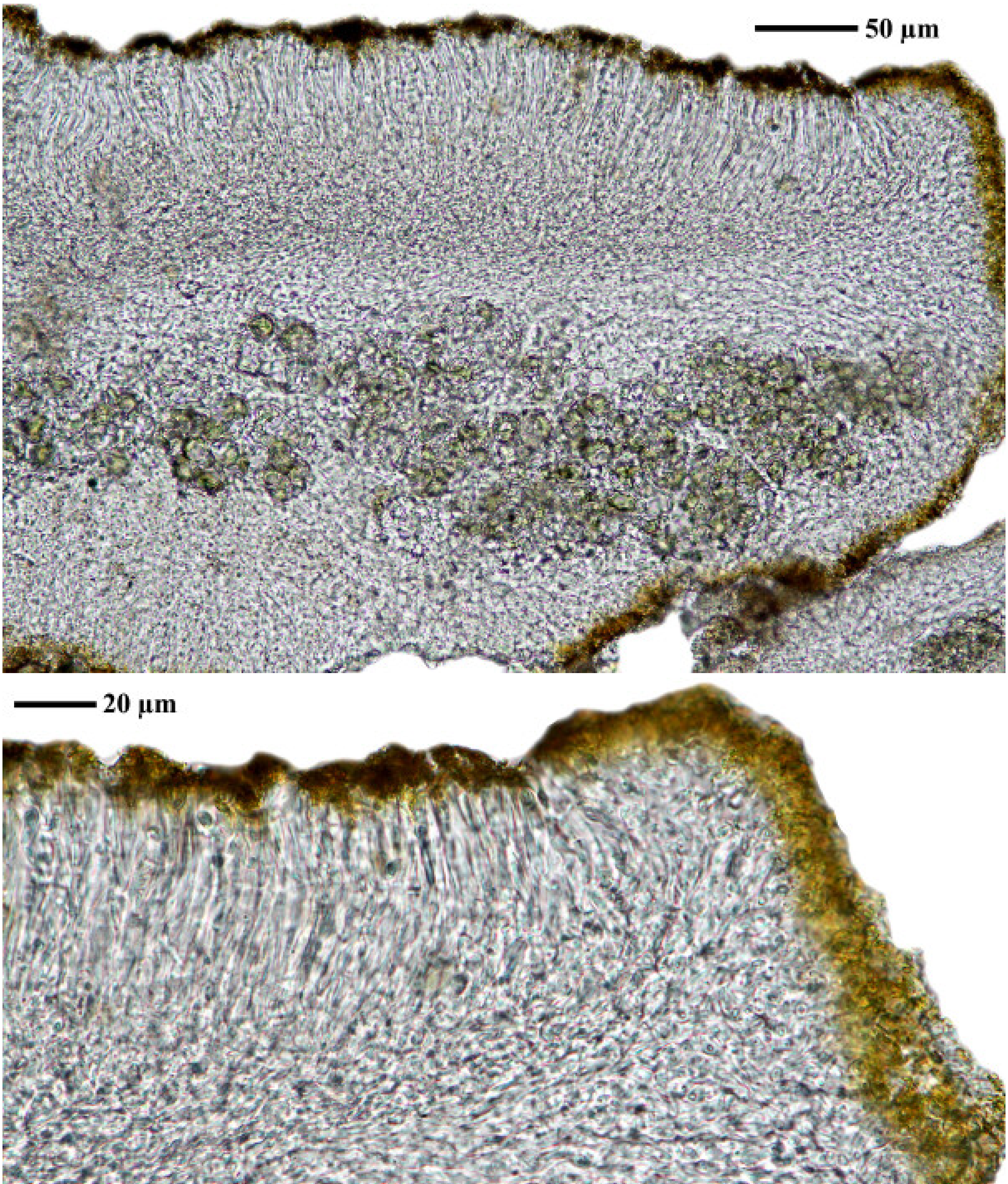
Caloplaca brattiae

Caloplaca brattiae

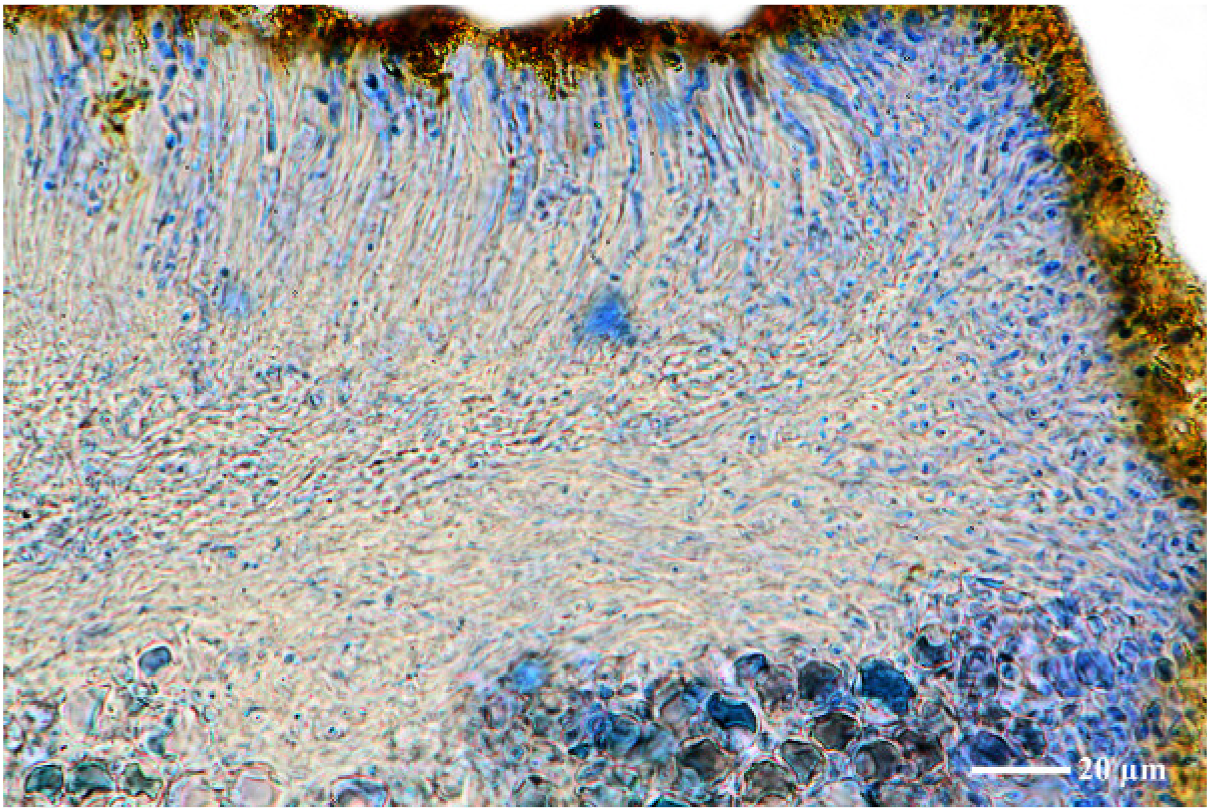


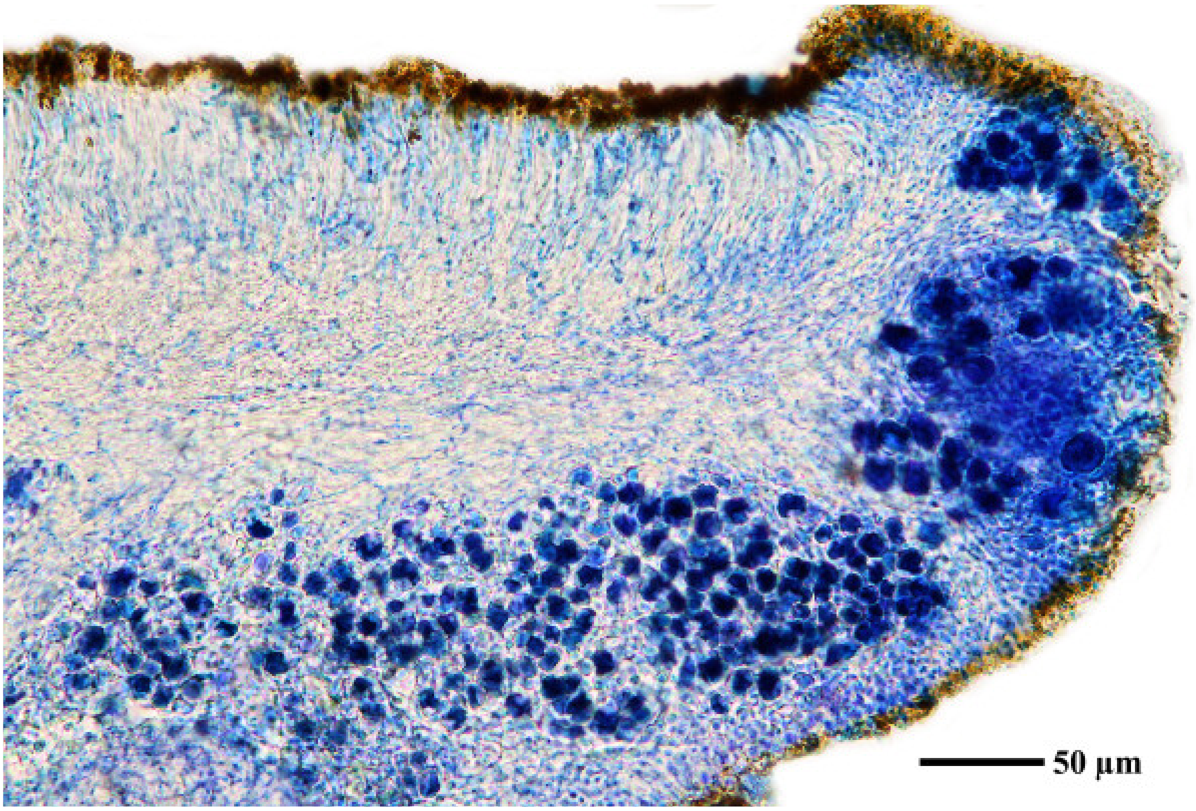


Caloplaca brattiae

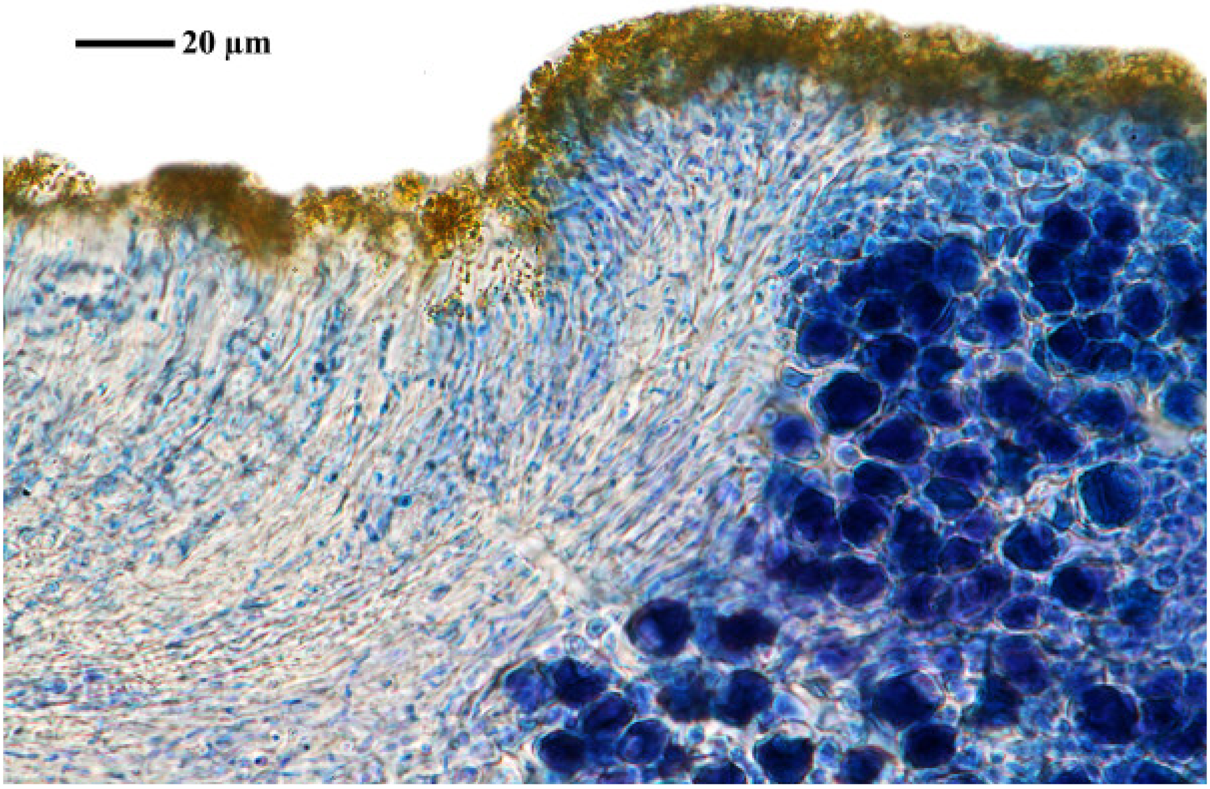


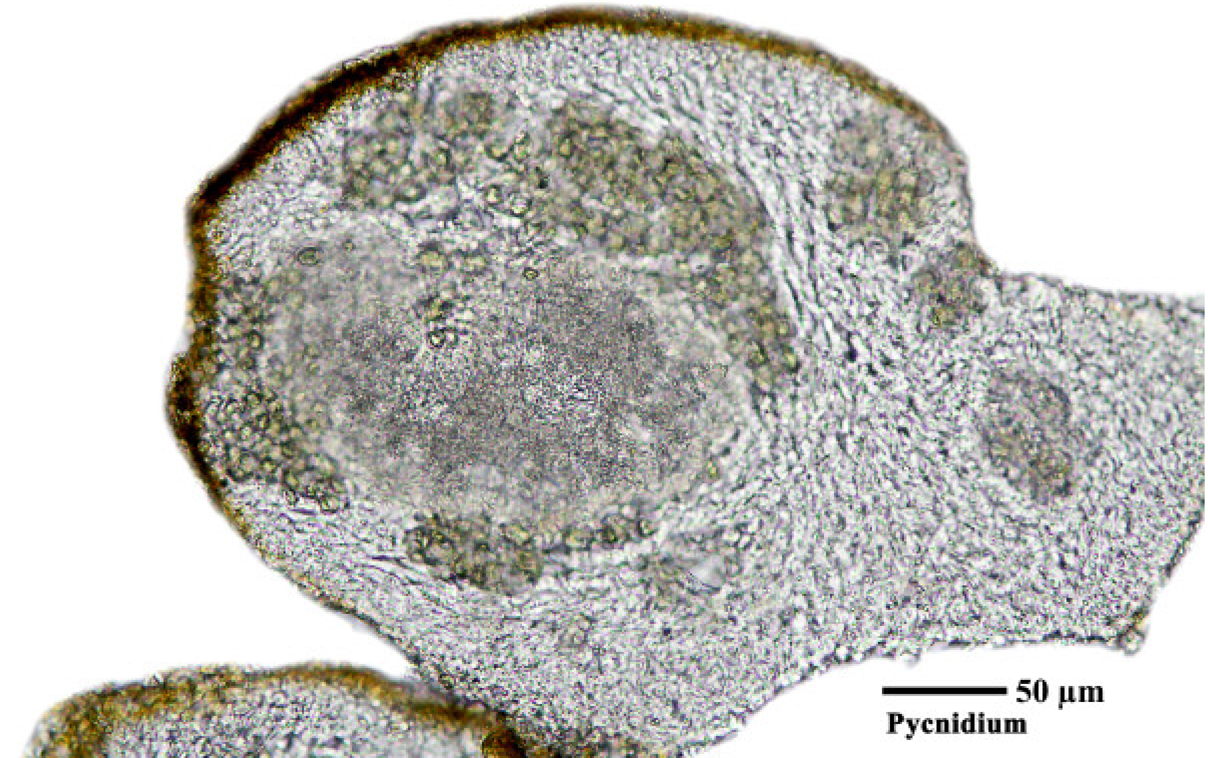
Caloplaca brattiae



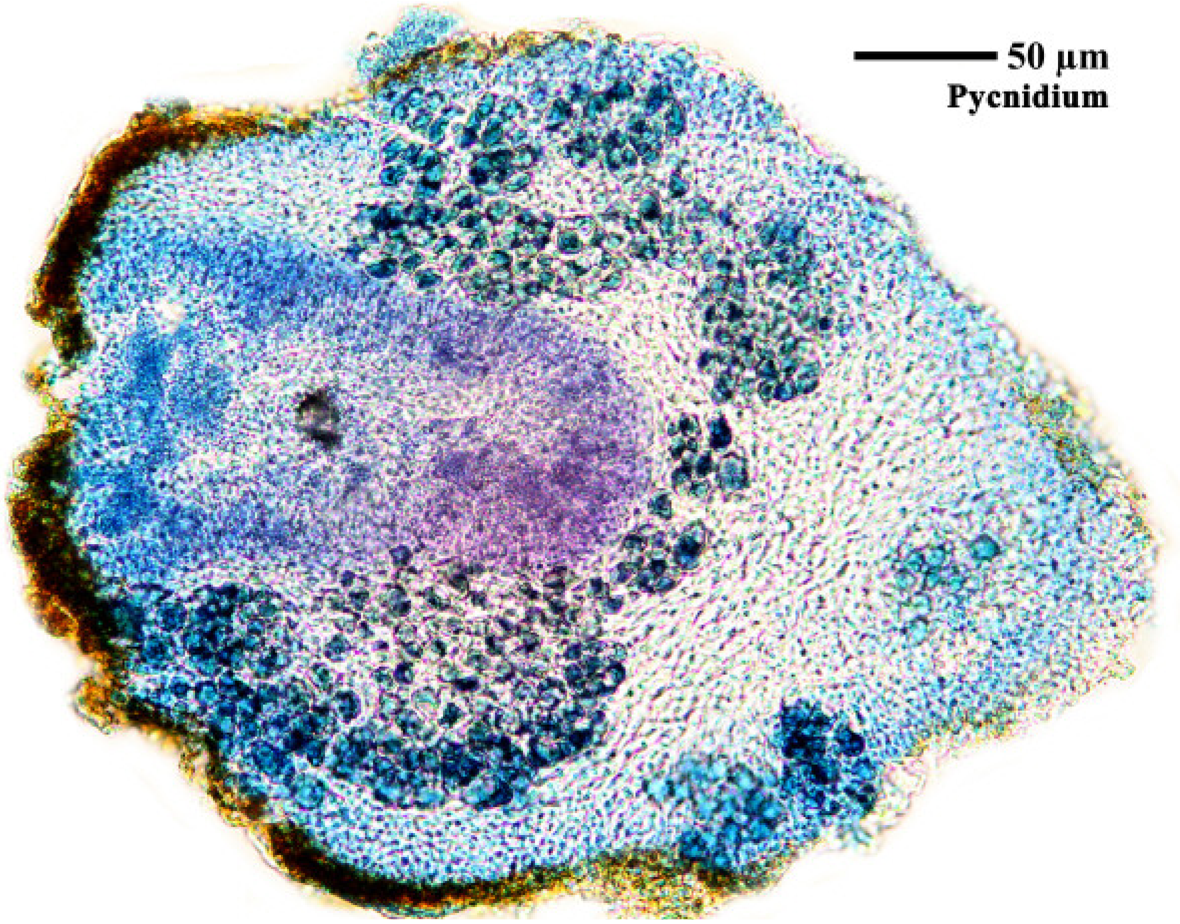


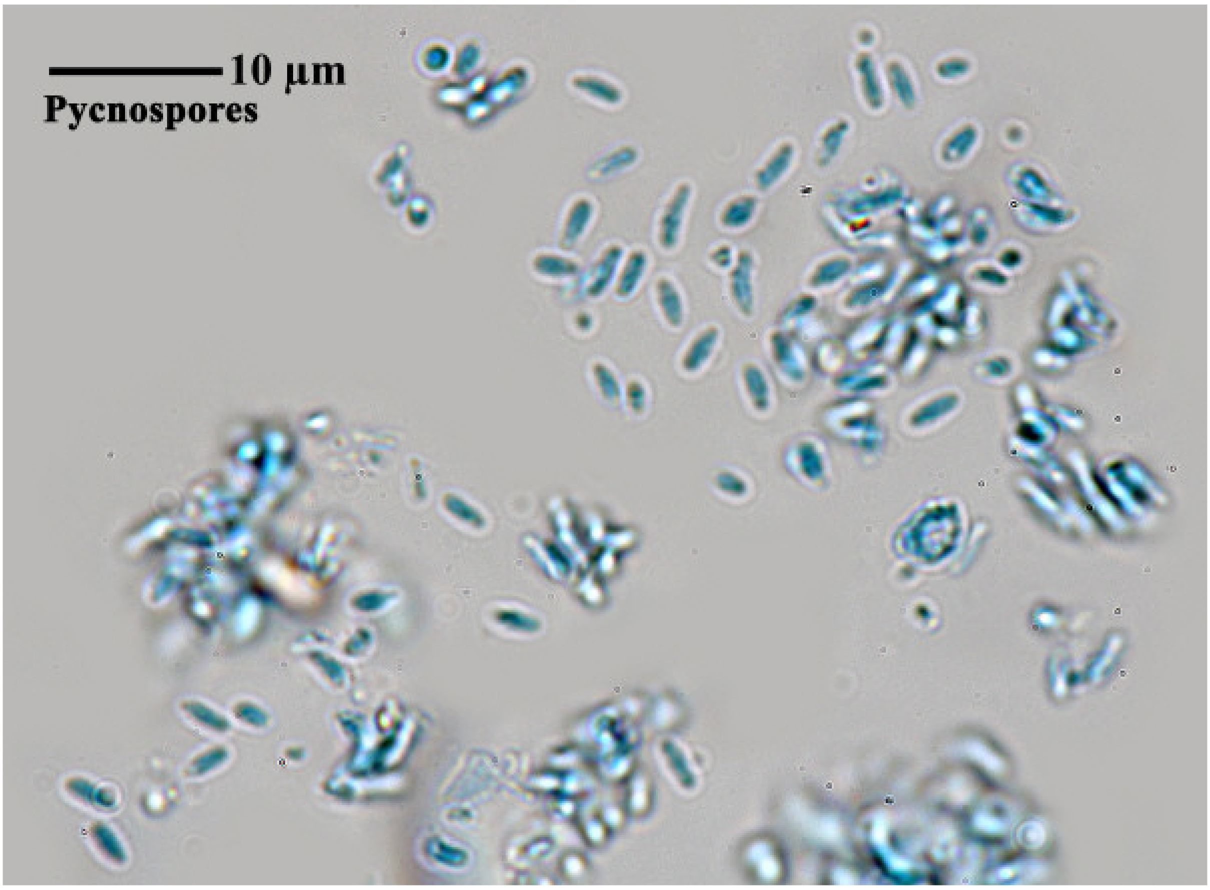
Caloplaca brattiae





Caloplaca brattiae





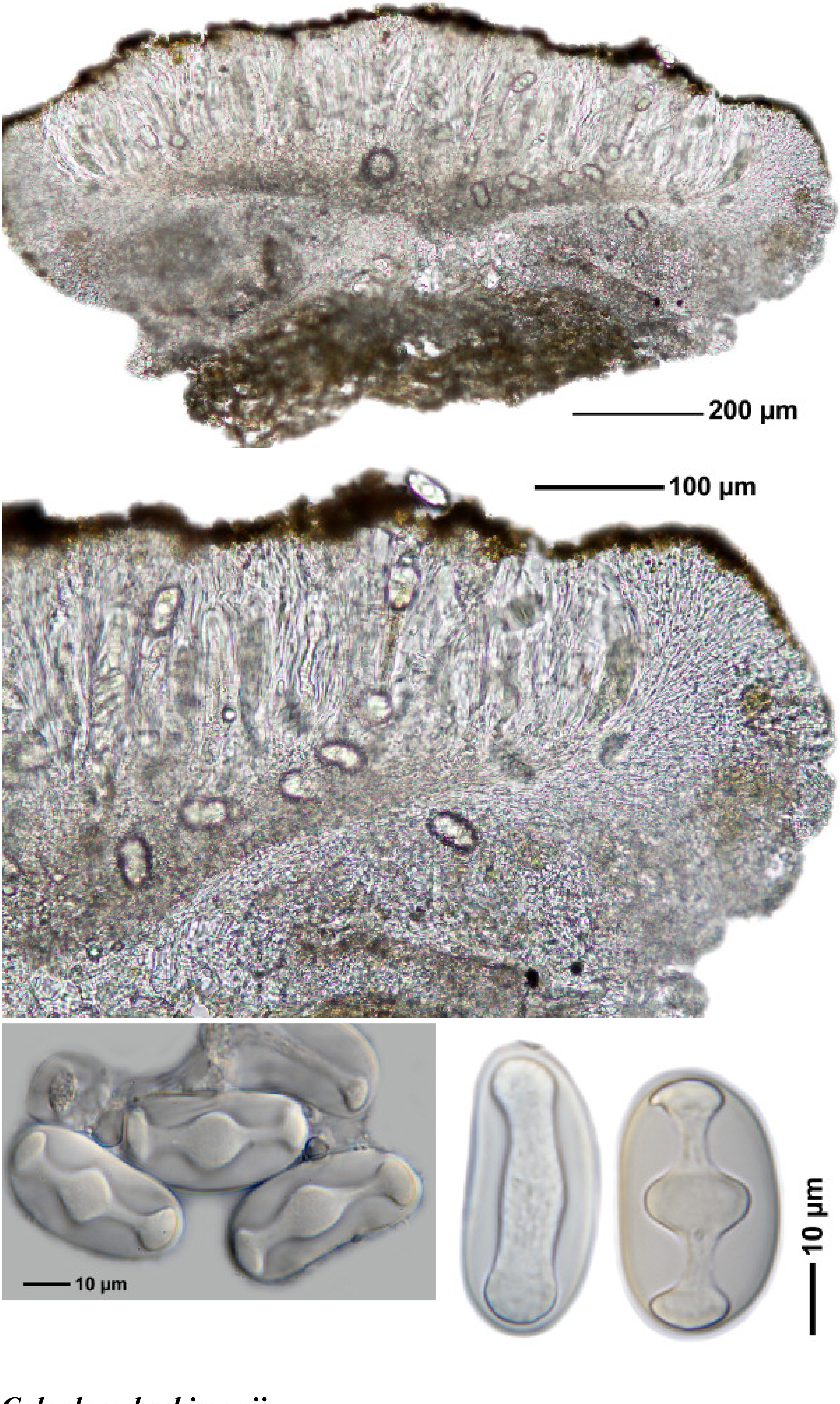
Caloplaca brattiae

Caloplaca brebissonii (Fée) J. Sant. ex Hafellner & Poelt, J. Hattori bot. Lab. 46: 18 (1979)

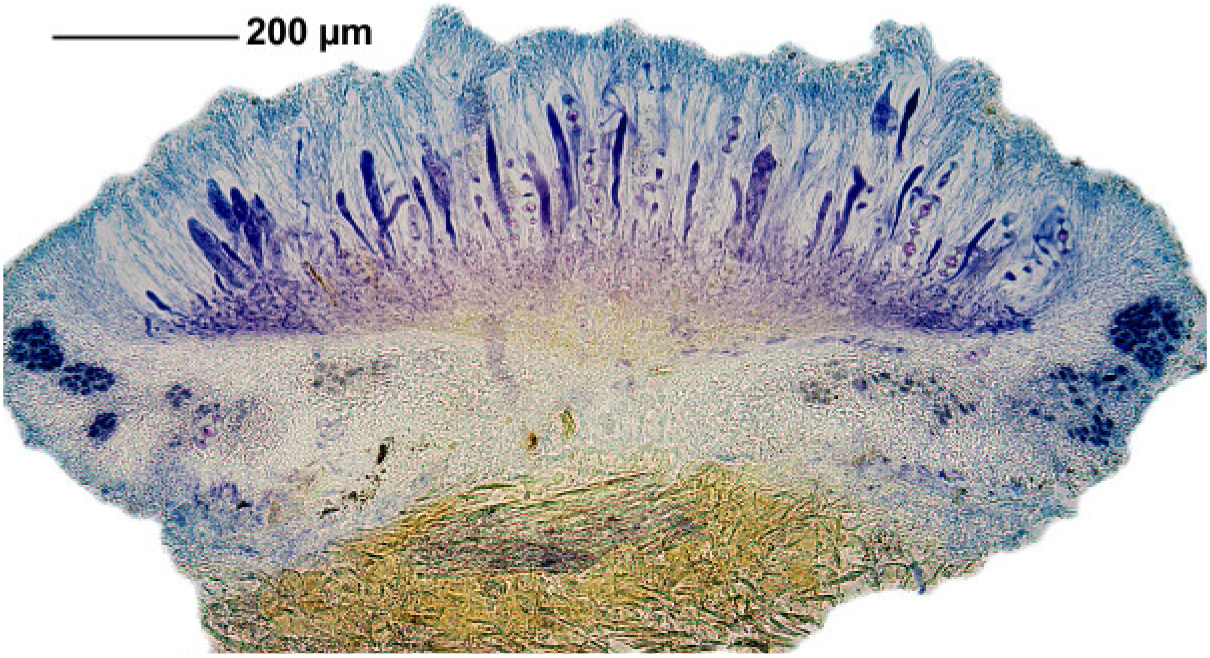
Paraphysen an den Enden unverdickt, büschelig verzweigt. Sporen hyalin, 8/ascus, mit 3 Lumina, 36-40 x 18-22 µm. On bark.

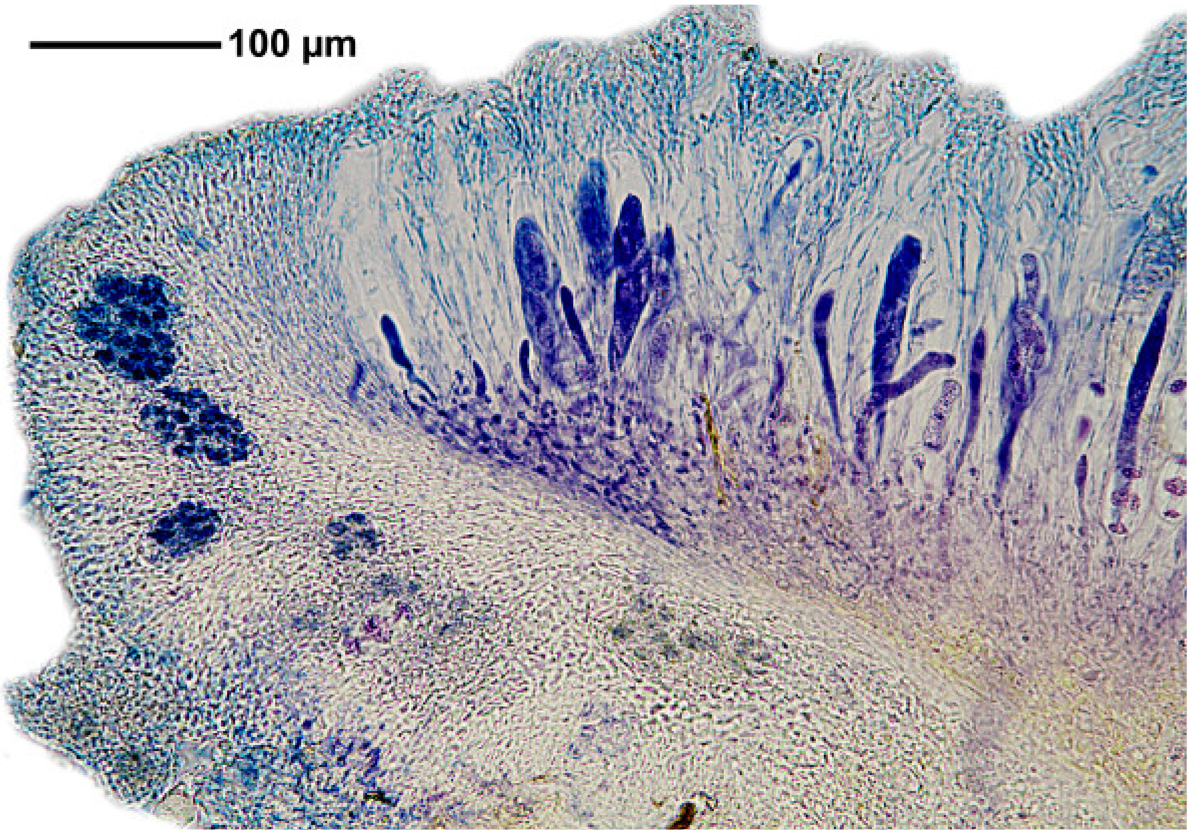
[17128], Venezuela, Merida. Distr. Rangel, zwischen Santo Domingo und Apartaderos, 8°50' N, 70°45' W, an älteren Büschen in Paramo-Vegetation. 2900 m. Leg. K. & A. Kalb, 05.08.1989. KALB: LICHENES NEOTROPICI 453.

Caloplaca brebissonii

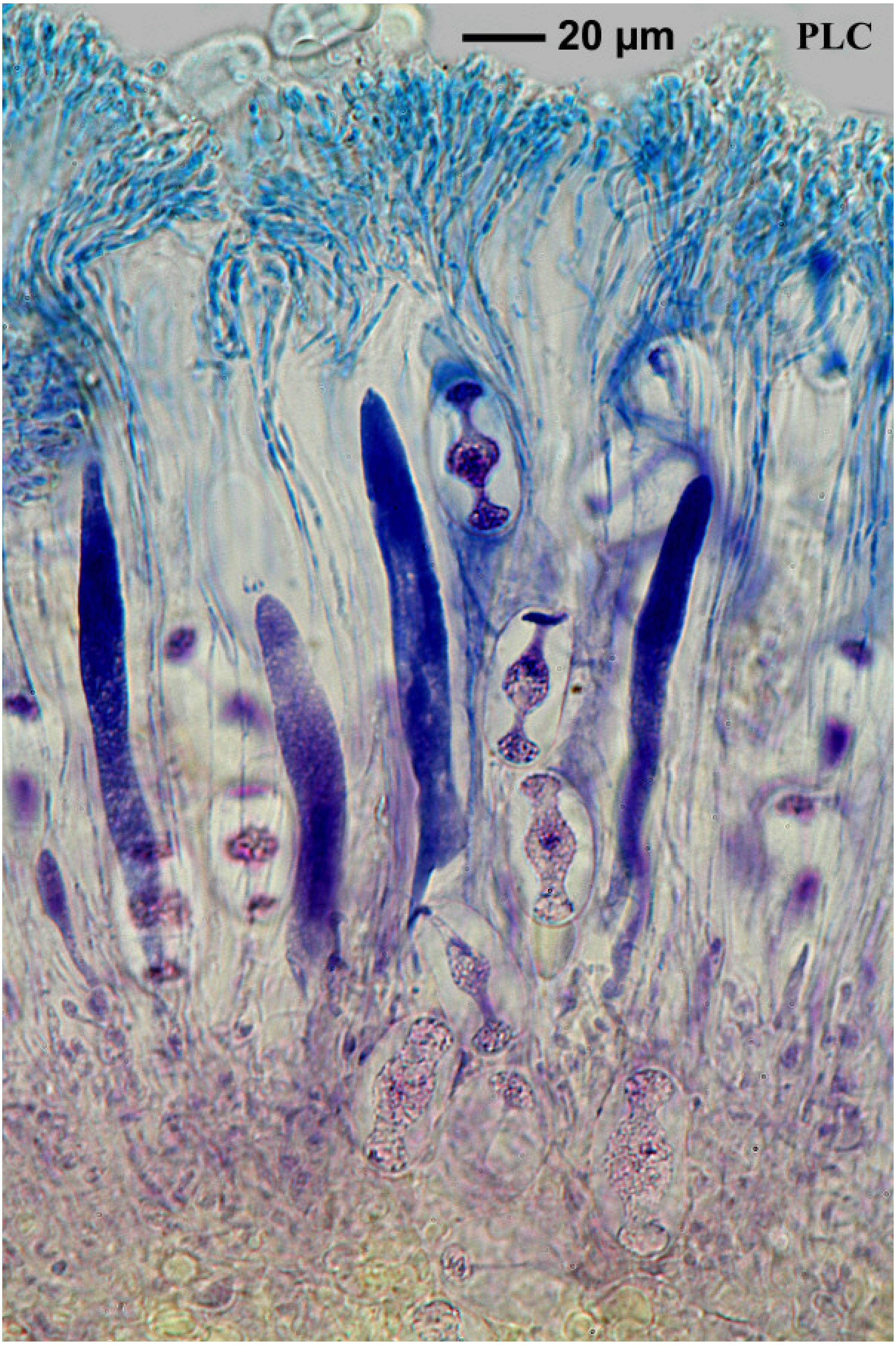


Caloplaca brebissonii

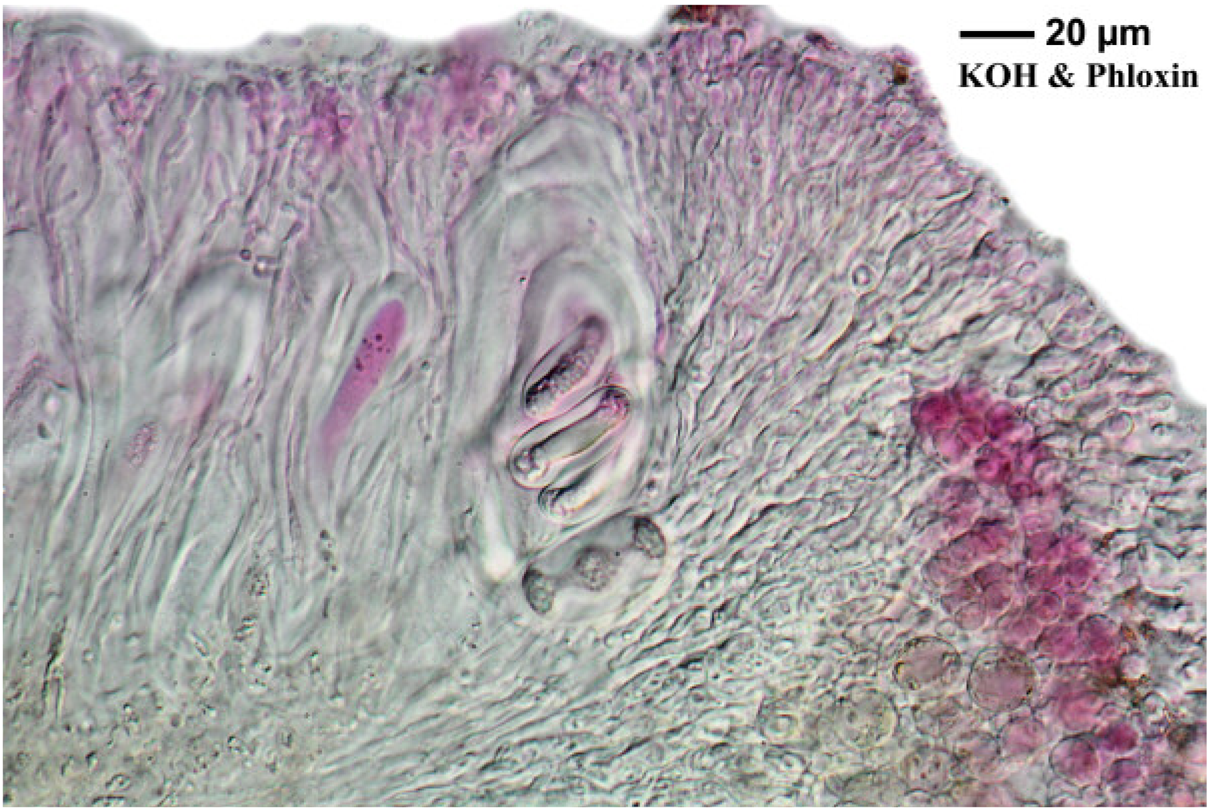


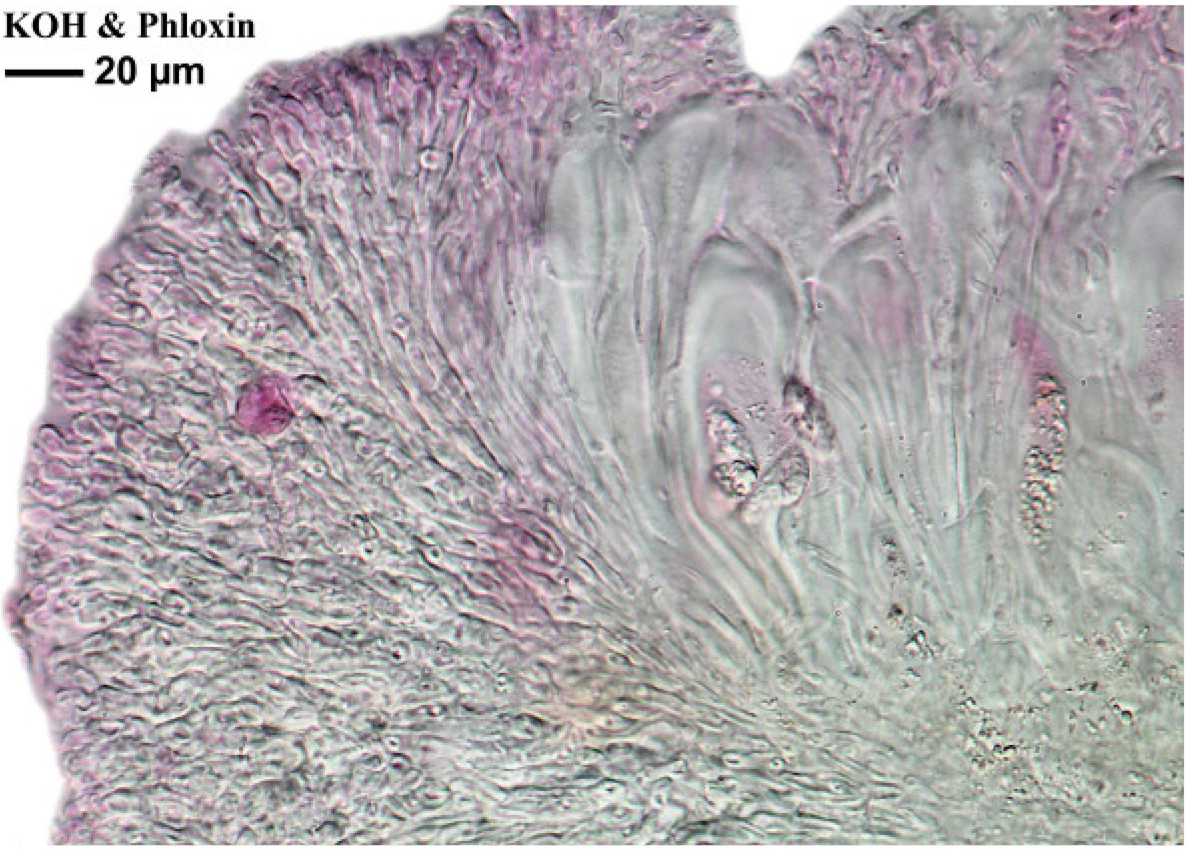


Caloplaca brebissonii



Caloplaca brebissonii



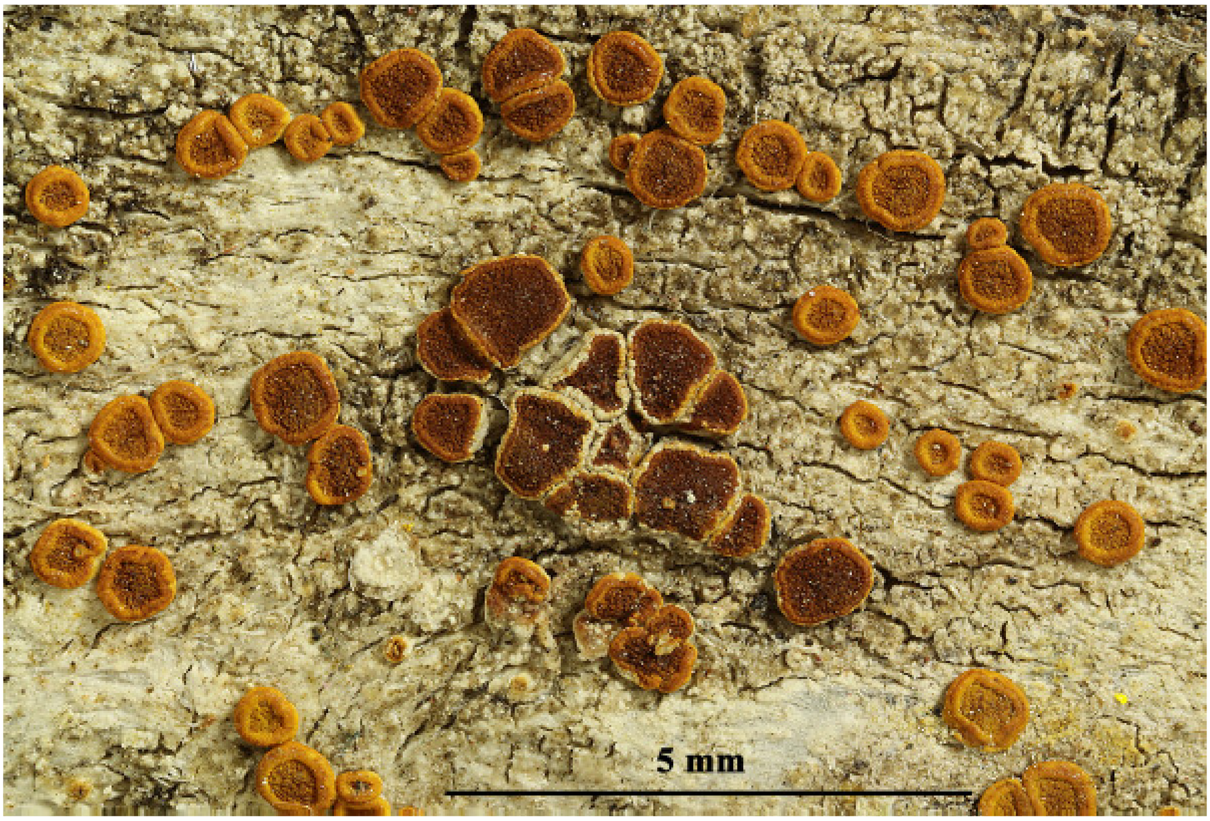


Caloplaca brebissonii

Caloplaca brebissonii (Fée) J. Sant. ex Hafellner & Poelt, J. Hattori bot. Lab. 46: 18 (1979)

On wood.

[18157], Ecuador, Tungurahua, etwa 20 km westlich von Baños, Aufstieg zum Zumbahua, an einem Weidezaun, 2850 m. Leg. K. & A. Kalb,17.08.1987. KALB: LICHENES NEOTROPICI 414.

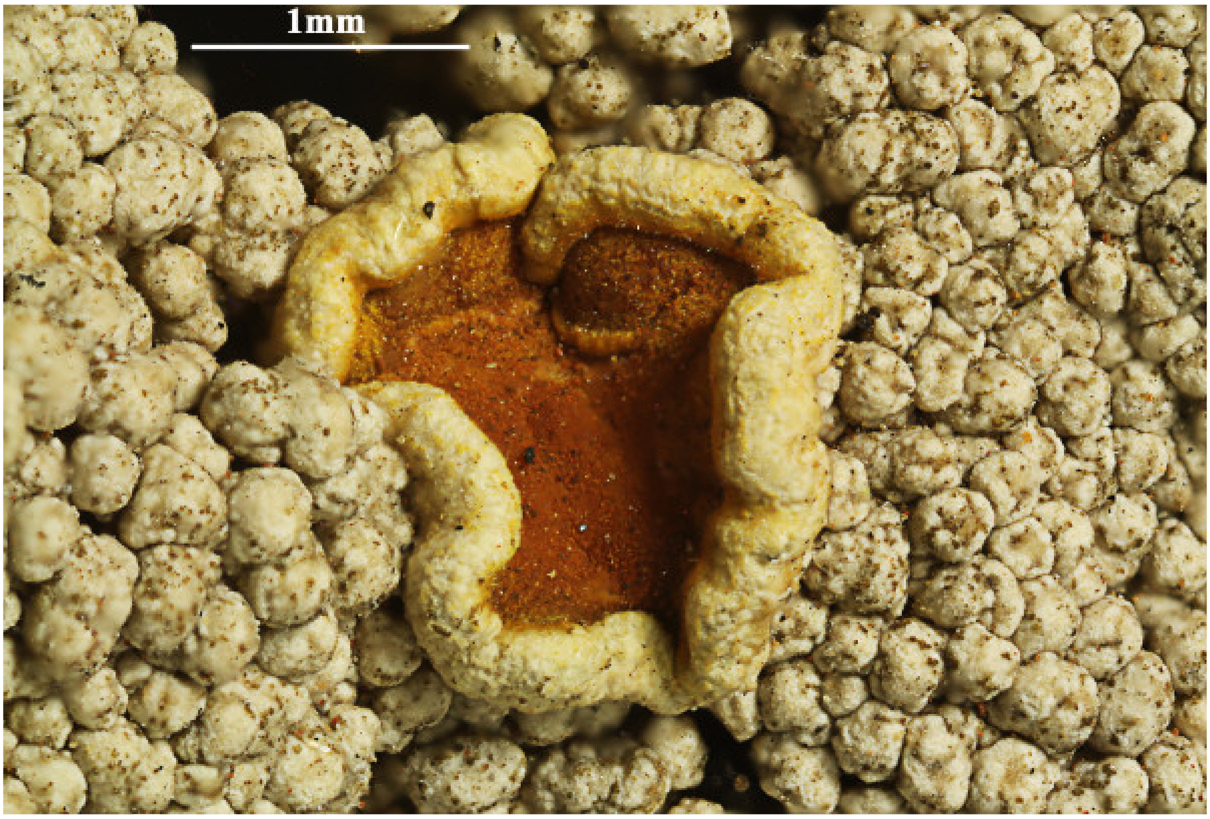


Caloplaca brebissonii

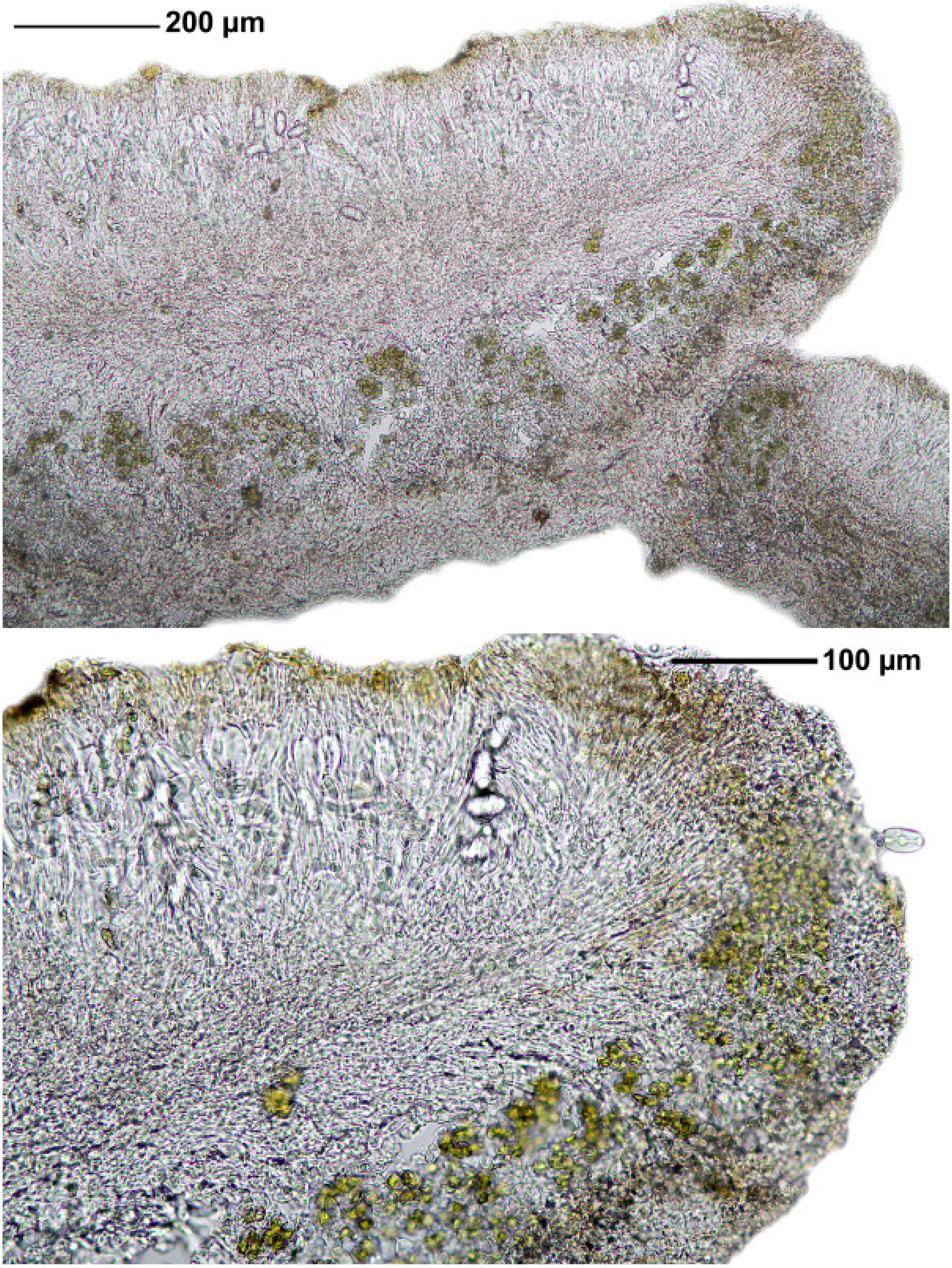
Caloplaca brebissonii (Fée) J. Sant. ex Hafellner & Poelt, J. Hattori bot. Lab. 46: 18 (1979)

On bark. Spores trilocular, hyaline, 8/ascus, 28-33 x 14-17 µm.

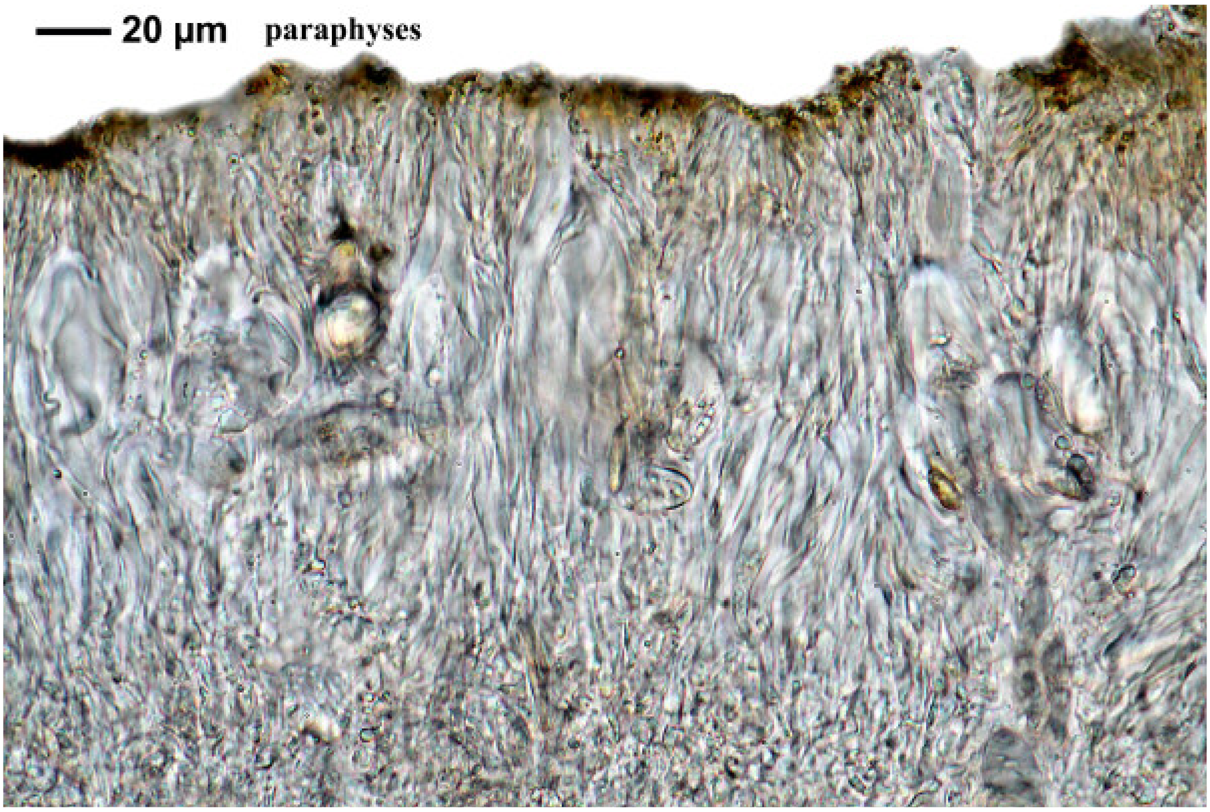
[ABL 13636], Brazil, Sao Paulo, Botucatu, Botanical garden on campus, 22°53’09” S, 48°29’56” W, 850 m, on bark in park. Leg. M. Cáceres & A. Aptroot, 13.09.2012, det. A. Aptroot 2012.

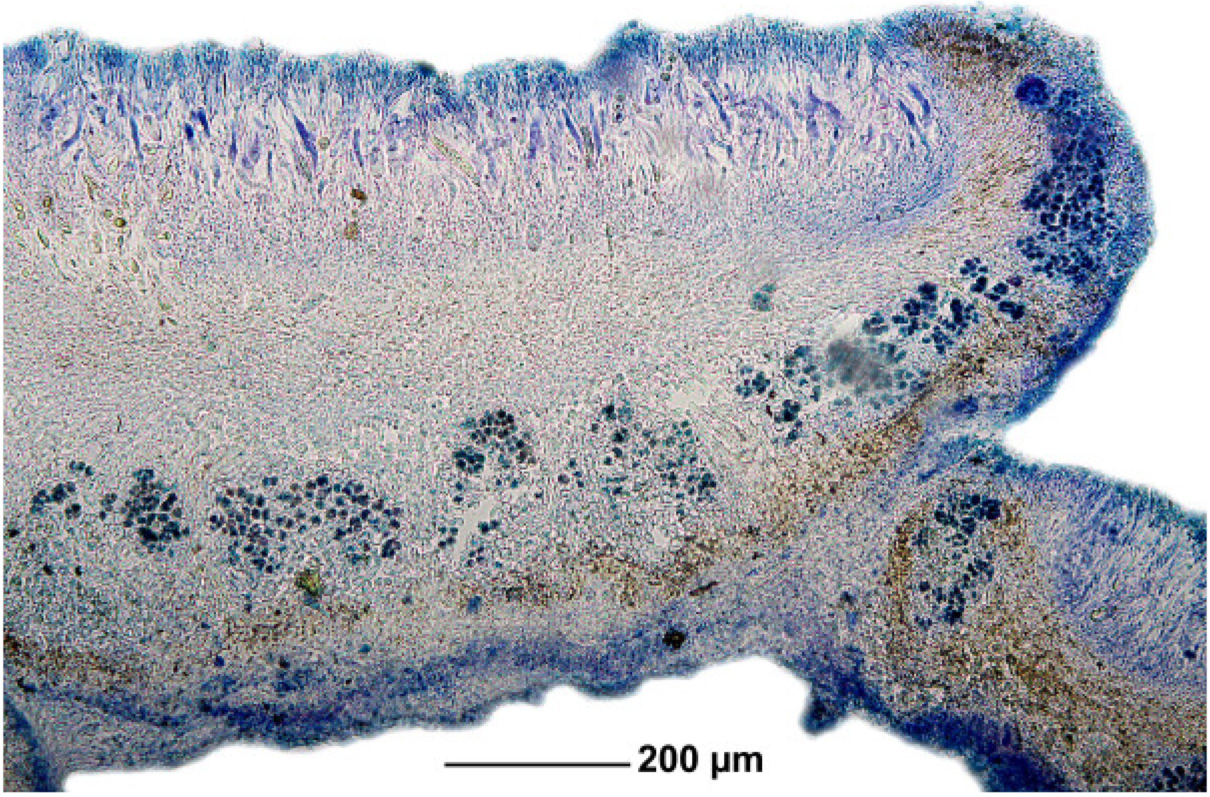


Caloplaca brebissonii

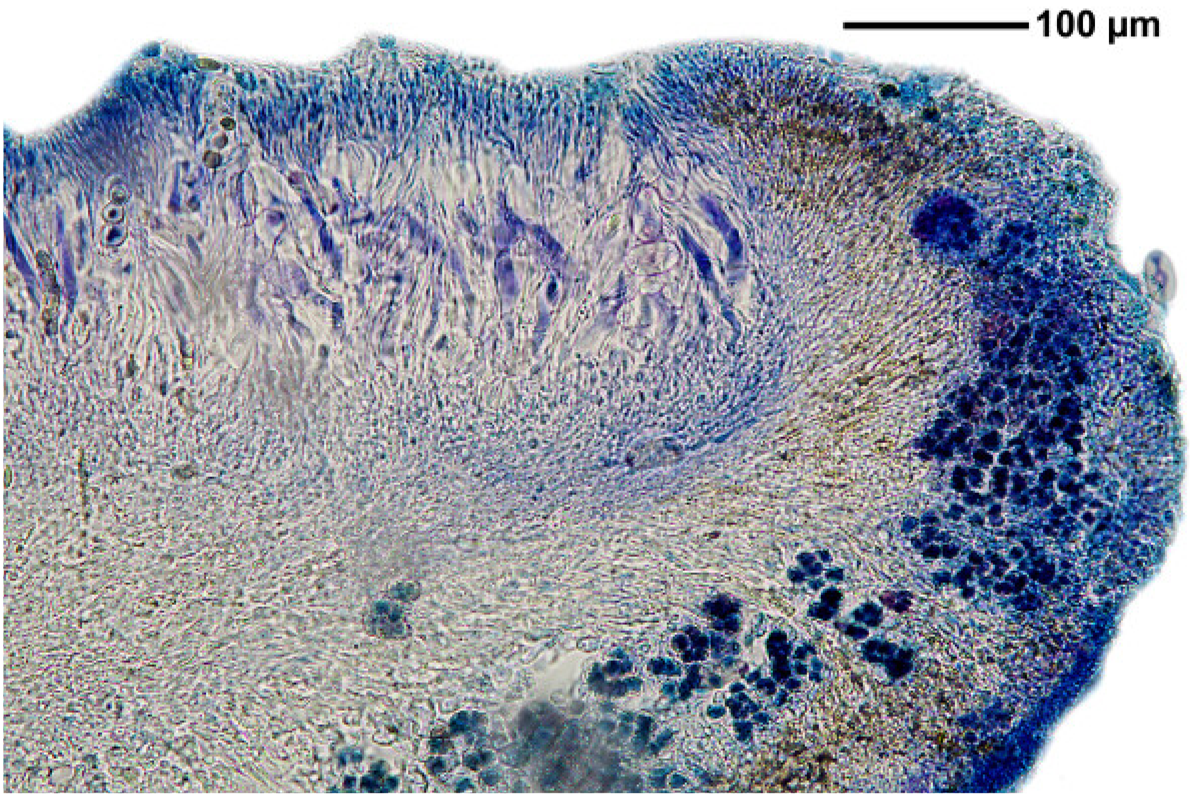


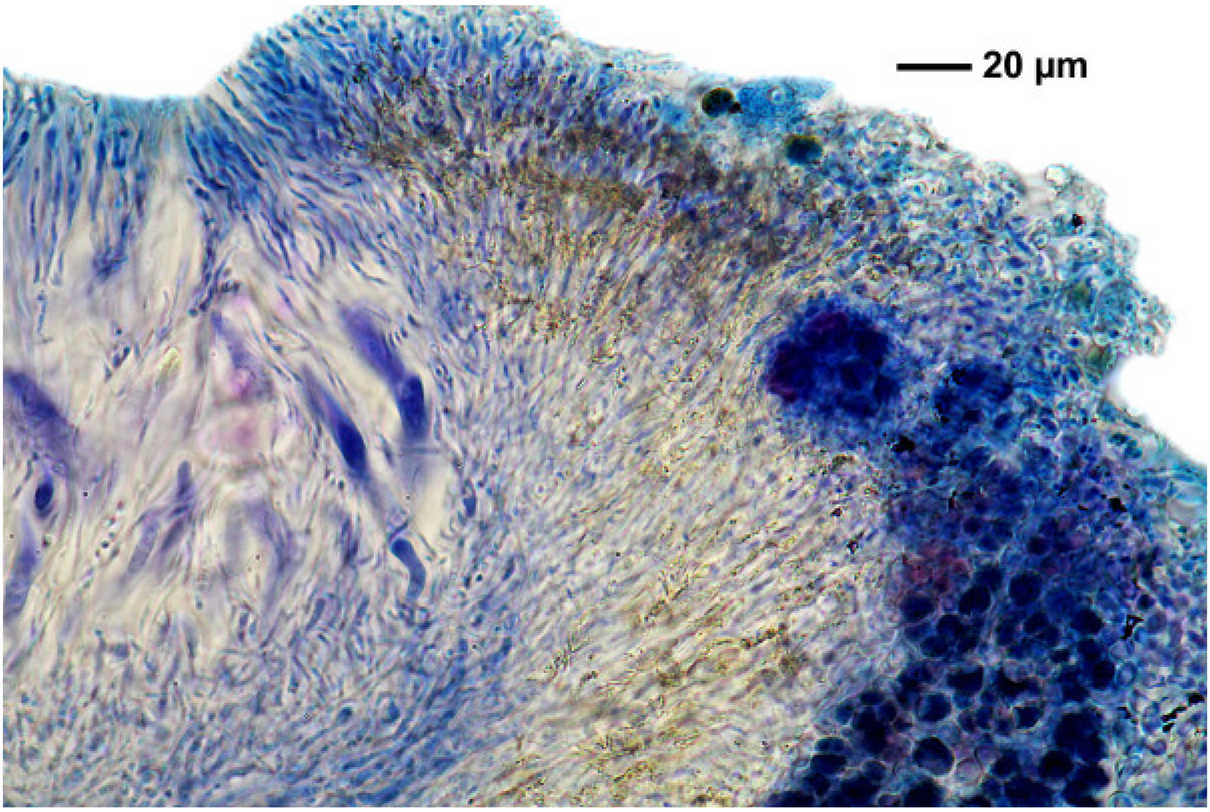
Caloplaca brebissonii



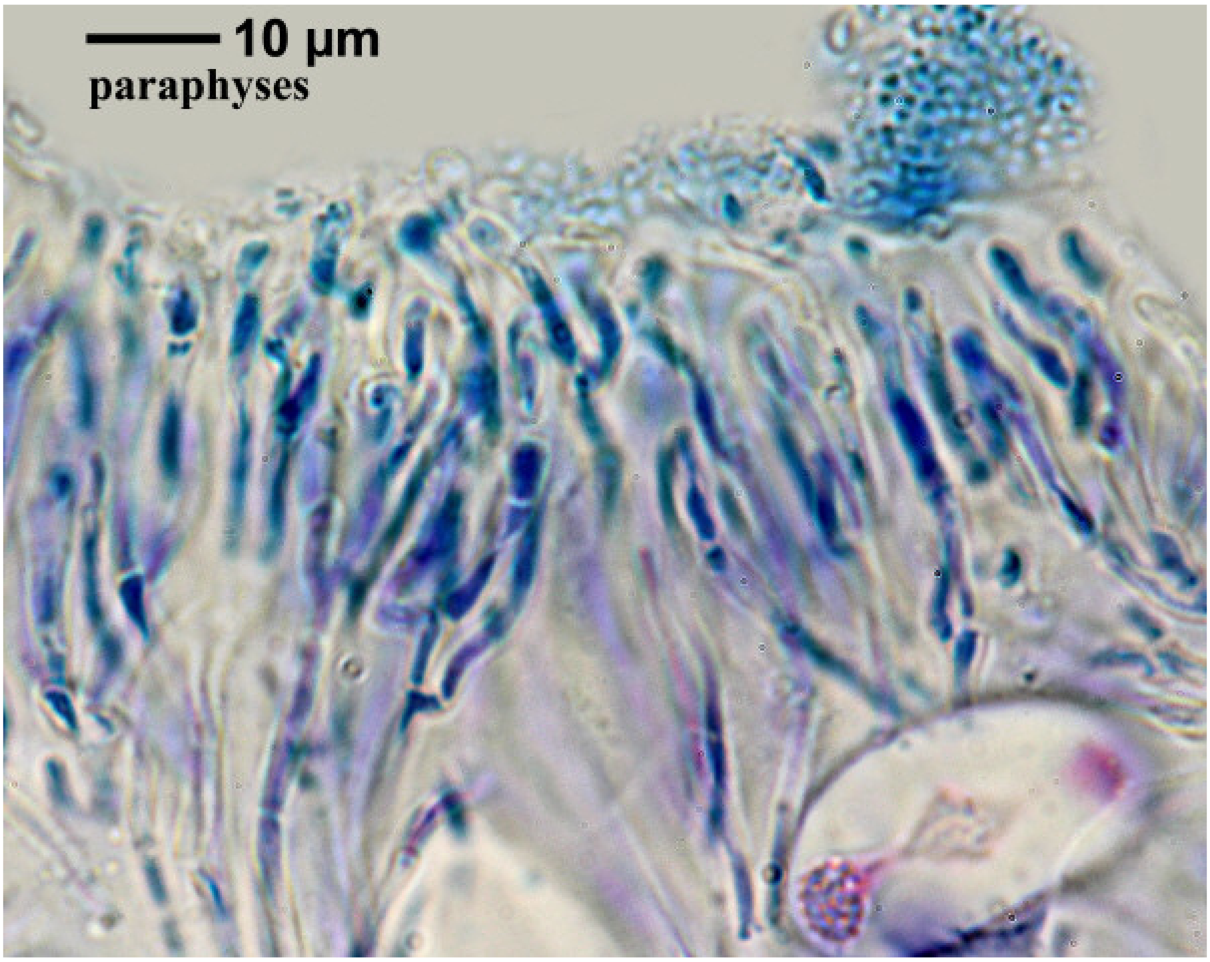


Caloplaca brebissonii





Caloplaca brebissonii



Caloplaca brebissonii

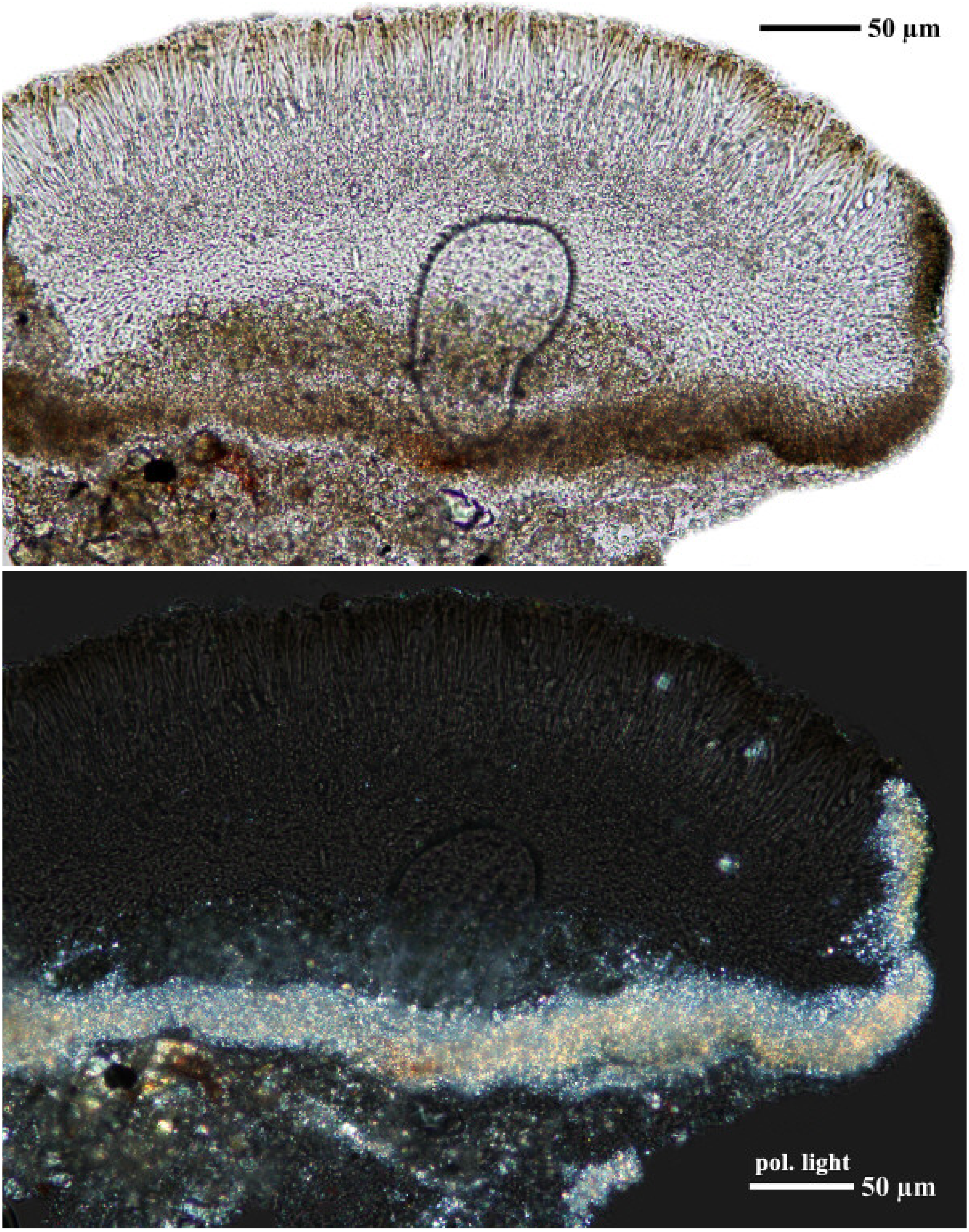
Caloplaca brittonii (Zahlbr.) Aptroot comb. nov., Mycobank No MB 830433

Basionym: *Blastenia brittonii* Zahlbr., Mycologia 15(2): 84 (1923)

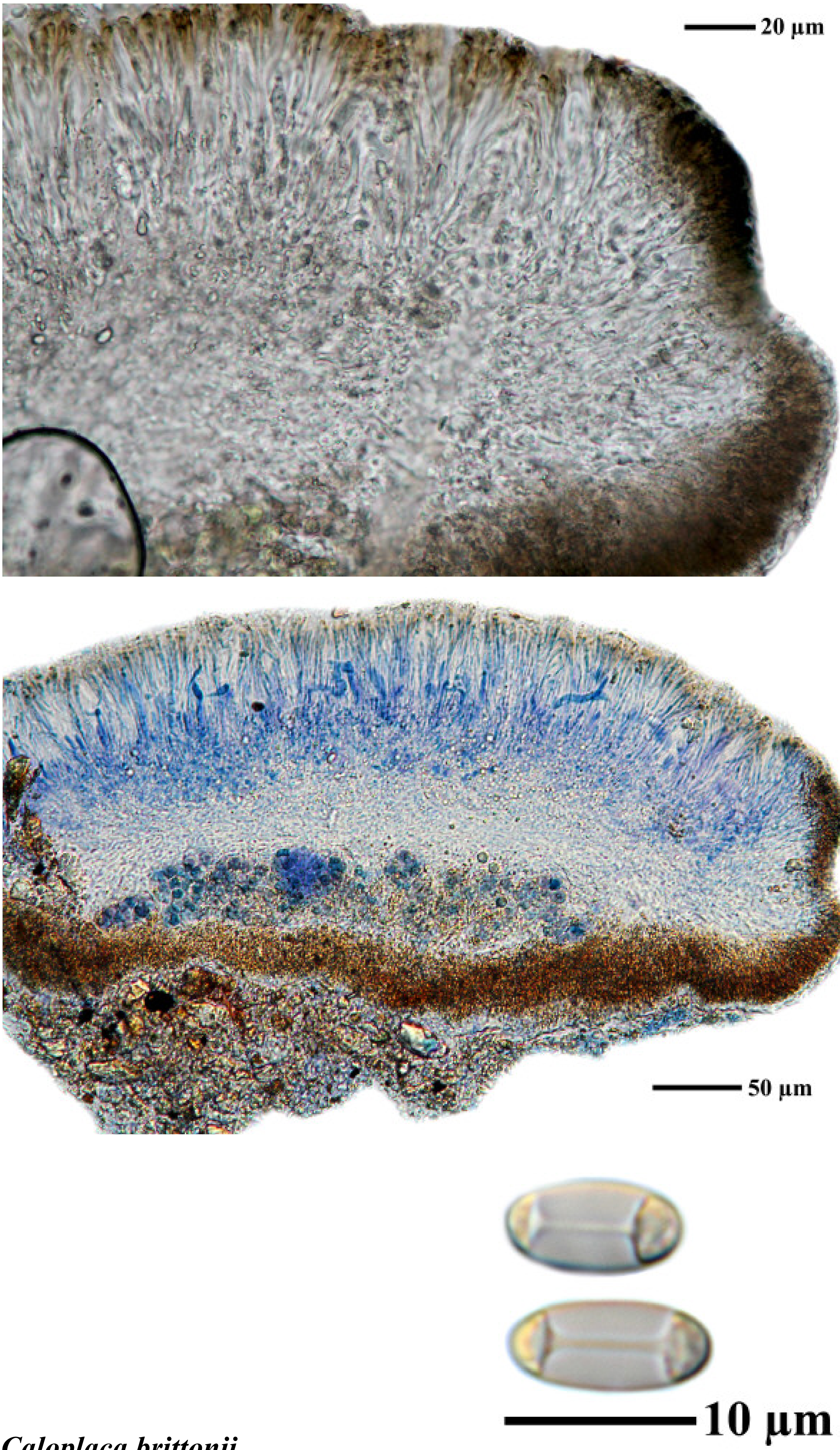
Spores 10-11 x 3-3.5 µm, septum long (AA); spores 8.5-11 x 4.5-5 µm, septum 5.3-6.4 µm (FS)

[BR5030040668255], USA, Puerto Rico, Distr. Mayaguez, Bosque estatal de Susua, along road from Almacigo Alto at road 371, km 4.7, forest remnants and road bank, on serpentine, 18° 04' N, 66°54' W, 100 m. Leg. A. & M. Aptroot (25930), 21-31 May 1989, det. A. Aptroot, 1989.

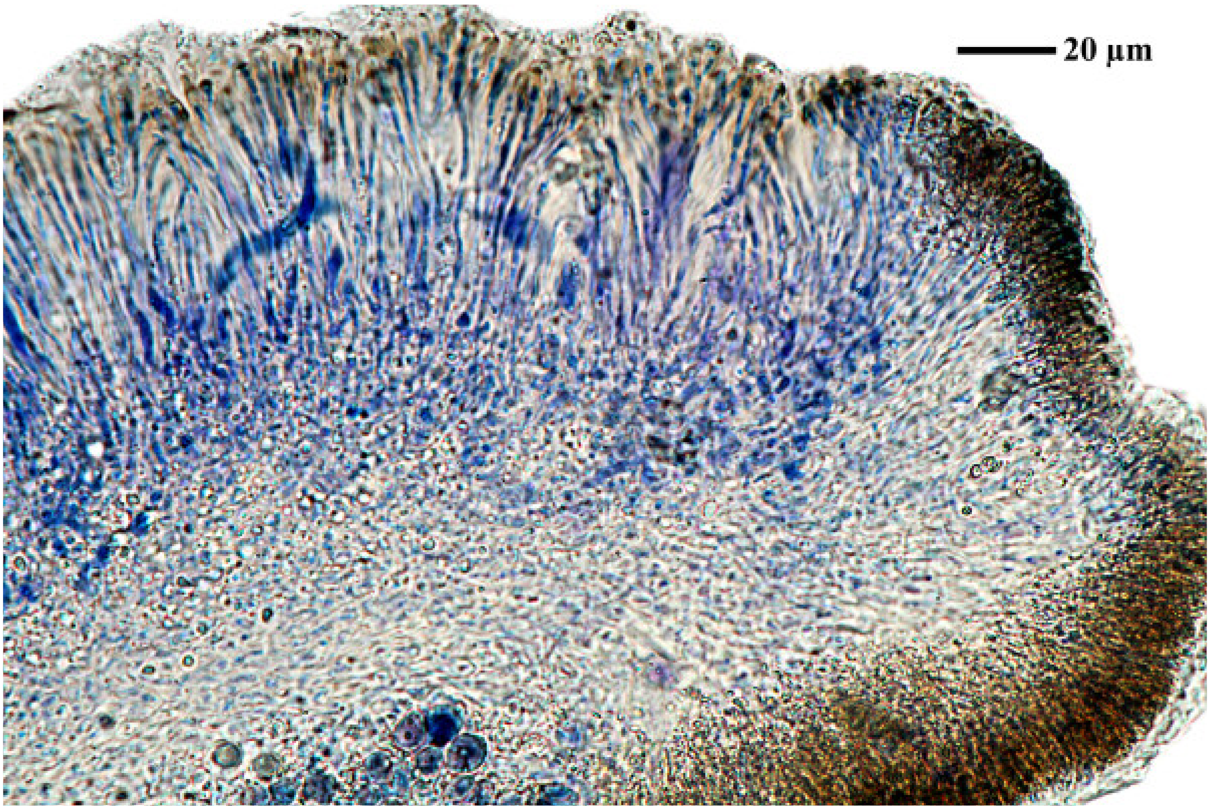
Caloplaca brittonii

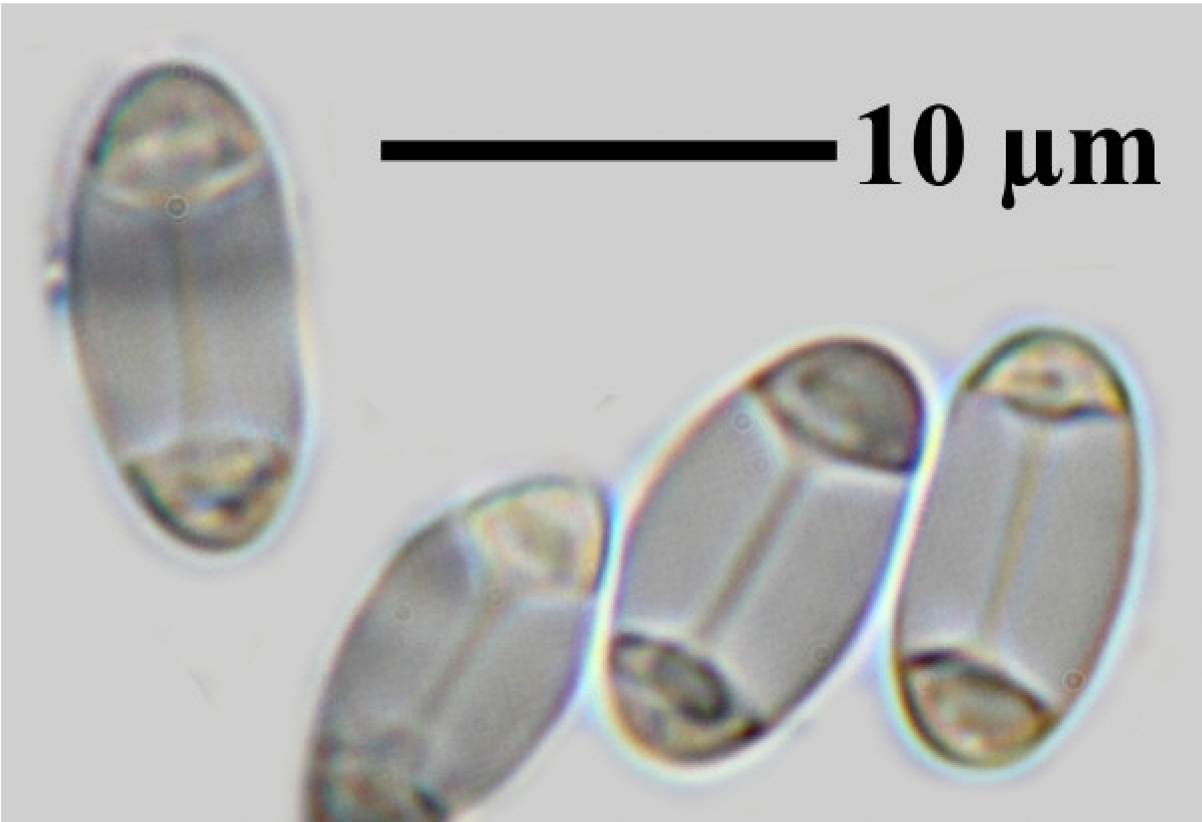


Caloplaca brittonii



Caloplaca brittonii



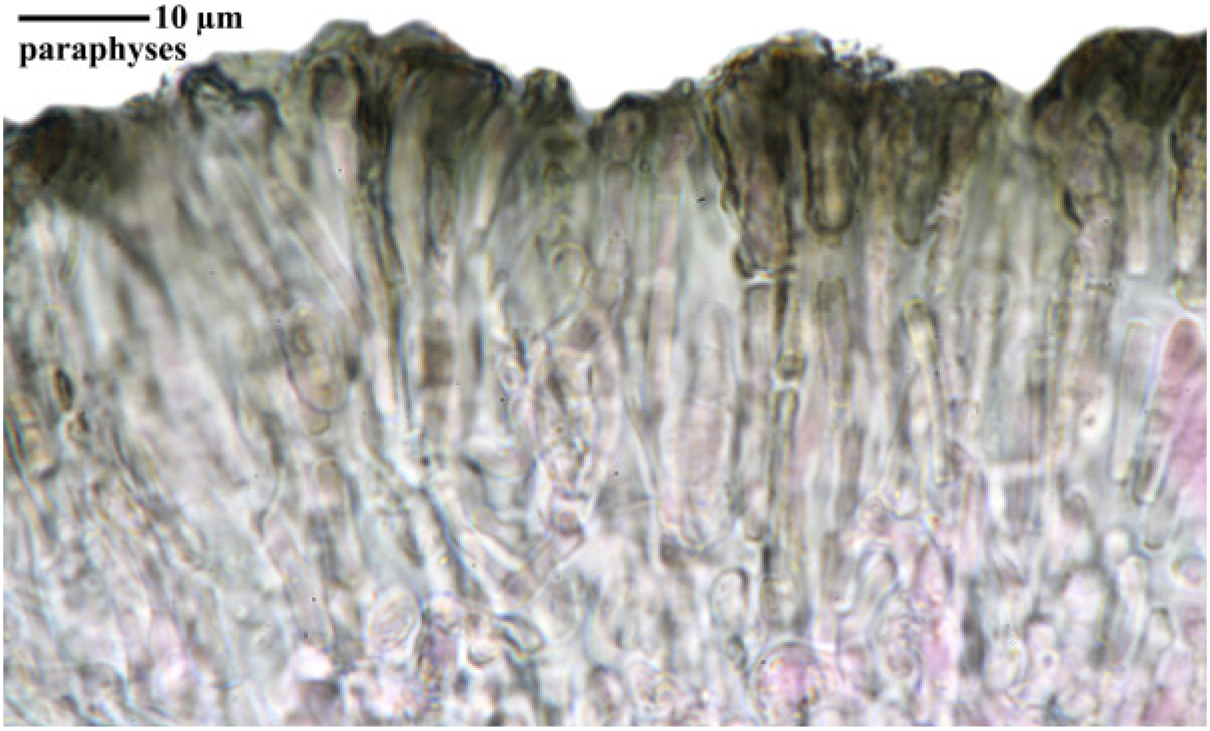


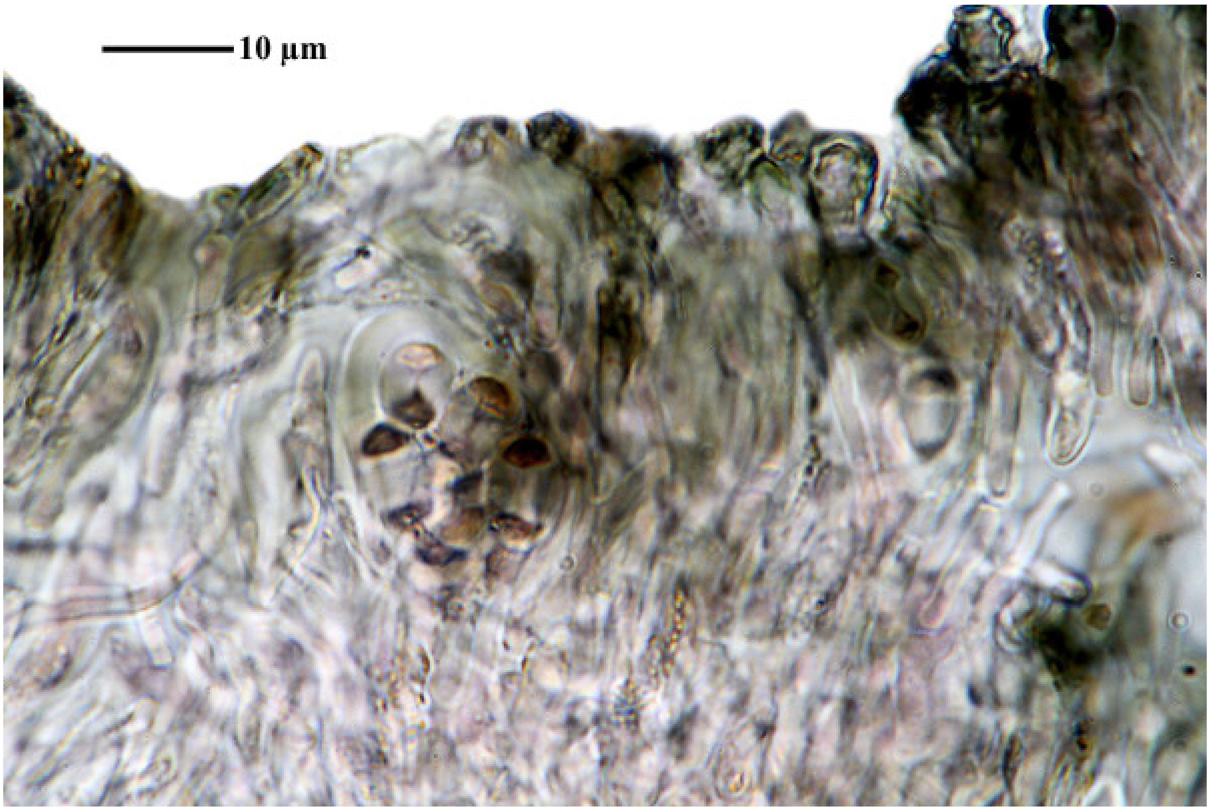
Caloplaca brittonii

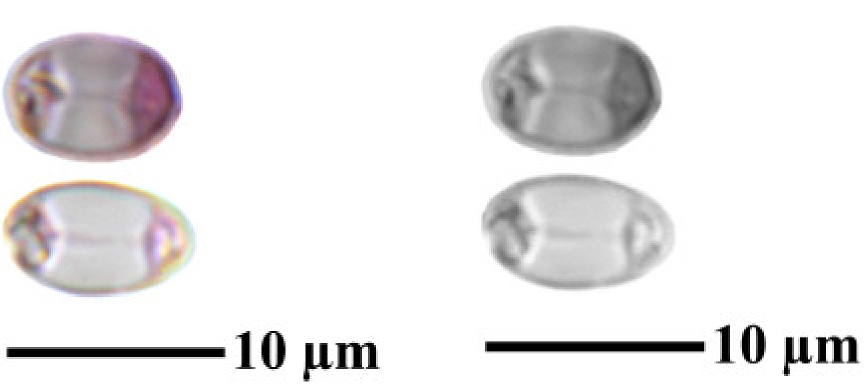
Caloplaca brittonii (Zahlbr.) Aptroot comb. nov., Mycobank No MB 830433

Basionym: *Blastenia brittonii* Zahlbr., Mycologia 15(2): 84 (1923)

[BR5030040669269], West Indies, Netherlands Antilles, Bonaire, Brandaris, summit on rock outcrop, 12°20’ N, 68°40’ W. Leg. A.L. Stoffers, 17.12.1963, det A. Aptroot 1990.





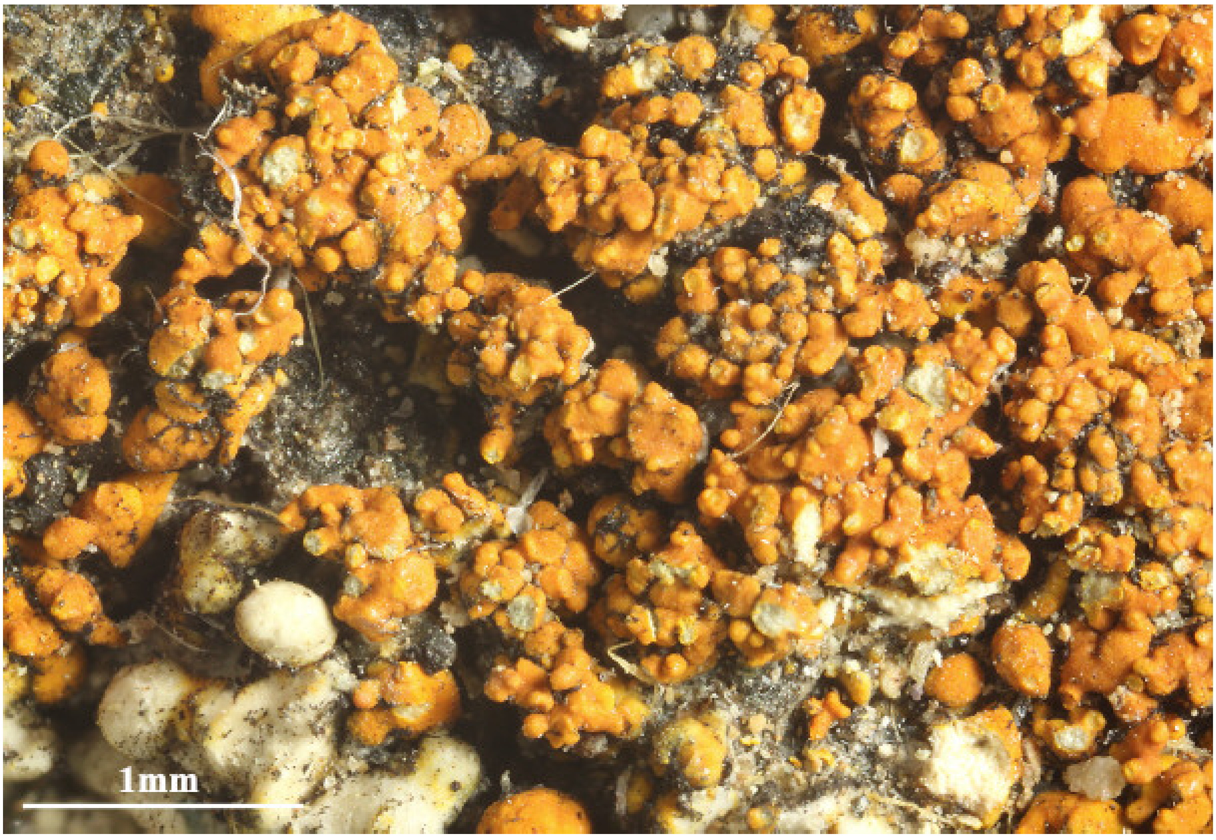


Caloplaca brittonii

Caloplaca brouardii (B.de Lesd.) Zahlbr., Cat. Lich. Univers. 7: 220 (1931)

[= *Fulgogasparrea brouardii* (B.de Lesd.) S.Y. Kondr., in Kondratyuk, Kim, Yu, Jeong, Jang, Kondratyuk, Zarei-Darki & Hur, Ukr. Bot. J. 72(6): 582 (2015)]

[BR5030028194646], Netherlands Antilles, Iter per Indas occidenrales Neerlandicas, Ins Aruba, Hooitey. Leg. W. F. R. Suringar, 20.01-09.02.1885, det. A. Aptroot.

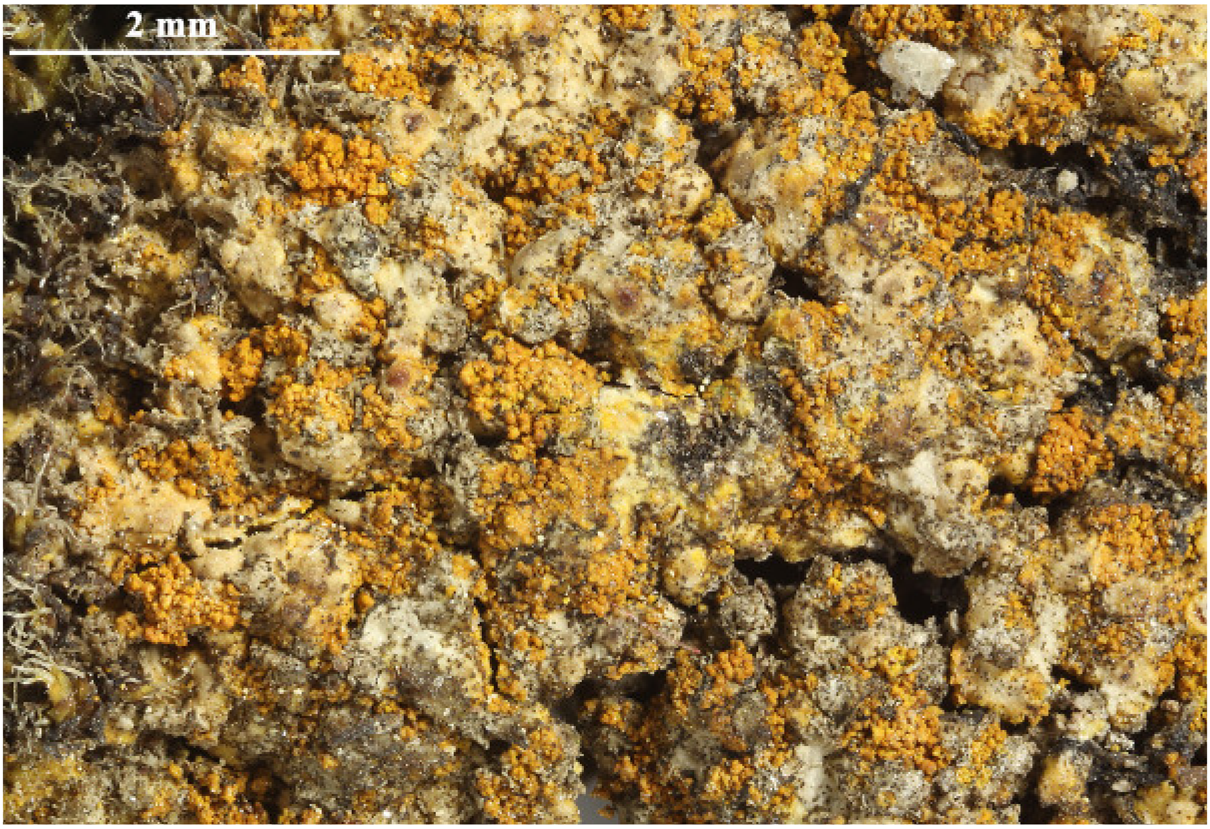


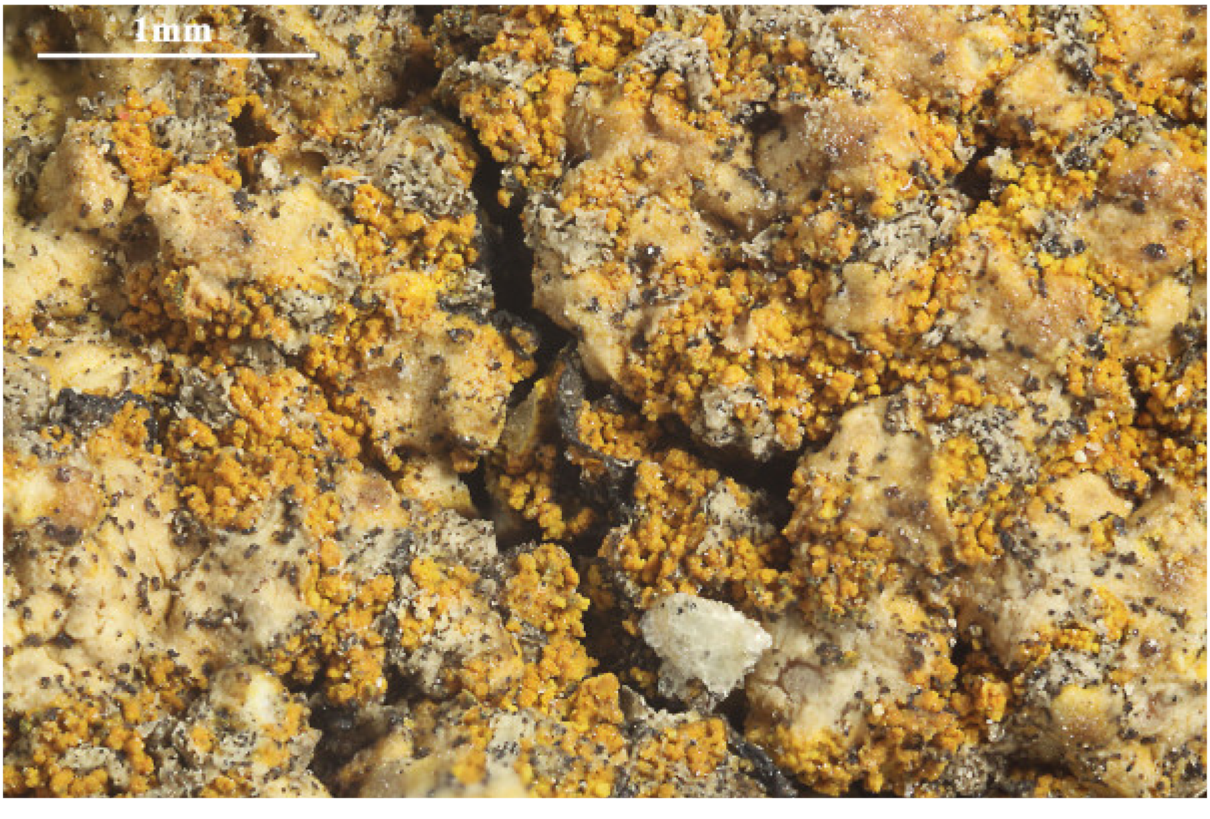
Caloplaca brouardii

Caloplaca brouardii

Caloplaca bryochrysion Poelt

[B 60 0068097], Spain, prov. Gerona, Pyrenean mountains, Nuria, 15 km E of Puigcerda, c 1 km NE of the Monastery, weakly calcareous rocks in alpine meadow on NW-facing slope, in fissure in steep rock-face, 2300 m. Leg. H. Sipman (No.8156), 7.09.1976, det. N. Ernste, 1977.

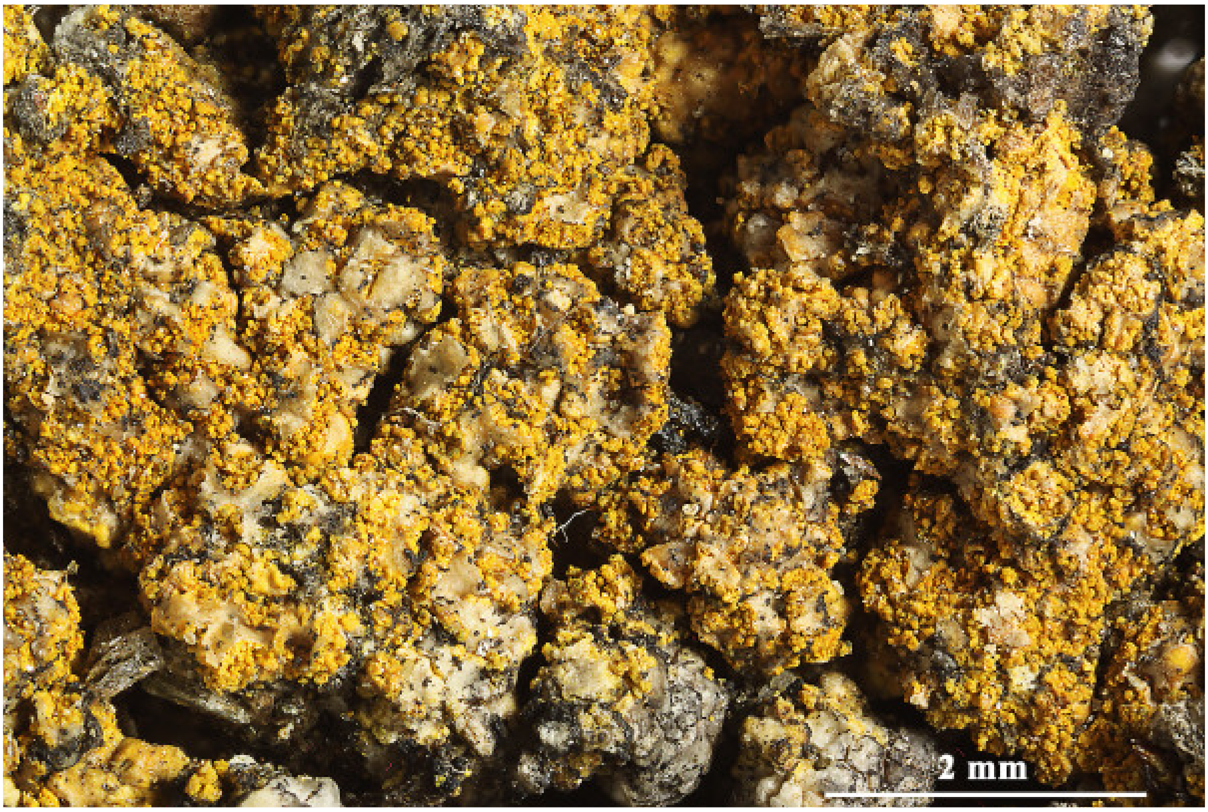


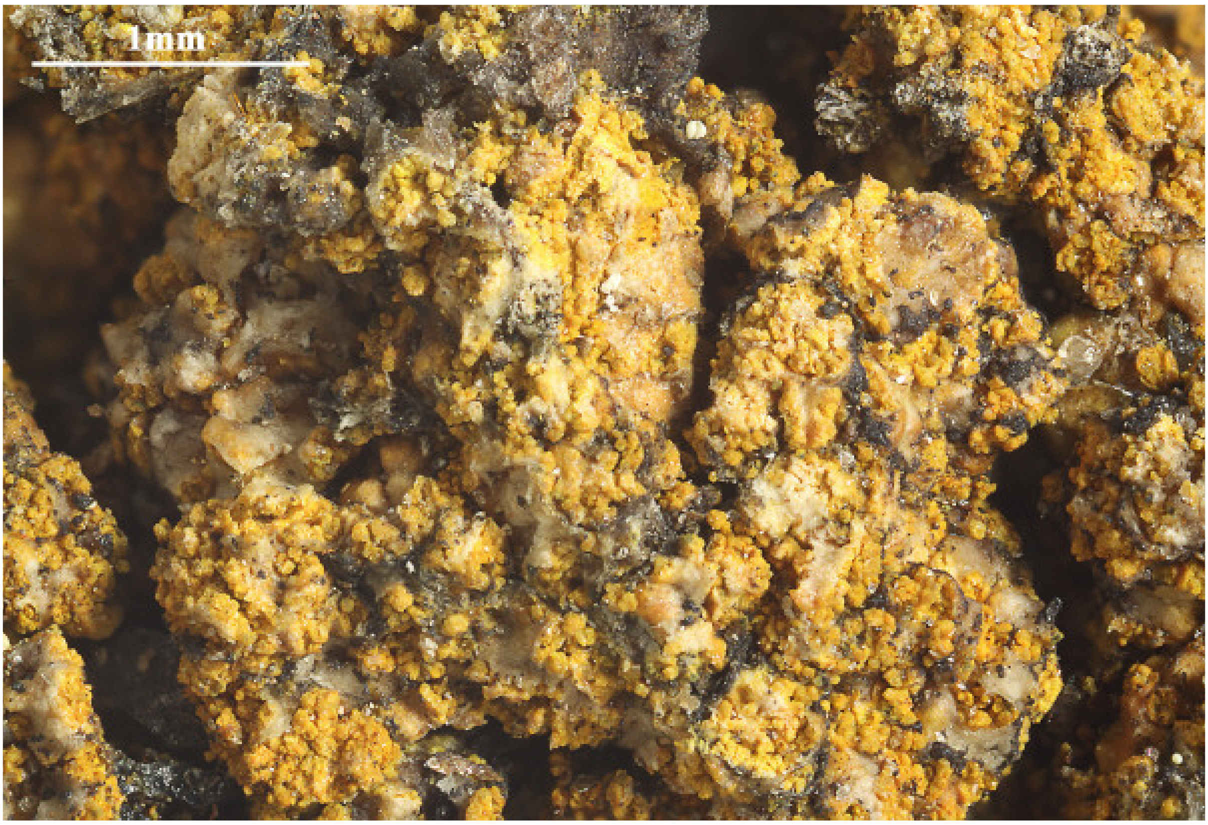


Caloplaca bryochrysion

Caloplaca bryochrysion Poelt

[BR5030040676335], Austria, Tirol, Ötztal, Ober-Gurgel, Zirbelwald and Spitzkögele, in alpina heathland, 2000-2100 m. Leg. A. Aptroot (14072), 14-17.1984, det. A. Aptroot, 1986.





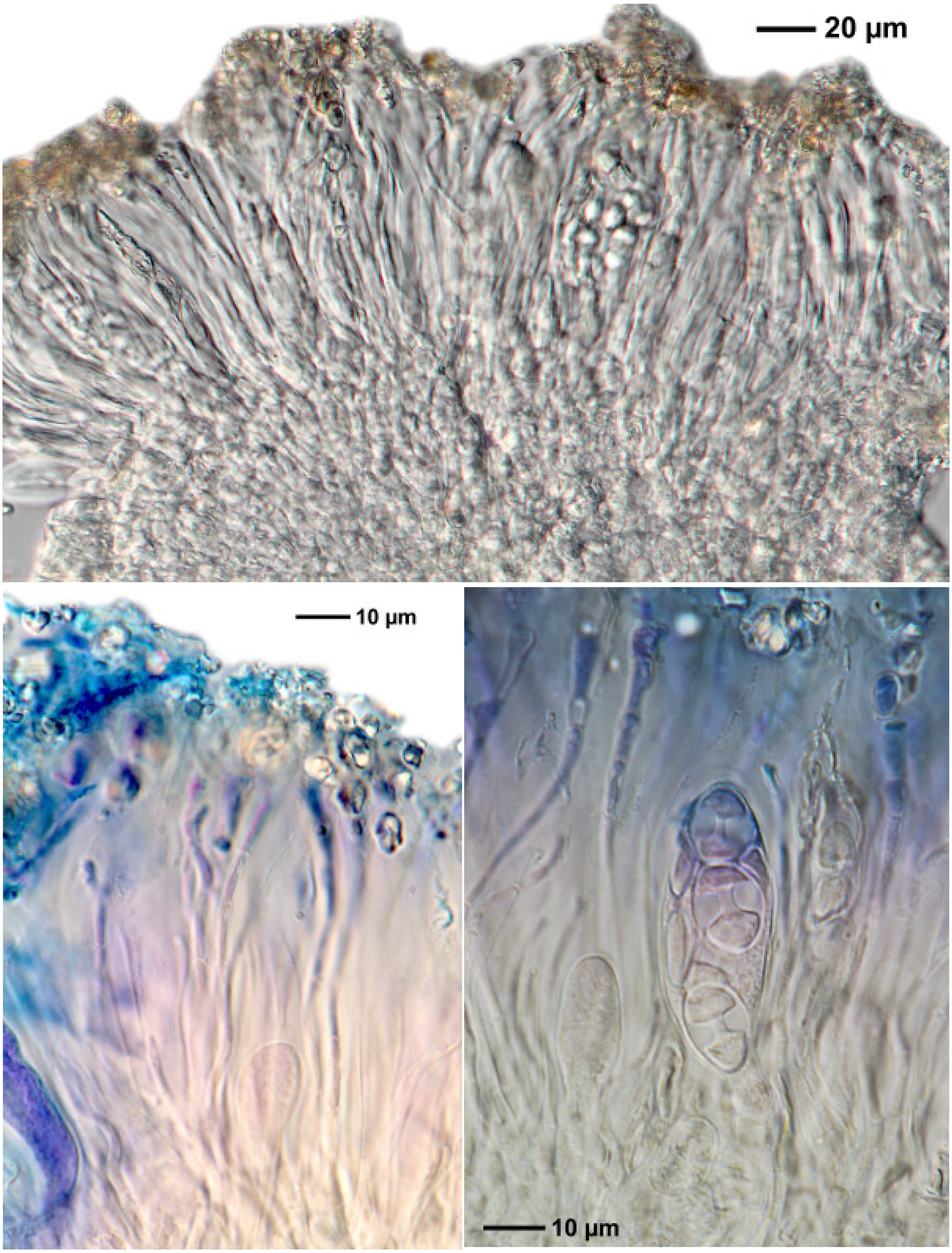
Caloplaca bryochrysion

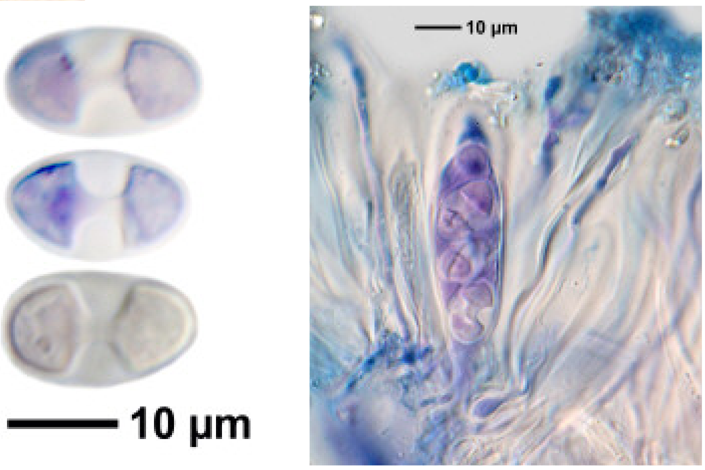
Caloplaca bullata (Müll. Arg.) Zahlbr.

Hymenium c. 75 µm, clear; epithecium greenish grey. Spores 8/ascus, c. 13 x 8 µm. (Sipm.); c. 16.5-17.5 x 10-10.3 µm, septum 5.1 µm (FS)

[B 60 0132280], Iran, Hormozgan, Qeshm Island, WSW-side, on flat and rocky mountain table, 80 m. Leg. G. Kunkel (16657), 4. April 1974, det. H. Sipman, 2006.

Caloplaca bullata



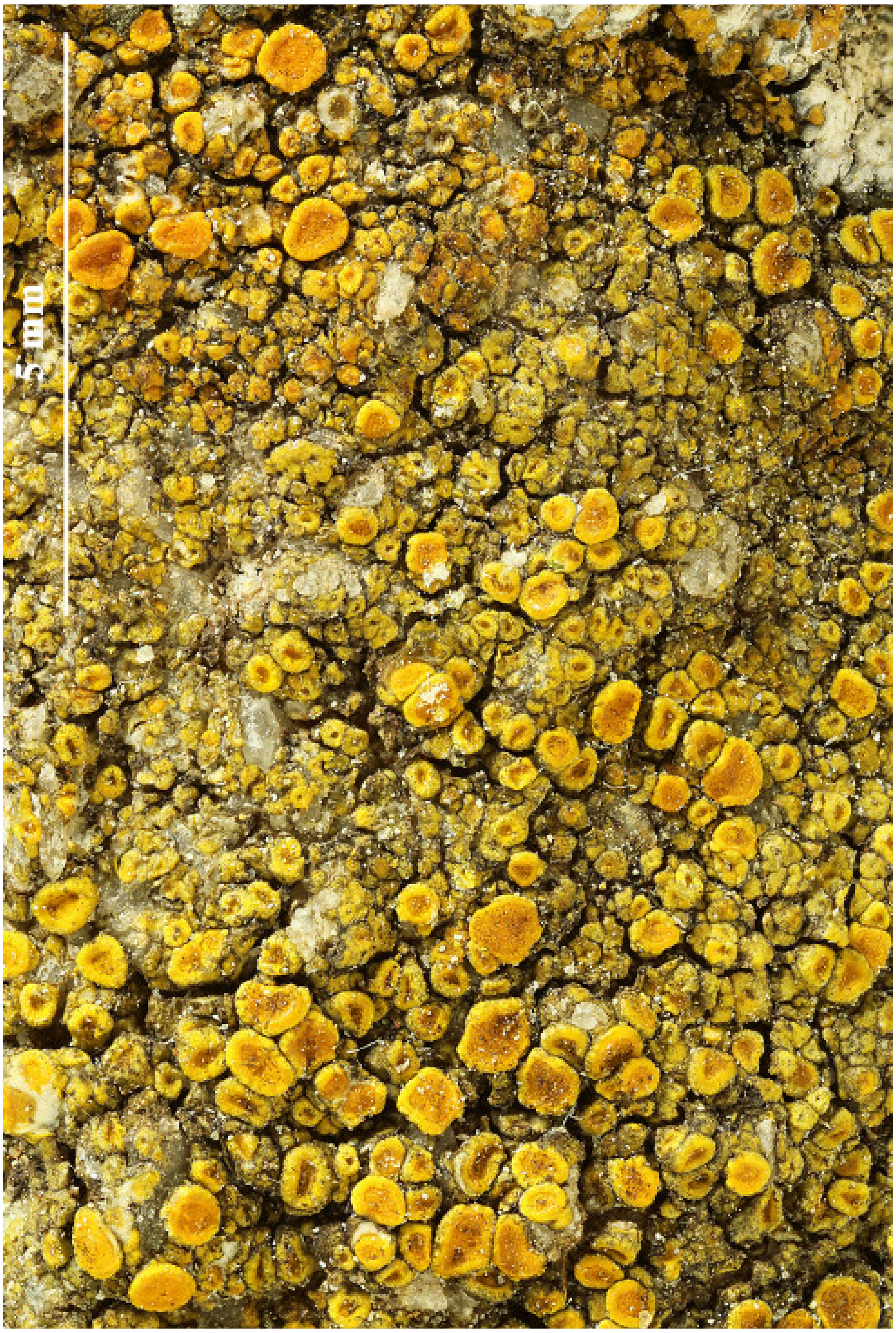


Caloplaca bullata

Caloplaca calcitrapa Nav.-Ros., Gaya & Cl. Roux
[= *Flavoplaca calcitrapa* (Nav.-Ros., Gaya & Cl. Roux) Arup, Frödén & Søchting]

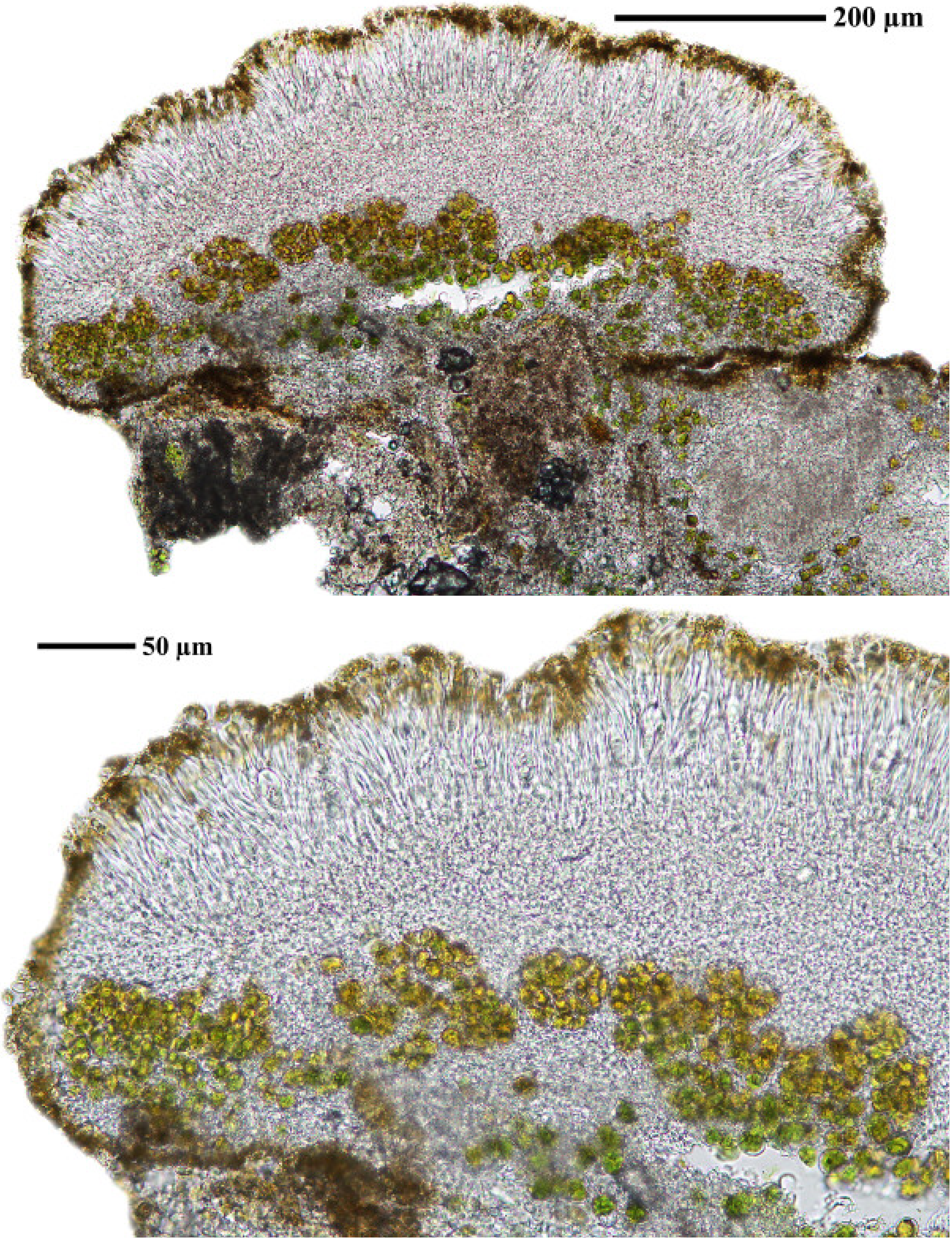
Spores c. 10 x 5 µm (Sipm.)

[B 60 0183590], Greece, nom. Kavala, Thasos island, 2 km S of Skala Potamias, along road to Kinira, marble outcrops in grazed woodland; accomp. Caloplaca polycarpa, Lecanora dispersa. 40°41.5' N, 24°46.5', E, 150 m. Leg. H. Sipman (58394) & T. Raus, 20. May 2010, det. H. Sipman, 2011.

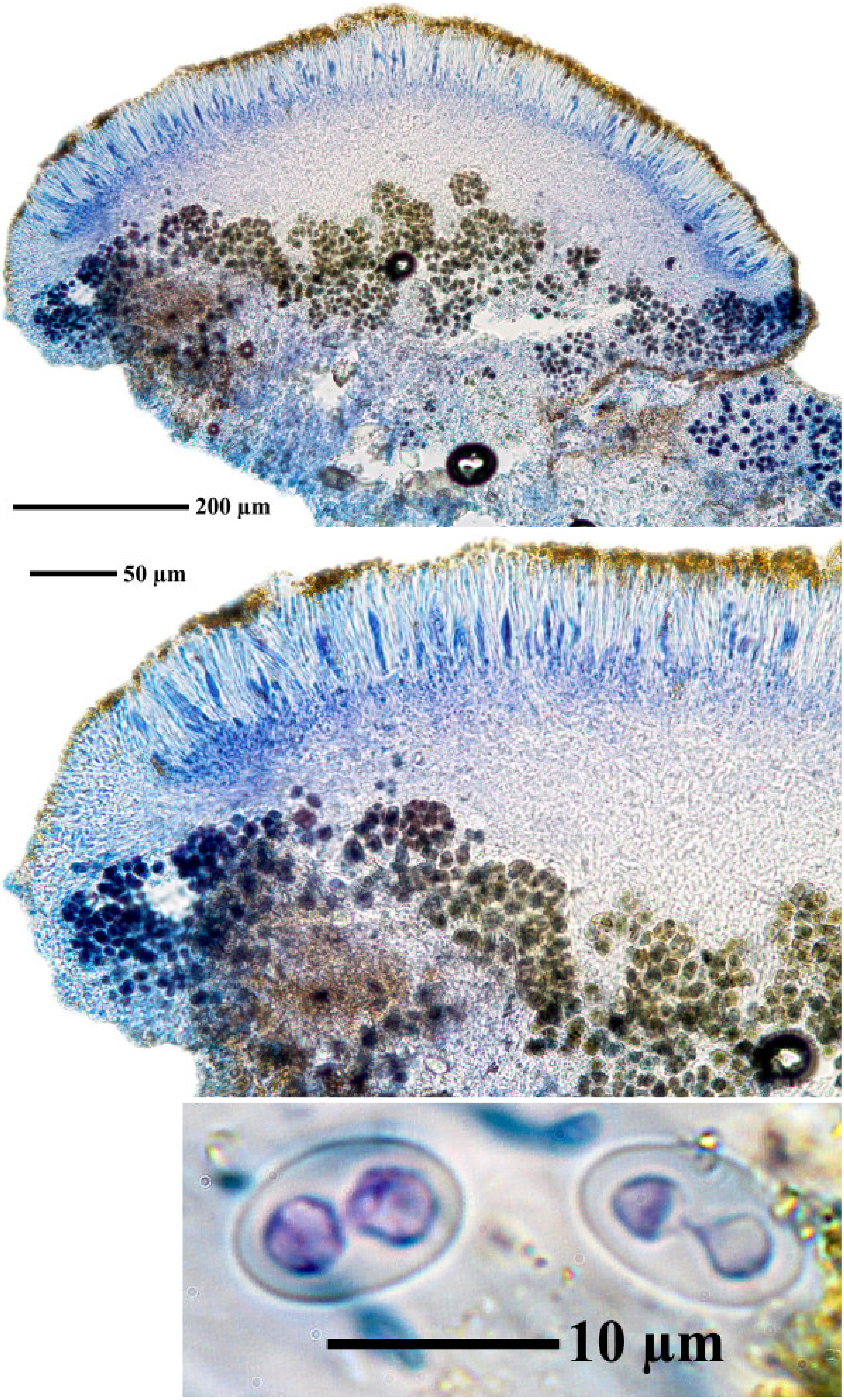


Caloplaca calcitrapa

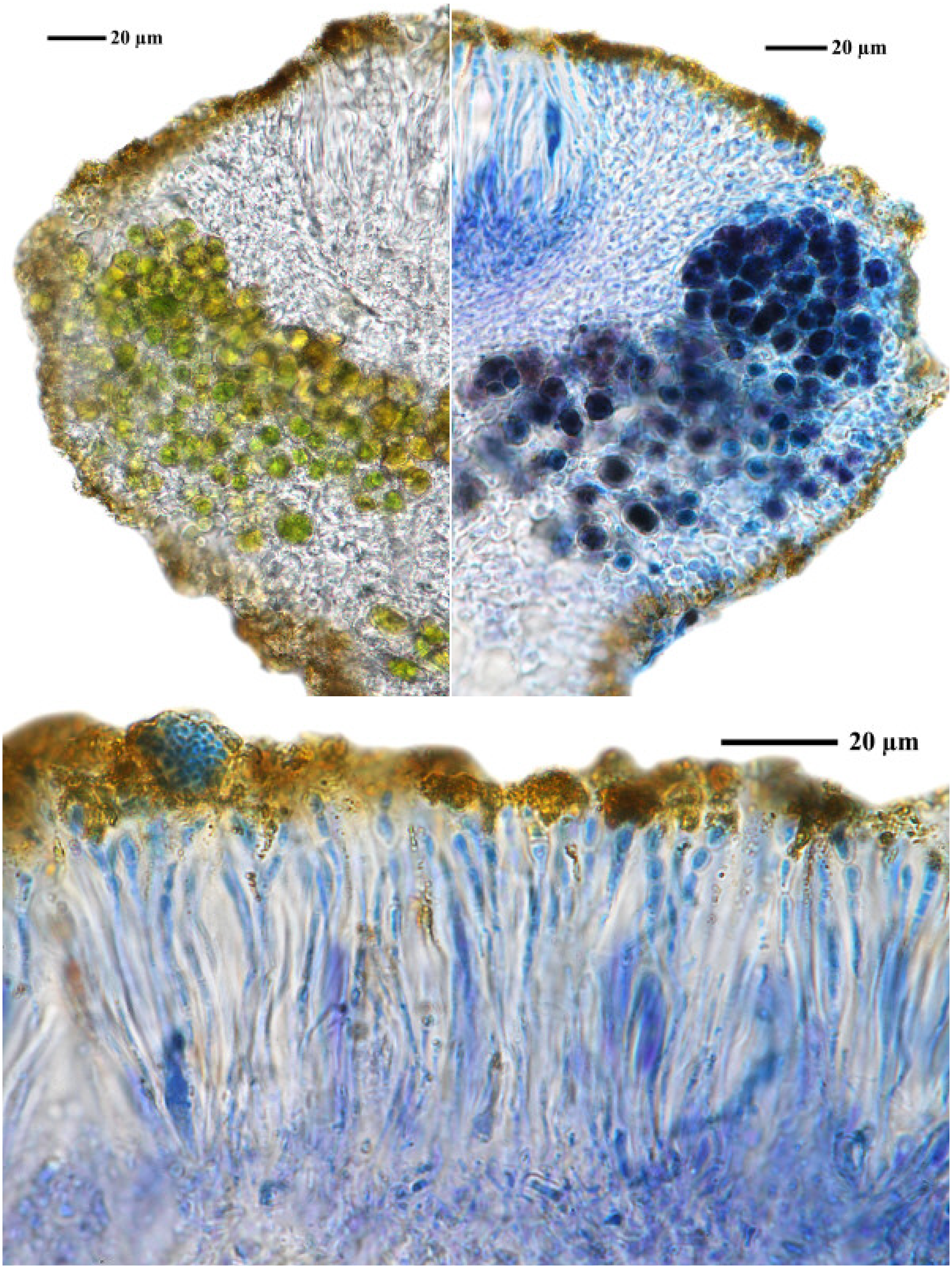
Caloplaca calcitrapa



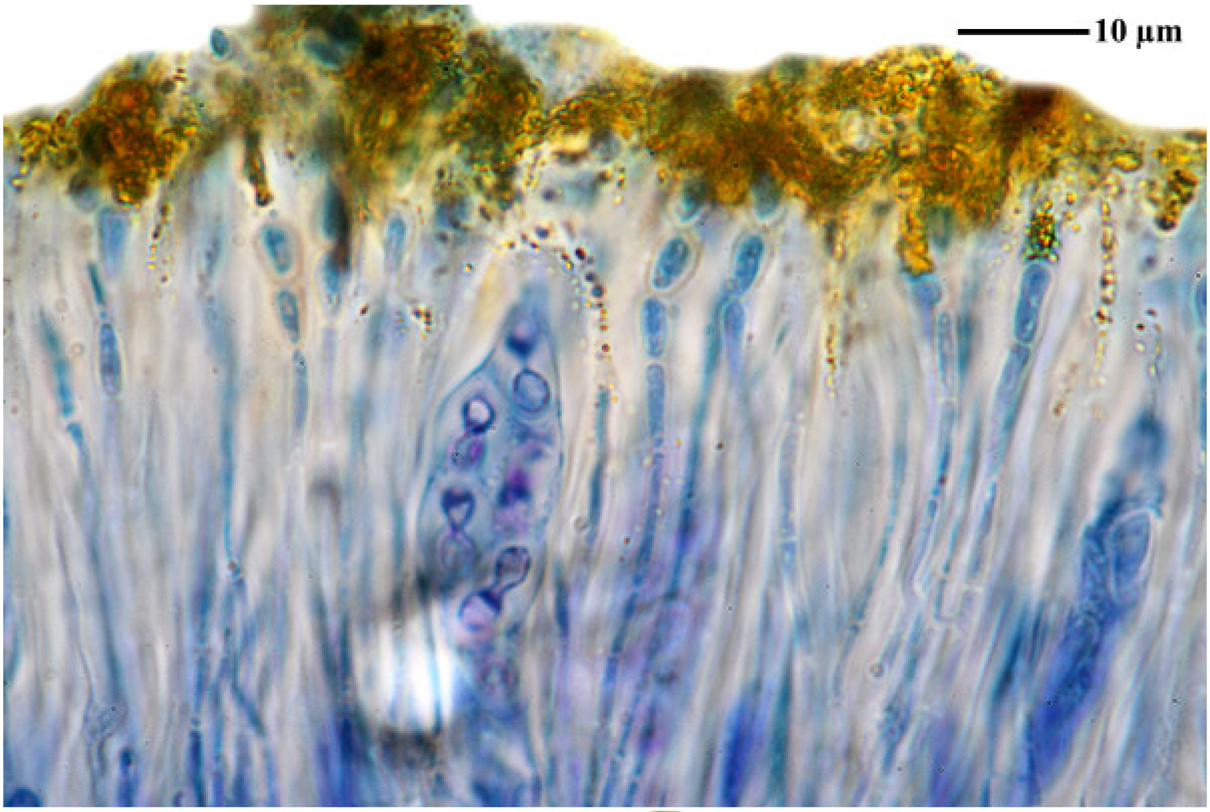
Caloplaca calcitrapa

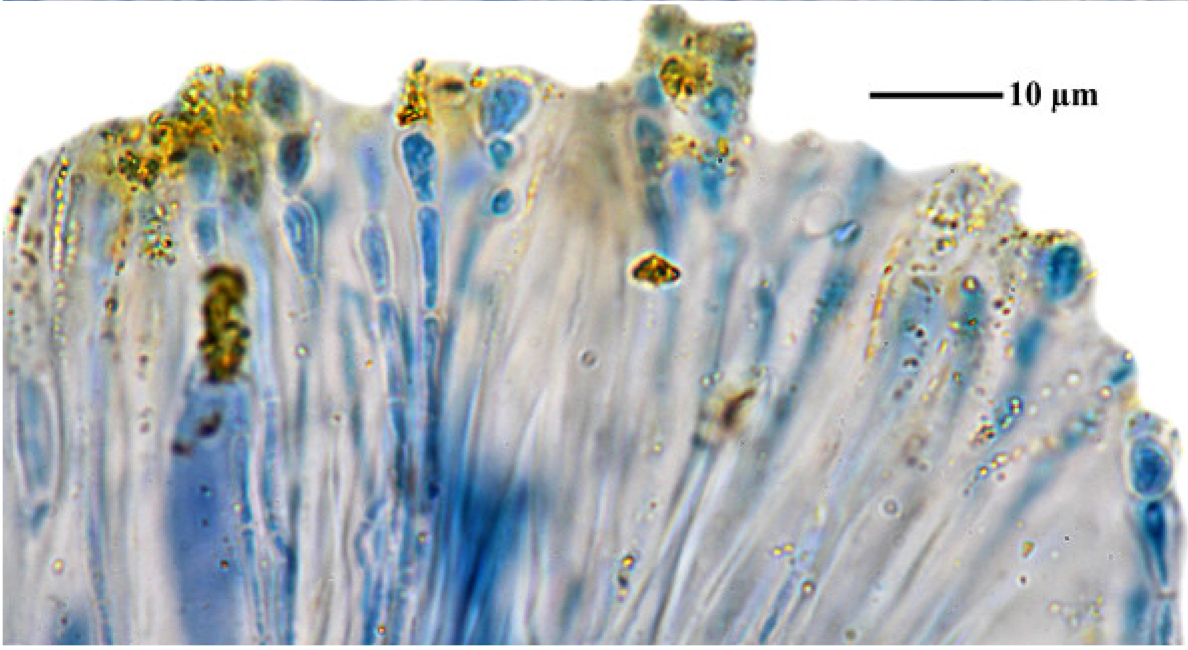


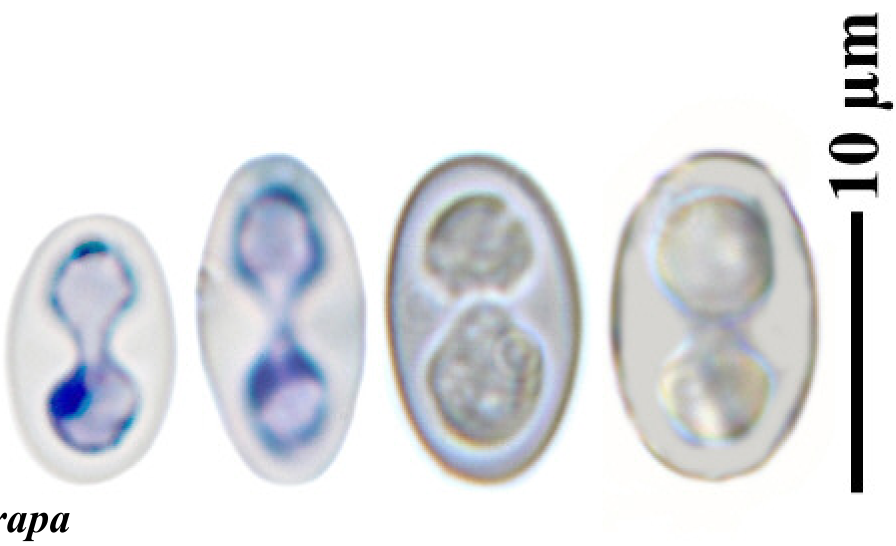
Caloplaca calcitrapa



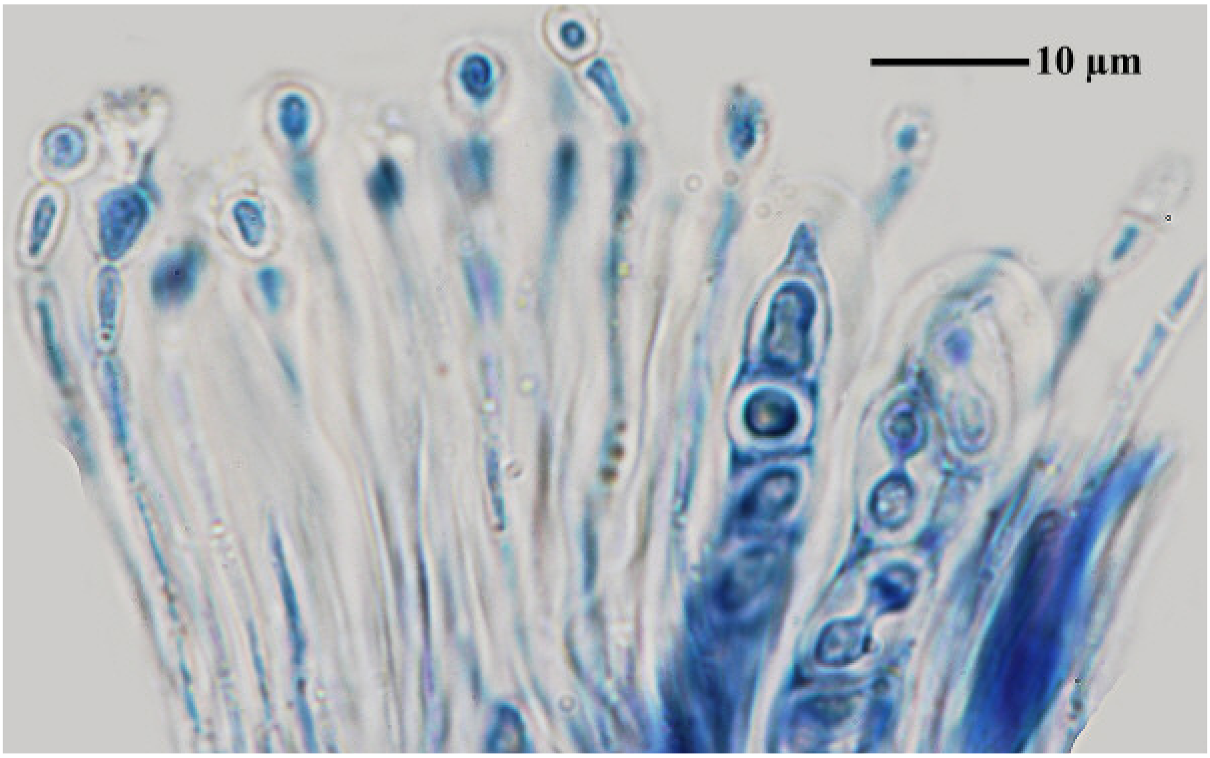
Caloplaca calcitrapa

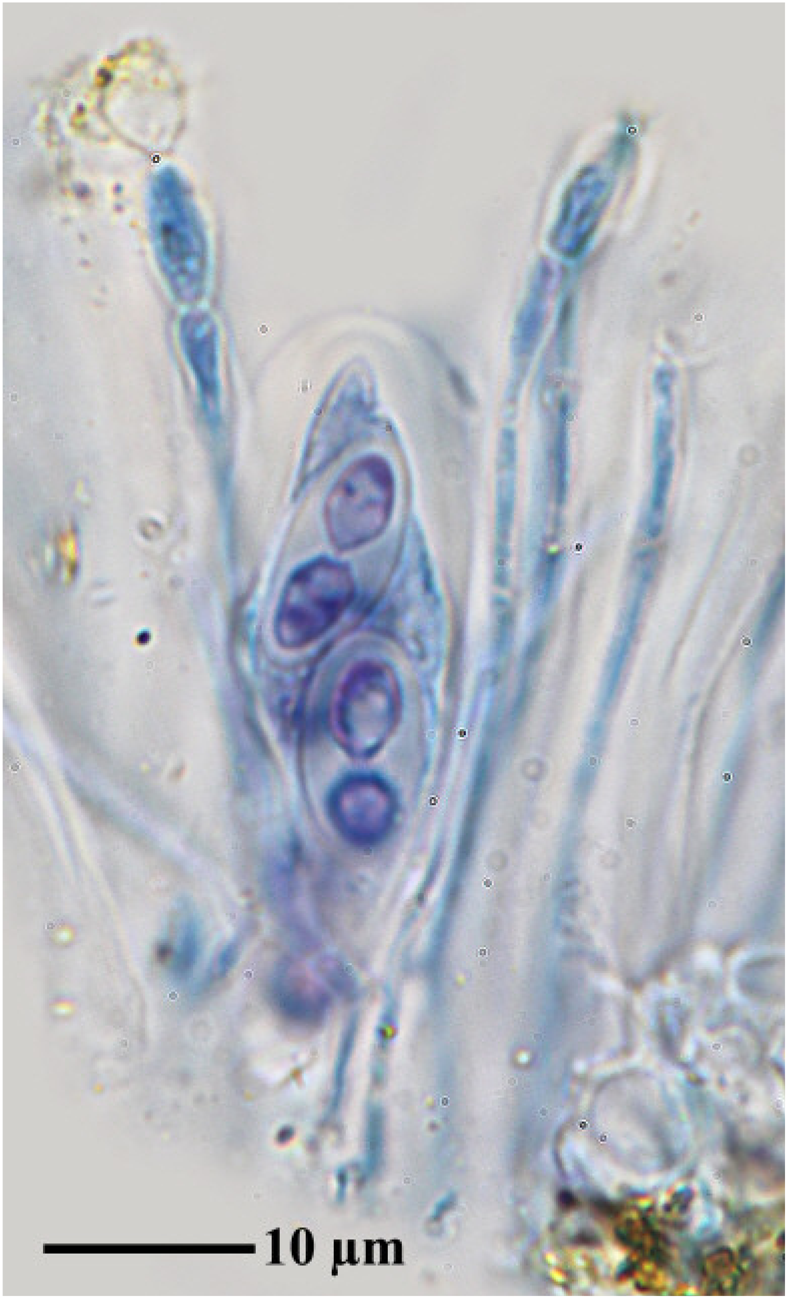




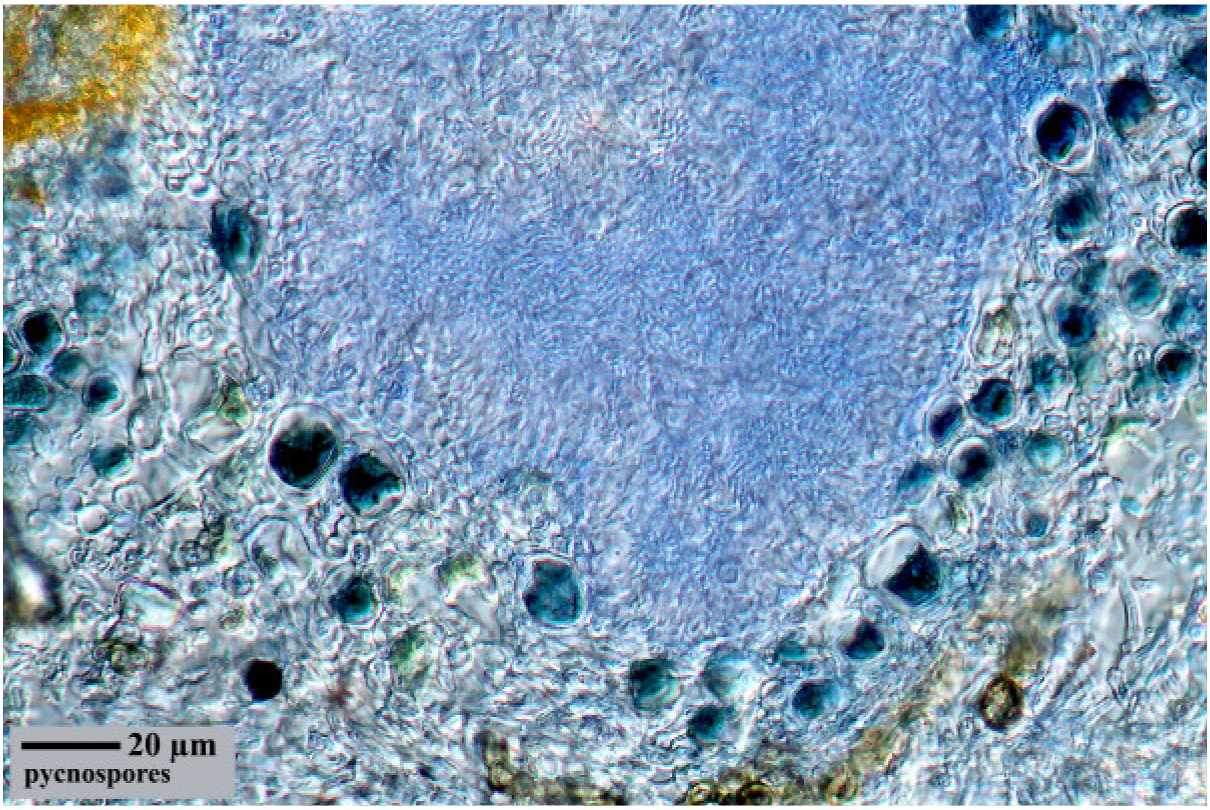


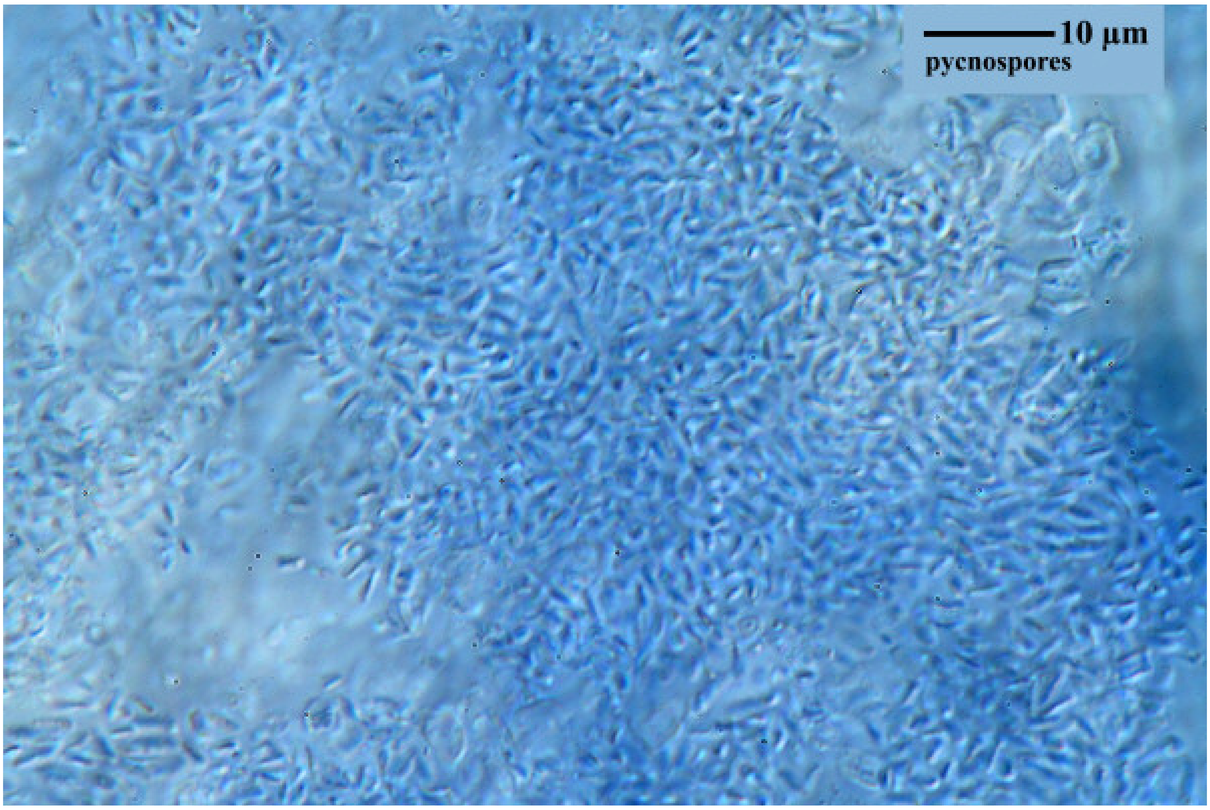
Caloplaca calcitrapa





Caloplaca calcitrapa





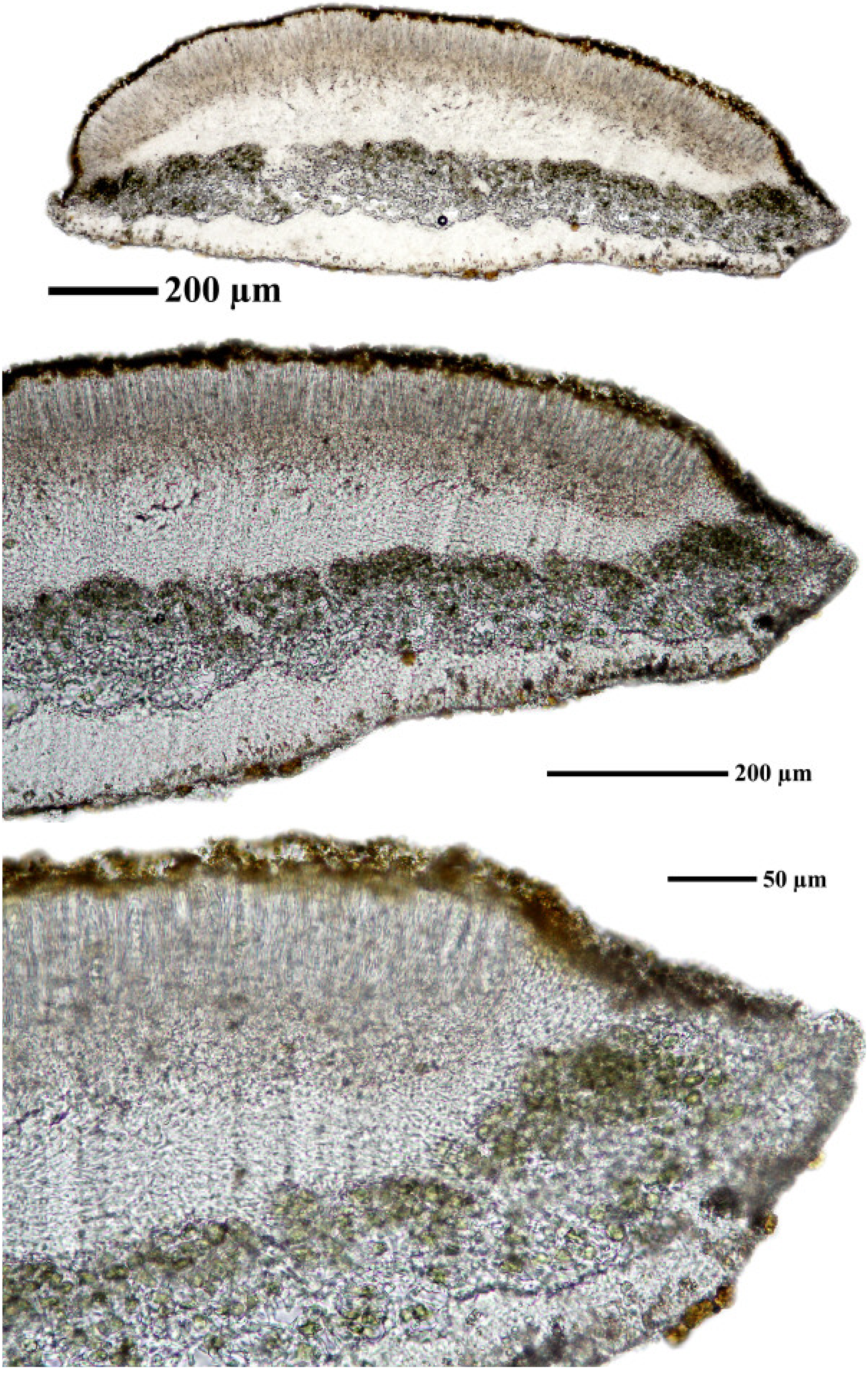
Caloplaca calcitrapa

Caloplaca californica Zahlbr.

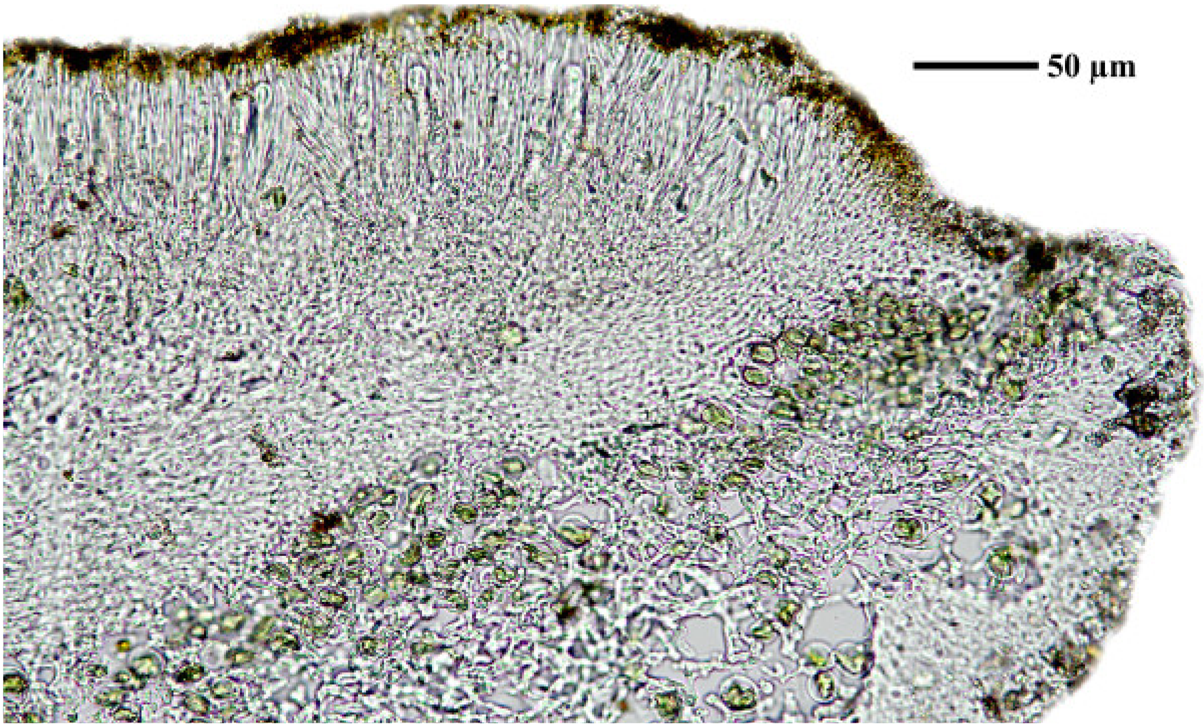
Spores hyalin, polarilocular, 8/ascus, 9.6-13.7 x 4.1-5.2 µm, septum 4.4-5.8 µm.

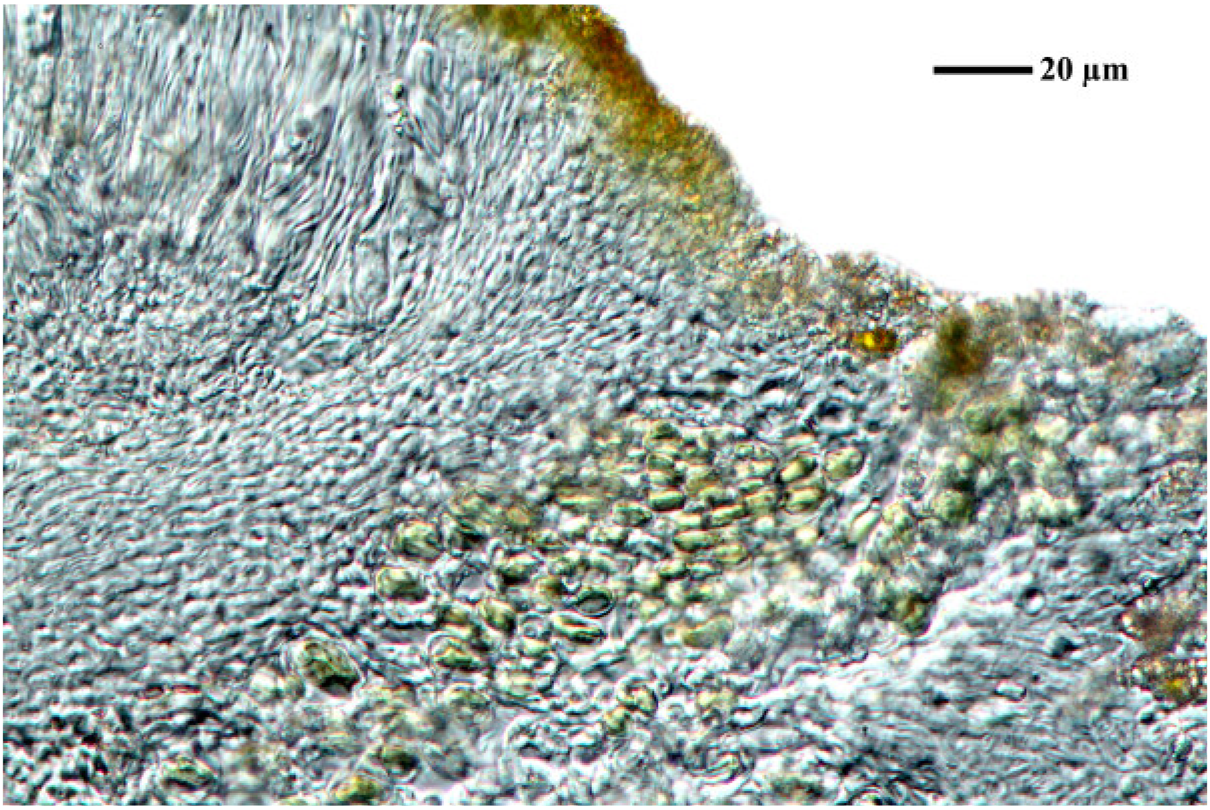
[BR5030035560588], Mexico, Baja California Sur, 88.2 km on road to Bahia Tortugas W from Rte 1. Peninsula Vizcaino, Southern Vizcaino Region of the Sonoran Desert, on bark of shrubs, 27°38' N, 114° 15' W. Leg. K. & A. Kalb & T. Nash, 29.12.1990. K. KALB: LICHENES NEOTROPICI NR. 495.

Caloplaca californica

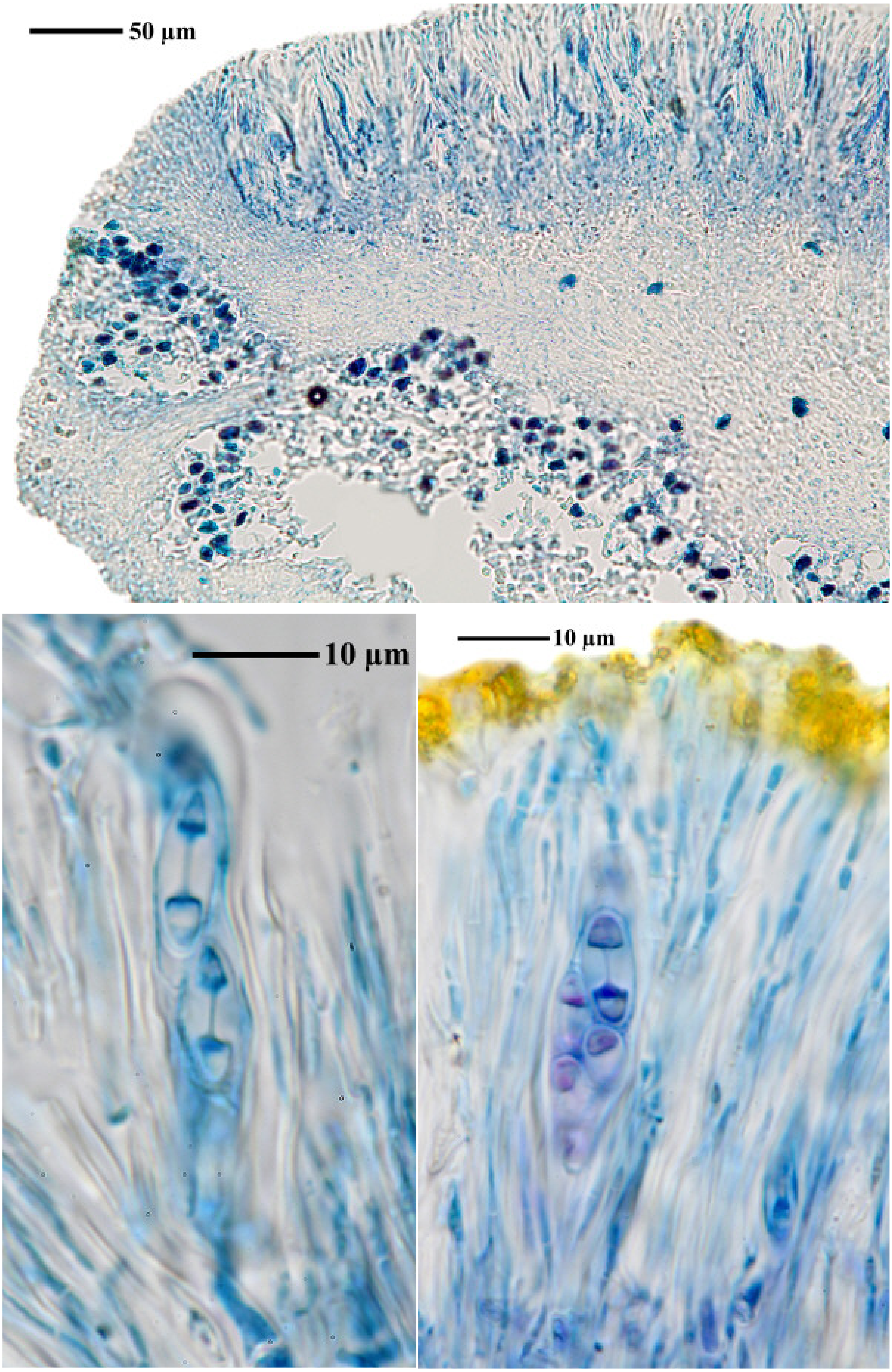


Caloplaca californica

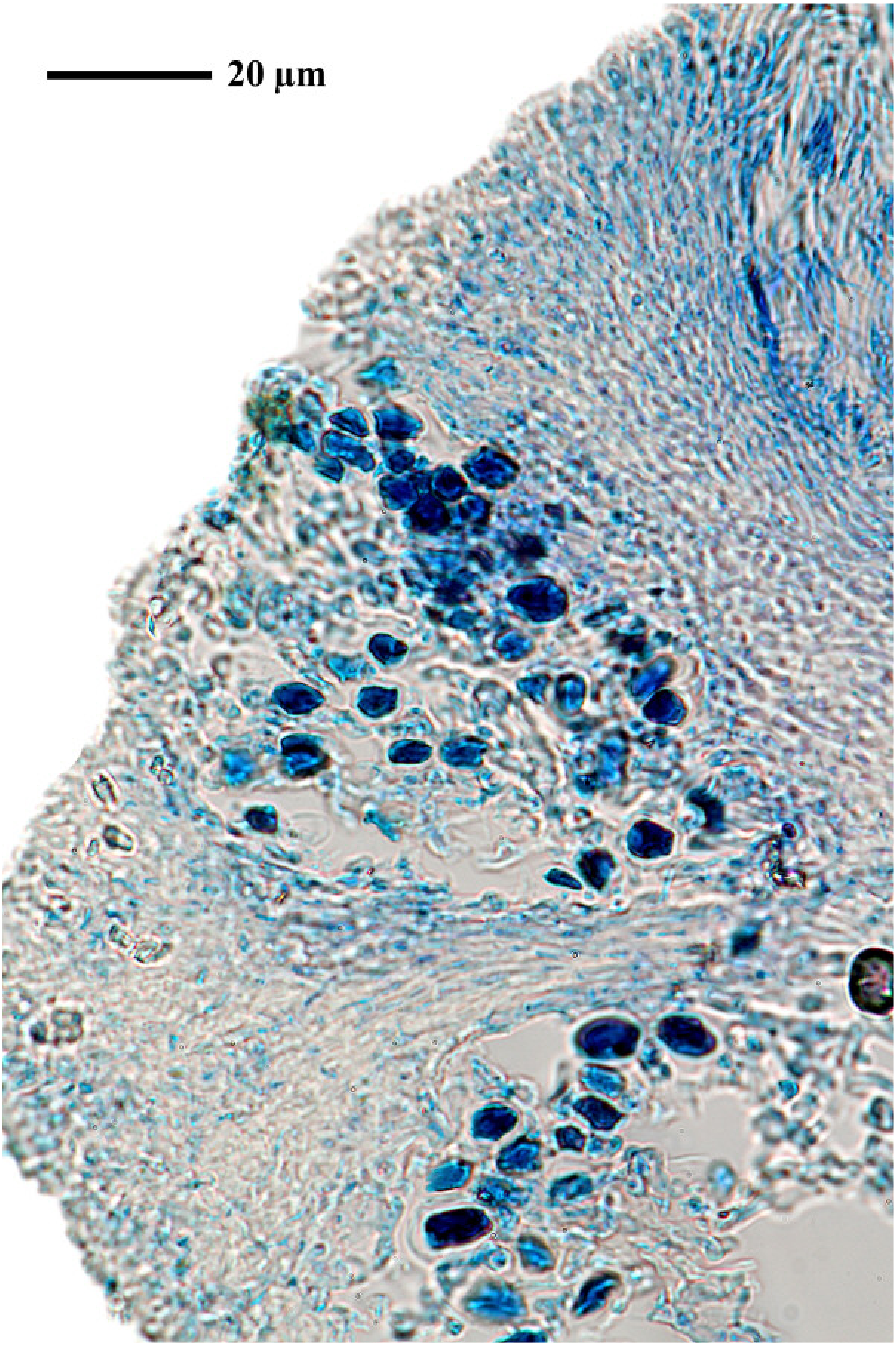




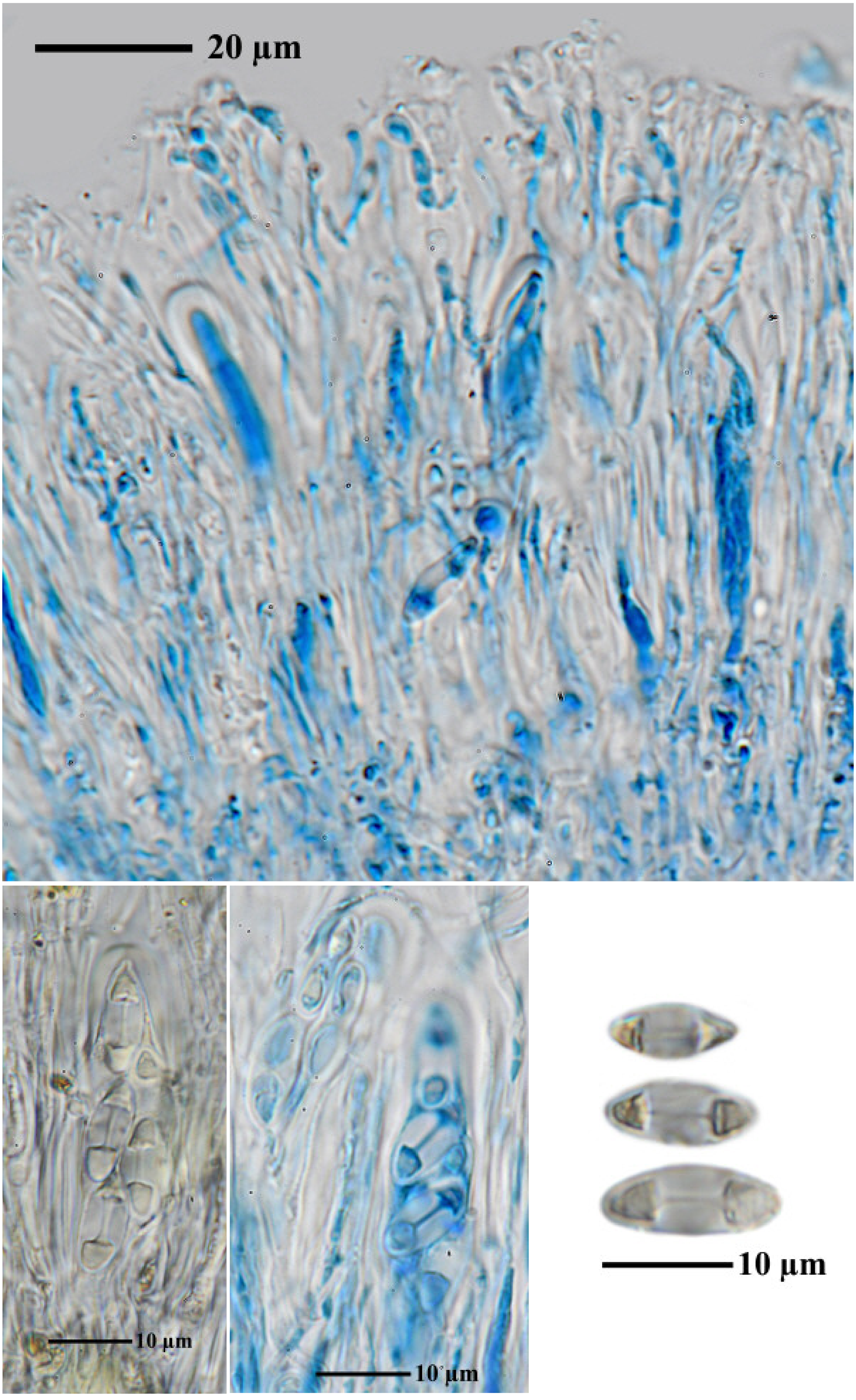
Caloplaca californica



Caloplaca californica



Caloplaca californica



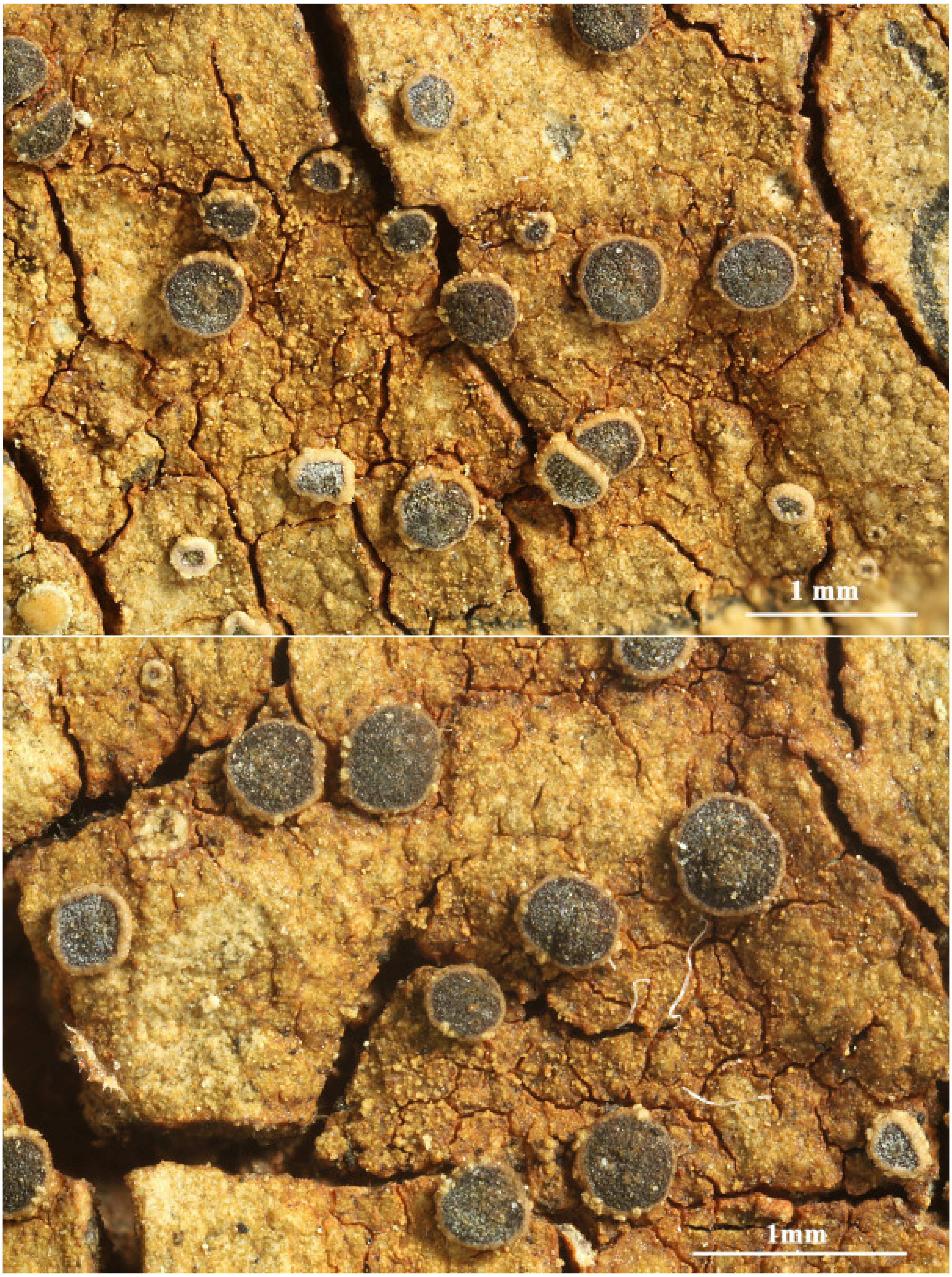
Caloplaca californica

Caloplaca californica

Caloplaca camptidia (Tuck.) Zahlbr.

On bark.

[18156], USA, Hawaii, Oahu, Brink of Kaukonahua Gulch near U. of Hawaii, Exp. Station, on branches of introduced *Acacia confusa*, 700 feet. Leg. O. et I. Degener (no. 34271), 17.05.1977, det. K. Kalb. KALB: LICHENES NEOTROPICI 206.



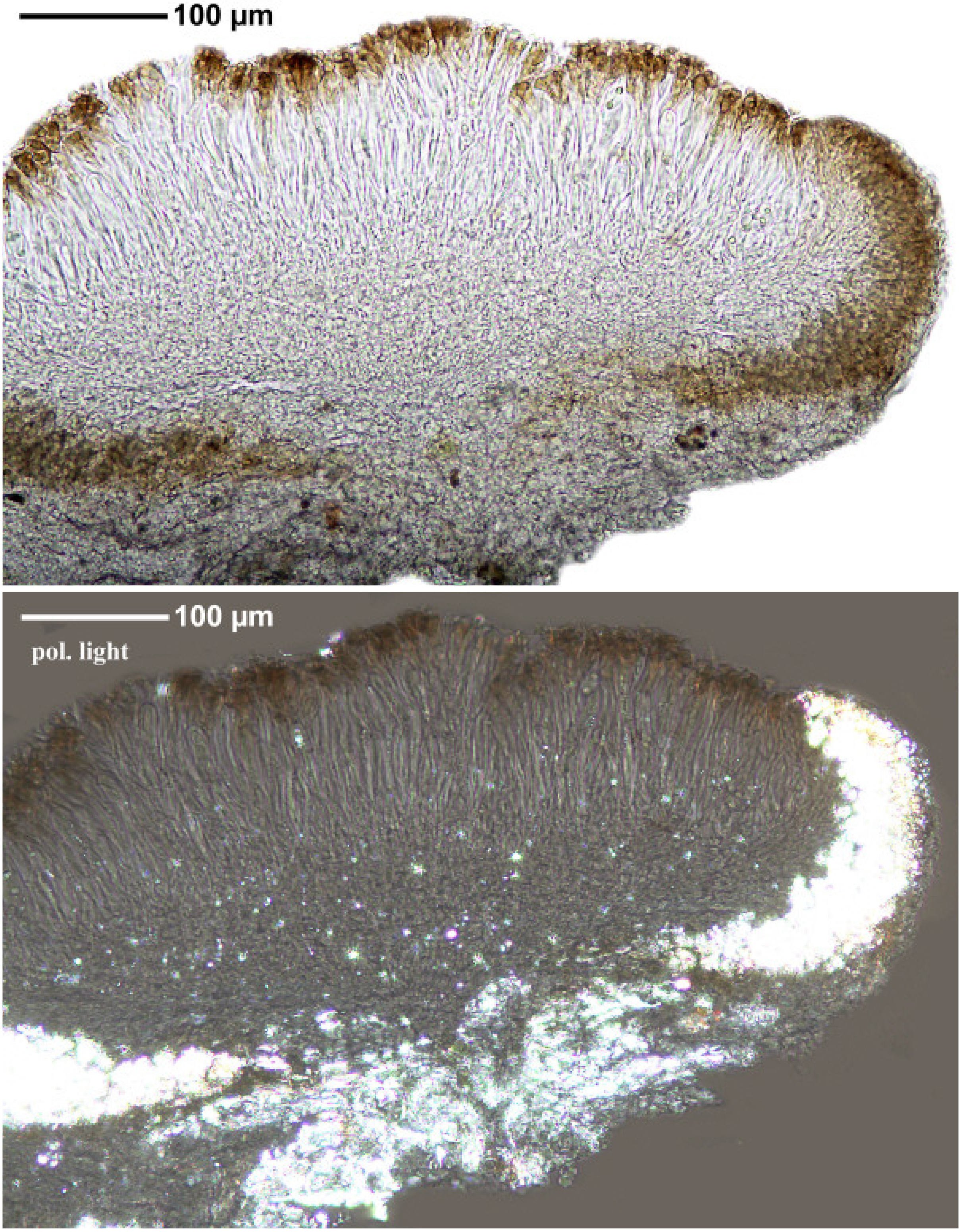
Caloplaca camptidia

Caloplaca camptidia (Tuck.) Zahlbr.

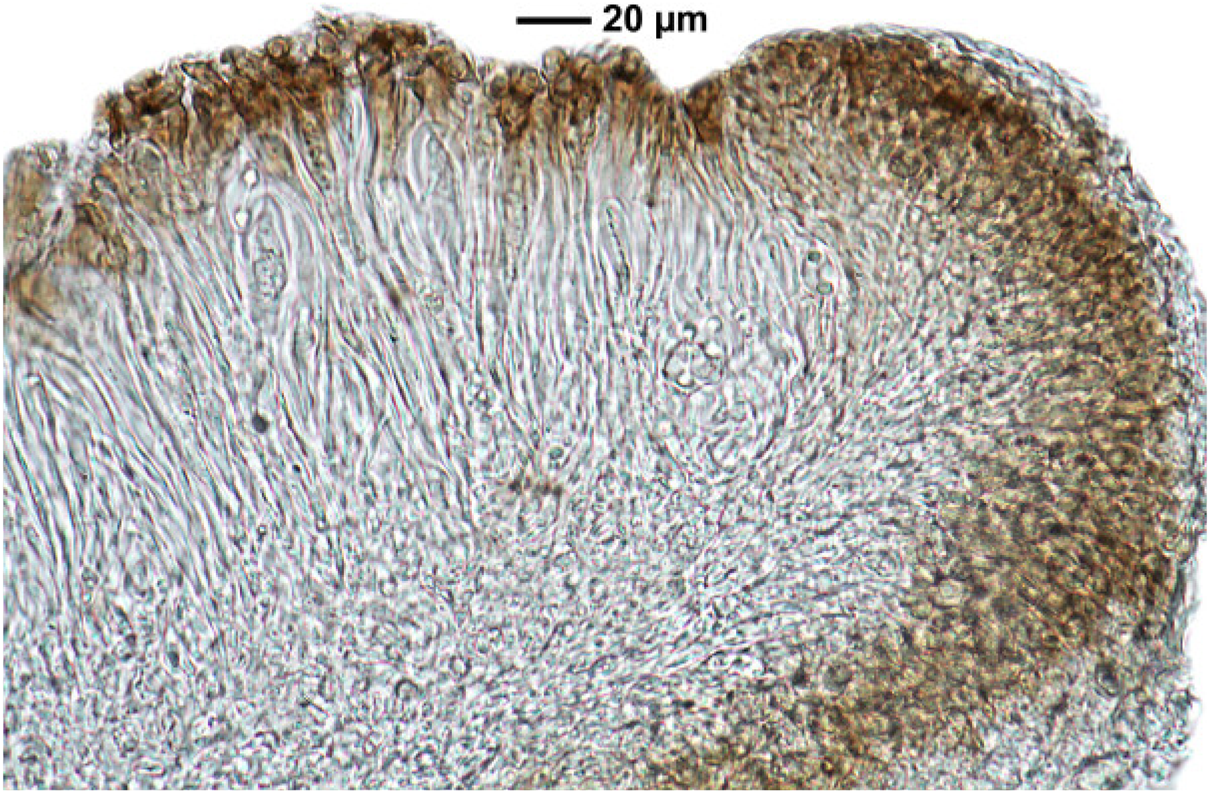
On wood. Spores polarilocular, hyaline, 4-8/ascus, 14.5-18 x 10.5-12 µm, septum 5.5-8 µm.

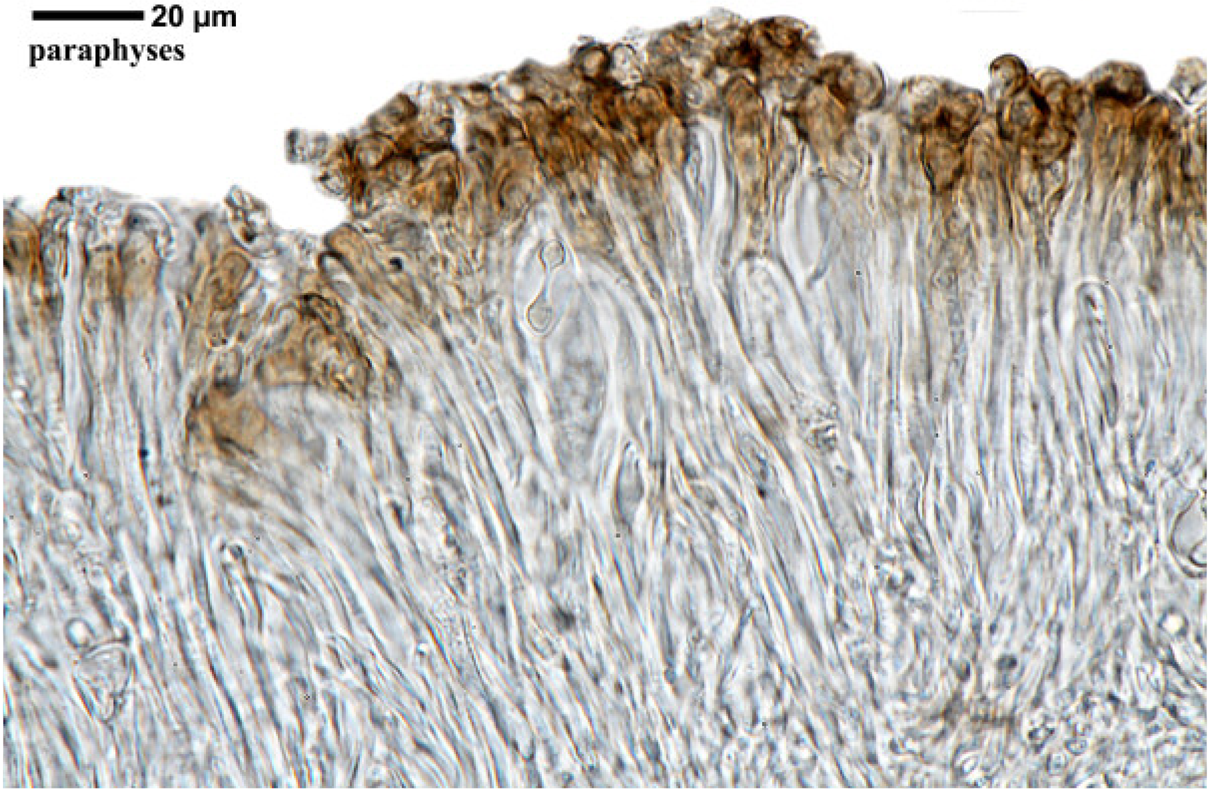
[ABL 64699], Ecuador, Galápagos Islands, Santa Cruz Island, along the dirt road from Bellavista to Media Luna, farmland on the W-side of the dirt road, agricultural zone, fenced pastures with old trees (Cedrella odorata, Persea americana, Citrus sp.), on wood of pole. 0°40'54'' S, 90°19'26'' W, 285 m. Leg. et det. A. Aptroot 28.02.2006.

Caloplaca camptidia

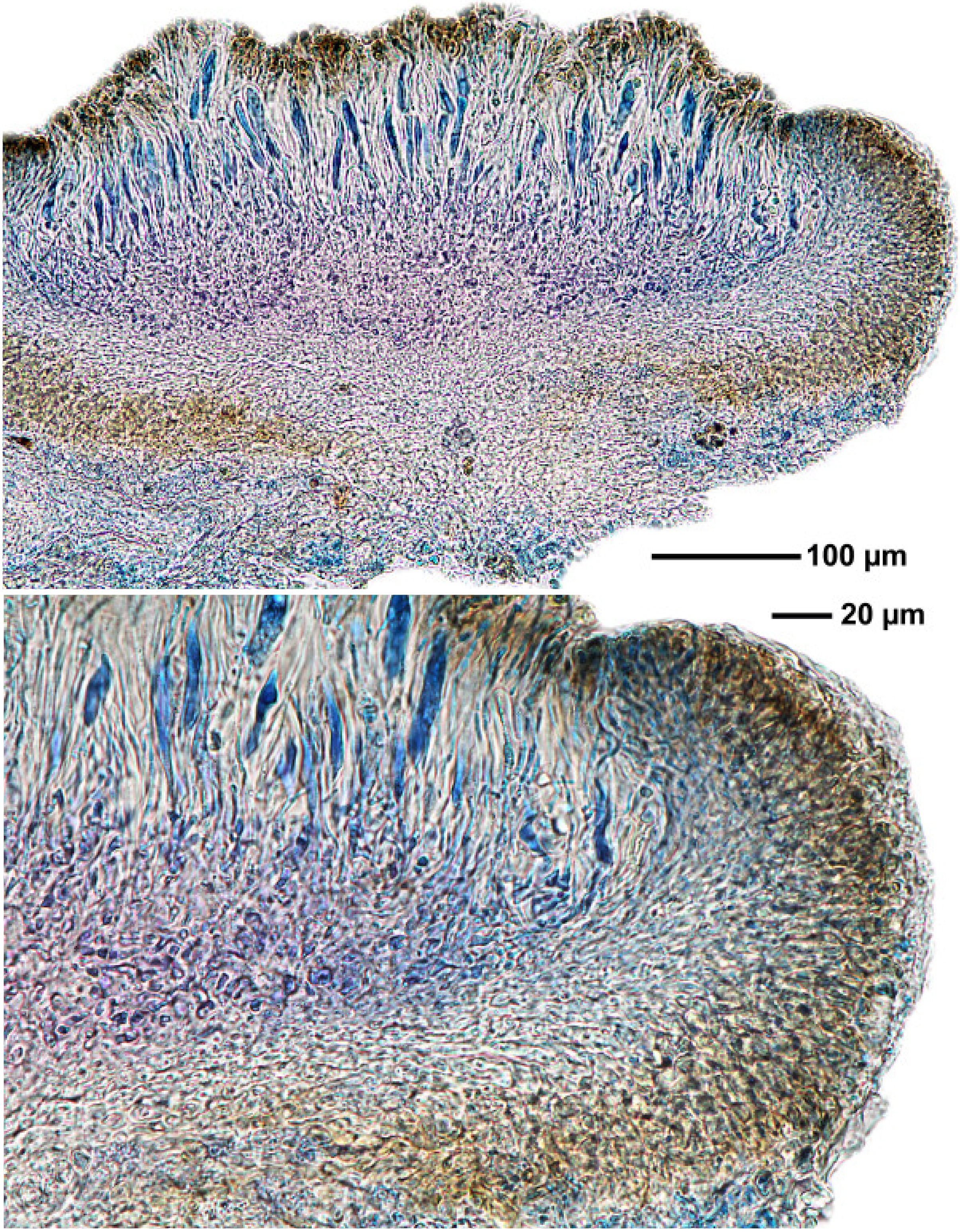


Caloplaca camptidia

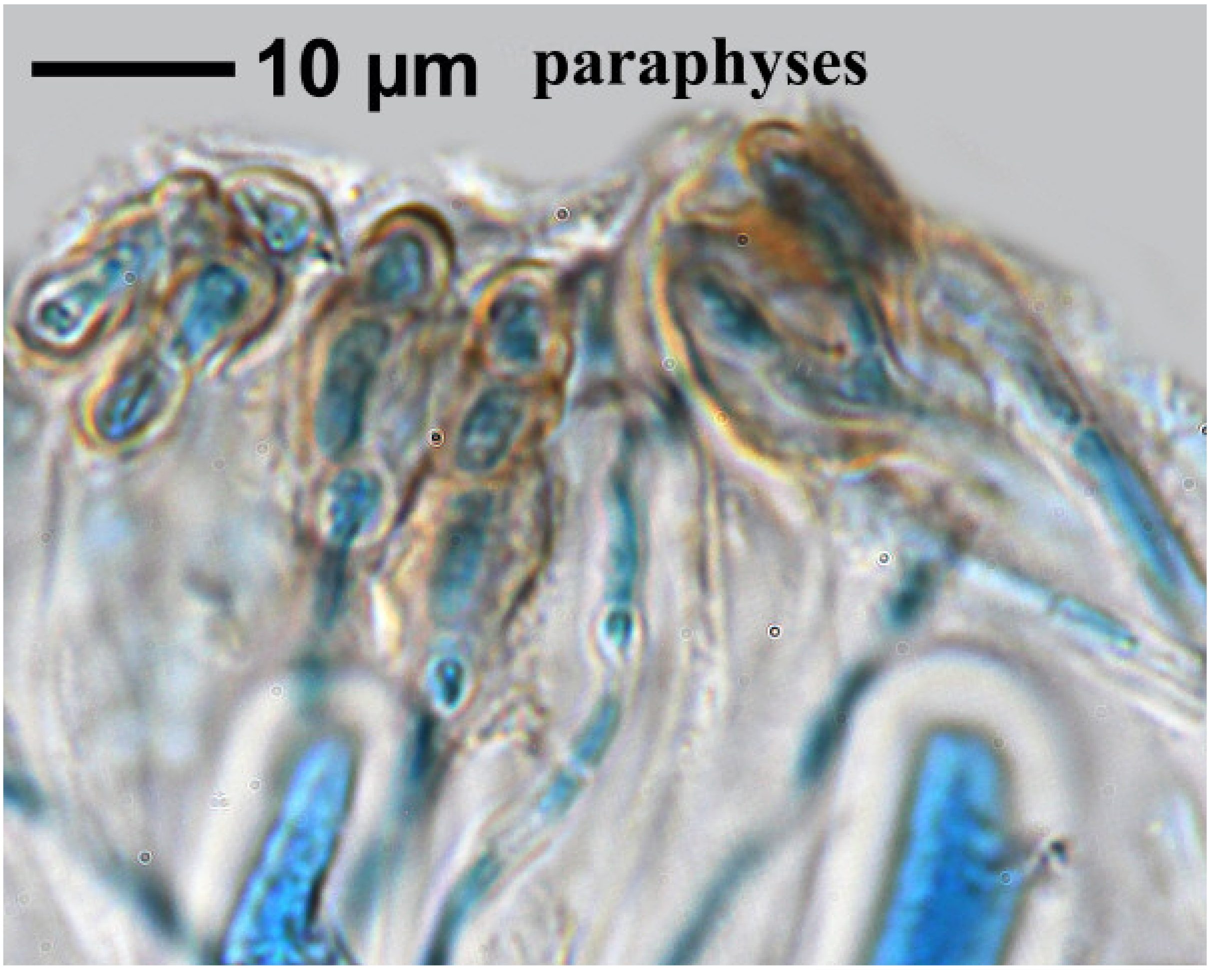




Caloplaca camptidia



Caloplaca camptidia

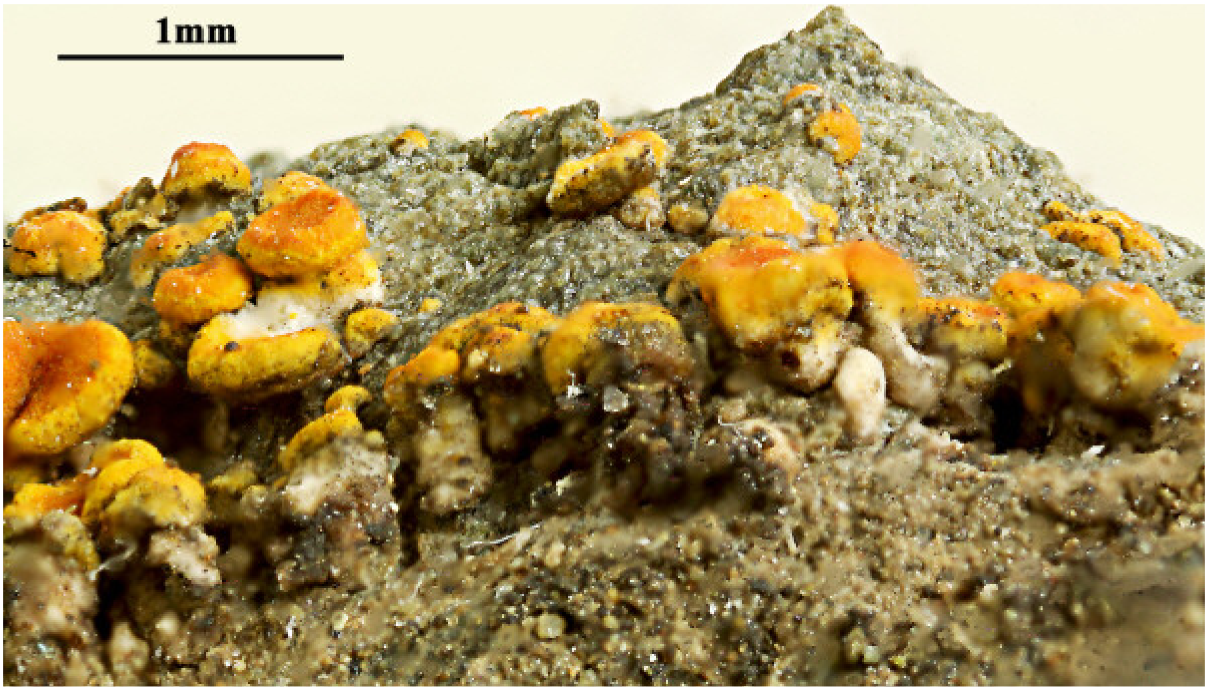


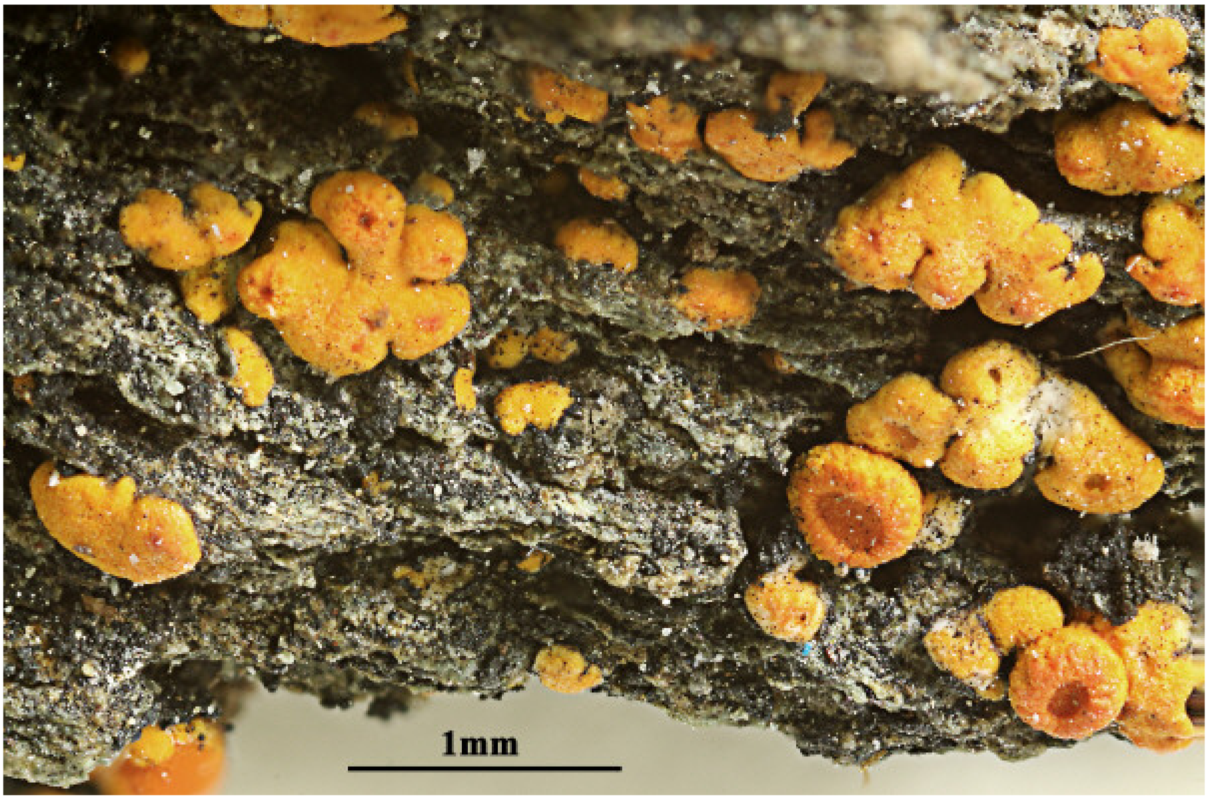
Caloplaca camptidia

Caloplaca castellana (Räsänen) Poelt
[= *Pachypeltis castellana* (Räsänen) Søchting, Frödén & Arup]

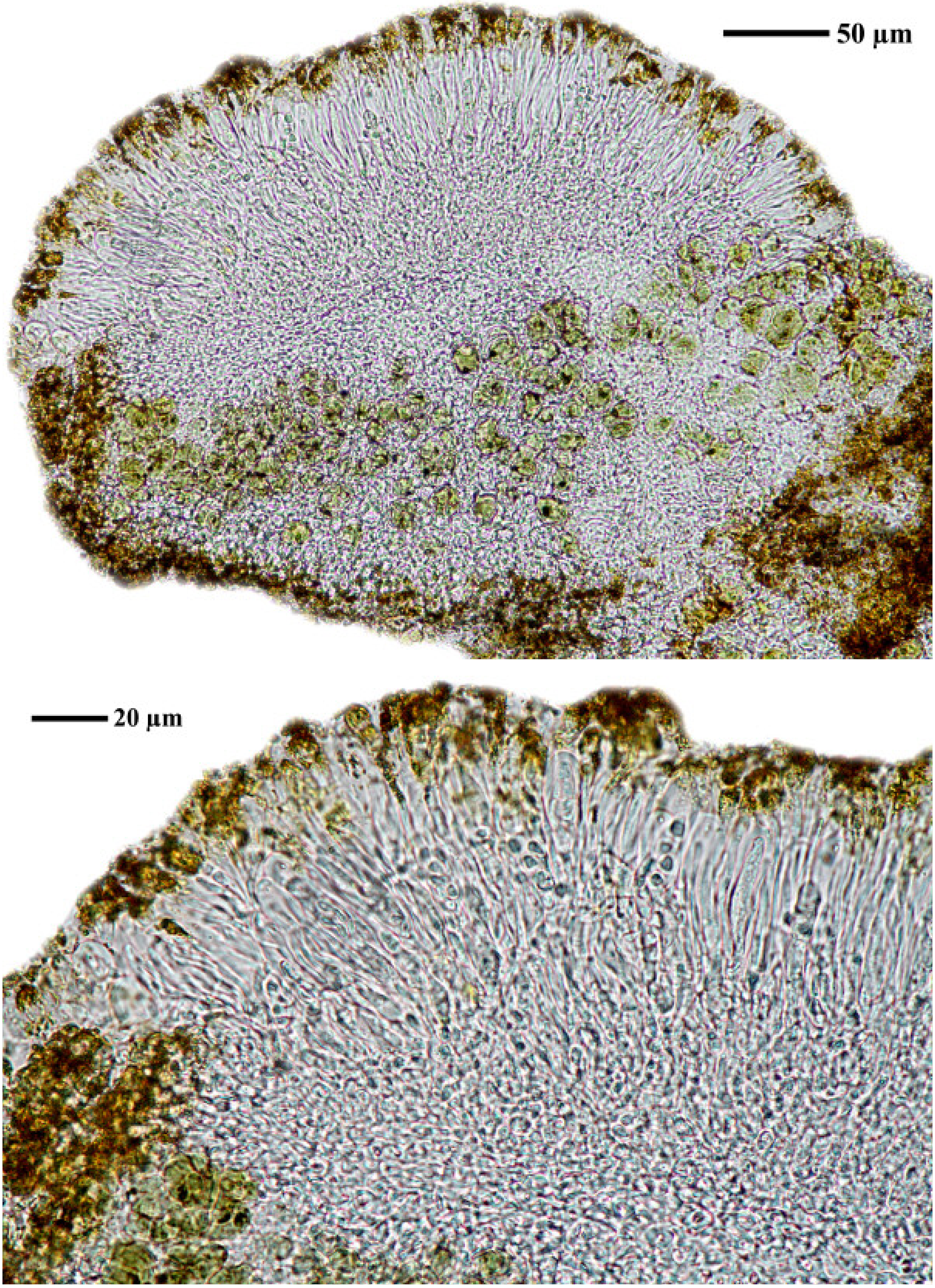
Spores 9-10.6 x 3.7-5.3 µm, septum 2.3-3.3 µm (FS). On rocks. Lit. Poelt, J. in Norw. J. Bot. 25: 124 (1978)

[19570], Austria, Carinthia, montes "Gurktaler Alpen" dicti, in alpe Gregerlnock, 1850-2290 m, ad saxa schistosa. Leg. R. Türk et H. Wittmann, 21.09.1988. VĚZDA: LICHENES SELECTI EXSICCATI NR. 2293.

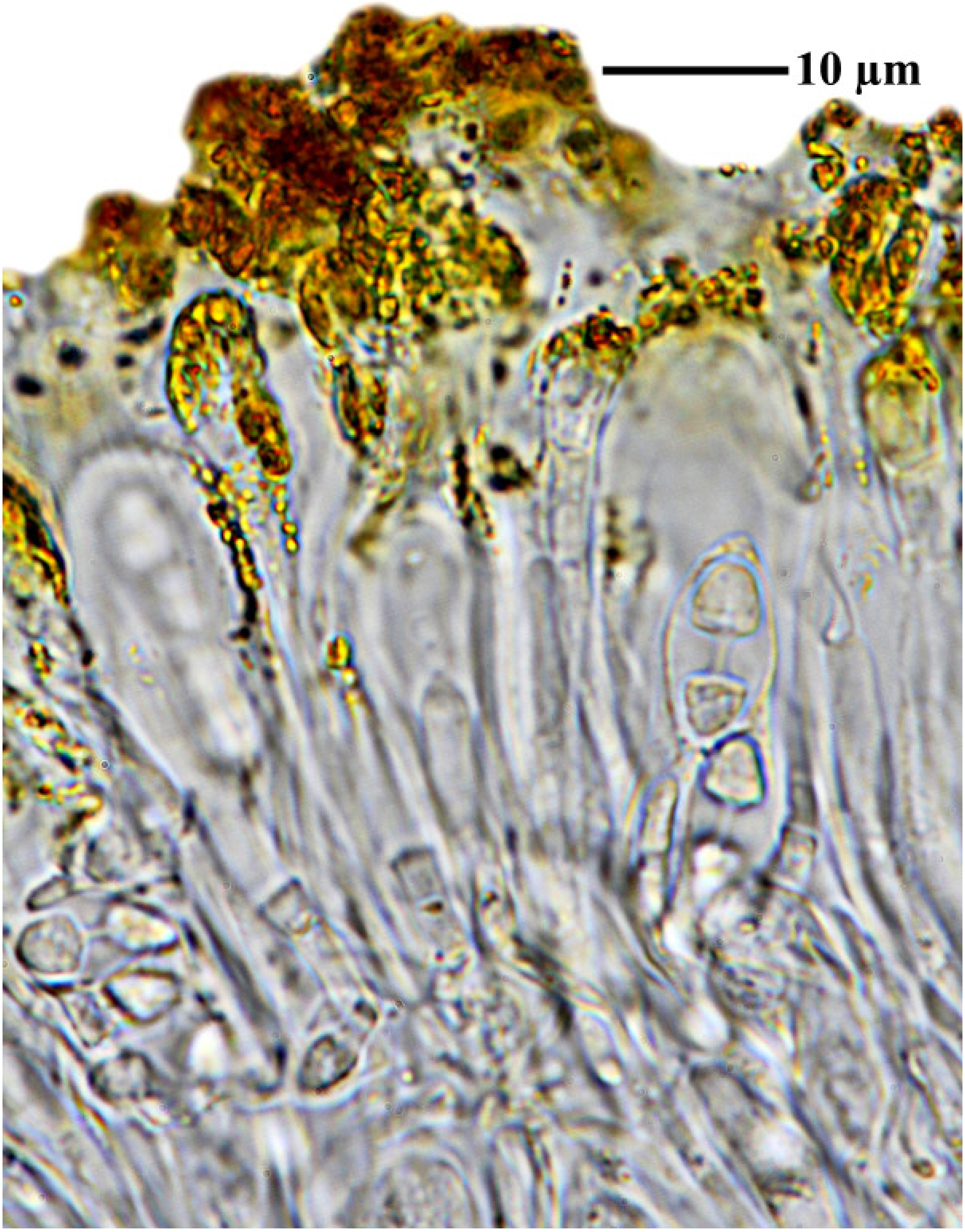




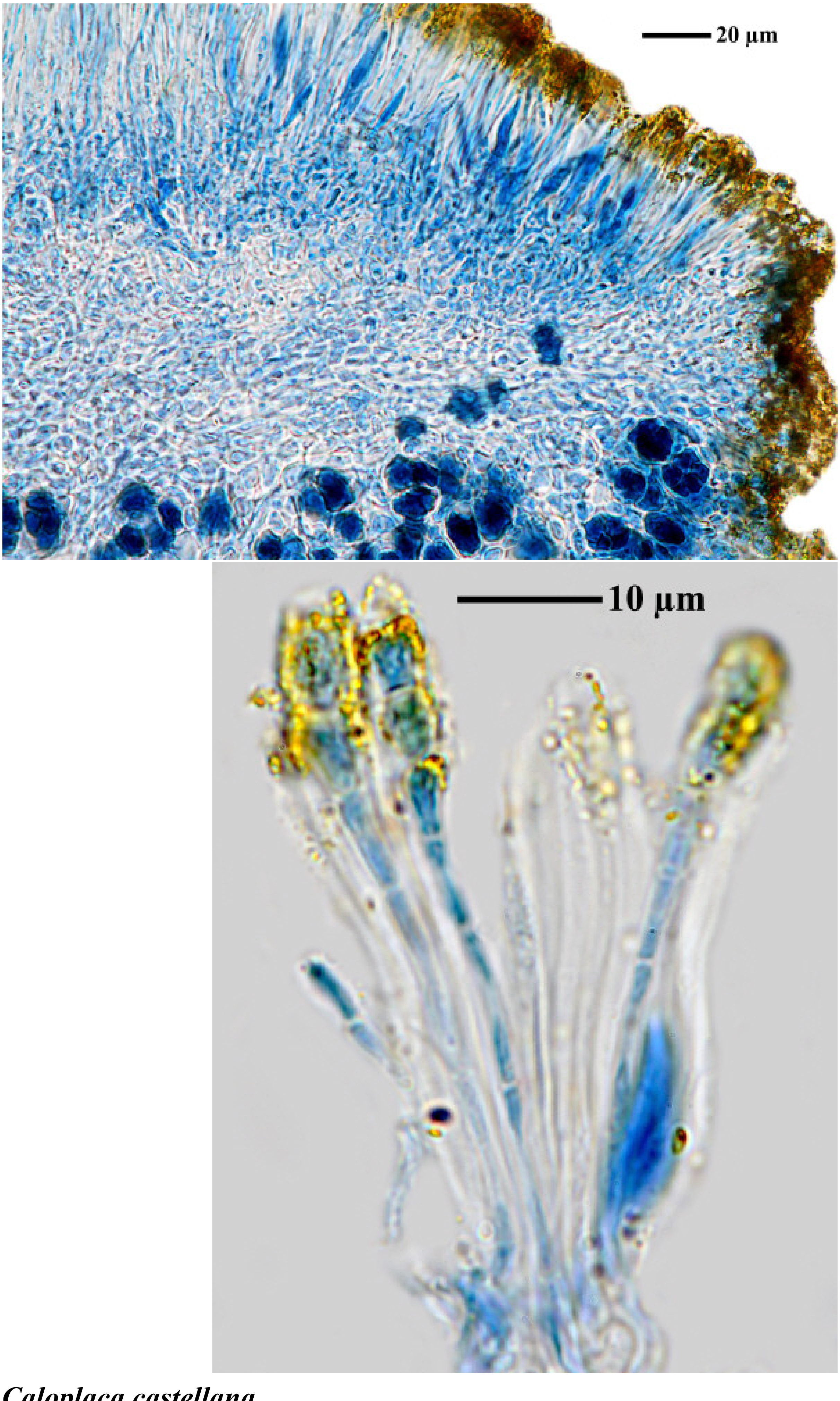
Caloplaca castellana



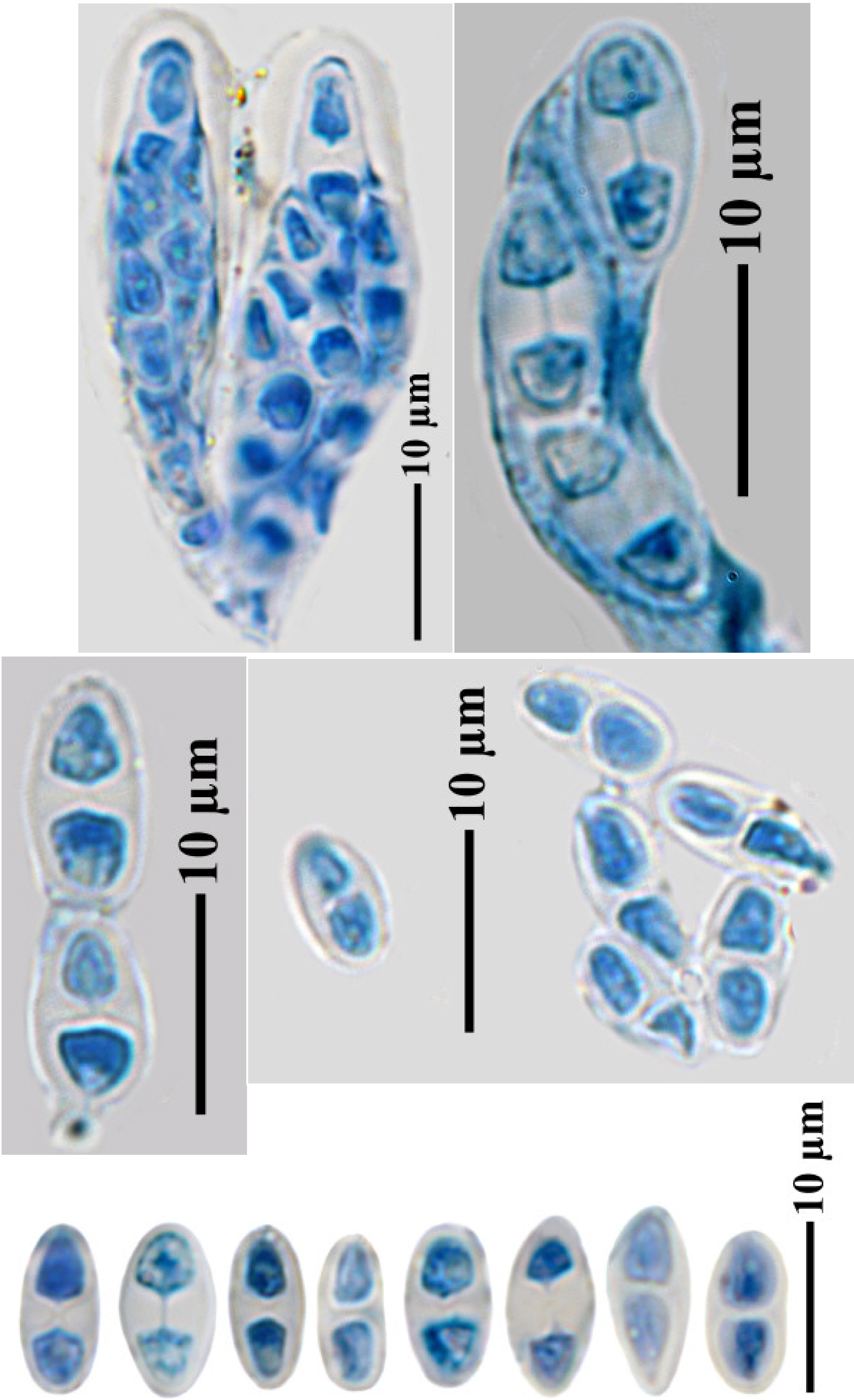
Caloplaca castellana



Caloplaca castellana



Caloplaca castellana



Caloplaca castellana

Caloplaca ceracea J.R. Laundon

On stones

[6700], Spanien, Kanarische Inseln, Gran Canaria; trockener, nordwest-exponierter Geröllhang an der Straße zwischen Mogan und San Nicolas; Echium-Euphorbia-Kleinia Gesellschaft; 27°55.665' N, 15°44.864' W, Höhe 700 m. Leg. F. Schumm & U. Schwarz 30.12.1999, det. A. Aptroot 2016.

Caloplaca ceracea

Caloplaca ceracea J.R. Laundon

On stones

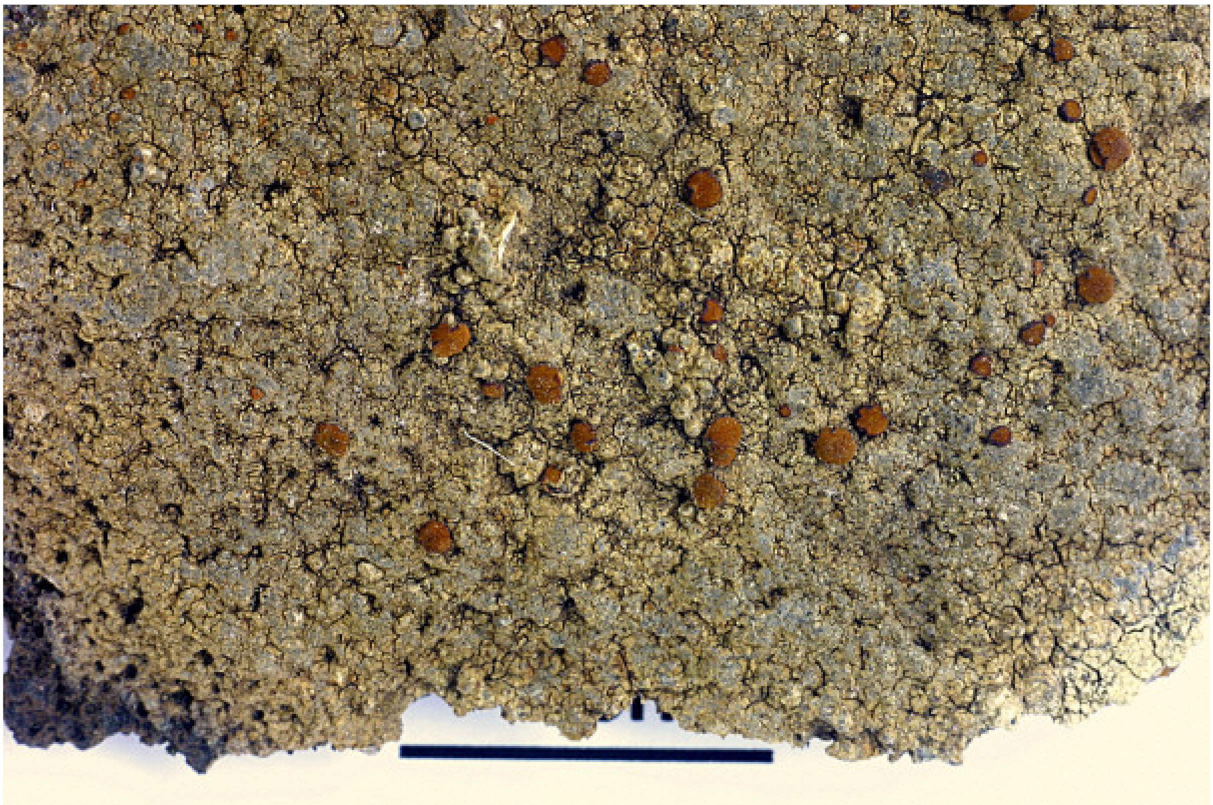
[7109], Spanien, Kanarische Inseln, Teneriffa, 1 km südöstlich von Los Cristianos an einem Ausläufer des Mont Guaze, ca. 220 m, auf vulkanischem Gestein in Sukkulenten-Steppe. Leg. F. Schumm 27.12.1975, det. A. Aptroot 2016.

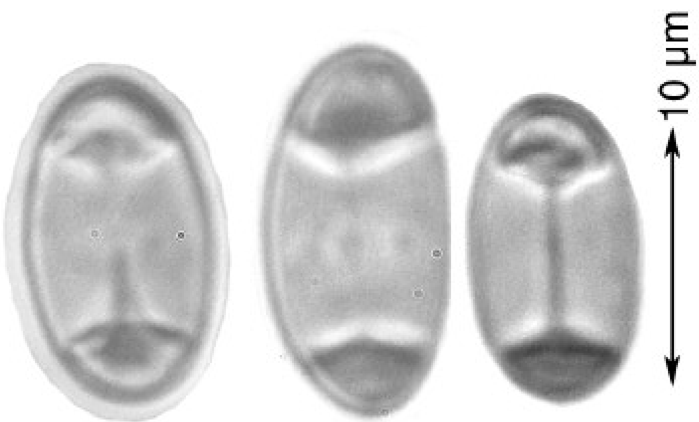
Caloplaca ceracea

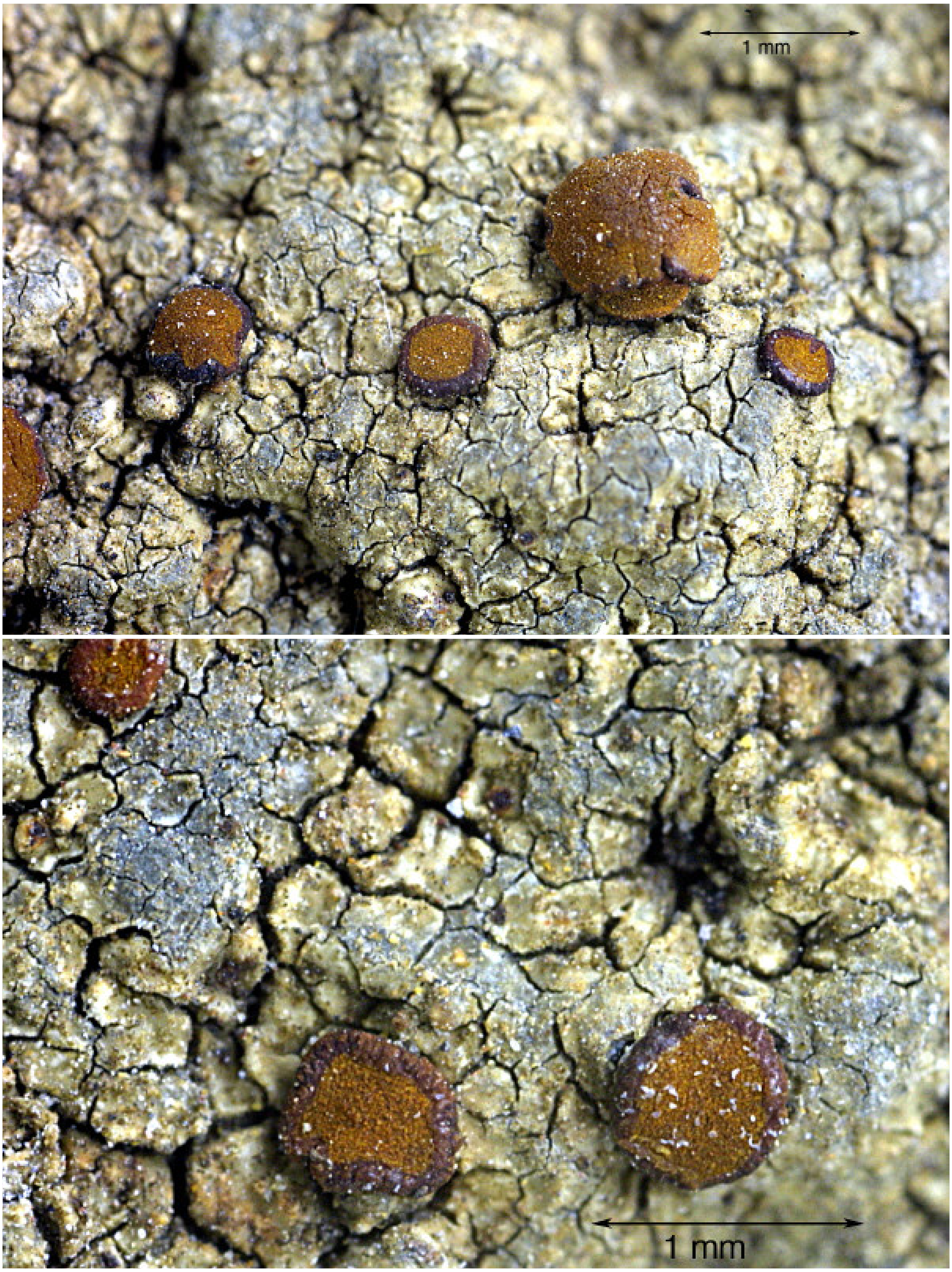
Caloplaca ceracea J.R. Laundon

Thallus gelblichgrau, K-, rissig areoliert, Areolen ca. 0,3 mm breit, flach, an den Rändern etwas erhaben. Isidien und Sorale fehlen. Apothecien 0,7-1 mm, K+ rot, aufsitzend, am Grunde verengt; Scheiben flach bis etwas konvex, braunorange bis ockerorange; Rand auffallend dunkler als die Scheibe, rotbraun, ca. 0,05-0,06 mm dick, etwas wellig; Algenhaufen unter dem Hypothecium. Sporen polar-2-zellig, ellipsoidisch, 12-13 x 6,5-7,5 µm, mit 7-7,5 µm langen Septen. Chemie: unbekannte Anthrachinone. Saxicol.

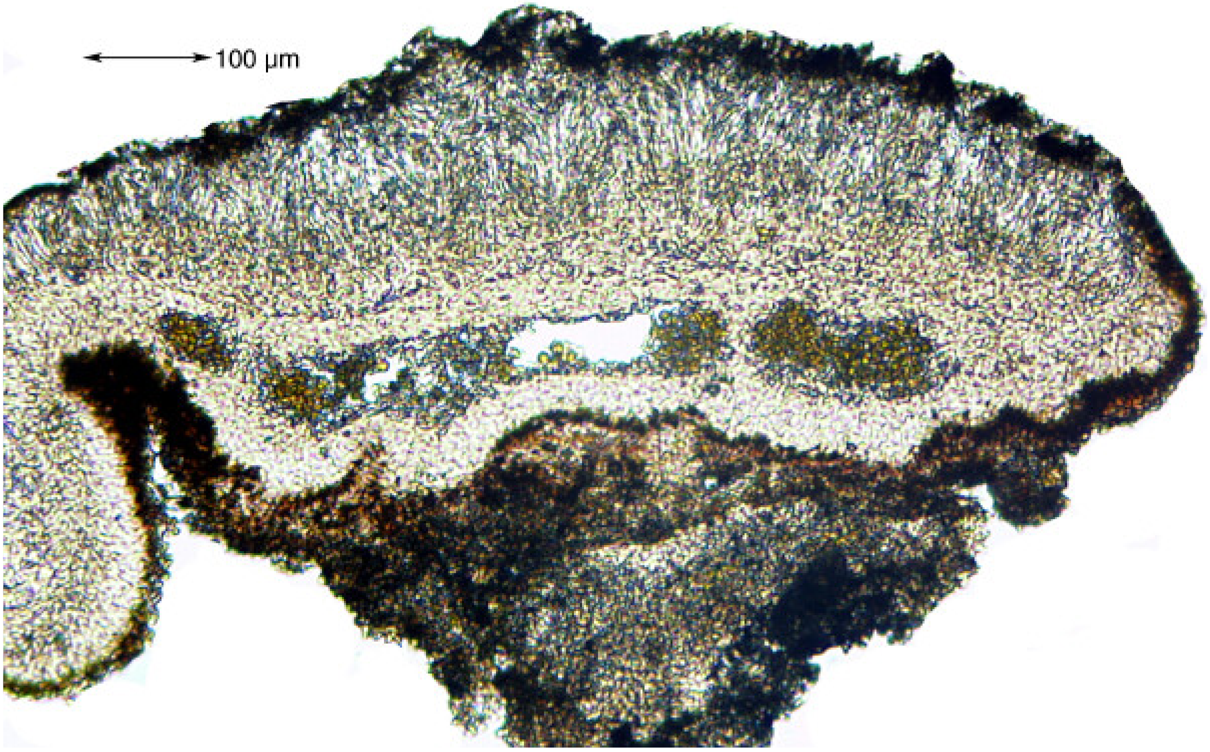
[8659], Portugal, Madeira, Porto Novo südlich von Gaula, 32°39,775' N, 16°48,781' W, 19 m, trockene, sonnige, küstennahe Lavafelsen-Leg et det. Schumm 16.04.2001, conf. Sipman 2008.

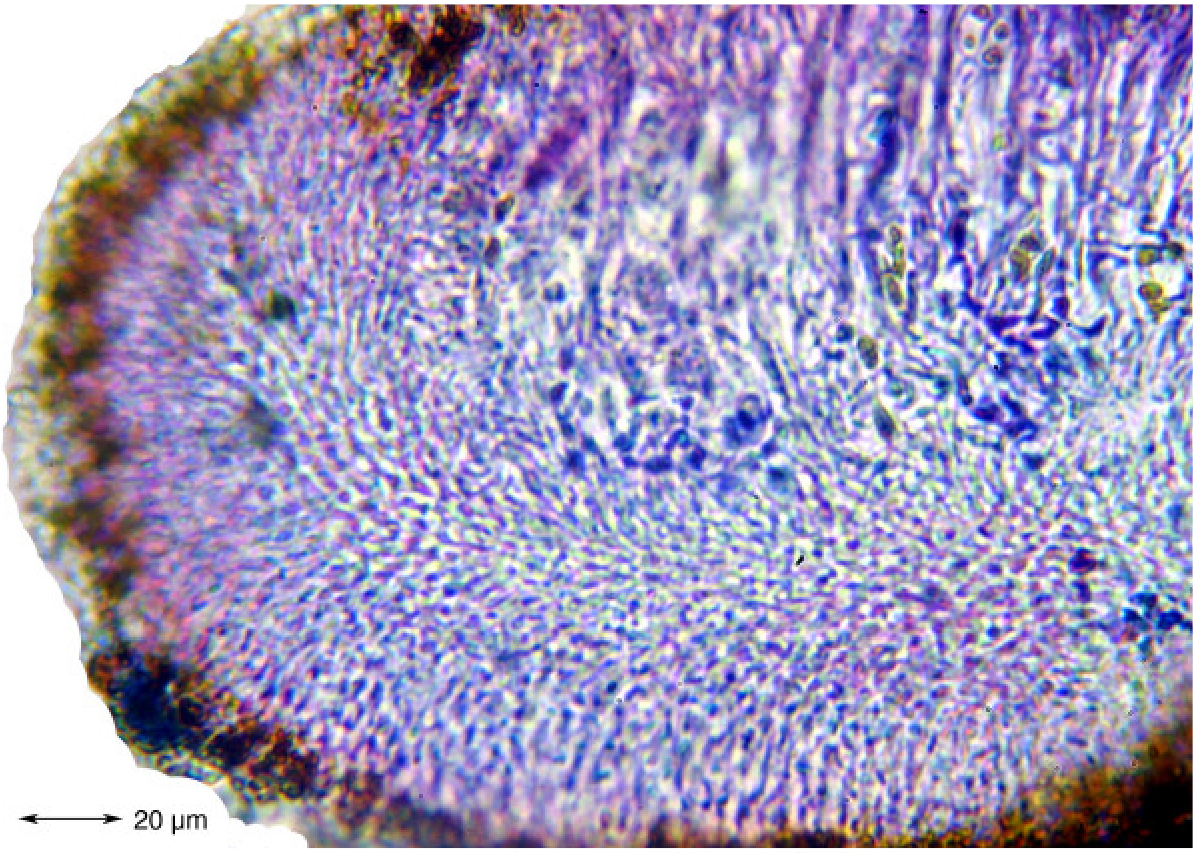


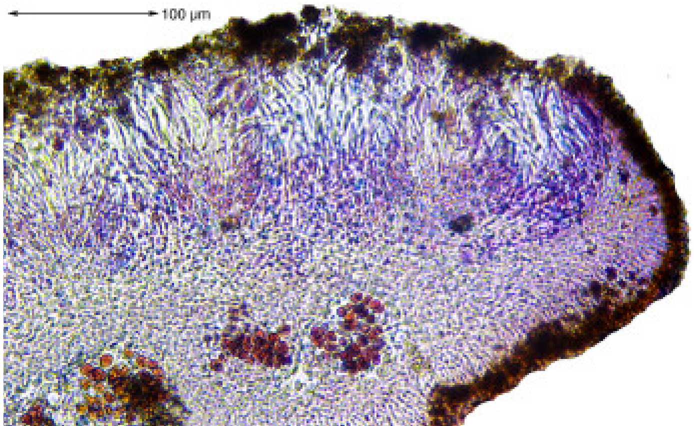




Caloplaca ceracea







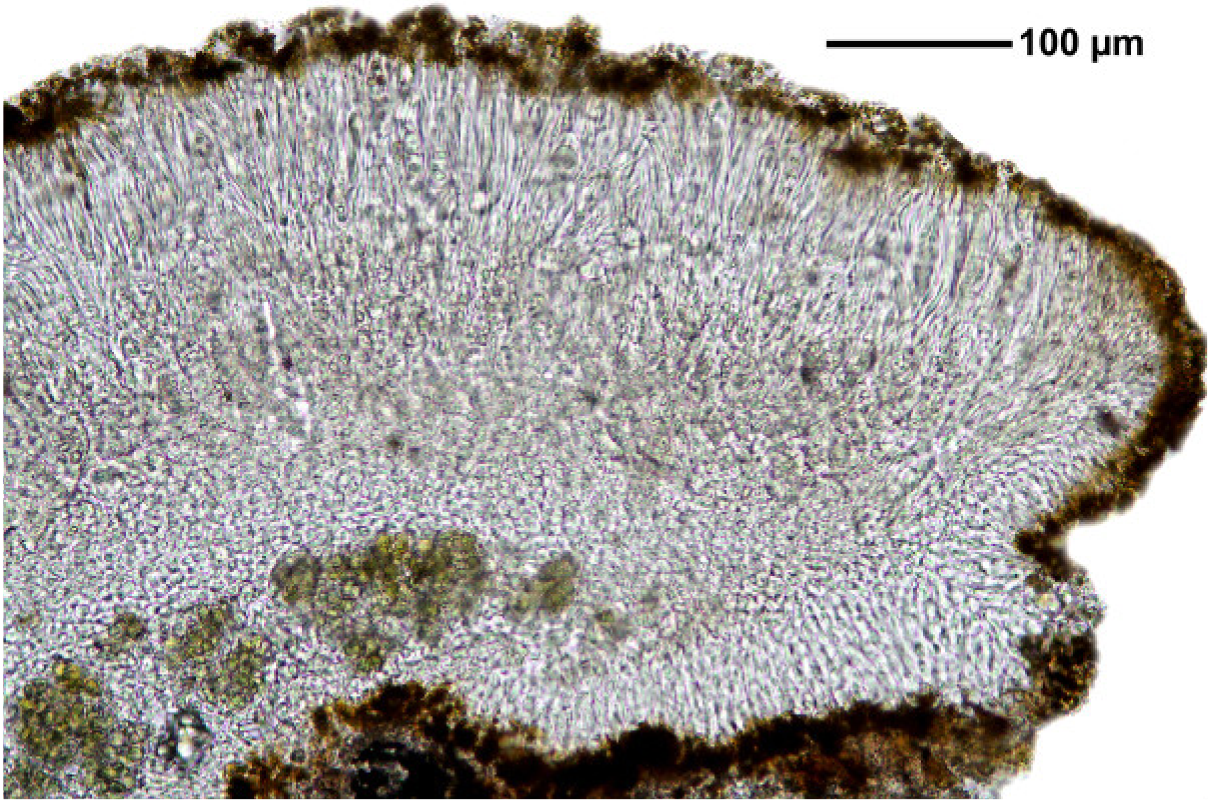
Caloplaca ceracea

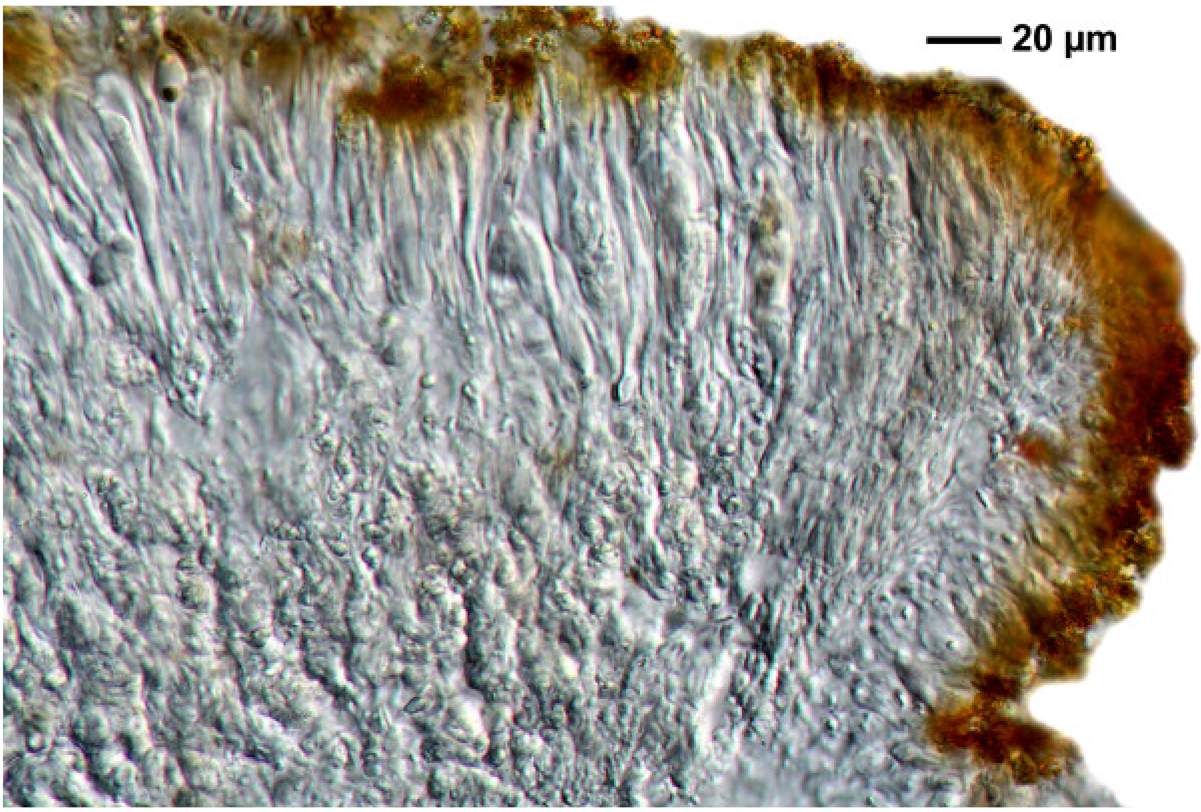
Caloplaca ceracea J.R. Laundon

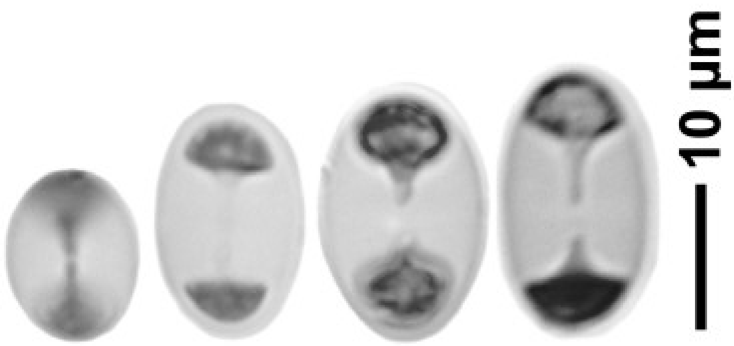
On stones. Spores polarilocular, hyaline, 8/ascus, 13-18 x 9.5-11 µm, septum 6.5-11 µm.

[10094], Spanien, Kanaren, Gran Canaria (NE-GC), An der Straße zwischen Tamaraceite und Teror in feucht getöntem Nordhang mit Kleinsträuchern. 28°04.938' N, 15°30.701' W, ca. 360 m. Leg. F. Schumm, 05.03.2003, det. A. Aptroot 2016.

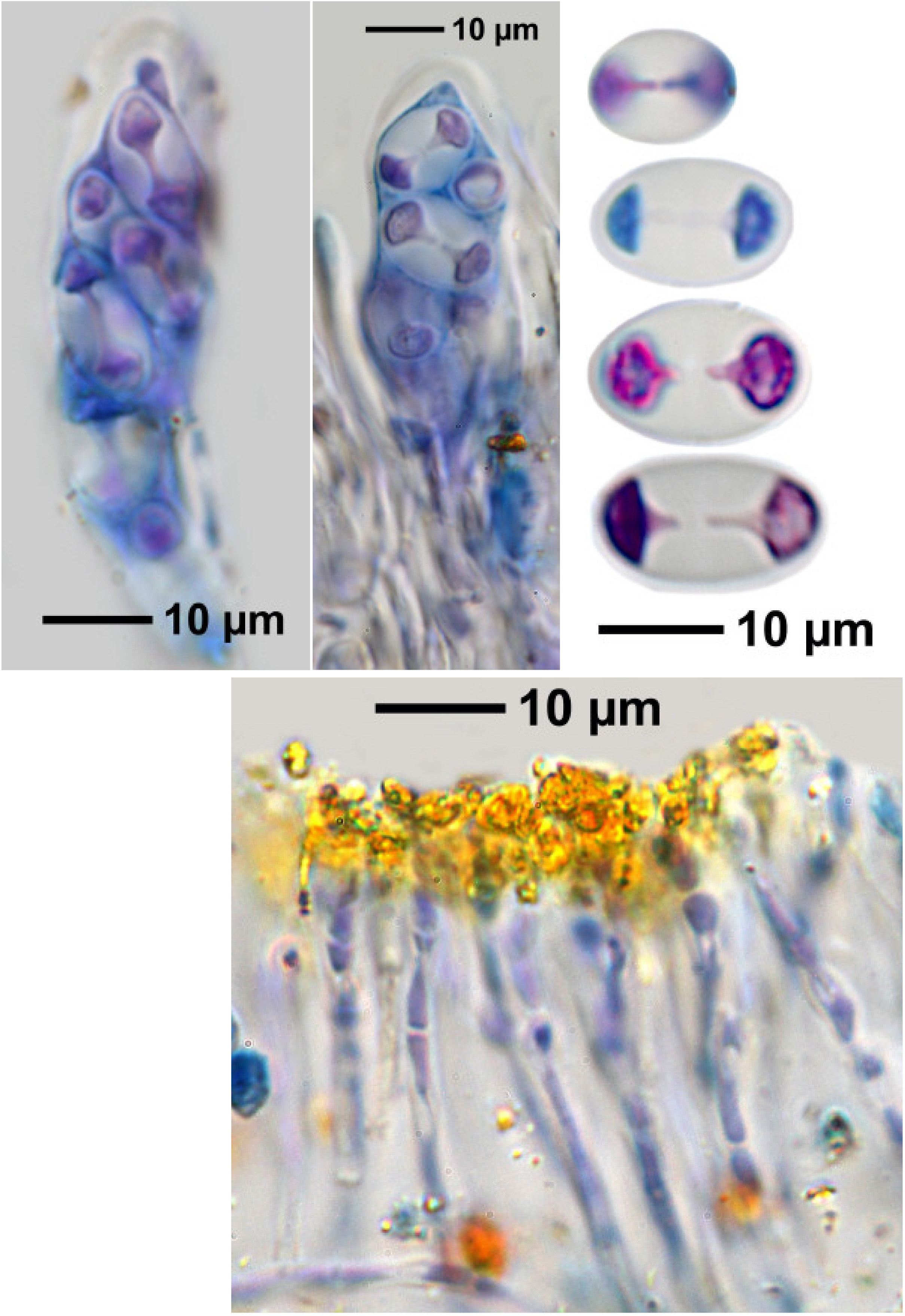
Caloplaca ceracea







Caloplaca ceracea



Caloplaca ceracea

Caloplaca cerina (Hedw.) Th.Fr.

On bark.

[12394], Griechenland, N-Samos, NE von Droia an der Straße nach Vathy, 37°44.233' N, 26°59.482' E, 160 m, südexponierter Ölbaumhang. Leg. F. Schumm & R. Düll, 04.05.2006, det. H. Sipman 2016.

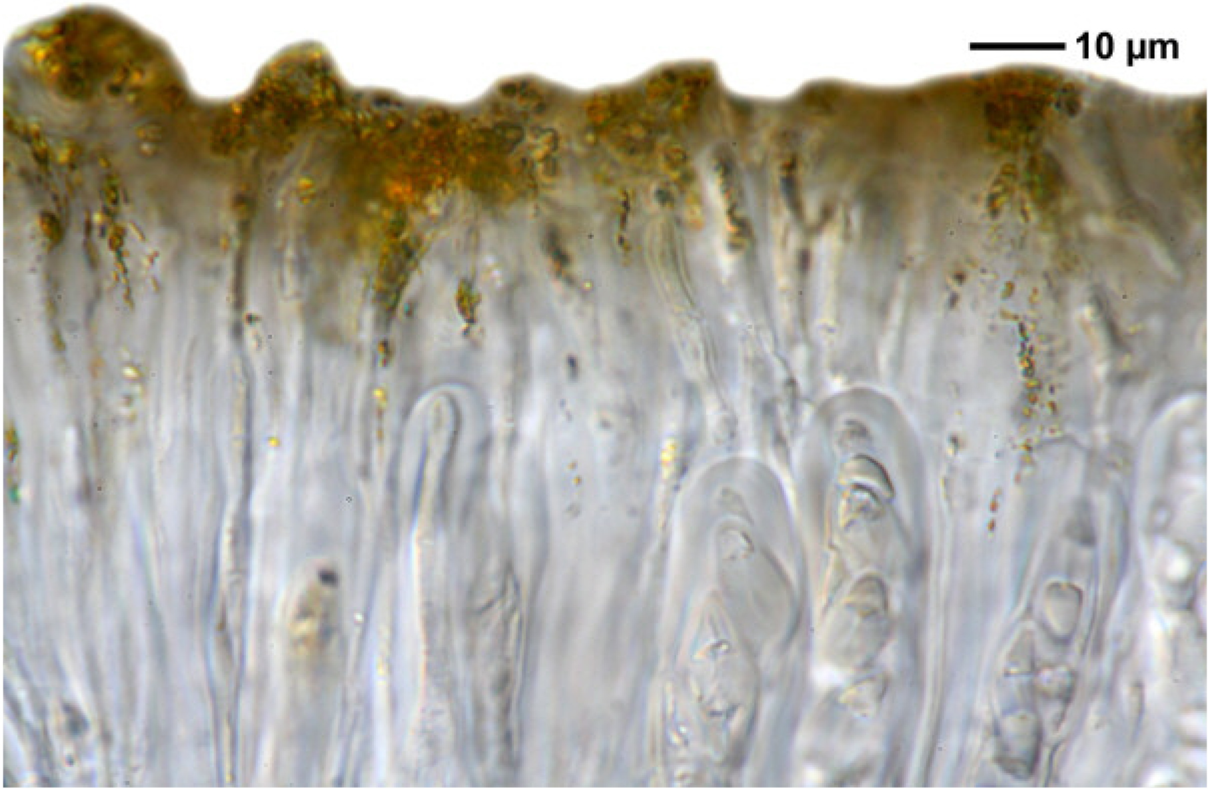
Caloplaca cerina

Caloplaca cerina (Hedw.) Th.Fr.

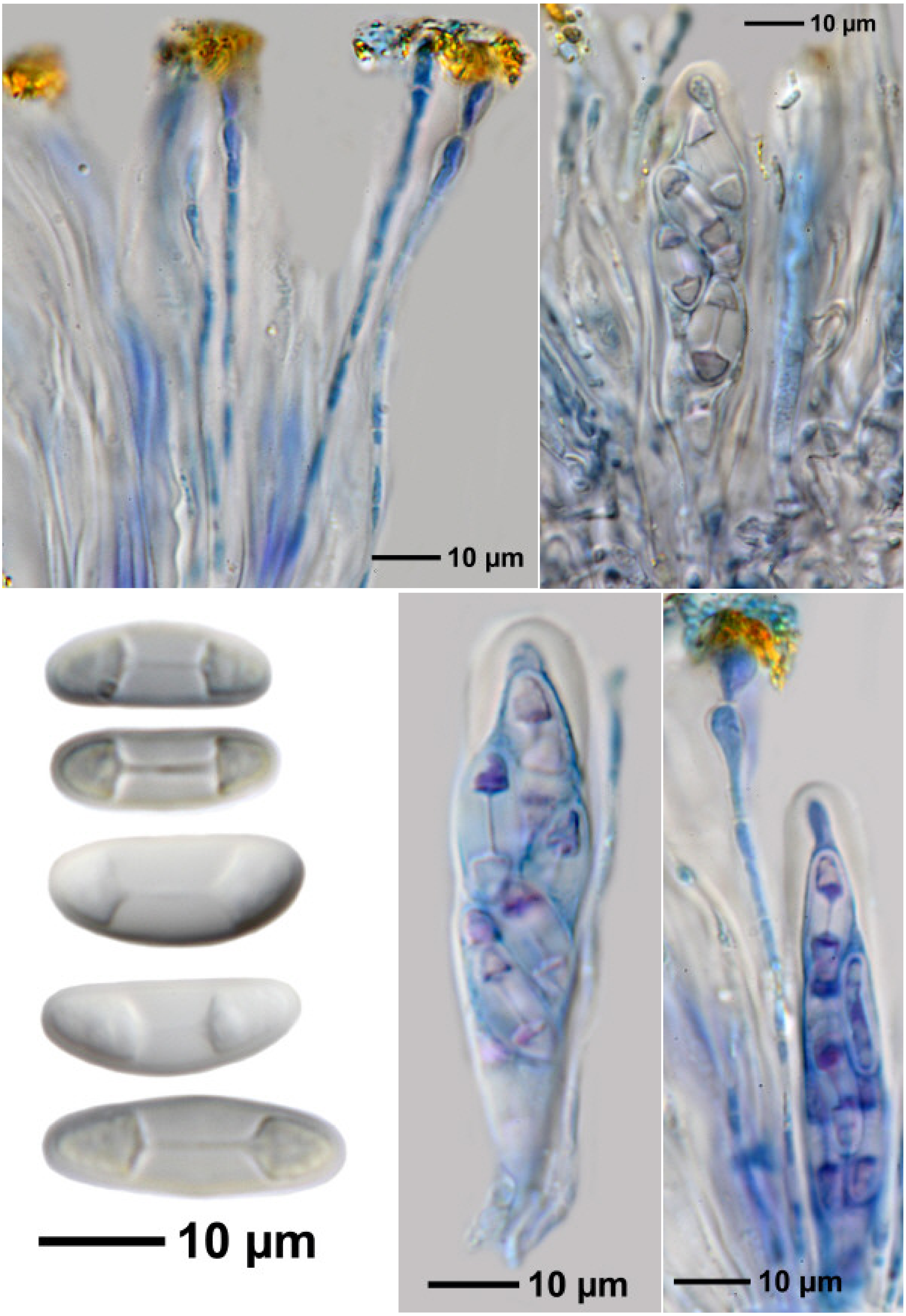
On bark. Spores polarilocular, hyaline, 8/ascus, 17-20(-24) x 6-8 µm, septum 6.5-9.5 µm.

[12414], Griechenland, N-Samos, südlich von Agios Konstandinos, an der Straße nach Manolates (ca. 37°47'N, 26°49' E), bei ca. 130 m, on bark. Leg. F. Schumm, R. Düll & Maier, 05.05.2006, det. A. Aptroot 2016.

Caloplaca cerina



Caloplaca cerina



Caloplaca cerina

Caloplaca cerina (Hedw.) Th.Fr.

On bark.

[14786], Zypern (S), nördlich von Pissouri bei Prastio; 34°43.441' N, 32°46.675' E, 300 m. Leg. F. Schumm & J.-P. Frahm, 17.02.2009, det. A. Aptroot 2016.

Caloplaca cerina

Caloplaca cerina (Hedw.) Th.Fr.

On bark.

[19390], U.S.A. North Dakota, McHenry Co. Lake Hester, 7.5 miles [12 km] E of Velva. Grove of green ash (*Fraxinus pennsylvanica*), boxelder (*Acer negundo*), and american elm (*Ulmus americana*) on shore of lake, elev. 1555 ft. [474 m], 48°03'08" N, 100°05'42" W, on green ash (*Fraxinus pennsylvanica*). Leg. Thomas D. Trana (No 9200), 25. Aug. 1979, det. C. Wetmore. TELOSCHISTACEAE EXSICCATI NO. 103,distributed by C. Wetmore.

Caloplaca cerina

Caloplaca cerina (Hedw.) Th.Fr.

on bark.

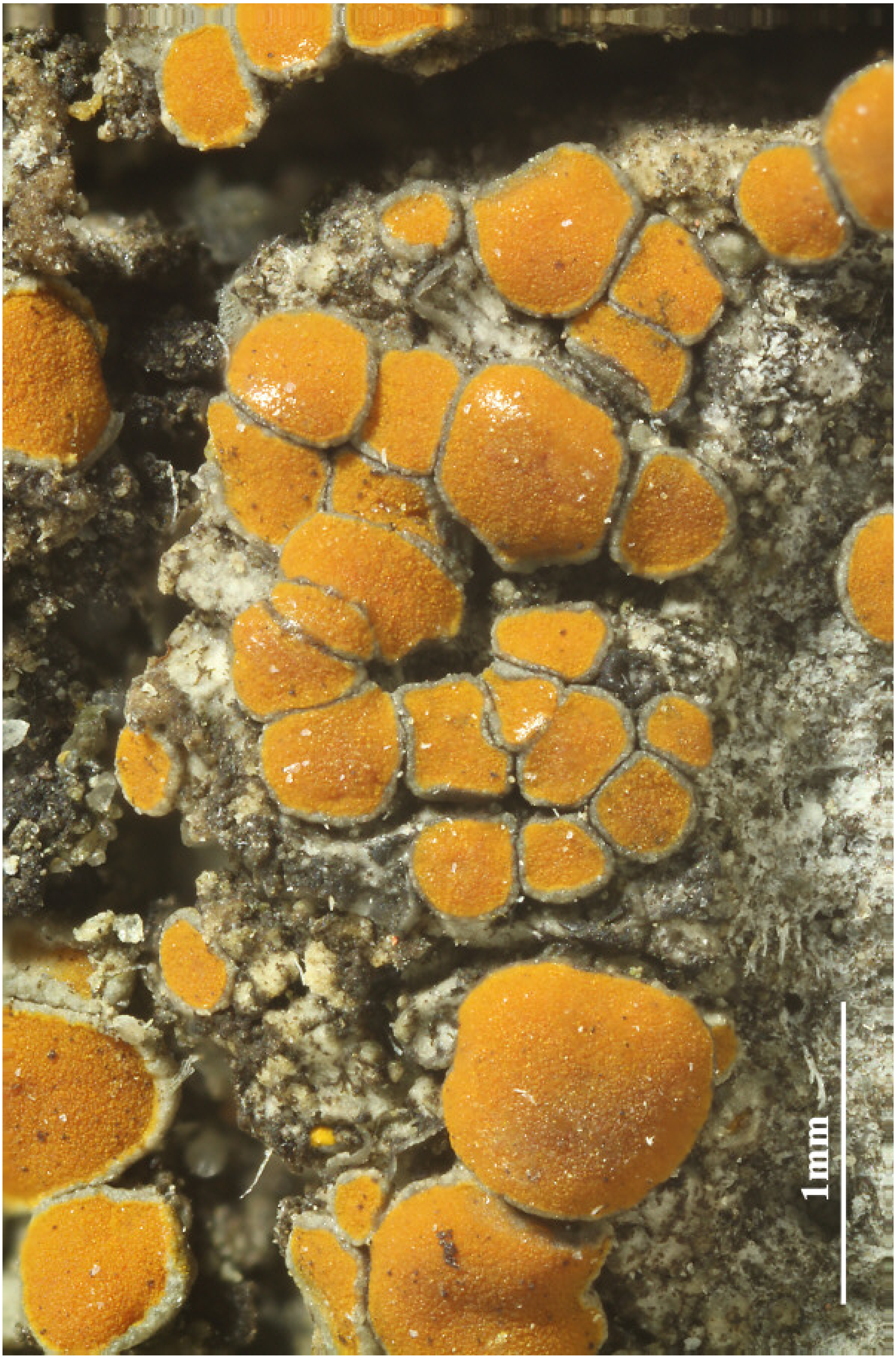
[19391], U.S.A. North Dakota, McHenry Co. 12.5 miles [20 km] ESE of Velva, elev. 1600 ft. [488 m], ca. 47°58'45" N, 100°41'18" W, on trunk of isolated cottonwood (*Populus deltoides*). Leg. Thomas D. Trana (No. 12893), 29. Aug. 1986, det. C. Wetmore. TELOSCHISTACEAE EXSICCATI NO. 102 distributed by C. Wetmore.

Caloplaca cerina

Caloplaca cerina (Hedw.) Th.Fr.

On bark.

[19392], U.S.A. North Dakota, McKenzie Co. Theodore Roosevelt National Park. North Unit. Along Little Missouri River near Bison Corral, 2 mi (3.2 km) SW of entrance station (14 mi [22 km] SW of Watford City). On large old cottonwoods (Populus deltoides) along river, elev. 1950 ft. (595 m), 47°34'50" N, 103°17'57". Leg. et det. Clifford M. Wetmore (Nr. 80185), 14. June 1998. TELOSCHISTACEAE EXSICCATI NO. 104 distributed by C. Wetmore.

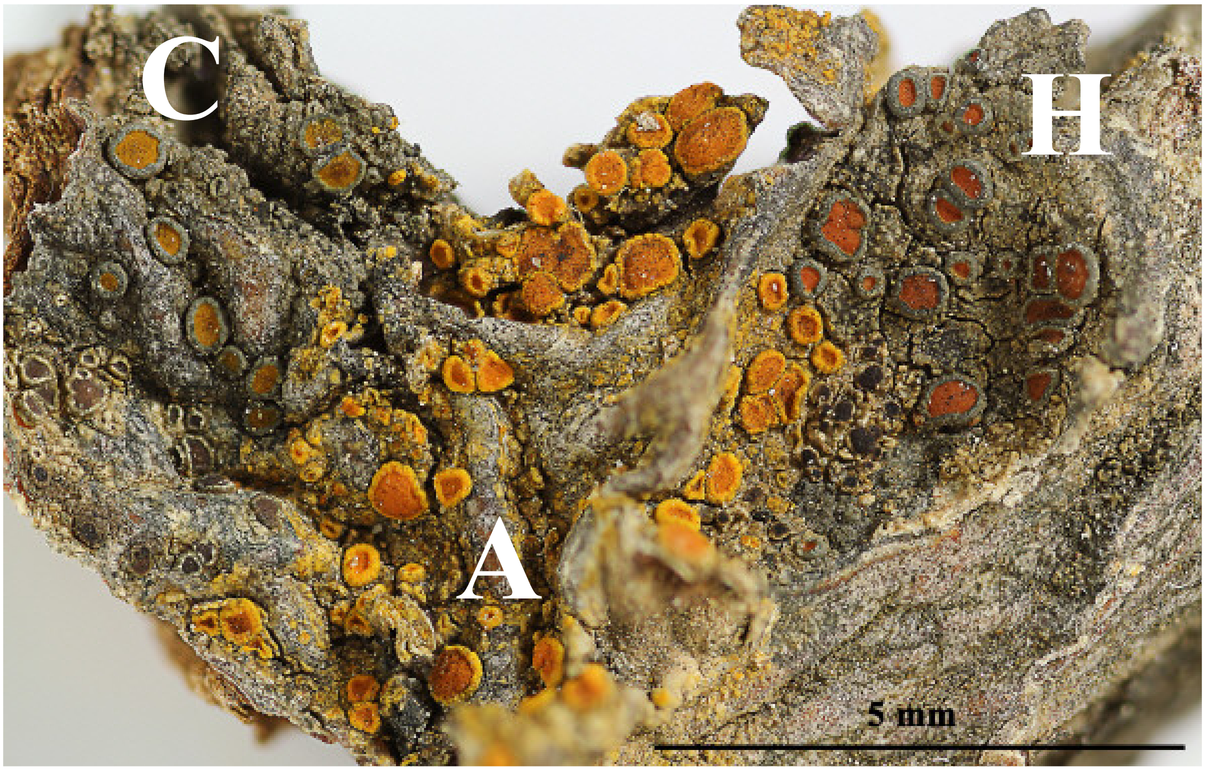


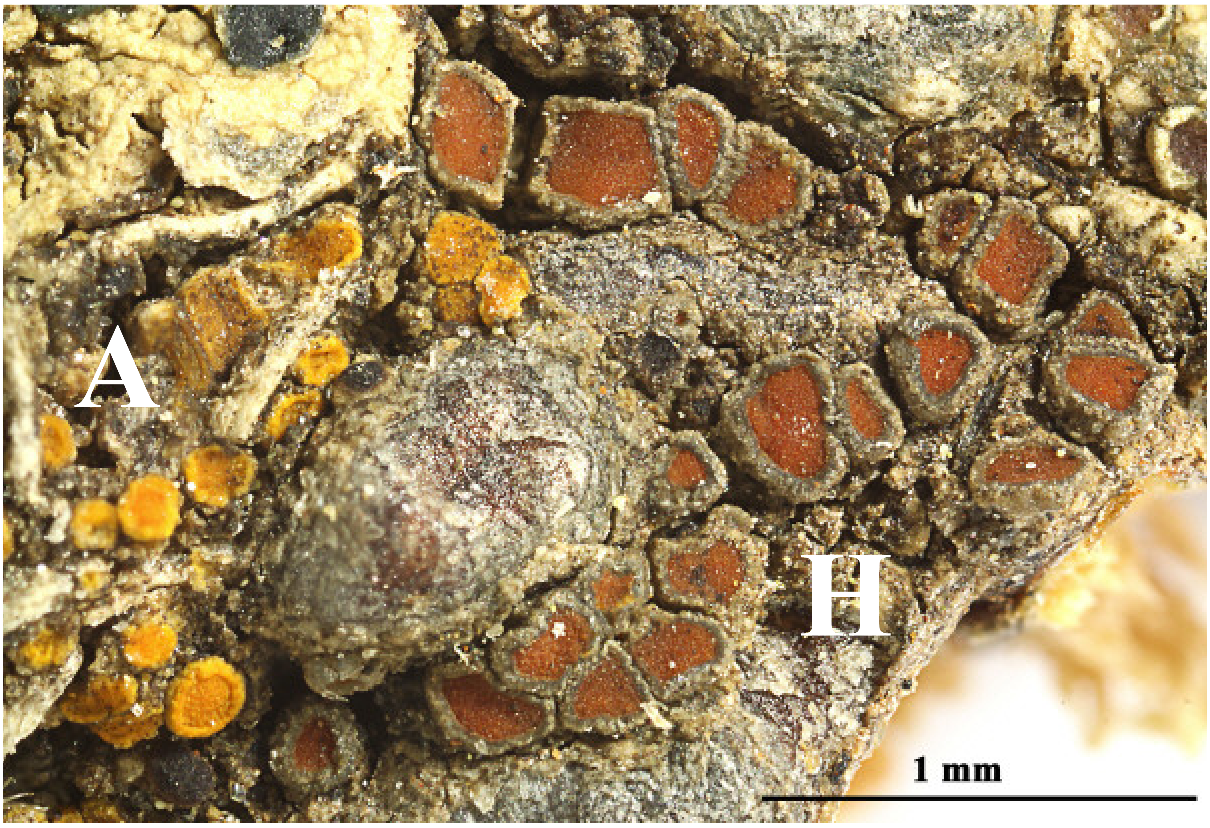
Caloplaca cerina

Caloplaca cerina, haematites & aegatica

On bark. Growing all together. C = cerina, H = haematites, A = aegatica.

[13964], Griechenland, N-Samos: nördlich des Mt. Lazarou oberhalb Monasterio Vronda, 37°45.836' N, 26°51.012' E, 760, an *Malus* . Leg. F. Schumm & R. Düll, 20.05.2008, det. A Aptroot 2016





Caloplaca cerina, haematites & aegatica

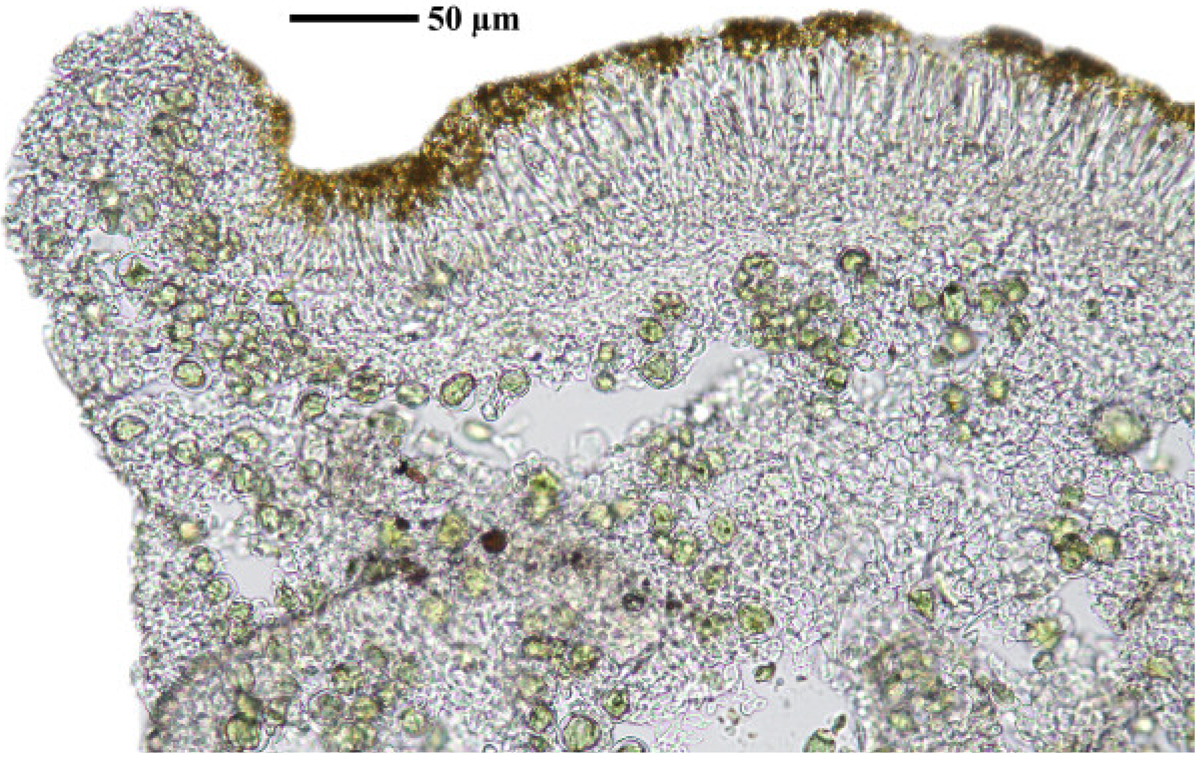
Caloplaca cerina (Hedw.) Th.Fr. var. ***cyanolepra*** (DC.) Kichx.

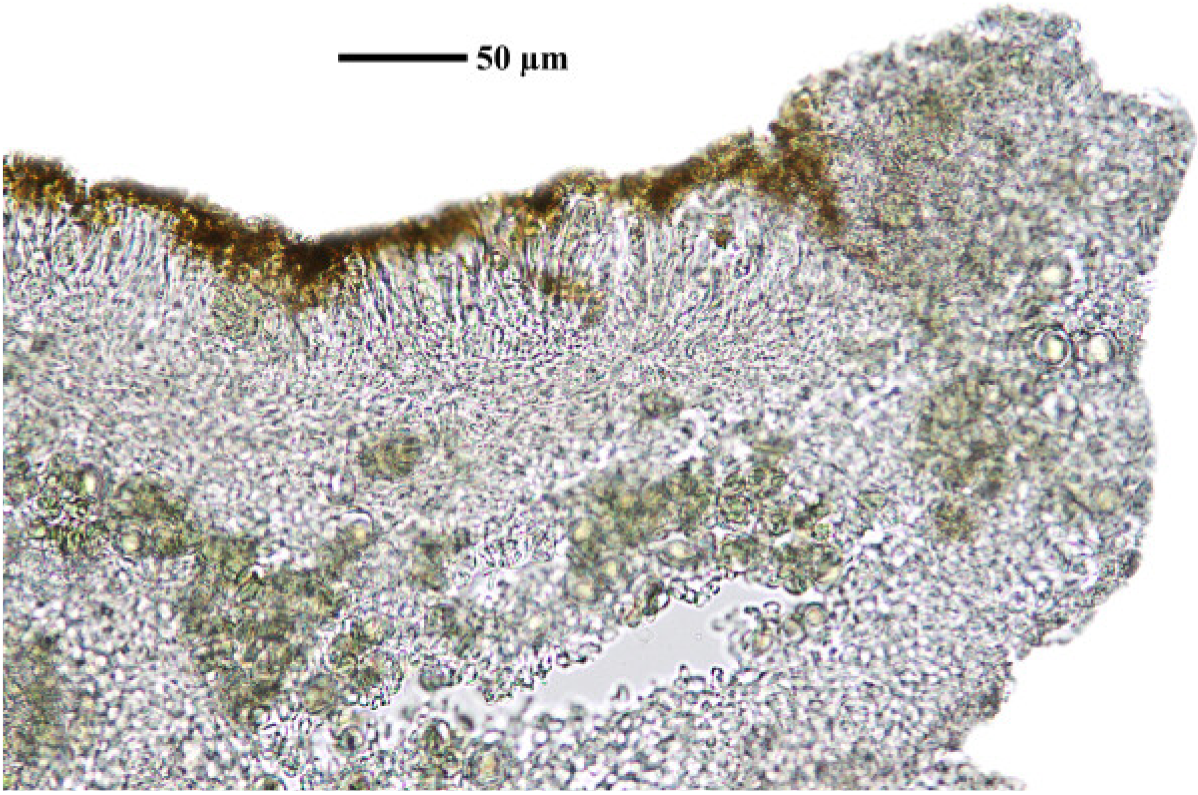
Spores 10-13 x 5.5-6.3 µm, septum 4.5-5.5 µm (FS). On bark. Lit. Kicks J., Fl. cryptog. Flandres 1:233 (1867)

[19571], Bohemoslovacia, Bohemia, distr. Benešov prope Pragam, prope vicum Hodětice, alt. 450 m, ad corticem arborum (Populus sp.) secus viam. Leg. J. Liška, 13.10.1986. VĚZDA: LICHENES SELECTI EXSICCATI NR. 2469.

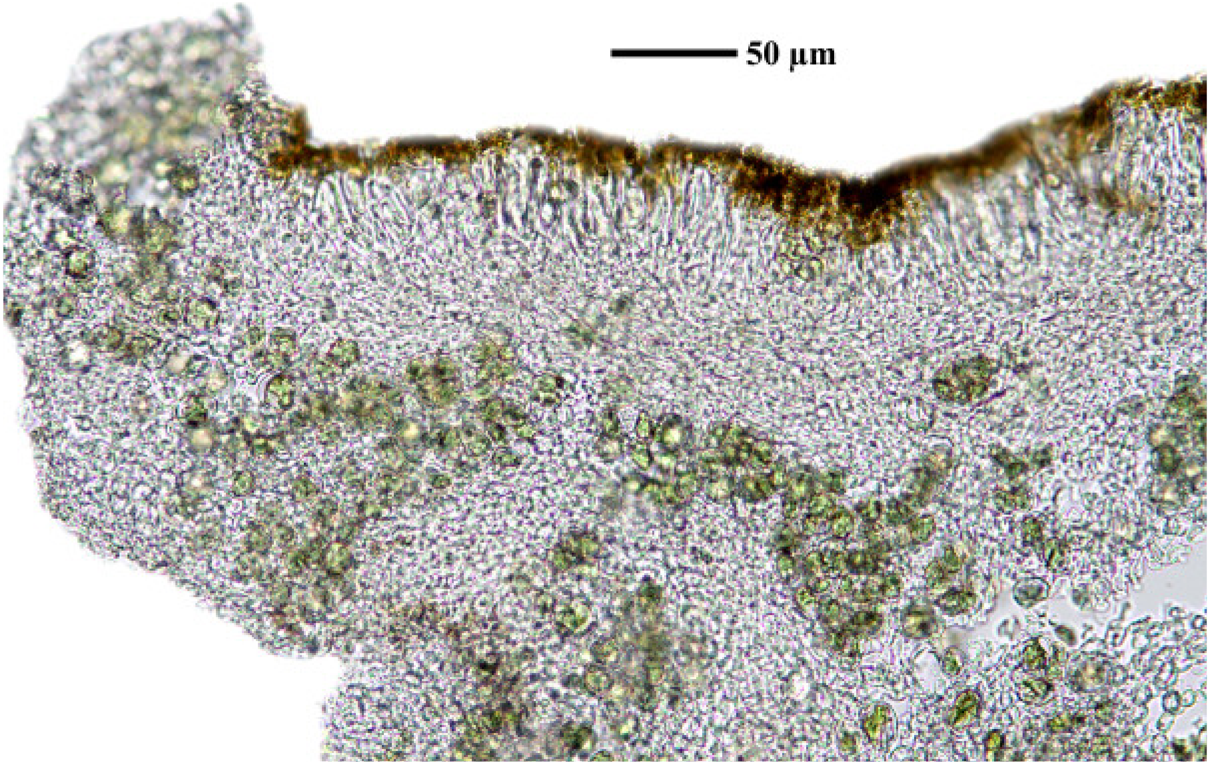
Caloplaca cerina var. ***cyanolepra***

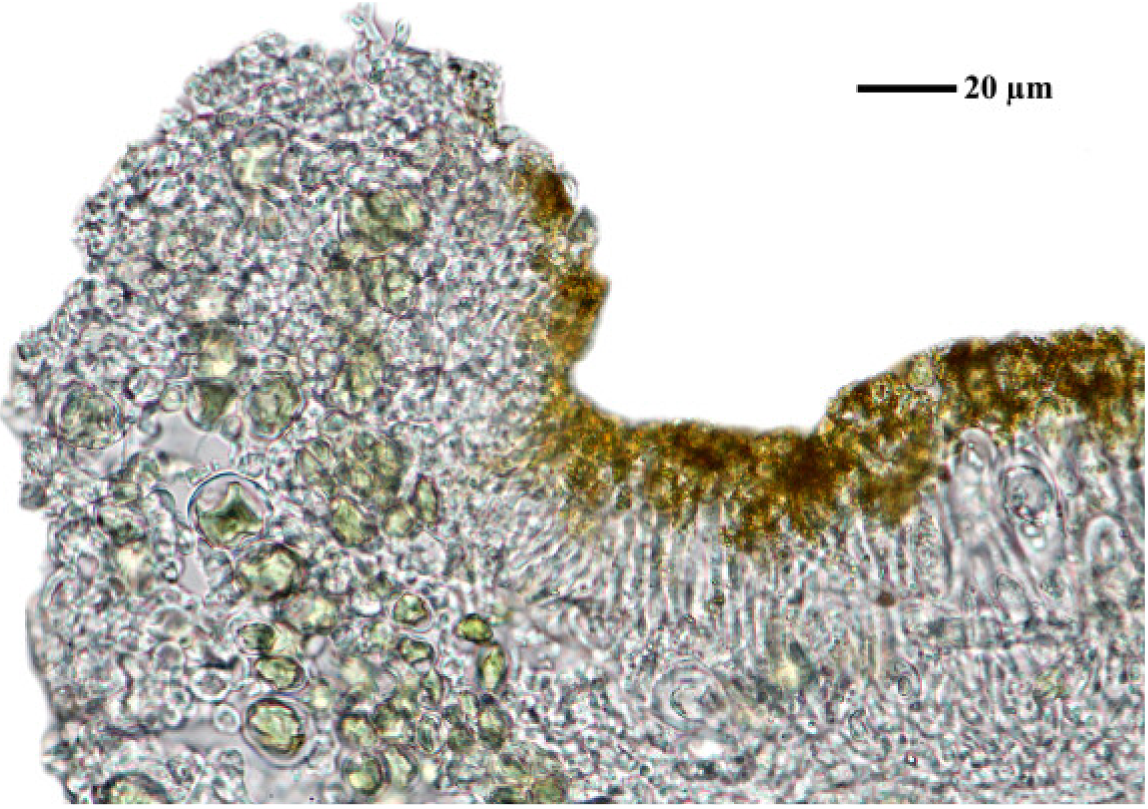
Caloplaca cerina var. ***cyanolepra***



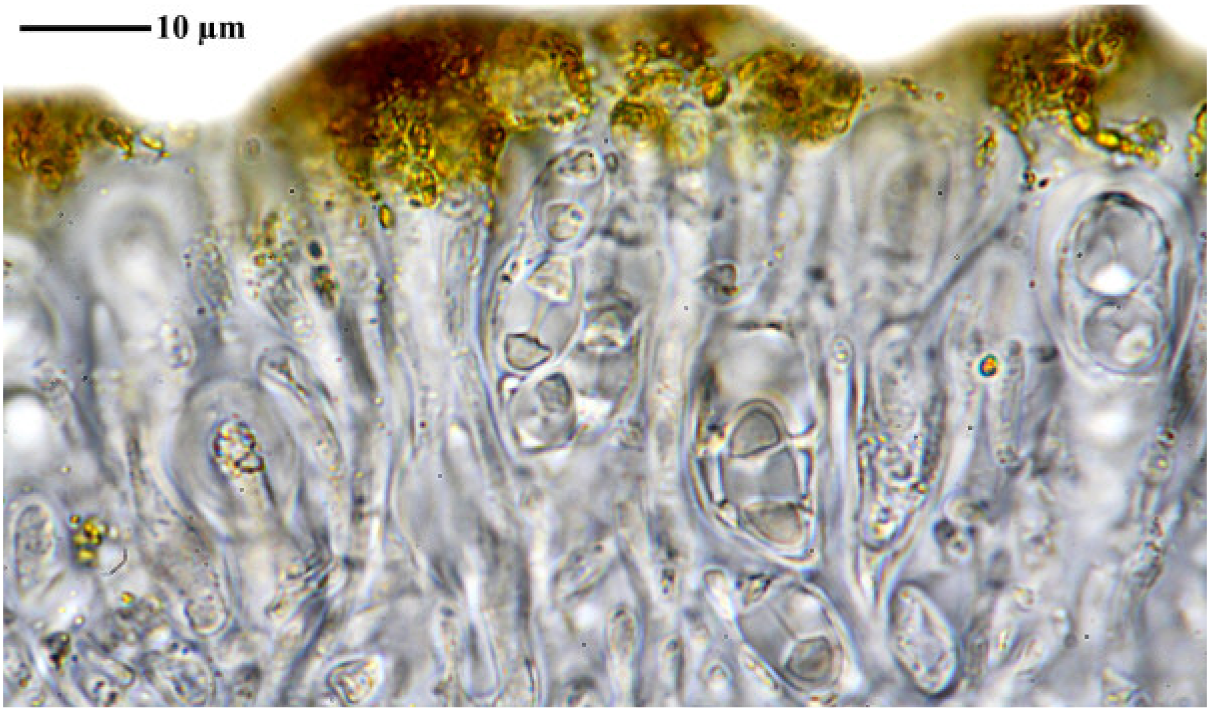


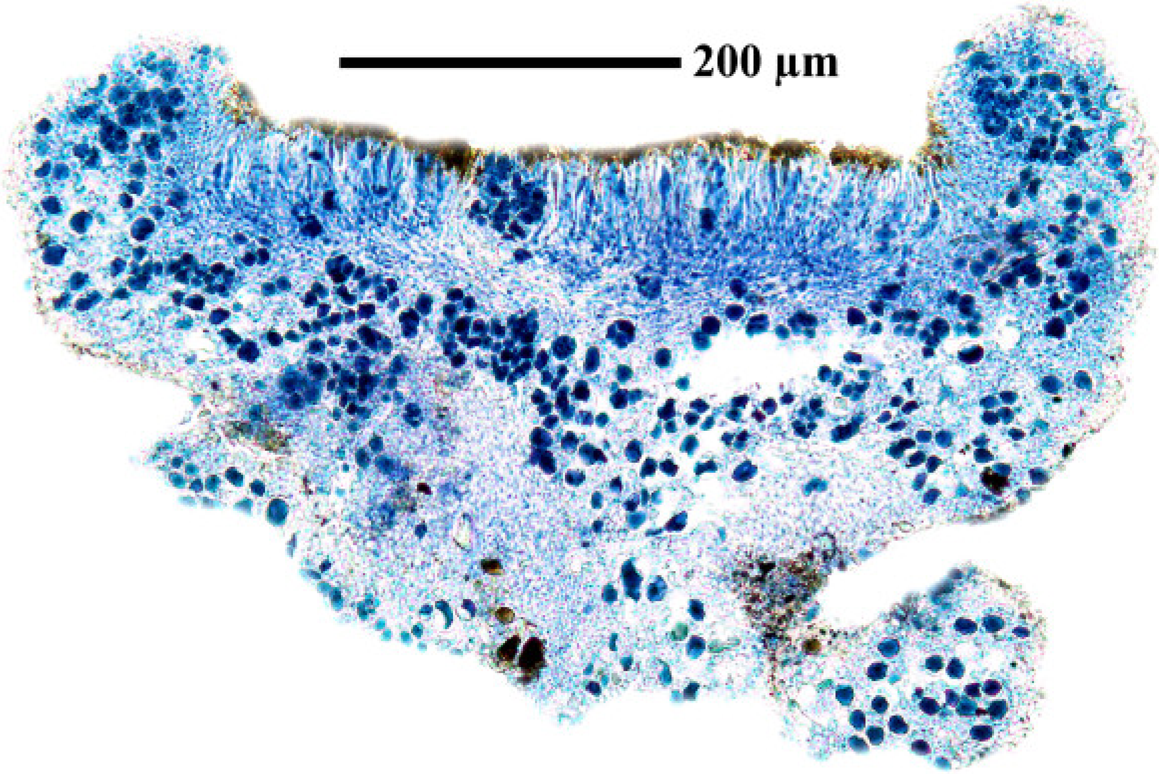
Caloplaca cerina var. ***cyanolepra***



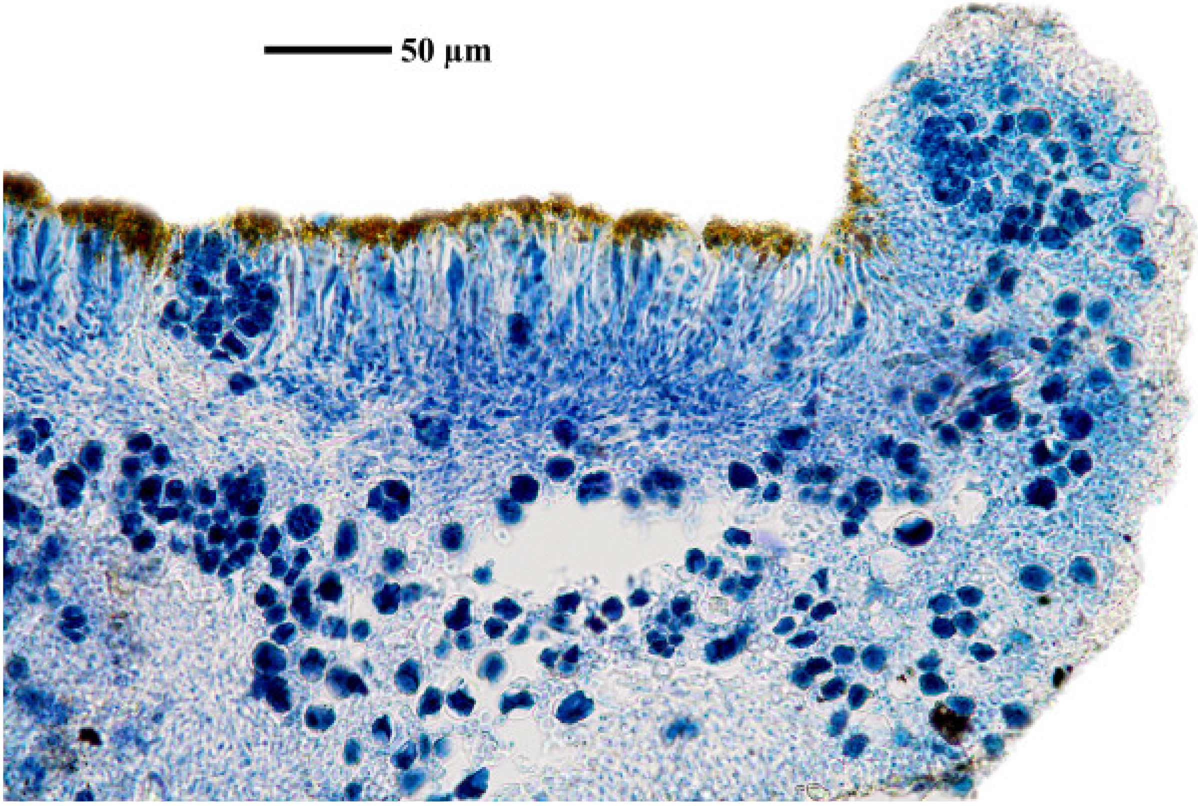


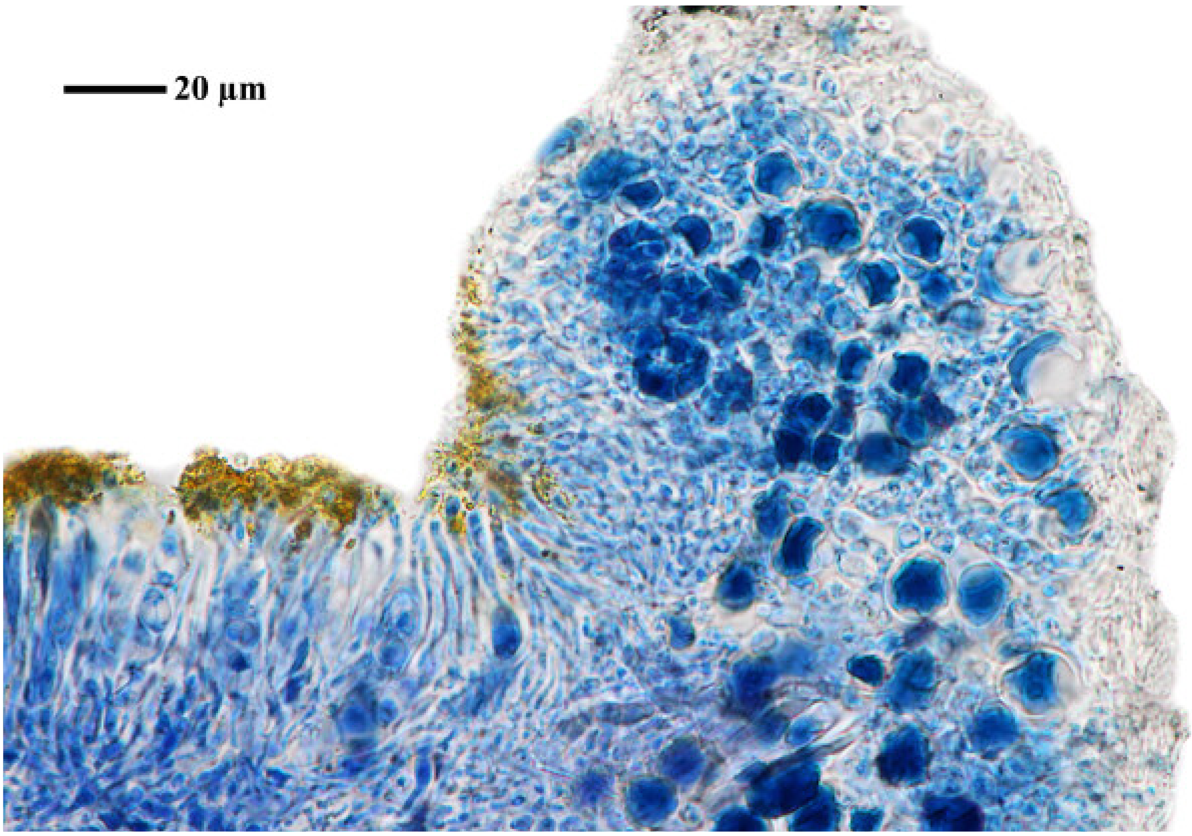
Caloplaca cerina var. ***cyanolepra***



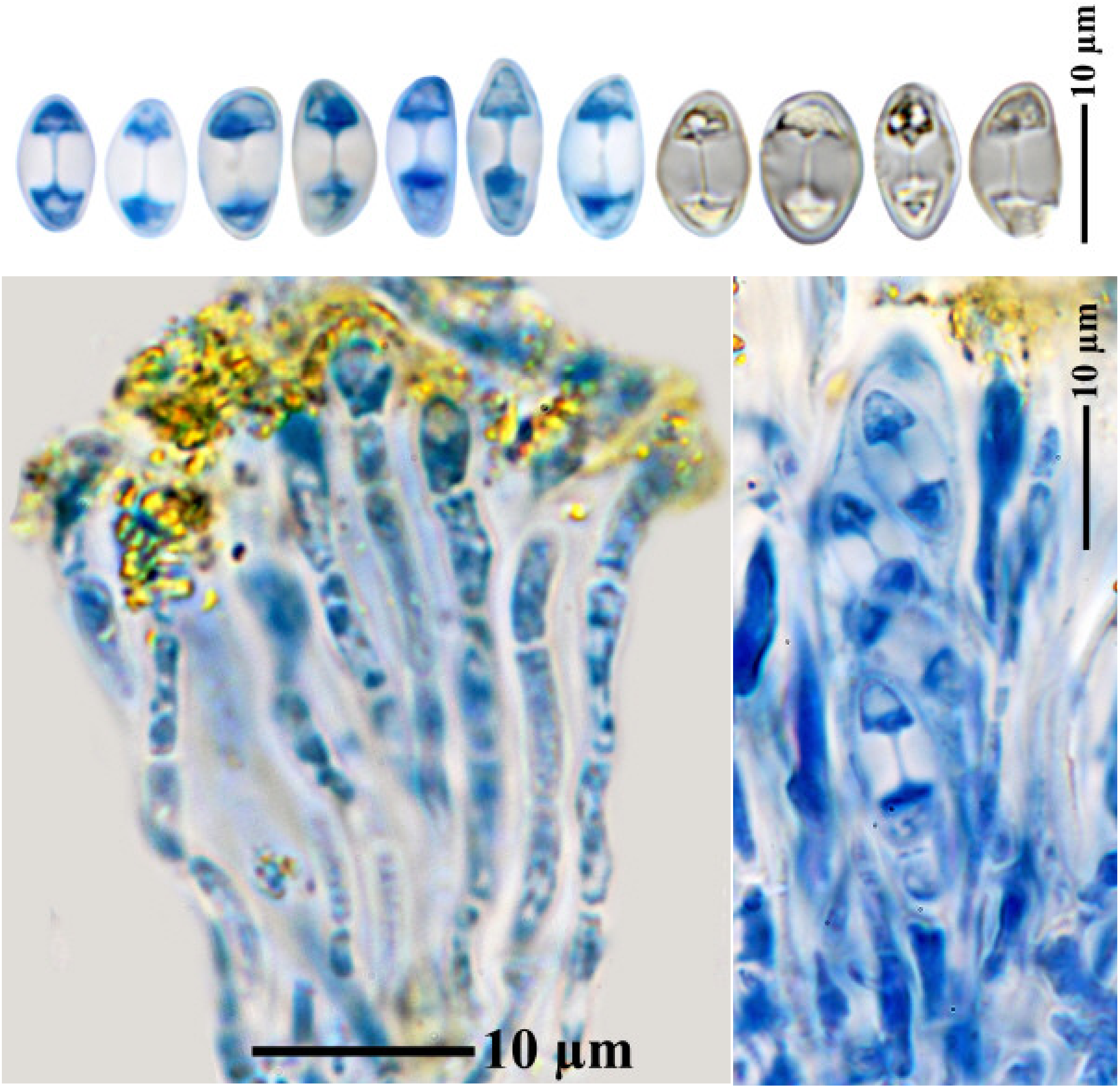


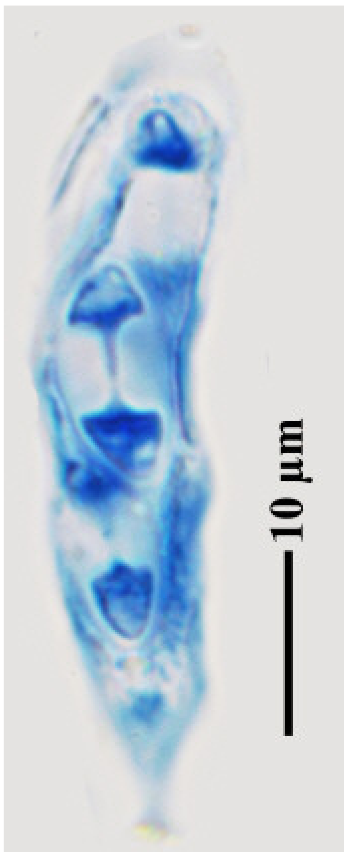
Caloplaca cerina var. ***cyanolepra***





Caloplaca cerina var. ***cyanolepra***



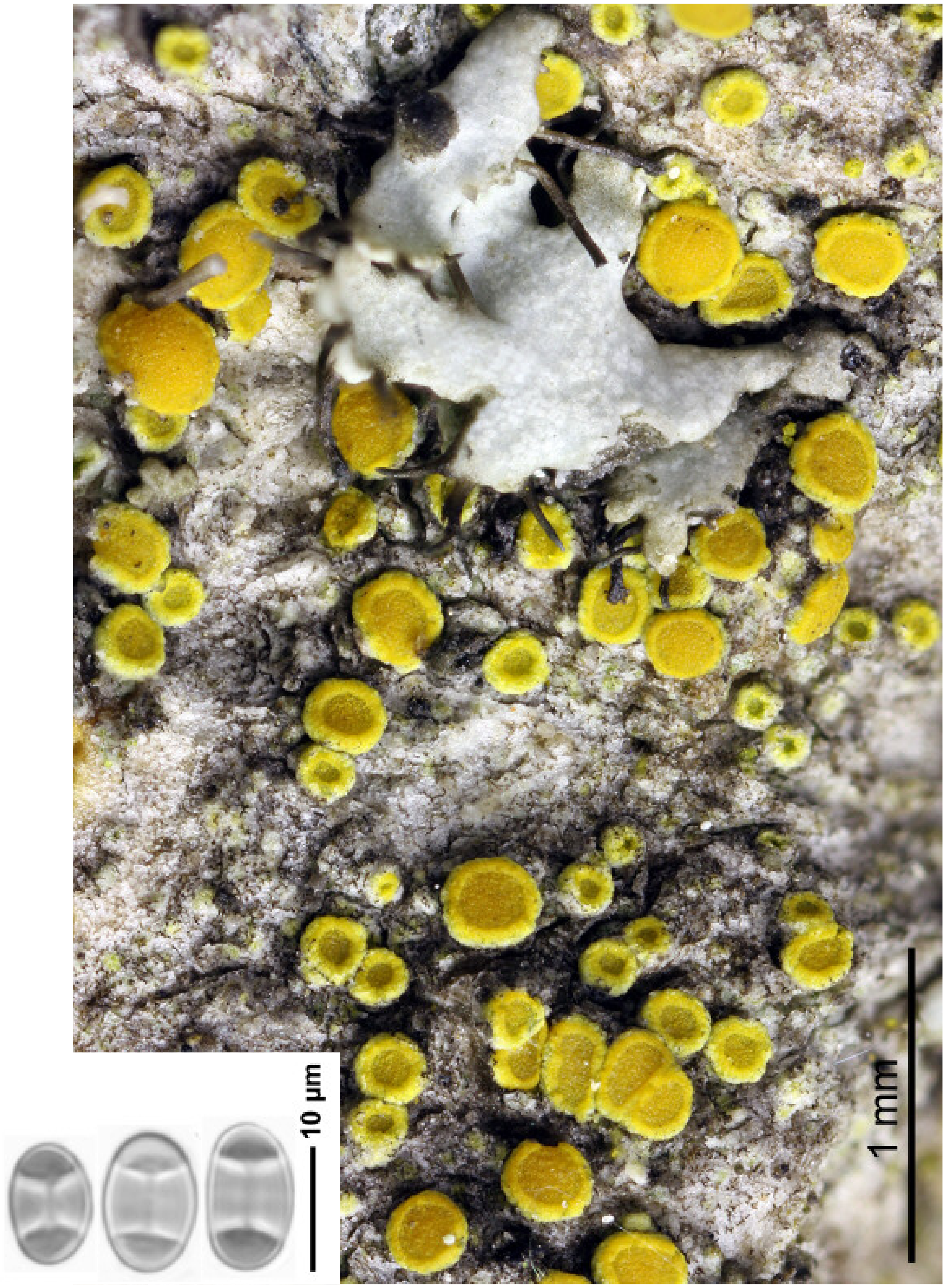


Caloplaca cerina var. ***cyanolepra***

Caloplaca cerinelloides (Erichsen) Poelt
[= *Athallia cerinelloides* (Erichsen) Arup, Frödén & Søchting]

Spores 8/ascus, 10-11 x 6-8 µm, septum 4,5-5 µm; length:septumlength = 2,2

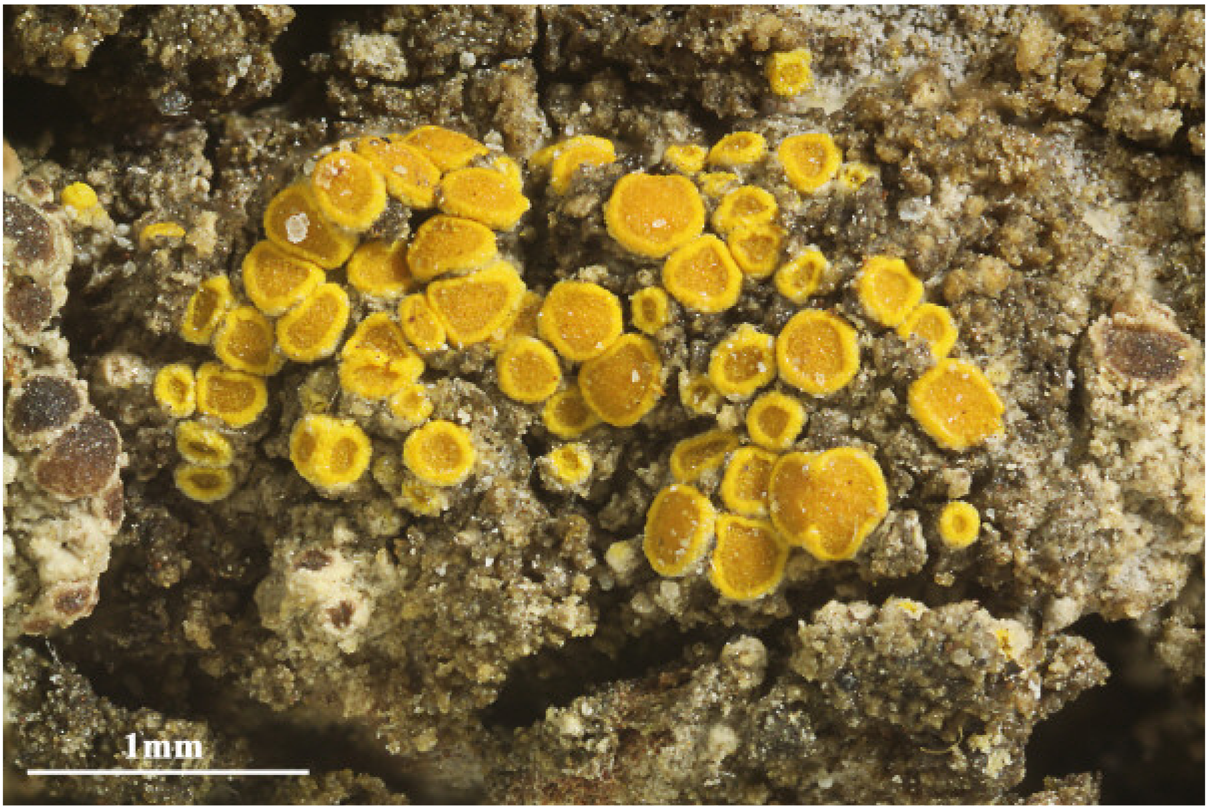
[14899], Germany, Baden-Württemberg, Schwäbische Alb, Alb-Donaukreis, nördlich von Westerheim, Straßenbäume (Sorbus aucuparia), 48.54092° N, 9.62358° E, 820 m. Leg. F. Schumm 24.05.2009.



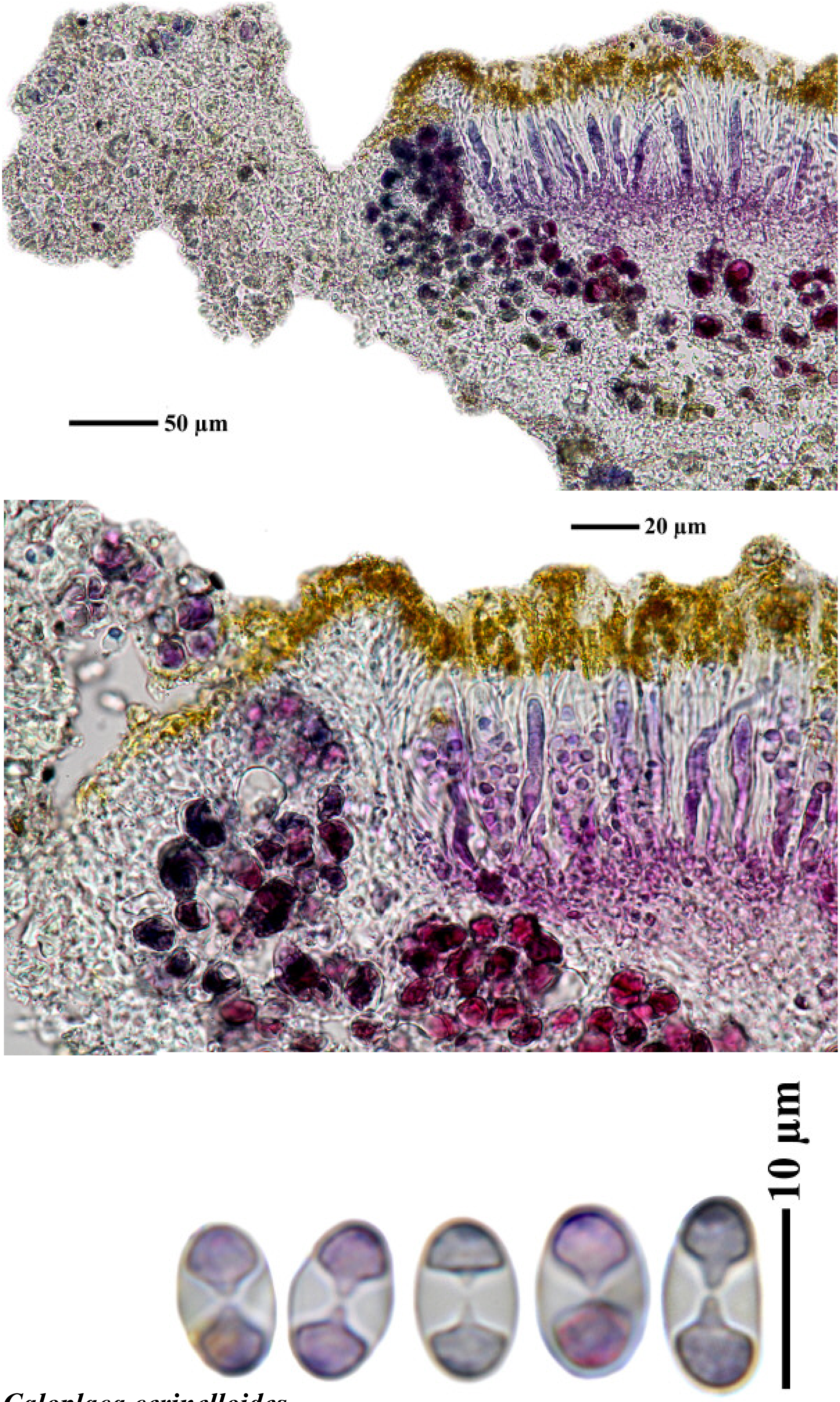
Caloplaca cerinelloides (Erichsen) Poelt
[= *Athallia cerinelloides* (Erichsen) Arup, Frödén & Søchting]
[= *Caloplaca pyracea* f. *cerinelloides* Erichsen]

On bark. Lit. Caloplaca pyracea f. cerinelloides Erichsen, Verh. Bot. Ver. Prov. Brandenb. 72: 35 (1930).

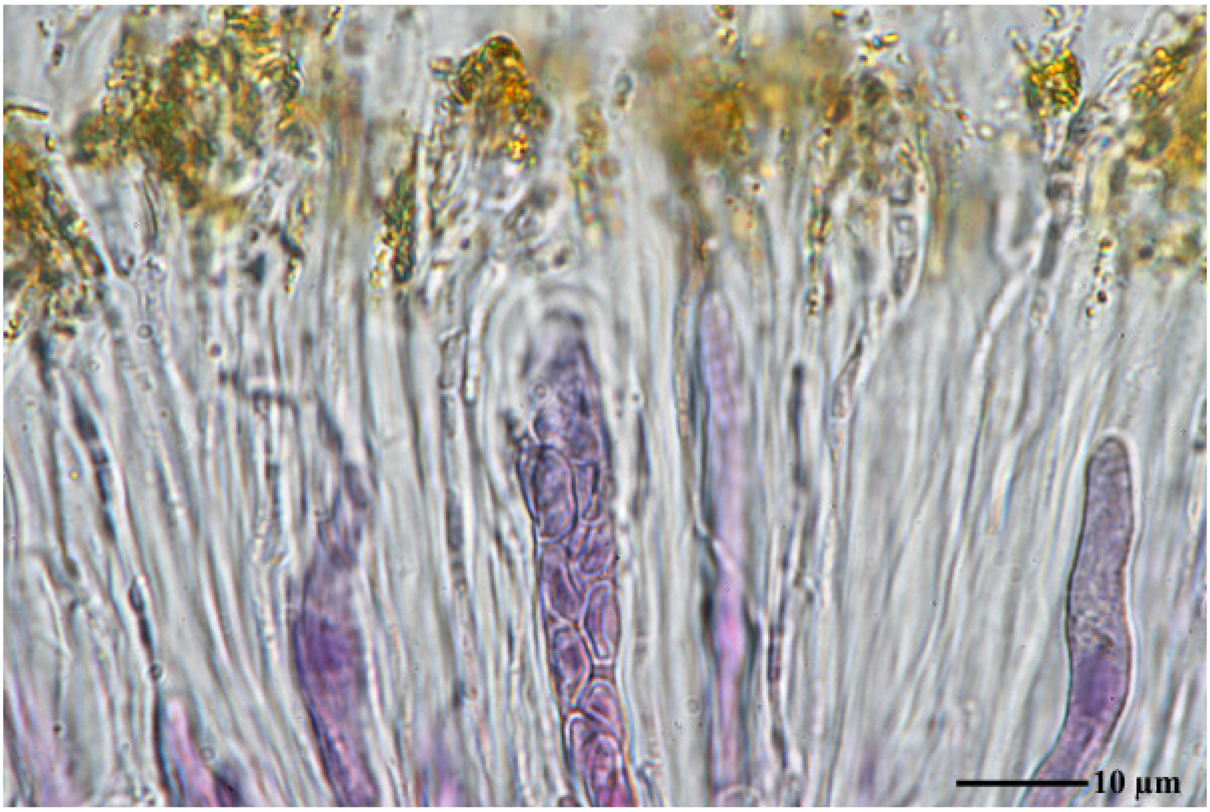
19554, Austria, Stiria, pars Alpium "Grazer Bergland" dicta, secus viam publicam supra Plenzengreith, 15 km ad septentriones a Graz, alt. 940 m, ad truncum Laricis. Leg. J. Poelt & H. Pittoni, 5.2.1994, det. J. Poelt. VĚZDA: LICHENES RARIORES EXSICCATI NR. 113.

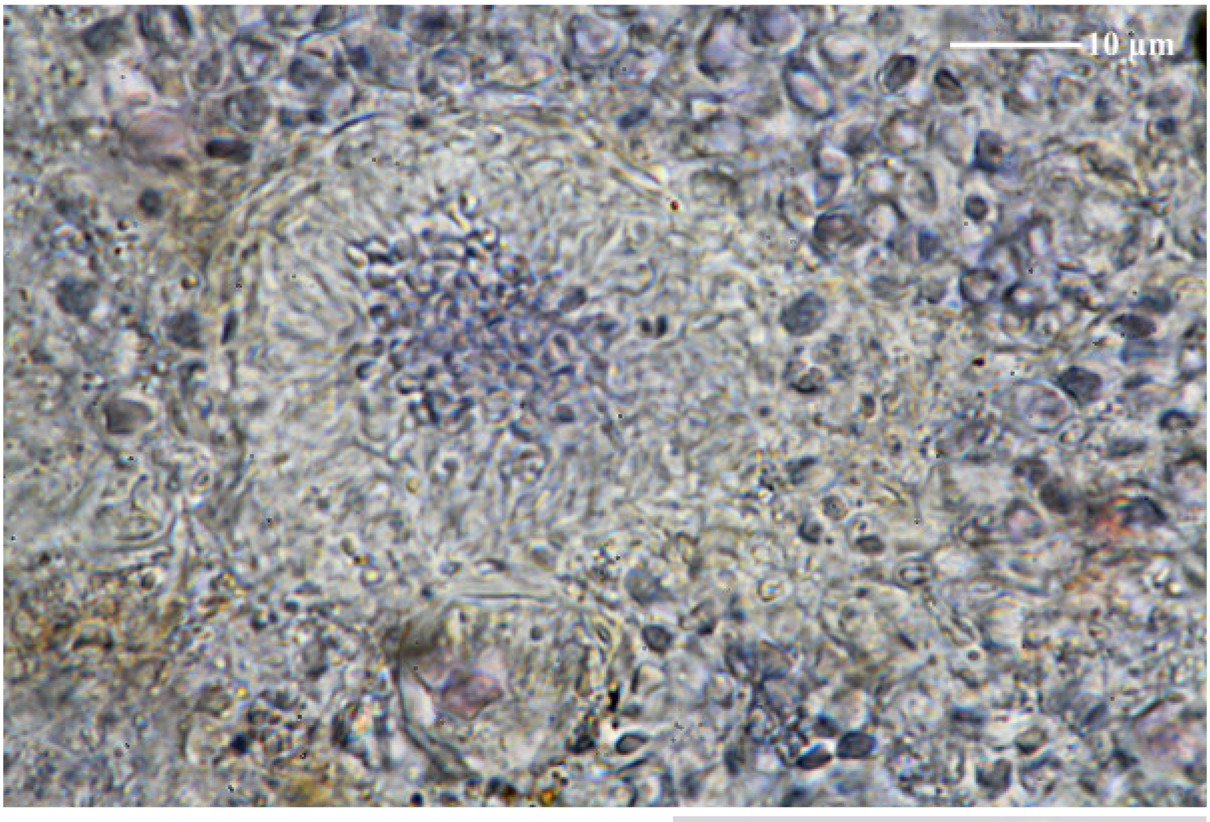


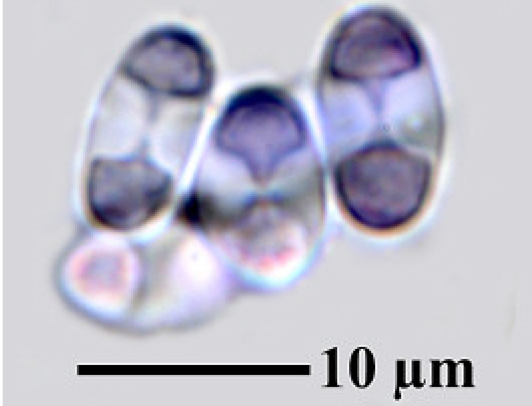
Caloplaca cerinelloides



Caloplaca cerinelloides



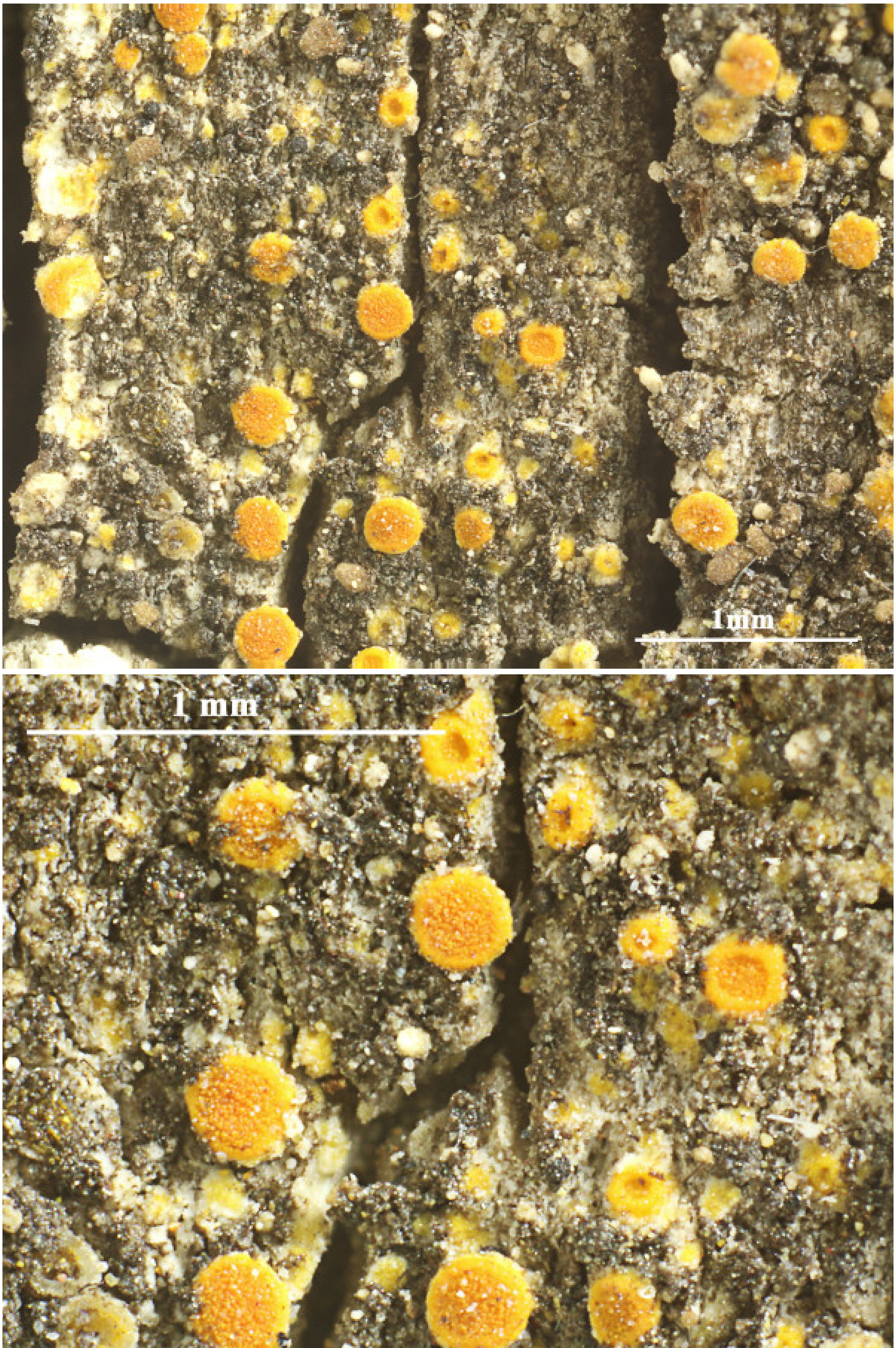




Caloplaca cerinelloides

Caloplaca cerinelloides (Erichsen) Poelt
[= *Athallia cerinelloides* (Erichsen) Arup, Frödén & Søchting]

[19625], Ecuador, Azuay, along the road between Paute and Gualcéo, c. 10 km S of Paute, on the bark of an unidentified deciduous tree, 2300 m, 2°52' S, 78°47' W. Leg. K.& A. Kalb, 27.08.1987, det. A. Aptroot. K. KALB & A. APTROOT: LICHENES NEOTROPICI NR. 629.

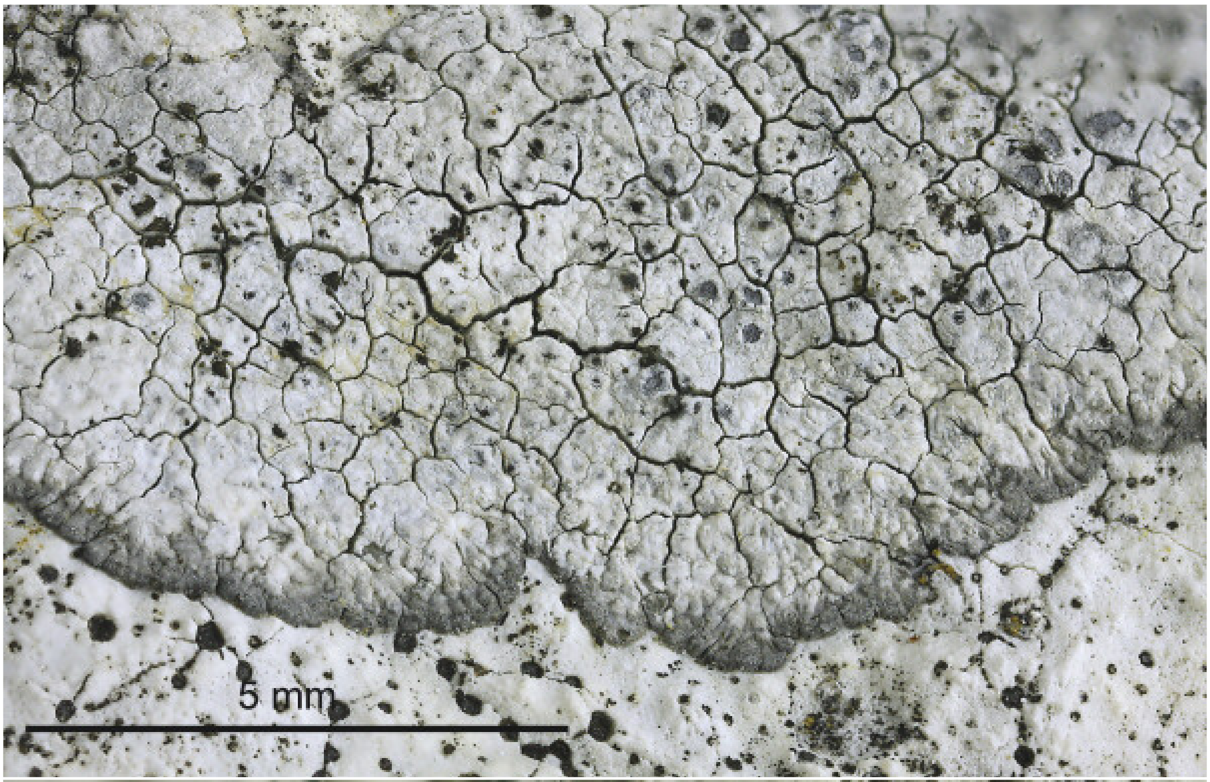


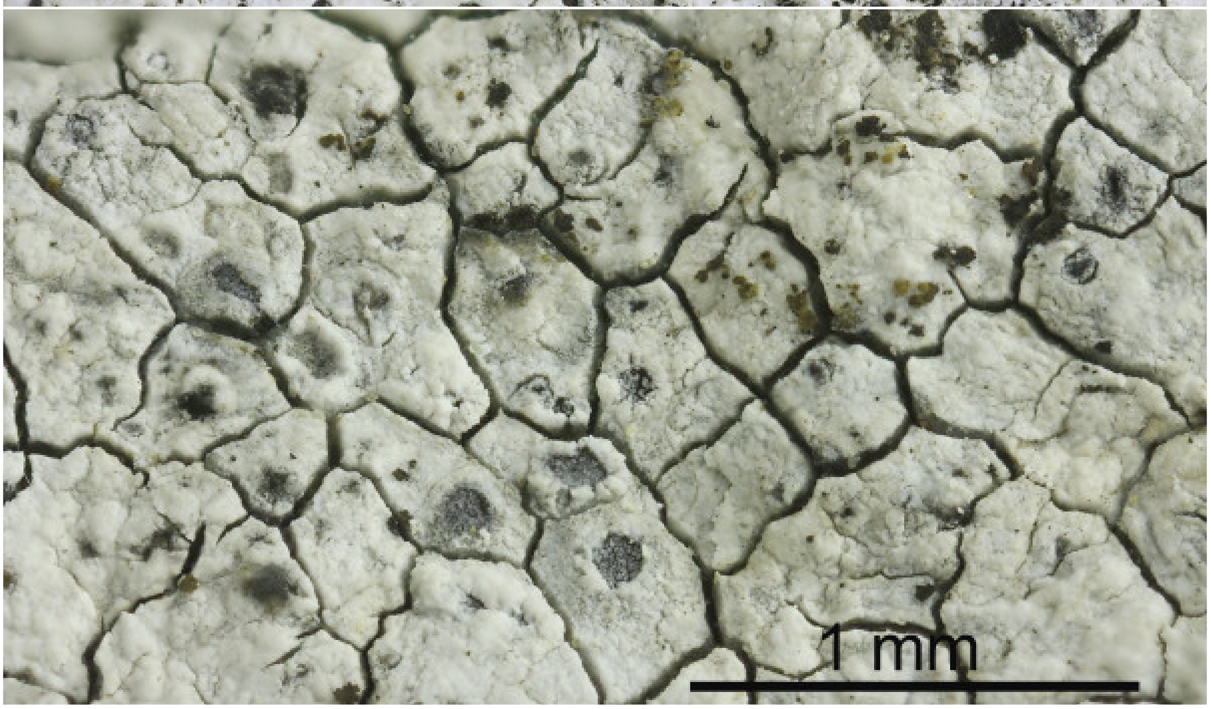
Caloplaca cerinelloides

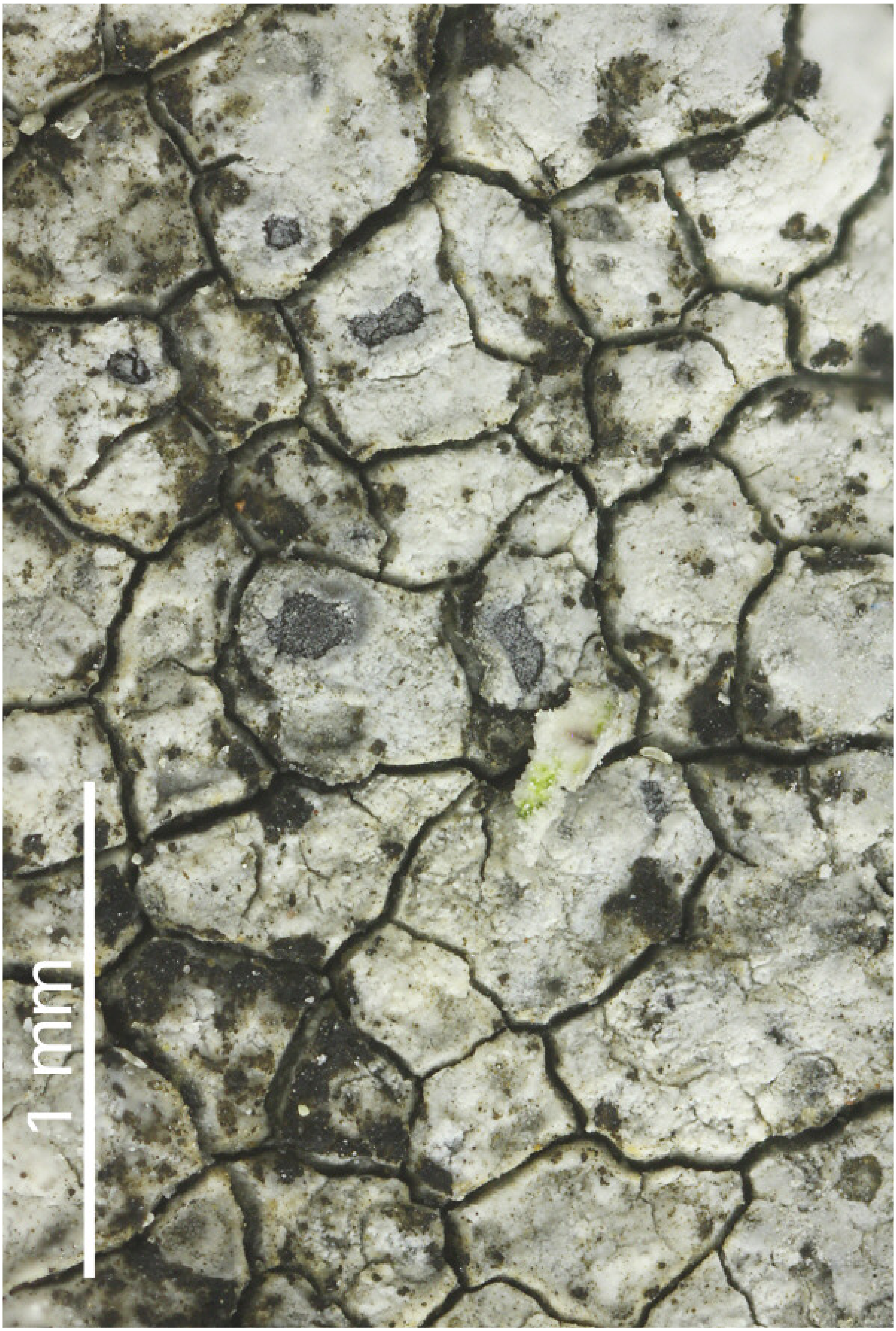
Caloplaca chalybaea (Fr.) Müll.Arg.

Sporen hyalin, polar-2-zellig, elliptisch, Septum ca. 1/3 der Sporenlänge, 11-12 x 6-7 µm. Aspiciliaartiges Aussehen durch die eingesenkten Apothecien.

[17256],Germany, Baden-Württemberg, Schwäbische Alb, Kreis Heidenheim, 0.7 km östlich von Dunstelkingen, sonnige Kalkfelsen, 48.718657° N, 10.426030° E, 530 m. Leg. et det. Schumm, 13.05.2011.





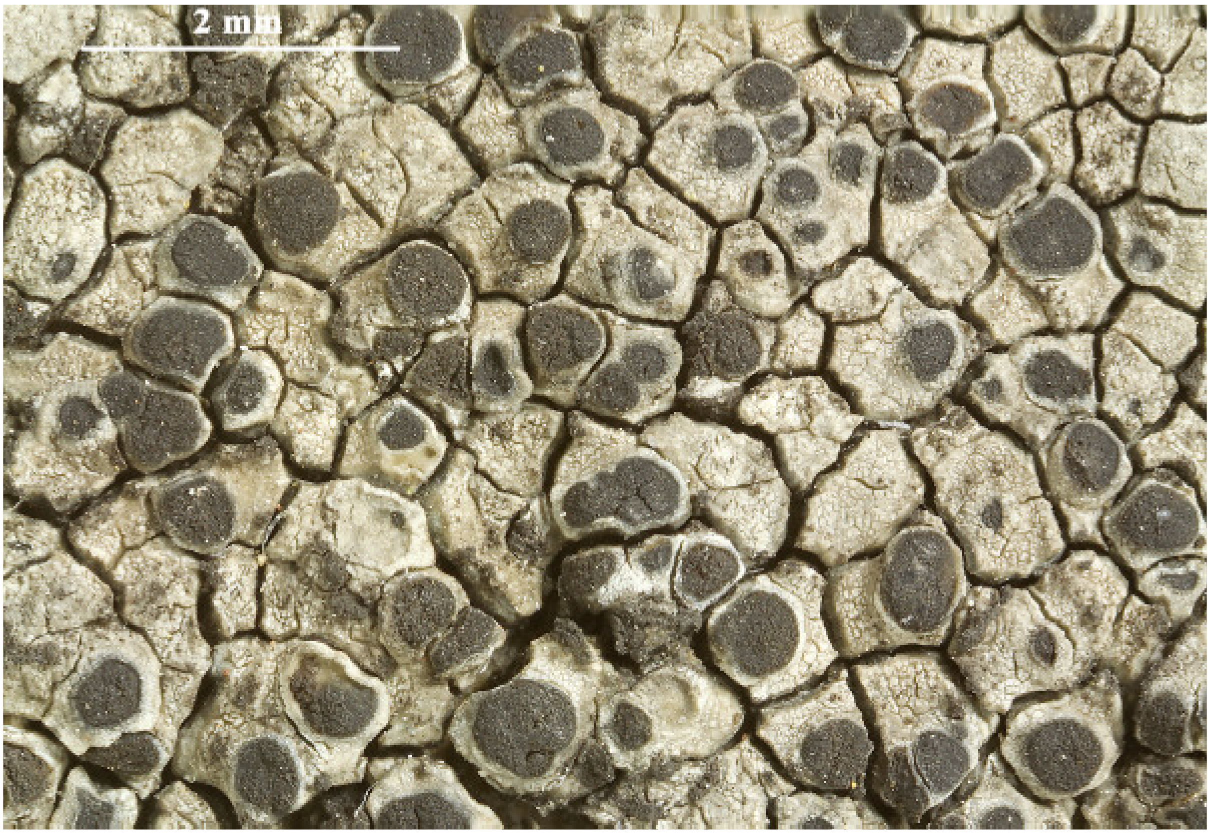


Caloplaca chalybaea

Caloplaca chalybaea (Fr.) Müll.Arg.

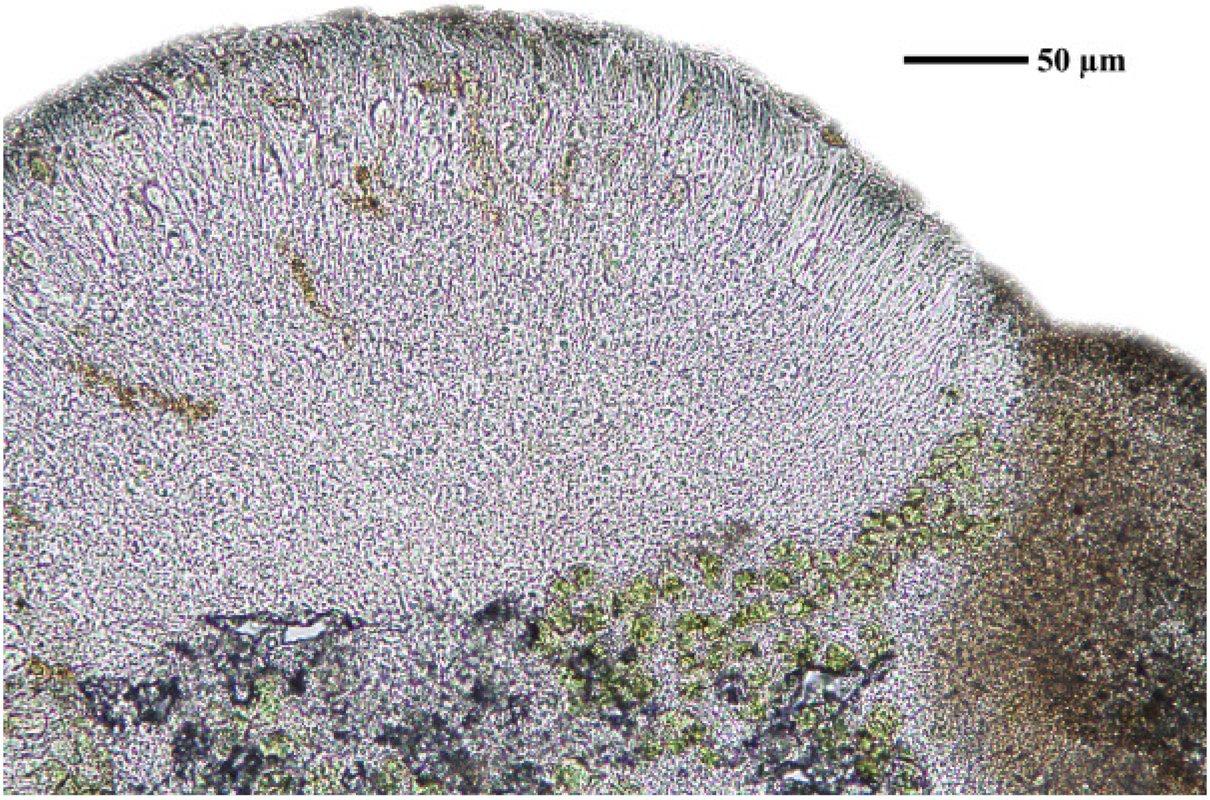
Hymenium of this specimen destroyed by ***Lindauopsis caloplacae*** Zahlbr. [= *Tremella caloplacae* (Zahlbr.) Diederich]. On calcareous rocks. Lit. Müller Arg. in Mém Soc. Phys. Hist. ;at Genève 16: 388 (1862).

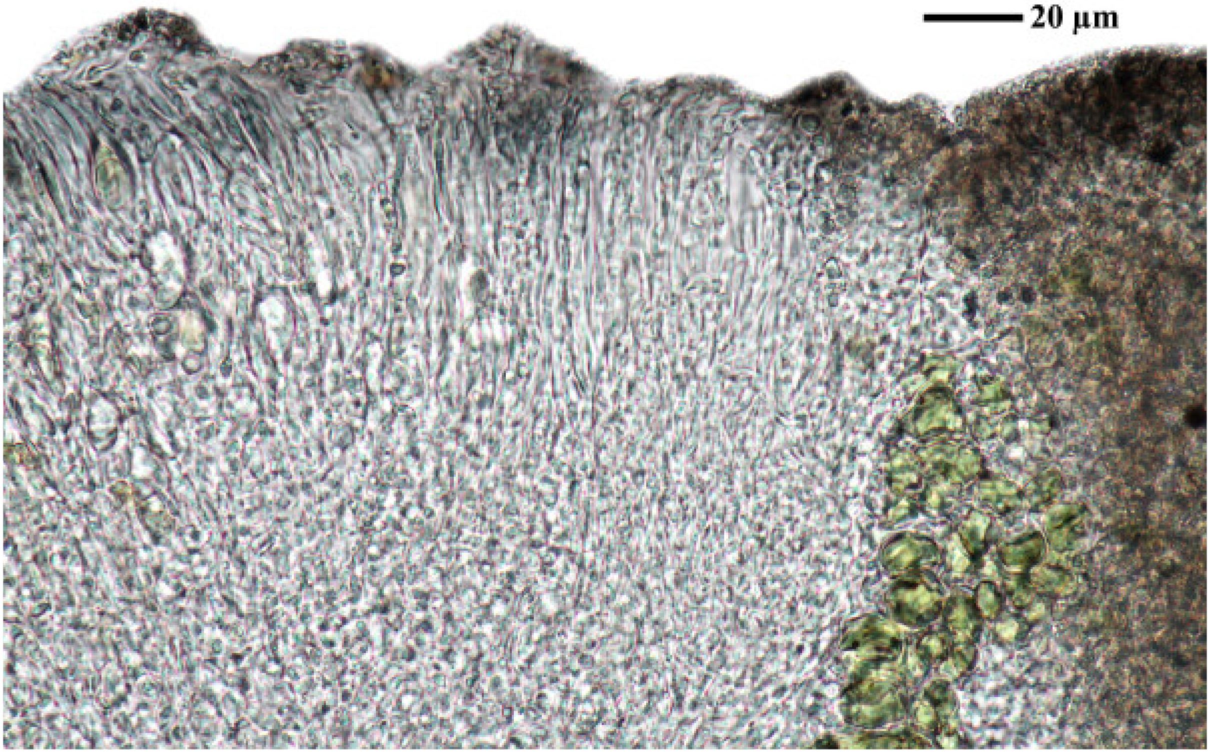
[19572], Bohemoslovacia, Slovacia, jugum Carpatorum "Bílé Karpaty" dictum, in monte Vršatec, alt. 850 m, ad saxa calcarea. Leg. I. Pišút et A. Vězda, 31.05.1971. VĚZDA: LICHENES SELECTI EXSICCATI NR. 1145.



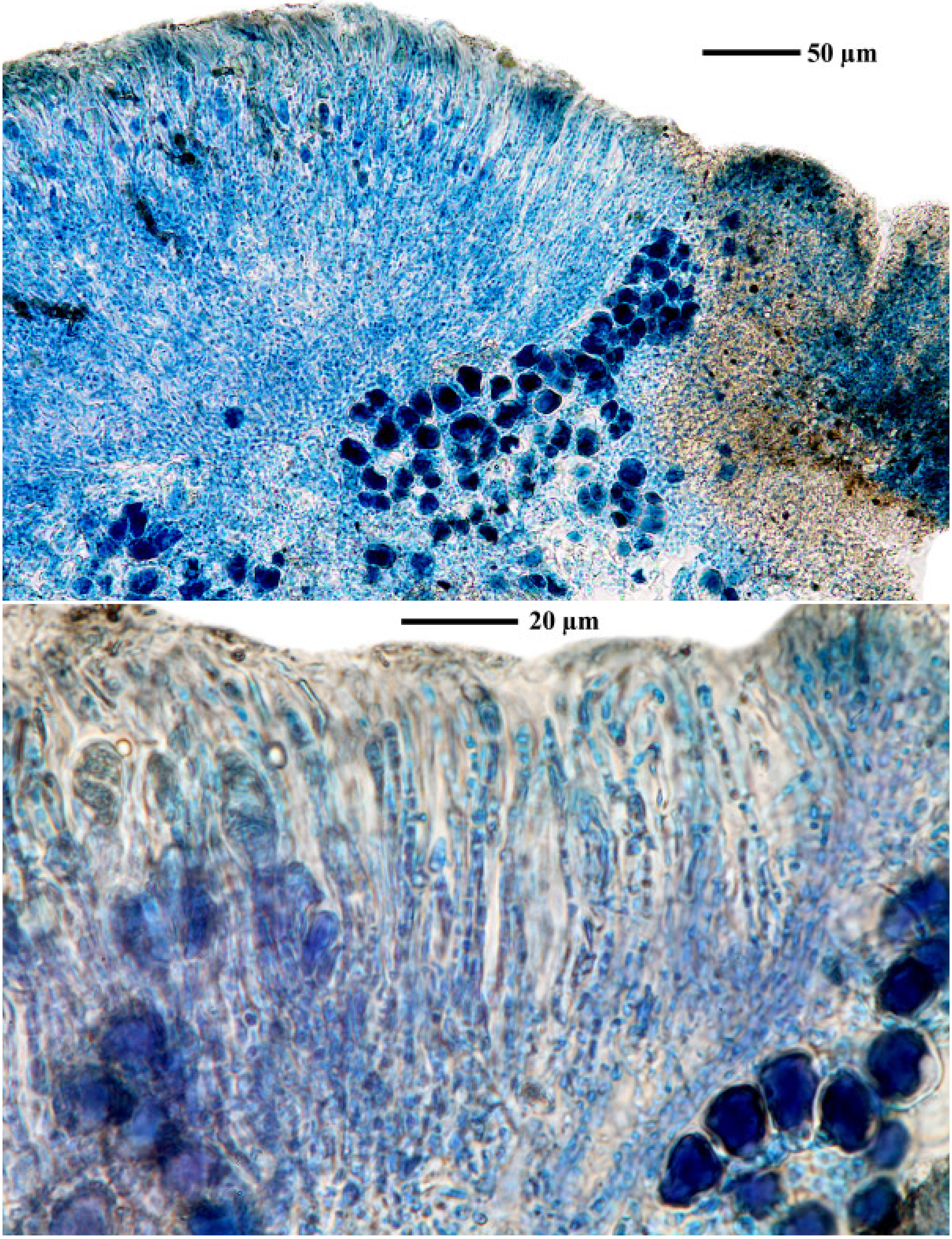
Caloplaca chalybaea

Caloplaca chalybaea

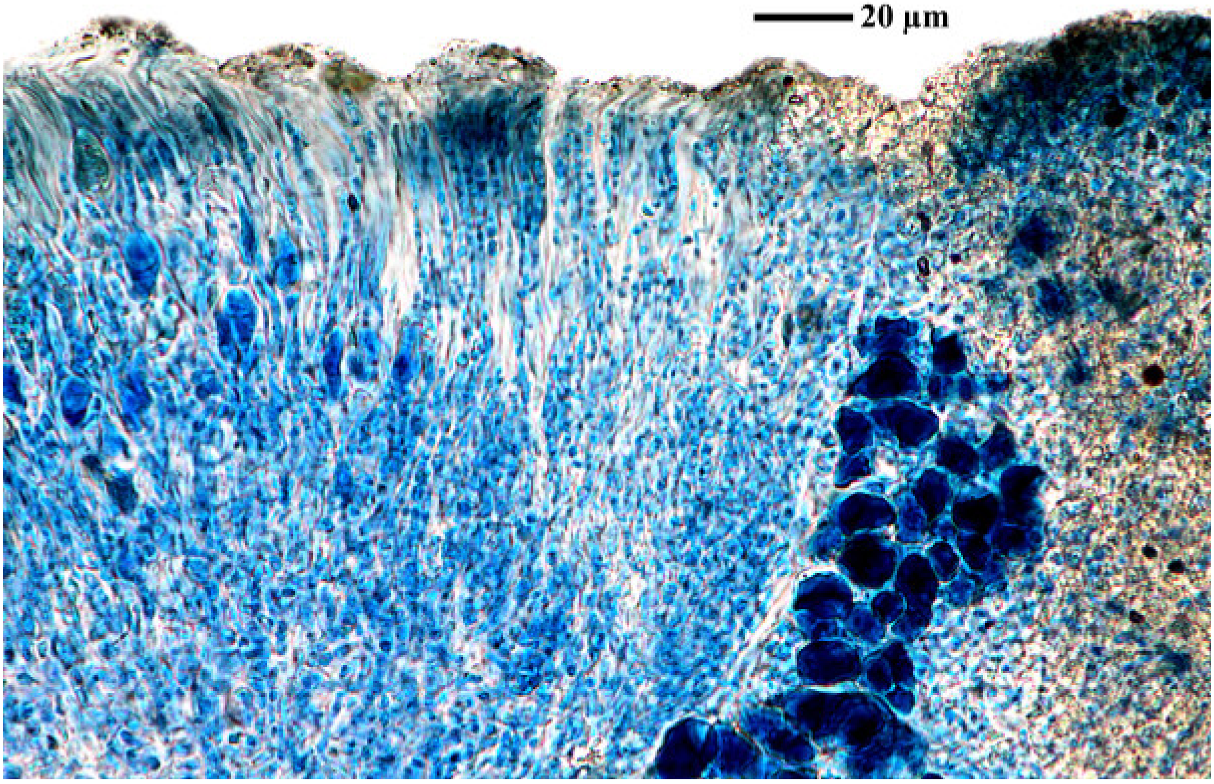


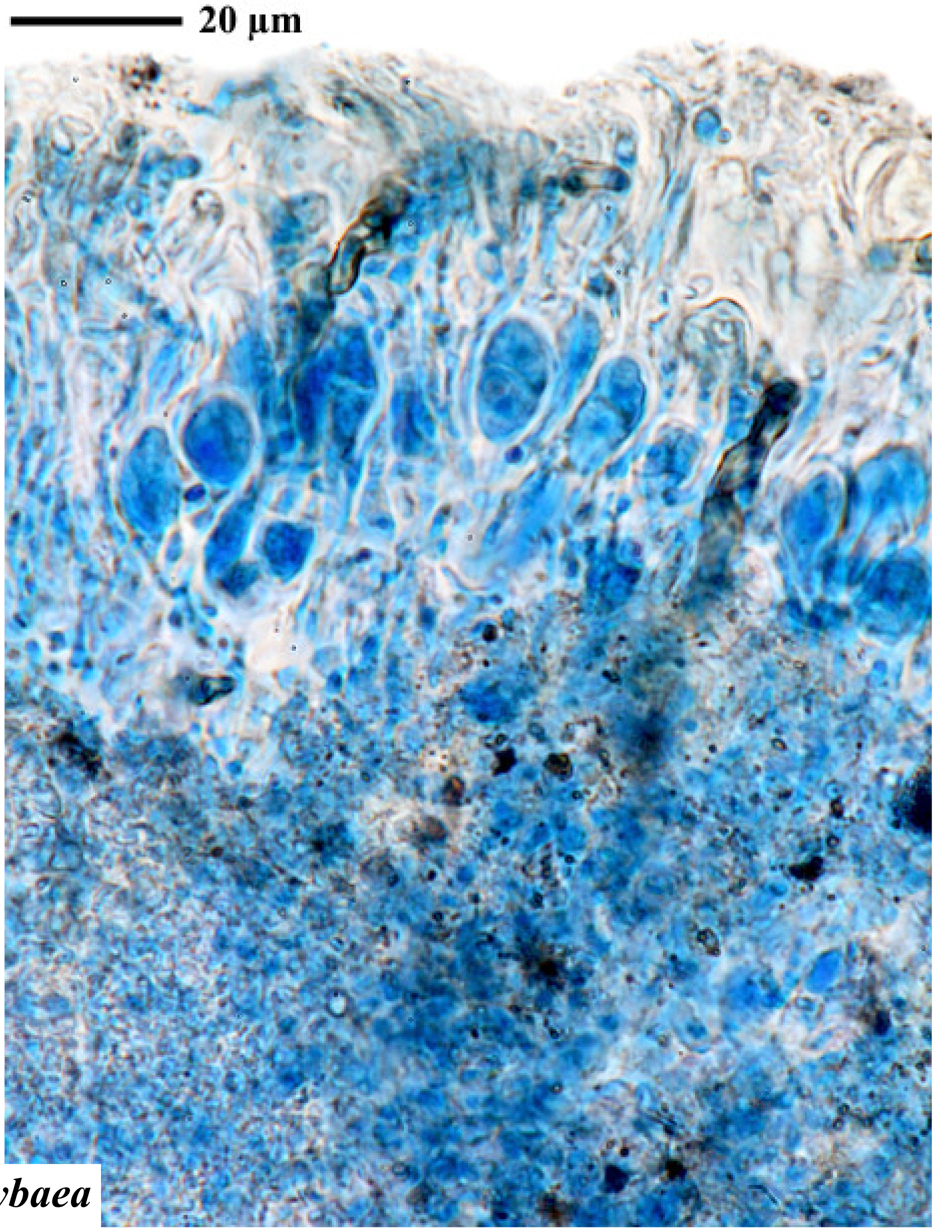


Caloplaca chalybaea

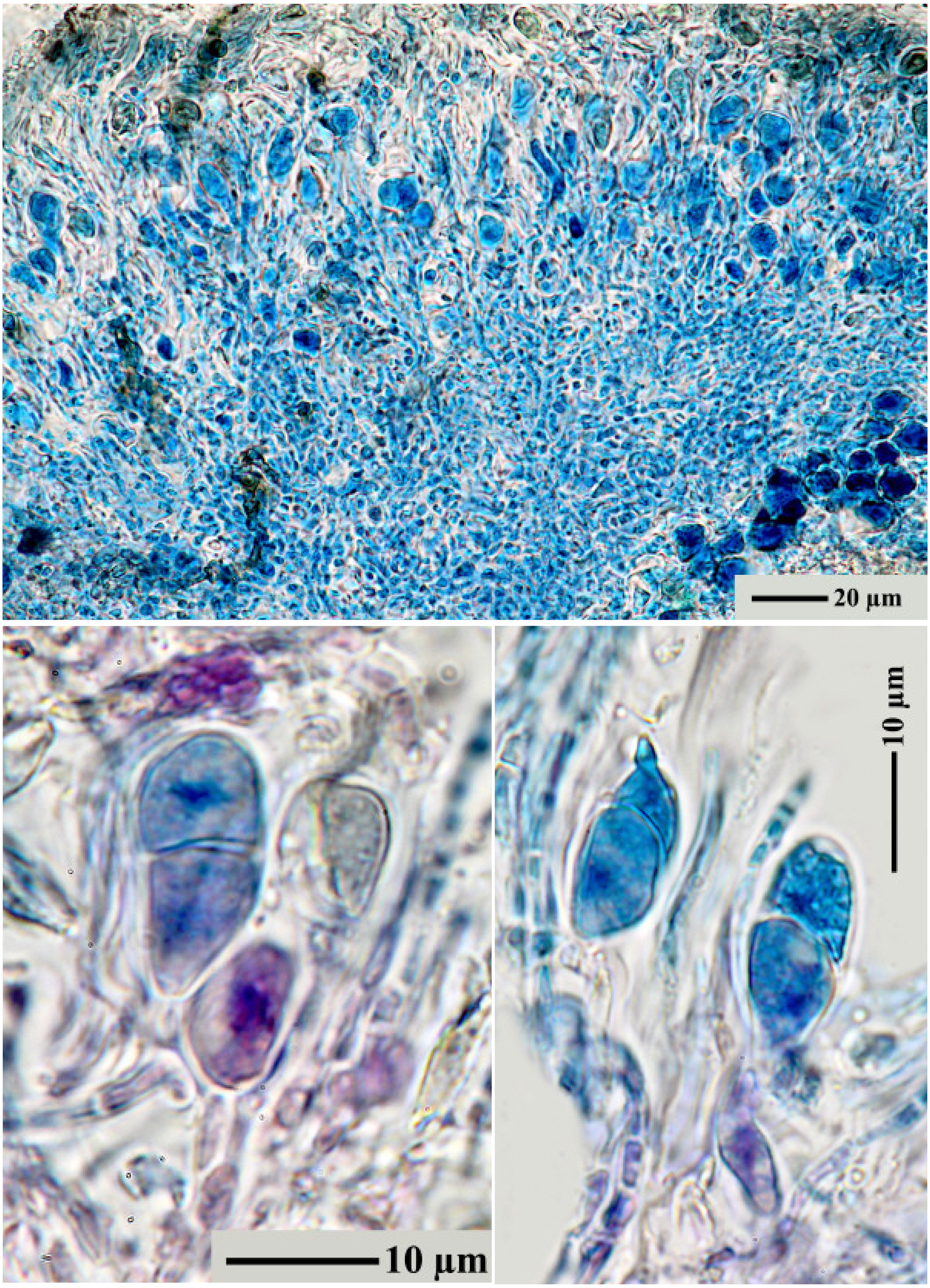


Caloplaca chalybaea

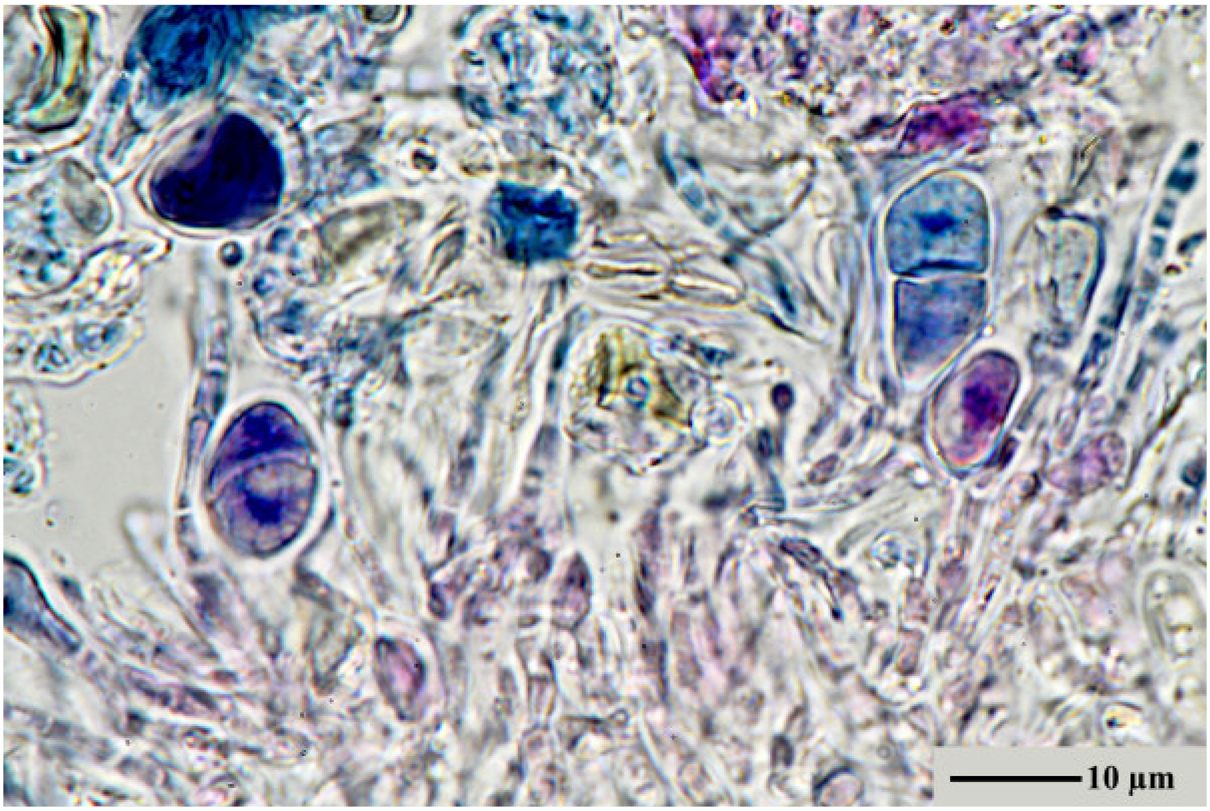


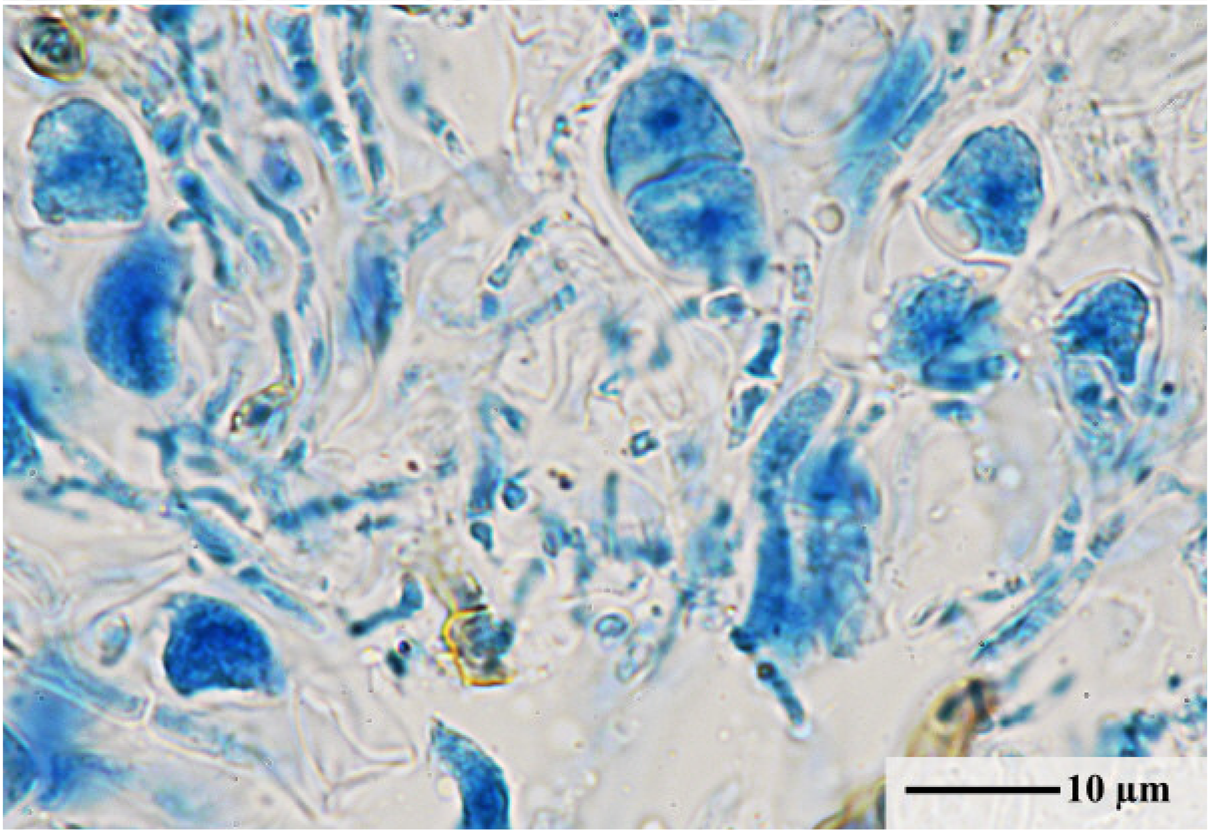


Caloplaca chalybaea

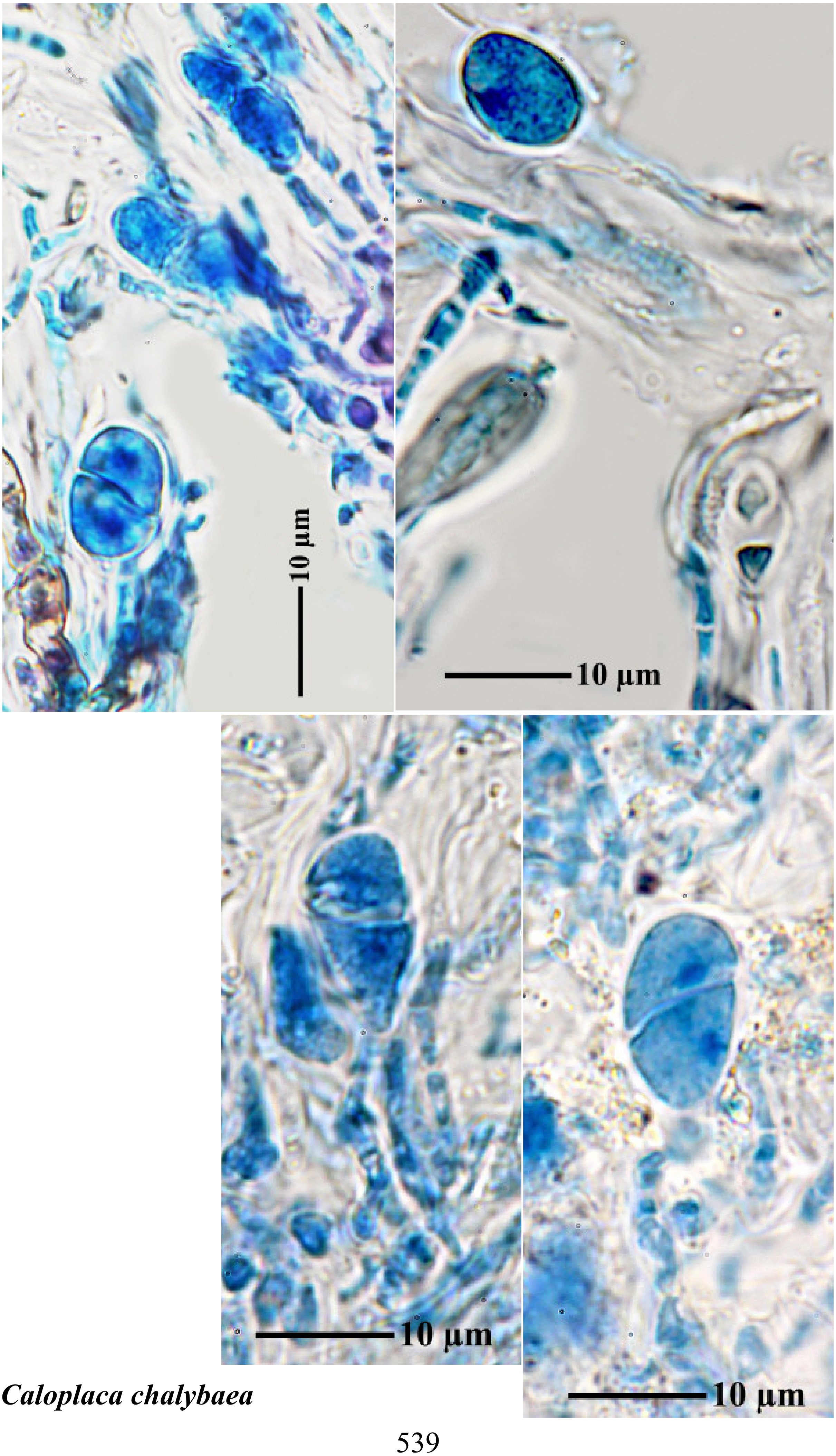


Caloplaca chalybaea with ***Lindauopsis caloplacae***





Caloplaca chalybaea



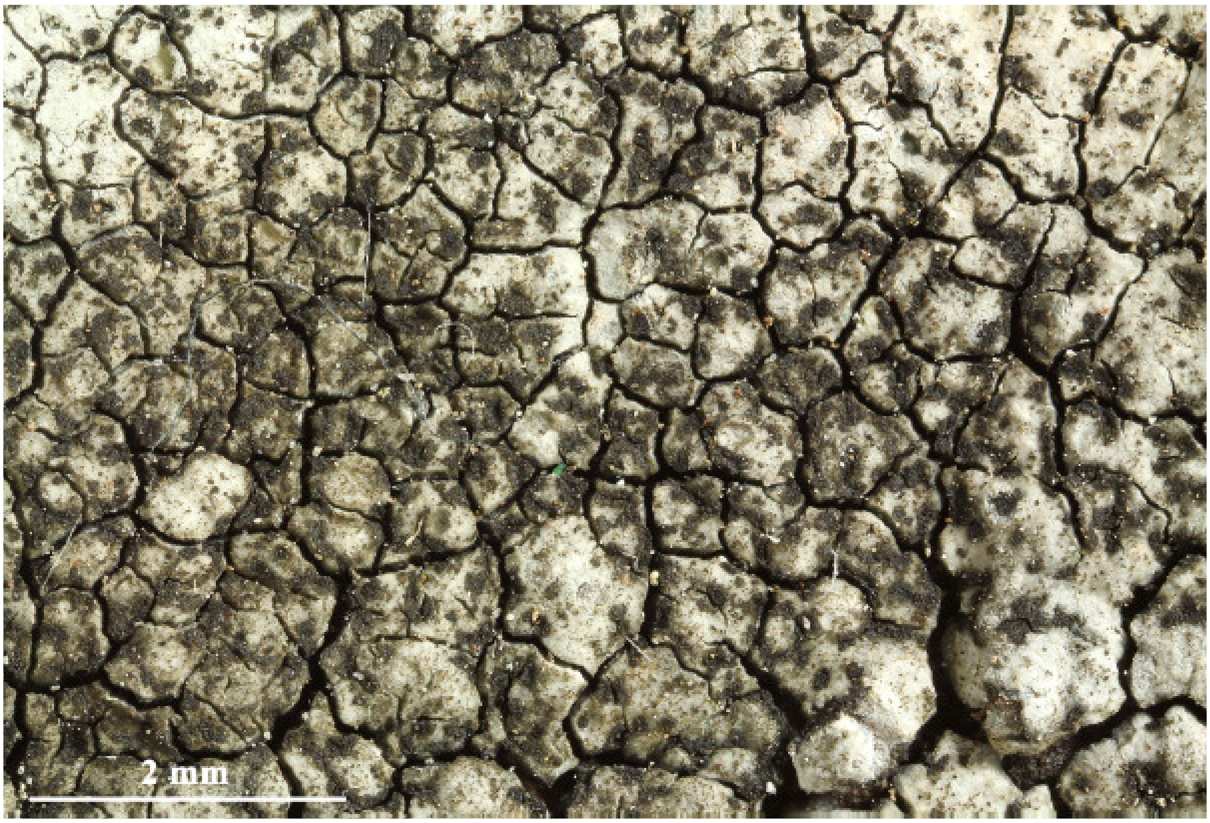
Caloplaca chalybaea

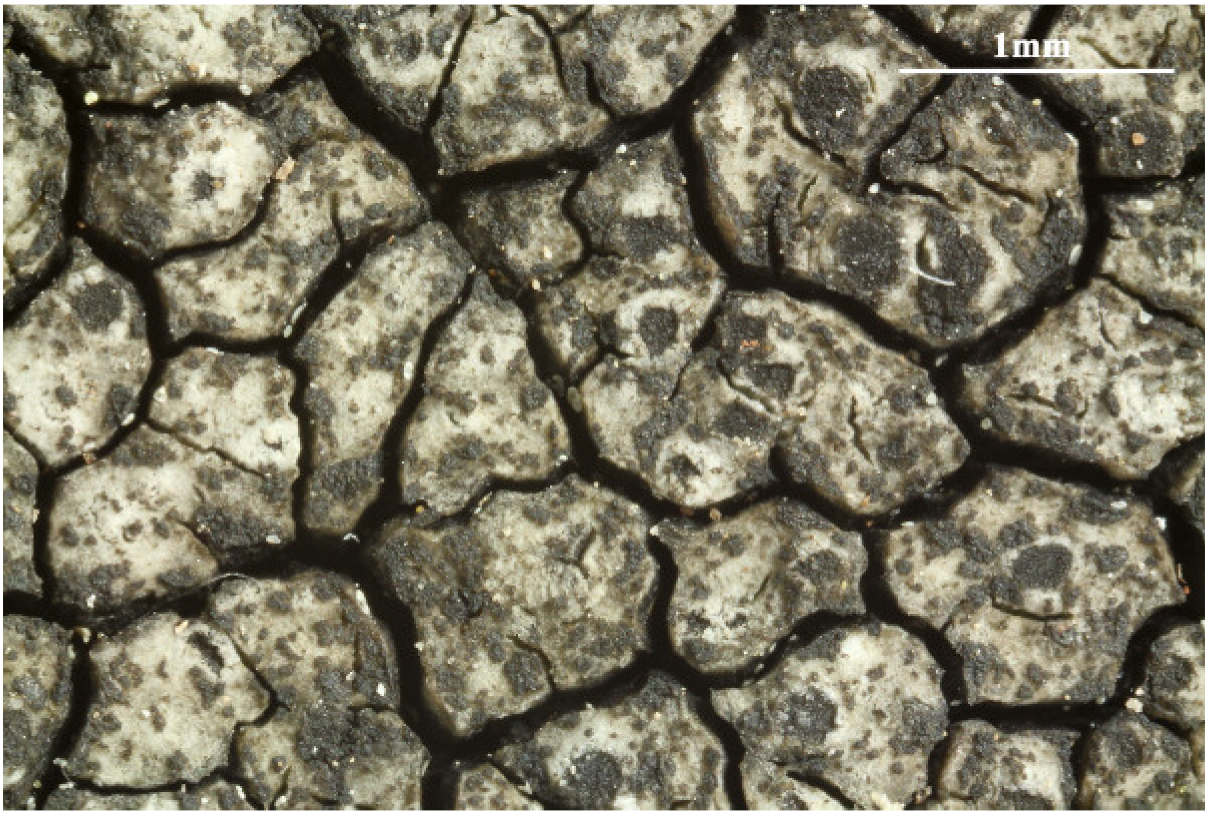
Caloplaca chalybaea (Fr.) Müll.Arg.

On calcareous rocks.

[ABL 75161], Schweden, Öland, Ismantorps borg near Abbantorp, UTM 600-6290, on praehistoric ringwall on limestone. Leg. A. Aptroot 16.06.2016, det. A. Aptroot 2016.

Caloplaca chalybaea



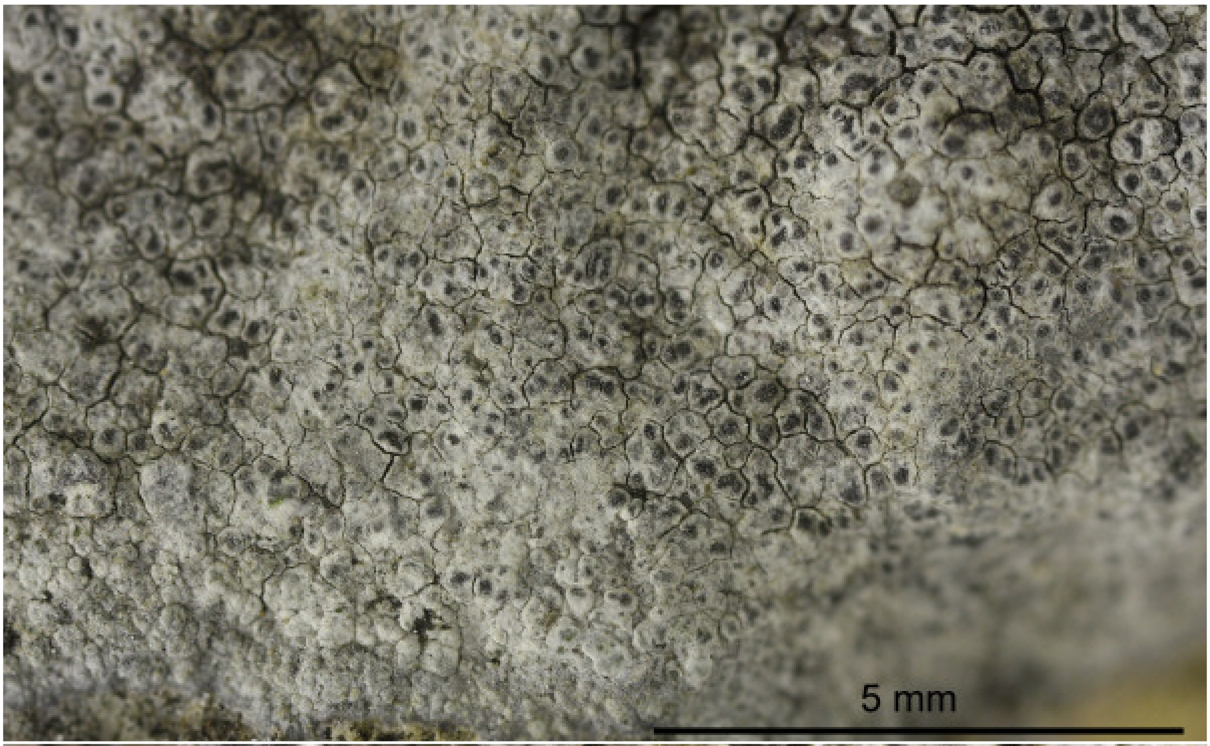


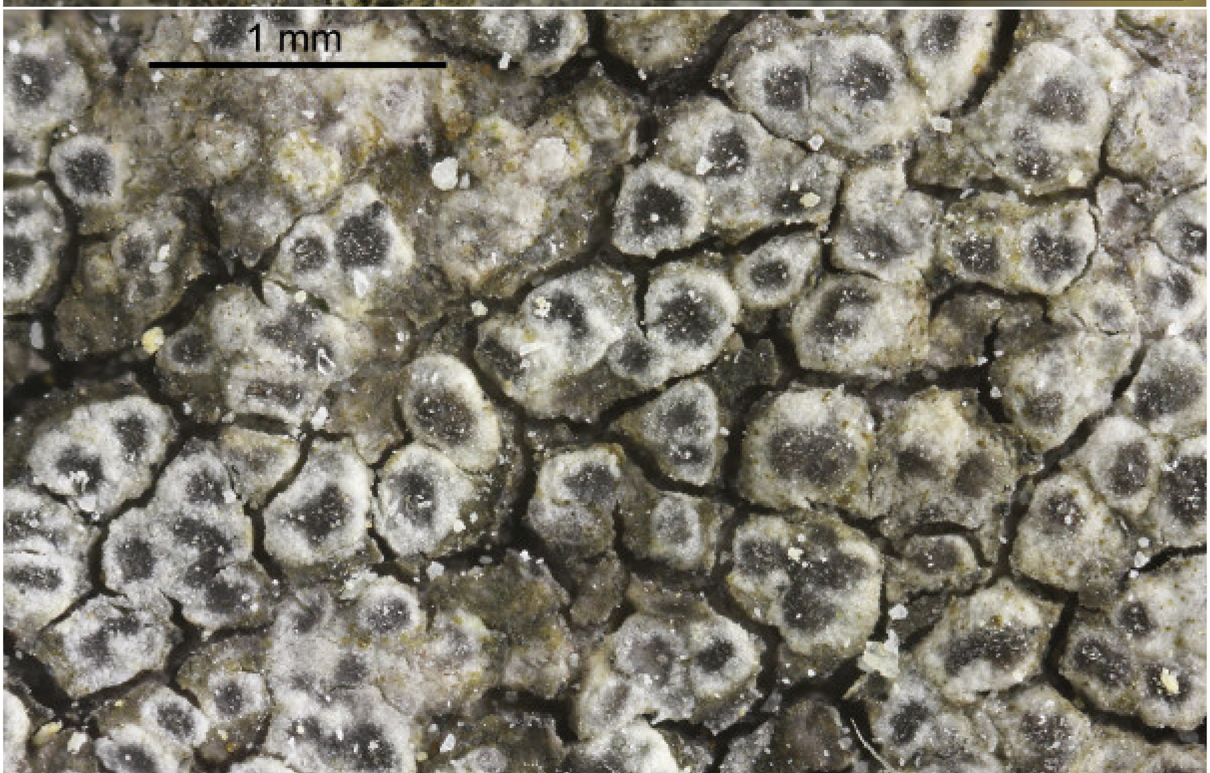
Caloplaca chalybaea

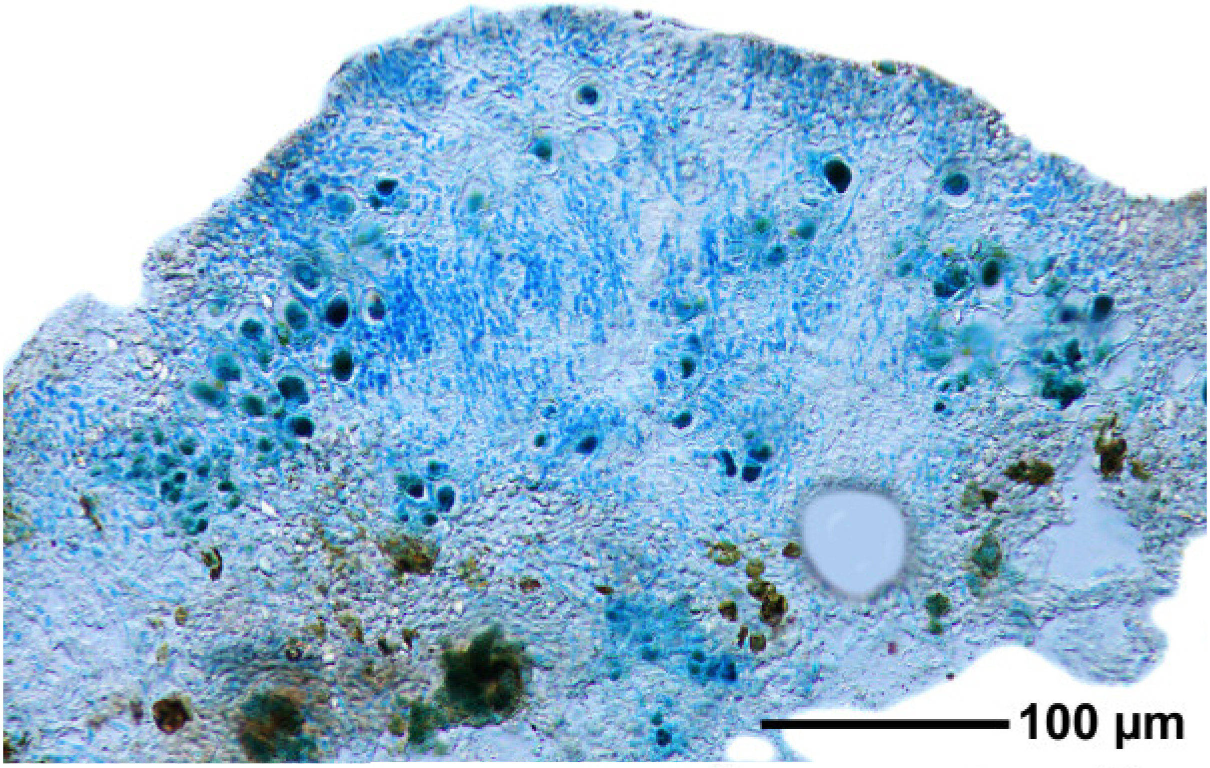
Caloplaca chalybaea cfr. (Fr.) Müll.Arg.

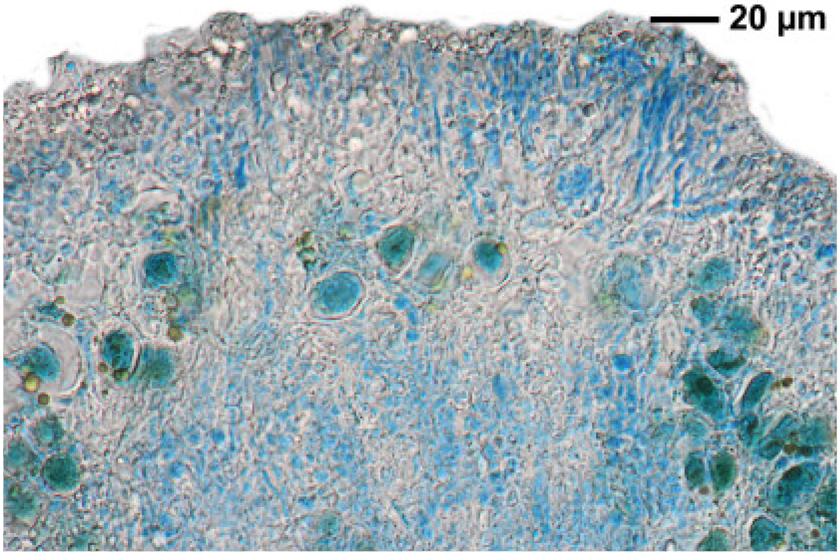
Thallus P-, K+ schwach violett (-> Caloplaca-Vermutung). Die schwarzen Flecke auf den Areolen sind ohne irgendwelche Sporen oder Asci. Möglicherweise sind es nicht einmal Ascomataprimordien.

[16651], Germany, Baden-Württemberg, Schwäbische Alb, Kreis Reutlingen, 0.5 km SW Apfelstetten, im Lautertal, 48.37408° N, 9.48480° E, 700 m, an schattigen feuchten Kalkfelsen. Leg. et det. Schumm 10.09.2010

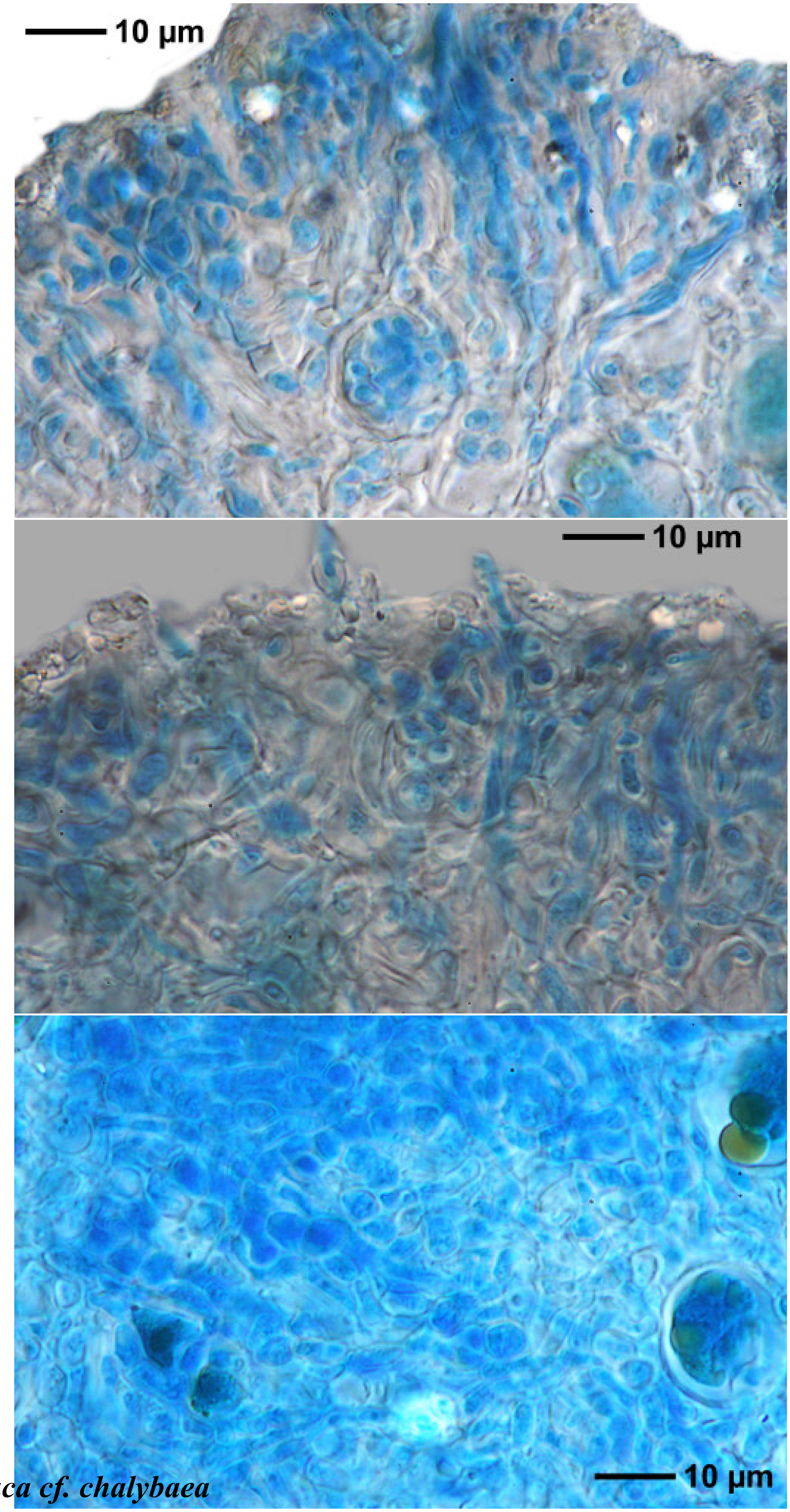








Caloplaca* *cf. chalybaea



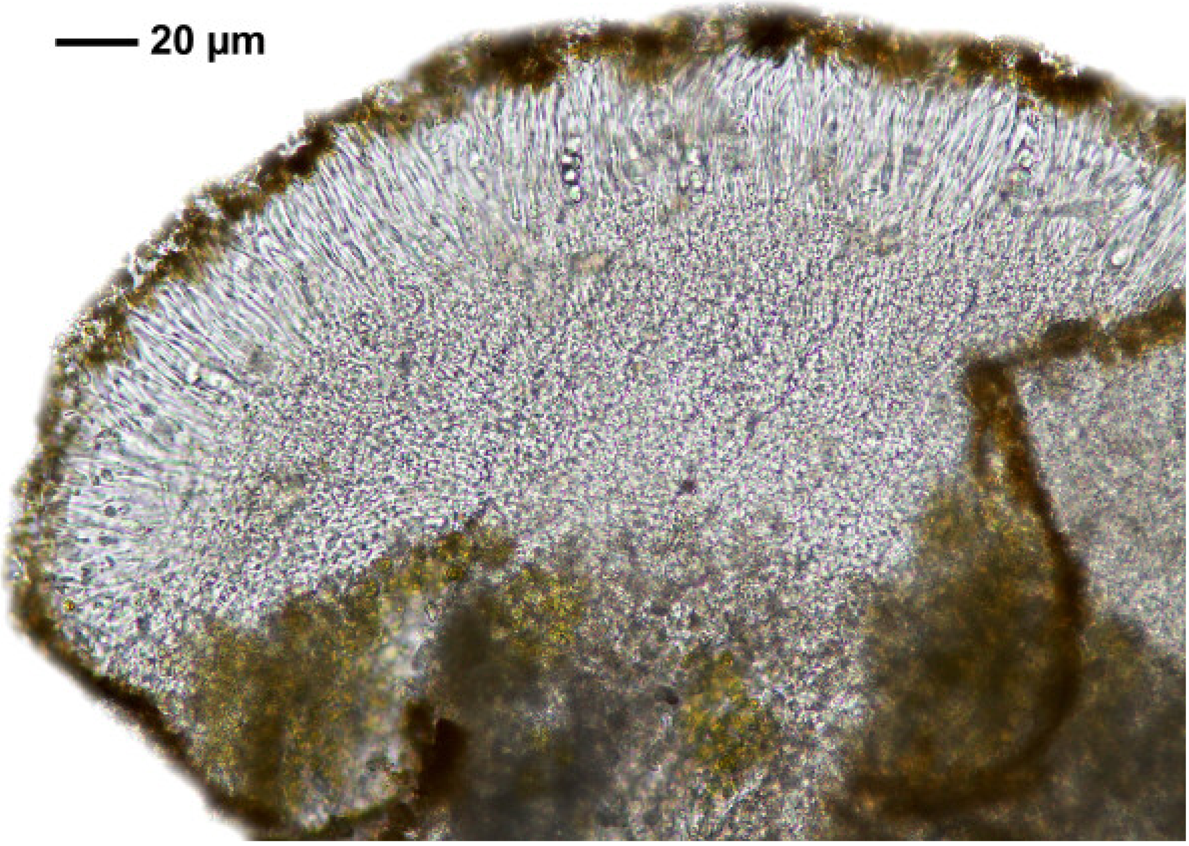
Caloplaca cf. chalybaea

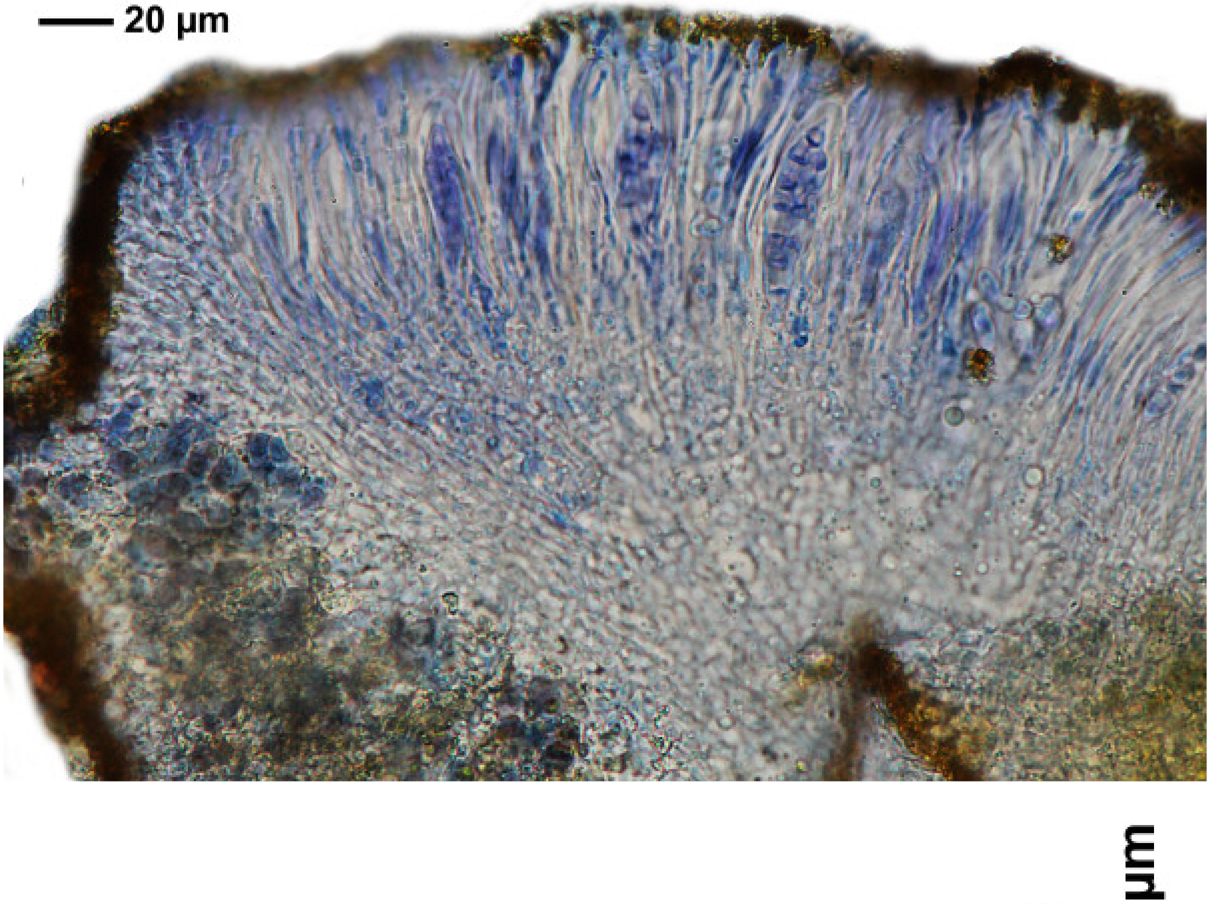
Caloplaca chapadensis (Malme) Zahlbr.

On non-calcareous rocks. Spores polarilocular, hyaline, 8/ascus, 12-16 x 7-7.5 µm, septum 5.5-7.8 µm.

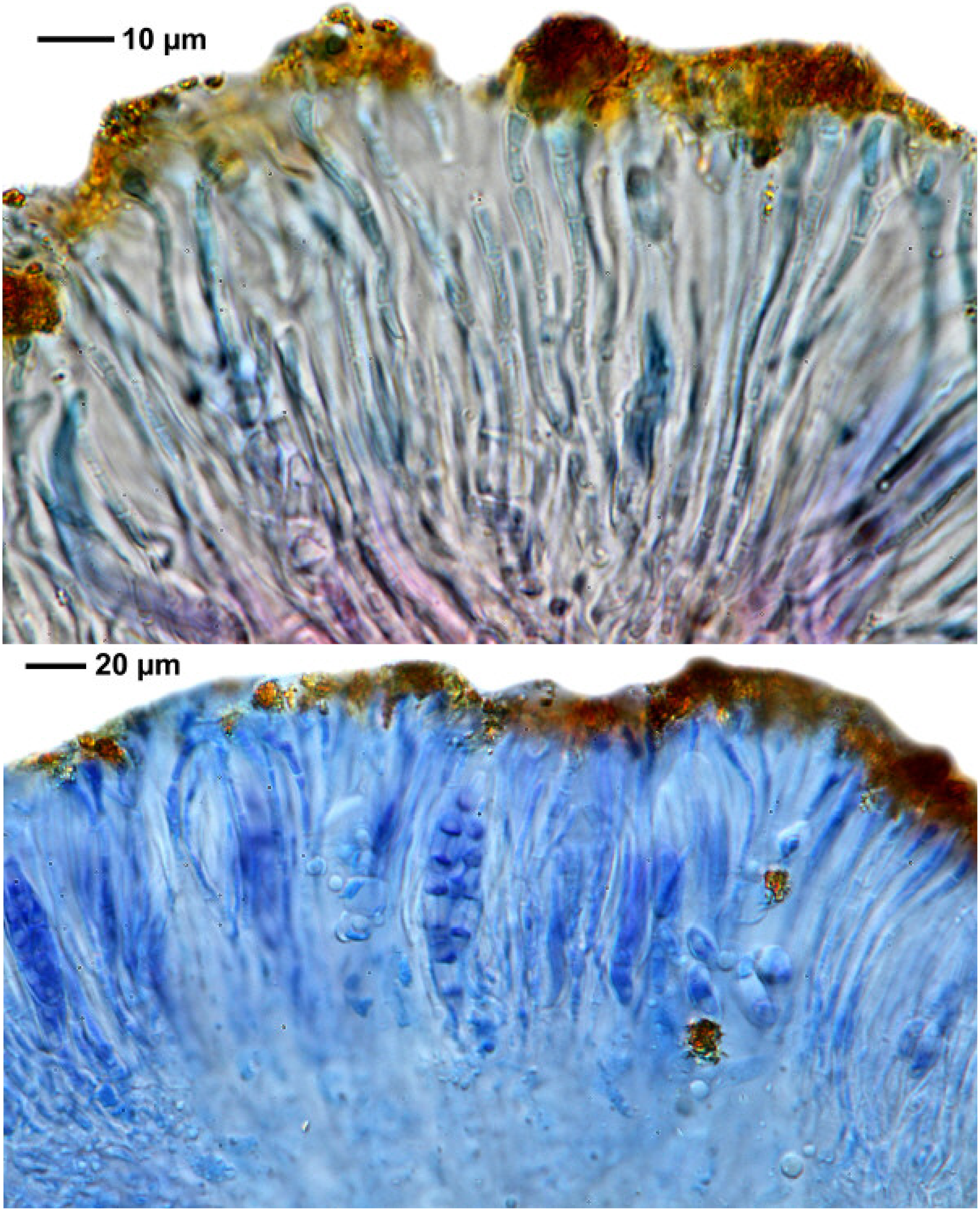
[ABL 21437], Brazil, Ceará, Quixadá, Serra do Estevao, near chapel, 04°55'44" S, 39°08'50" W, 250 m, on schistose rock in Caatinga. Leg. M. Cáceres & A. Aptroot, 01.04.2014, det. A. Aptroot 2014.

Caloplaca chapadensis

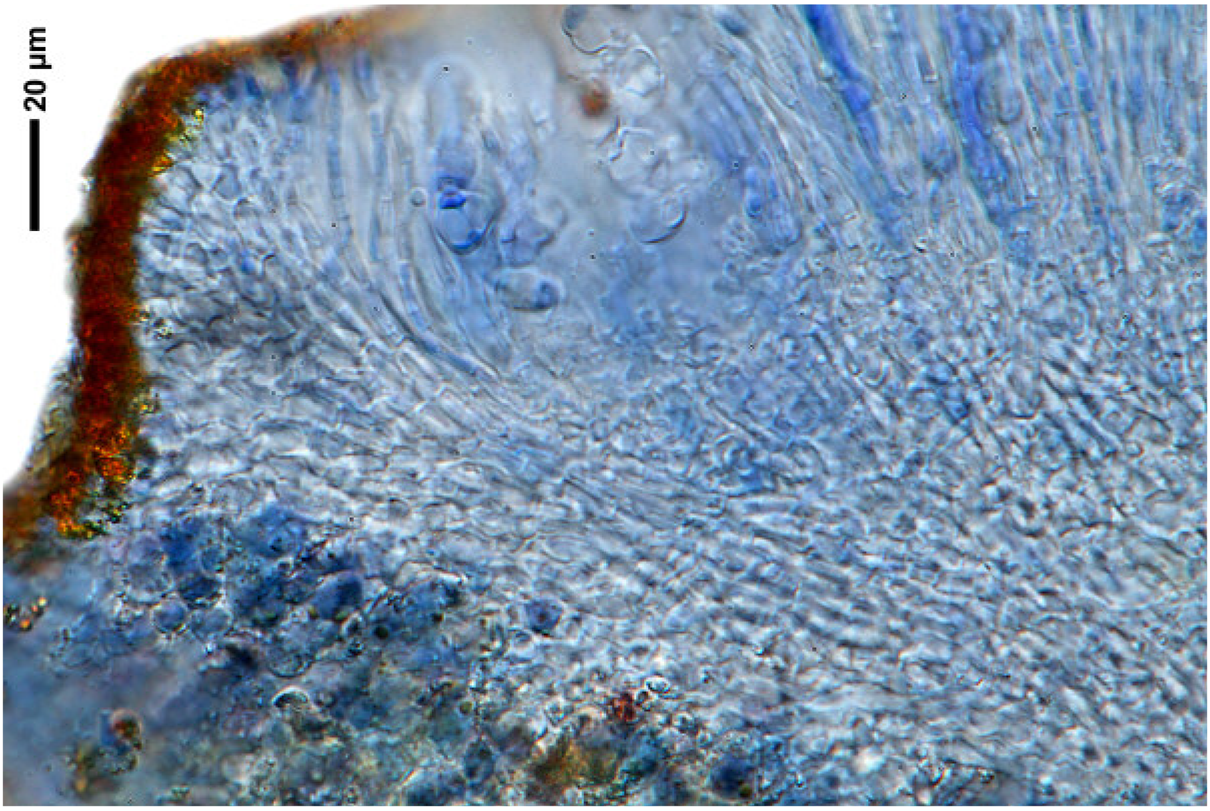


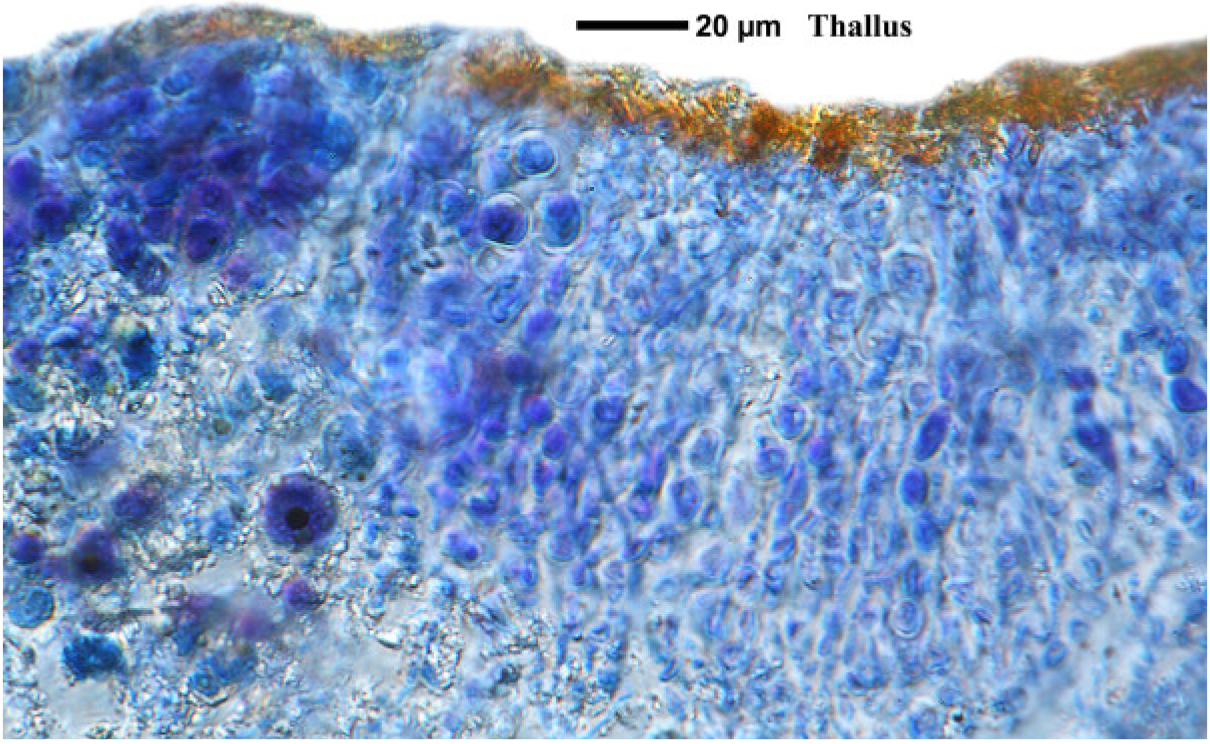


Caloplaca chapadensis



Caloplaca chapadensis



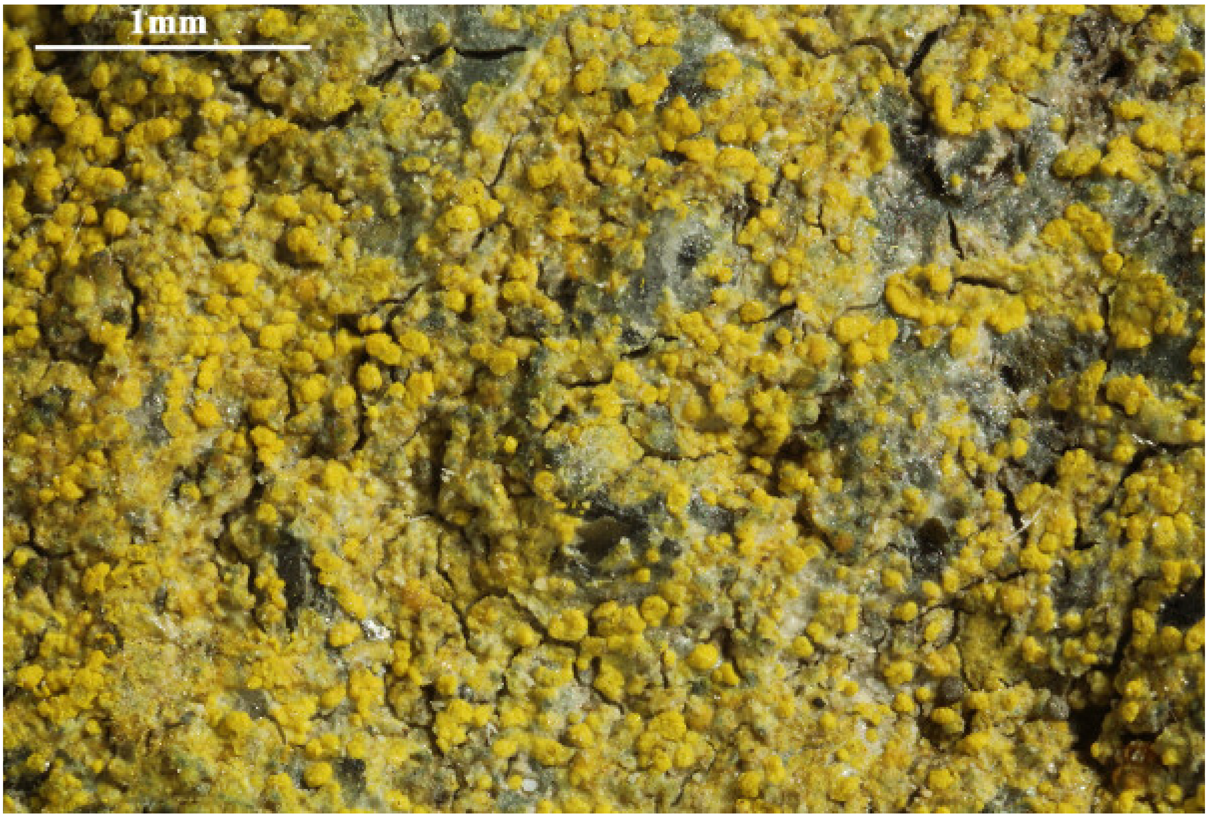


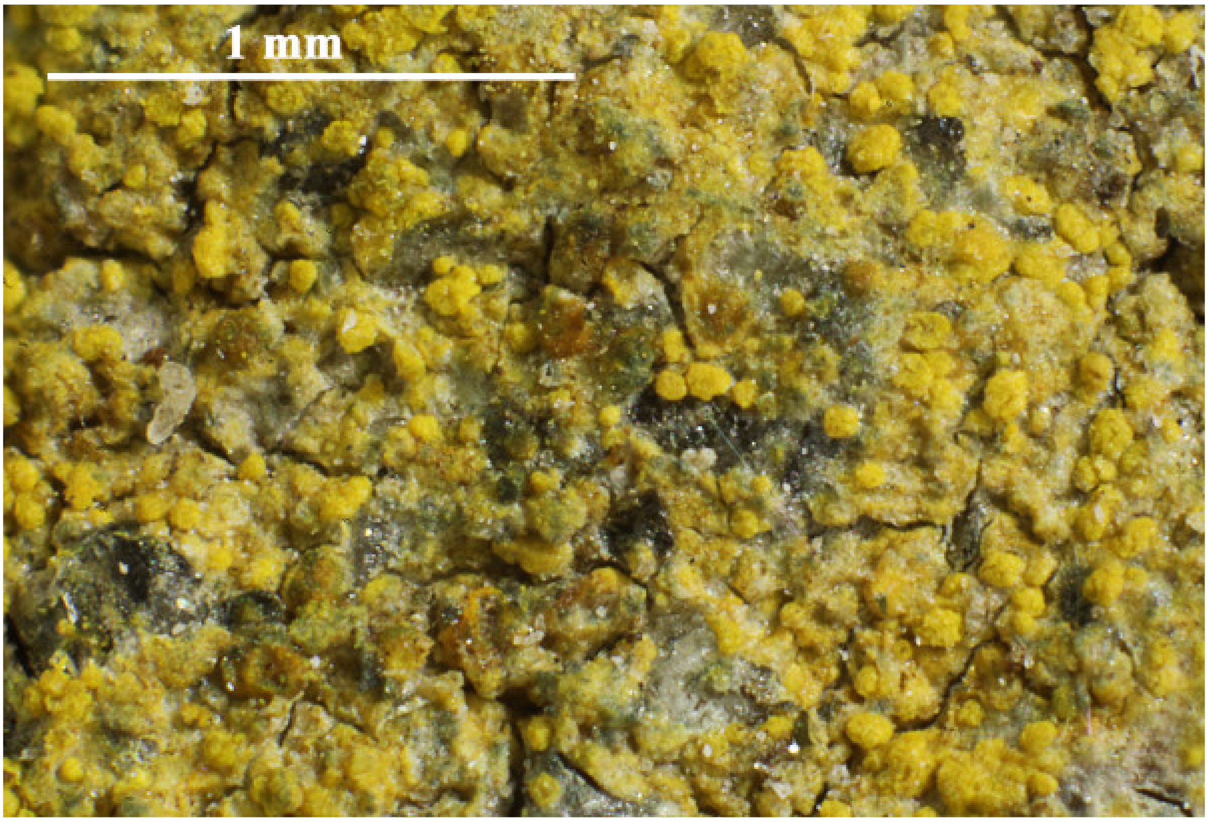
Caloplaca chapadensis

Caloplaca chejuensis S.Y. Kondr. & Hur

On non-calcareous rock.

[ABL 72846], Korea, Gangwon-do, Dist. Pyeonchang-gun, Jinbu-myeoun, Dongsan-ri, Mt. Odae, Odaesan National Park, along the Odae stream, en route from temple Woljeong-sa to temple Sangwon-sa, c. 37°48' N, c. 128°34' E, c. 700 m, on siliceous rock. Leg. A. Aptroot 16.10.2014, det. A. Aptroot 2014.



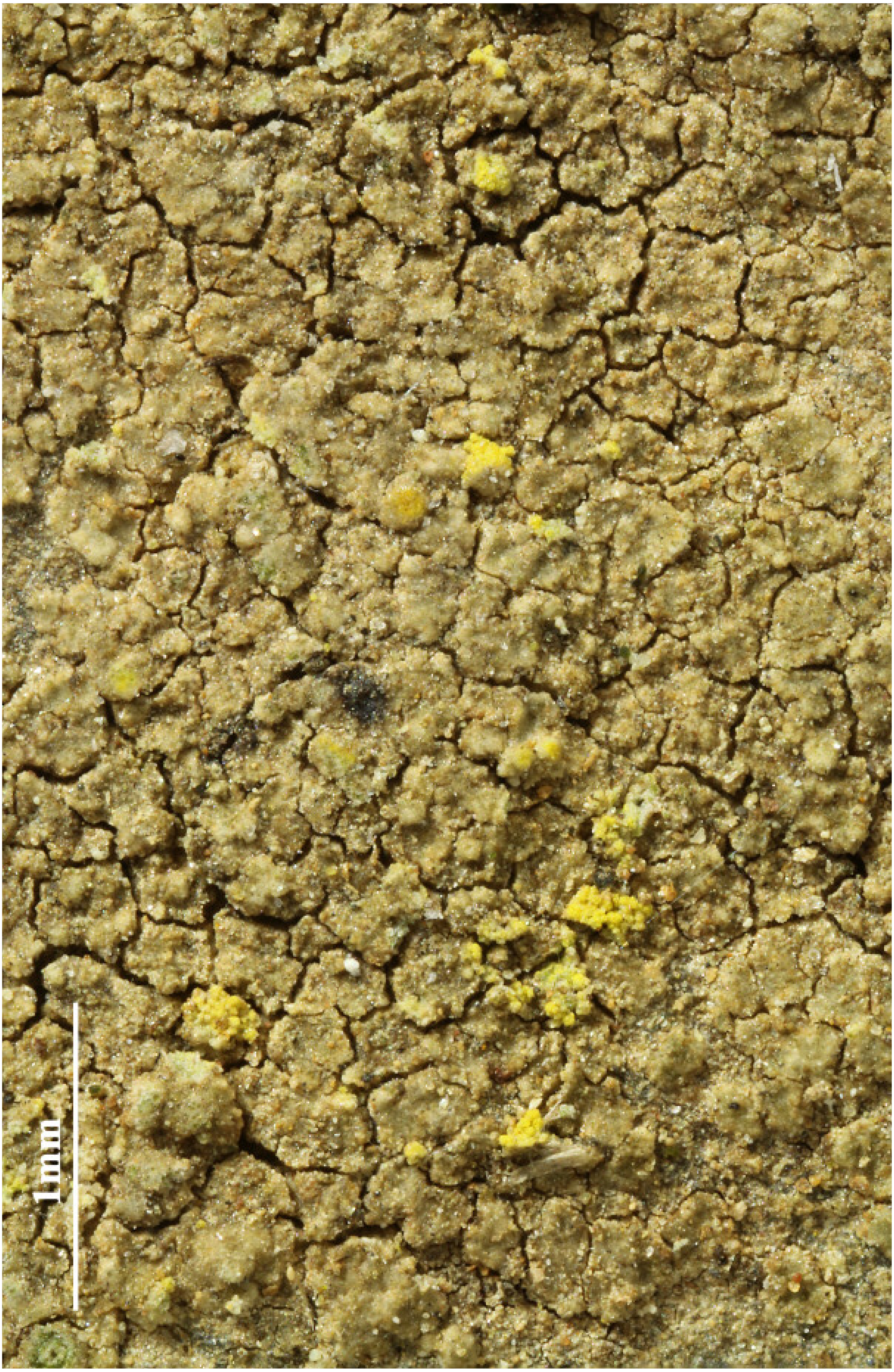


Caloplaca chejuensis

Caloplaca chejuensis S.Y. Kondr. & Hur

On non-calcareous rock.

[ABL 72993], Korea, Gangwon-do, Samcheok city, Singi-myeoun, Daei-ri, route of Hwanseon cave, c. 37°19’ N, c. 129°00’ E, c. 400-500 m, on siliceous rock. Leg. A. Aptroot 20.10.2014, det. A. Aptroot 2014.

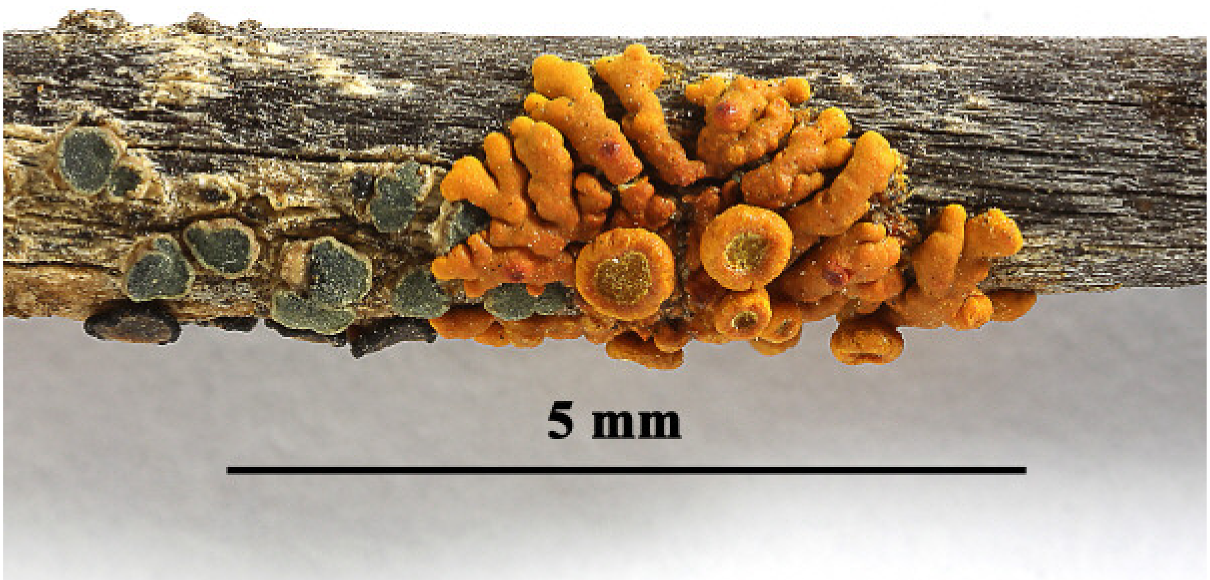


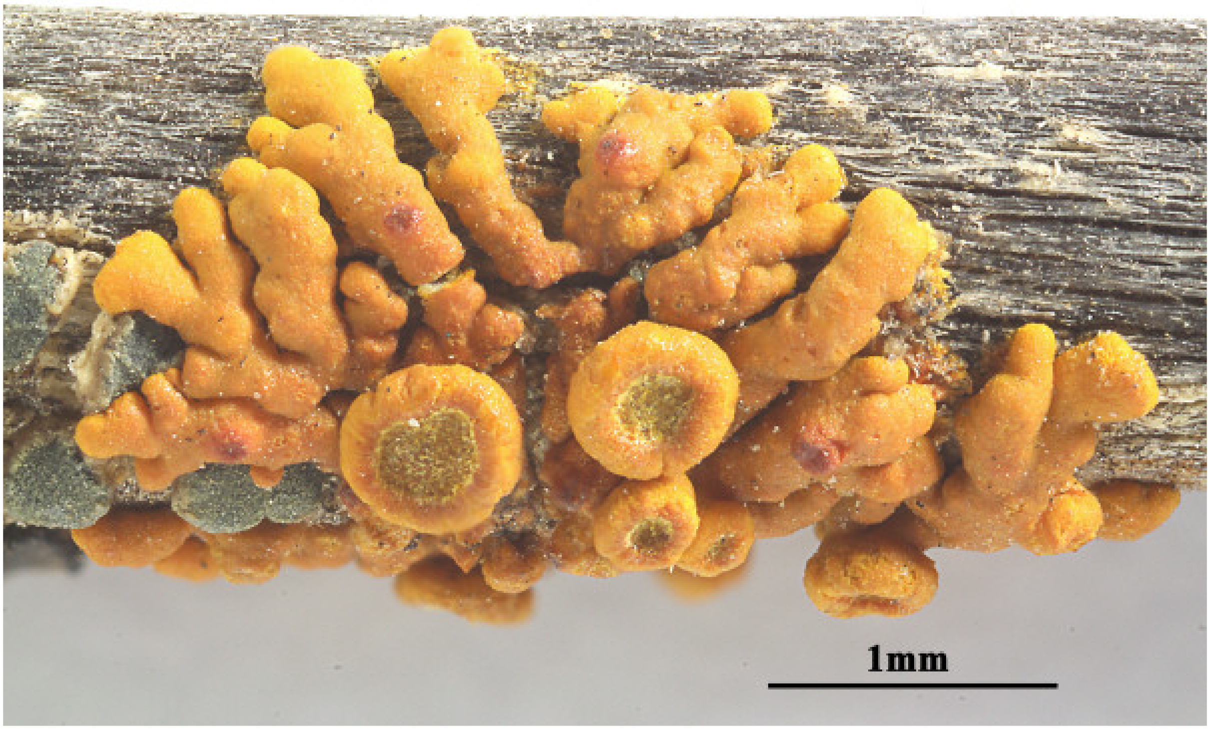
Caloplaca chejuensis

Caloplaca chilensis Kärnefelt, S.Y. Kondr., Frödén & Arup

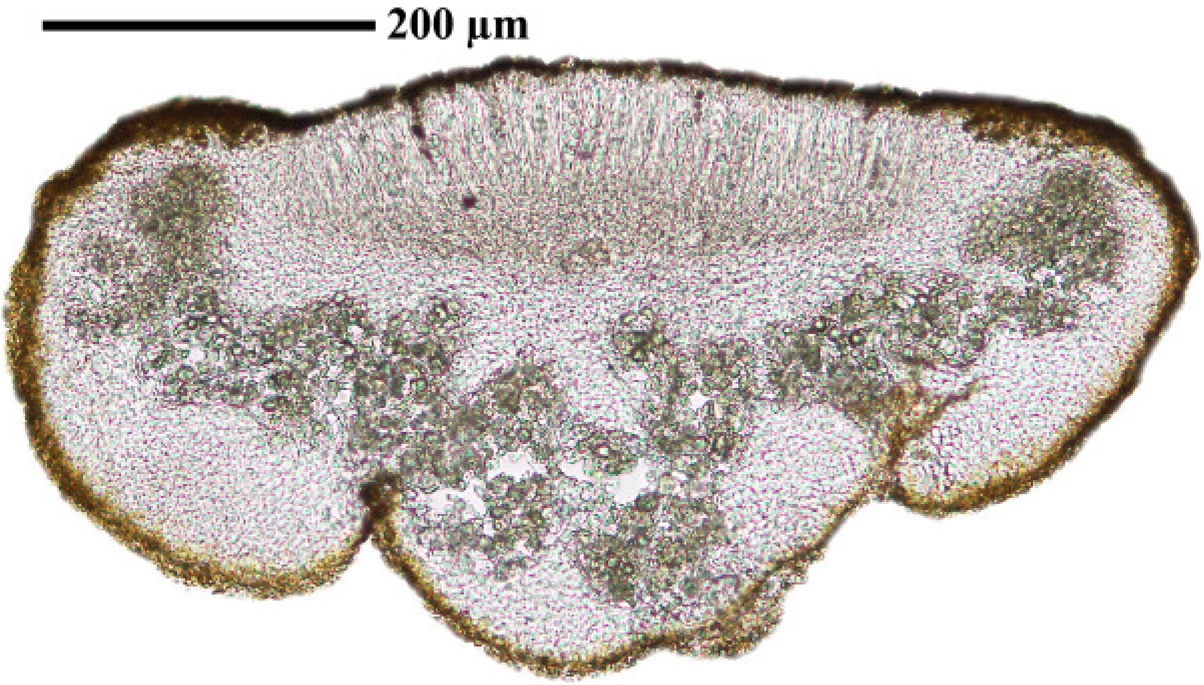
Spores 10.7-14.3 x 4.6-5.3 µm, septum 5-5.3 µm (FS).

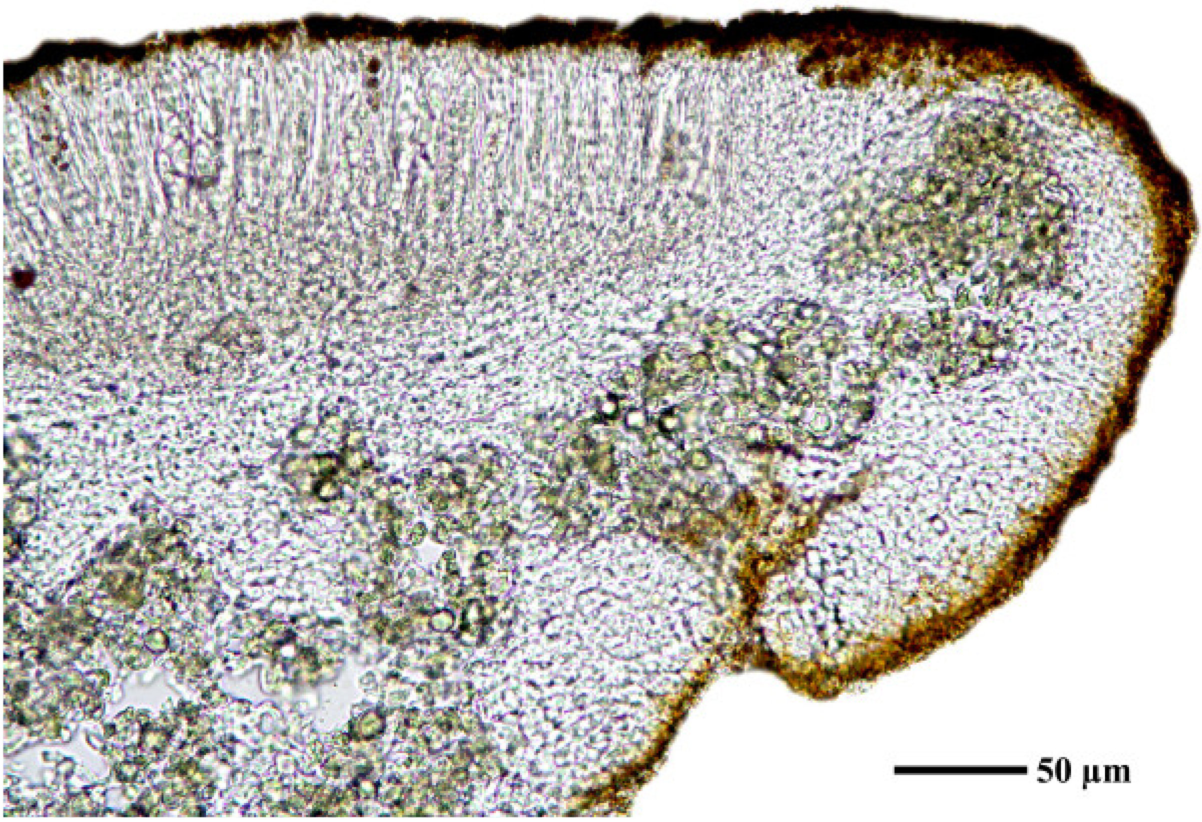
[B 60 0025492], Chile, Región de Coquimbo, North of Santiago, cloud forest of Fray Jorge, near Ovalle, 30°39' S, 71°41' W. Leg. F. Mattik, 18-20.10.1960, det. Reinaldo Vargas C., 2009.



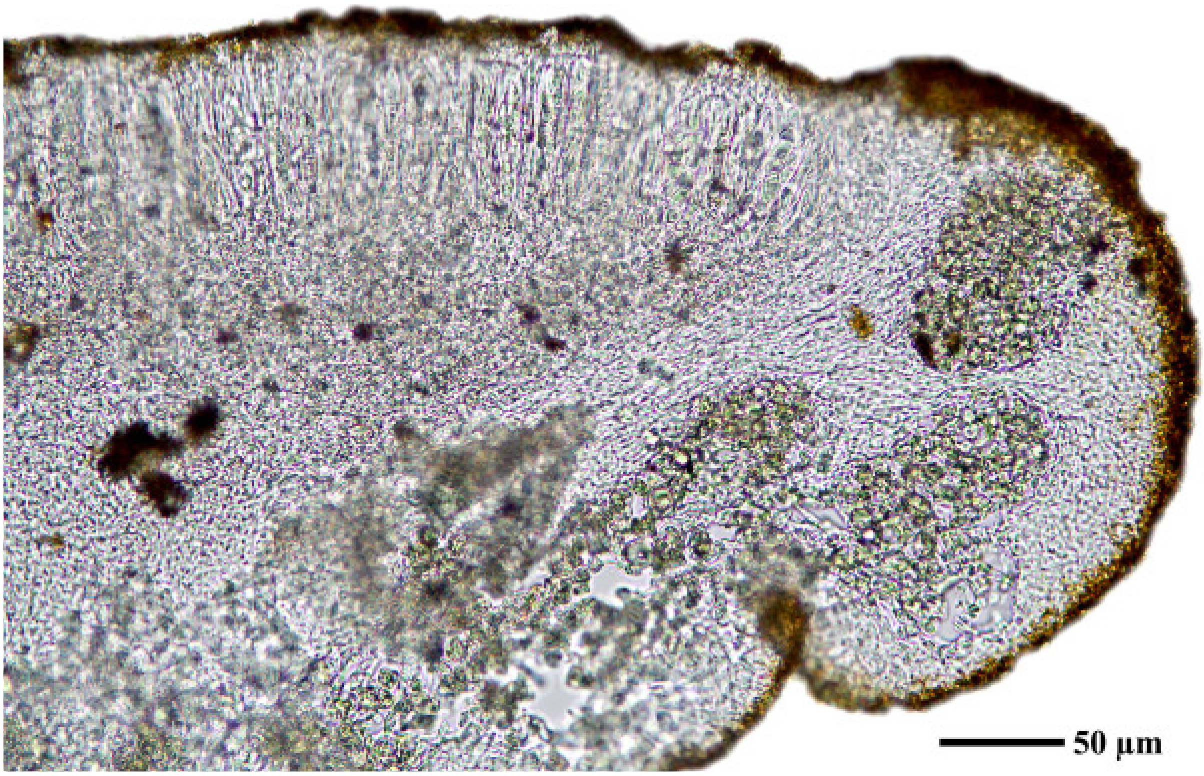


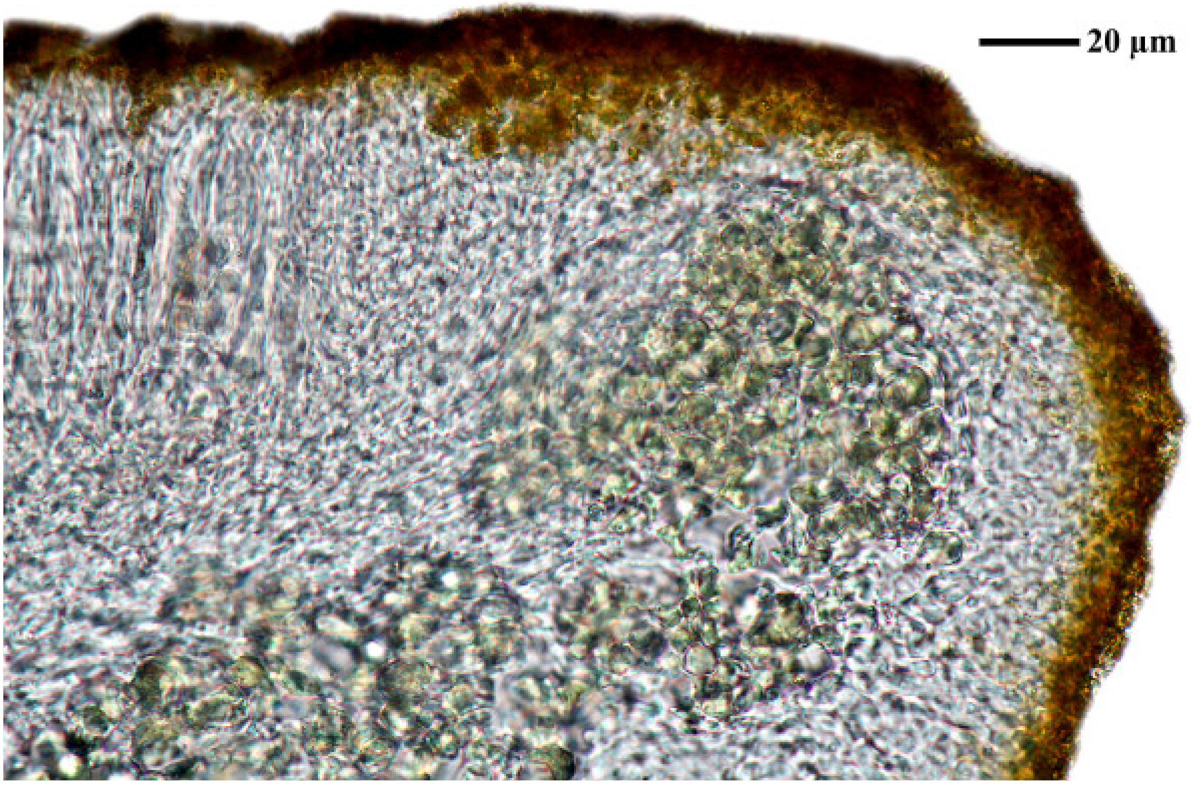
Caloplaca chilensis



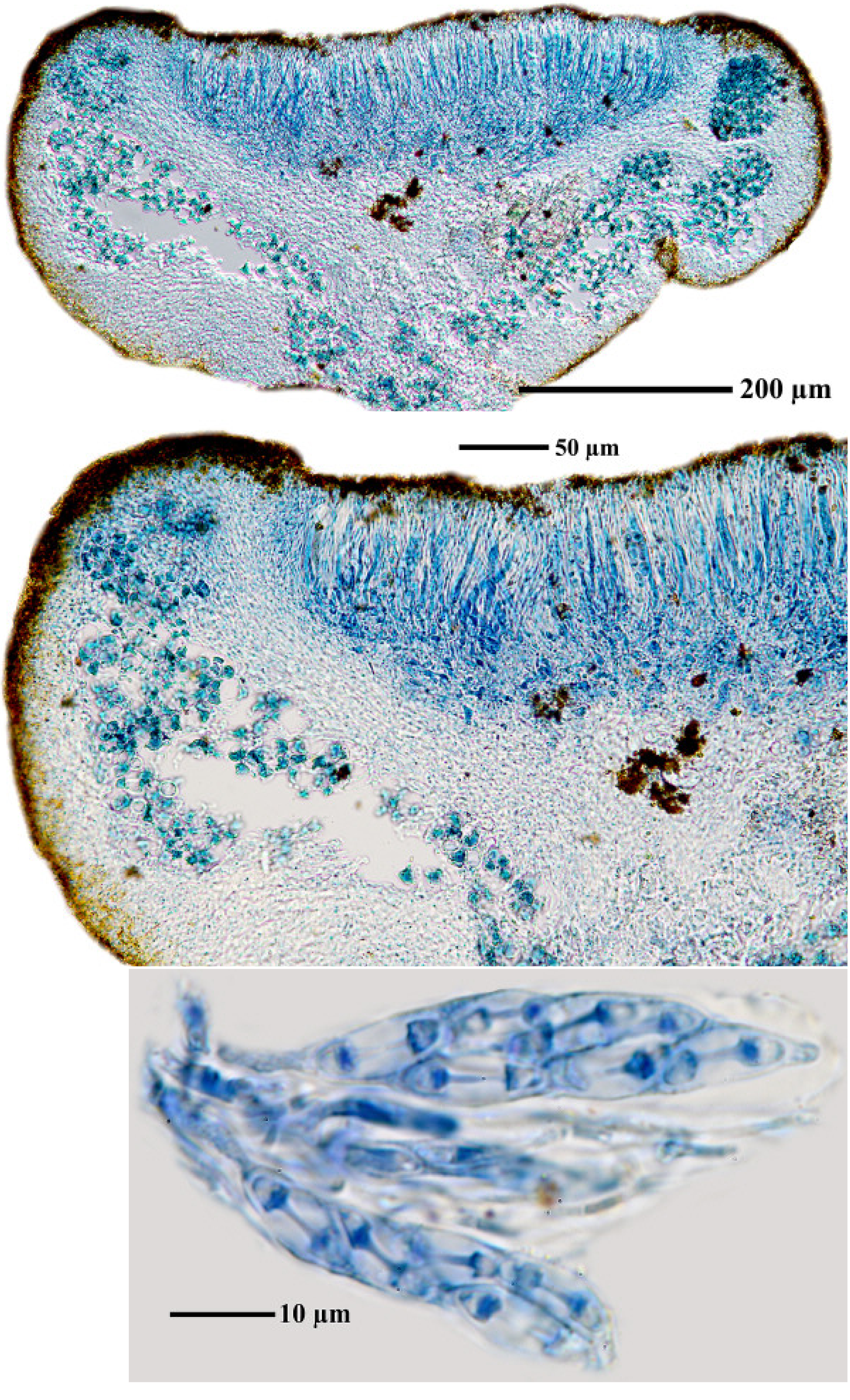


Caloplaca chilensis

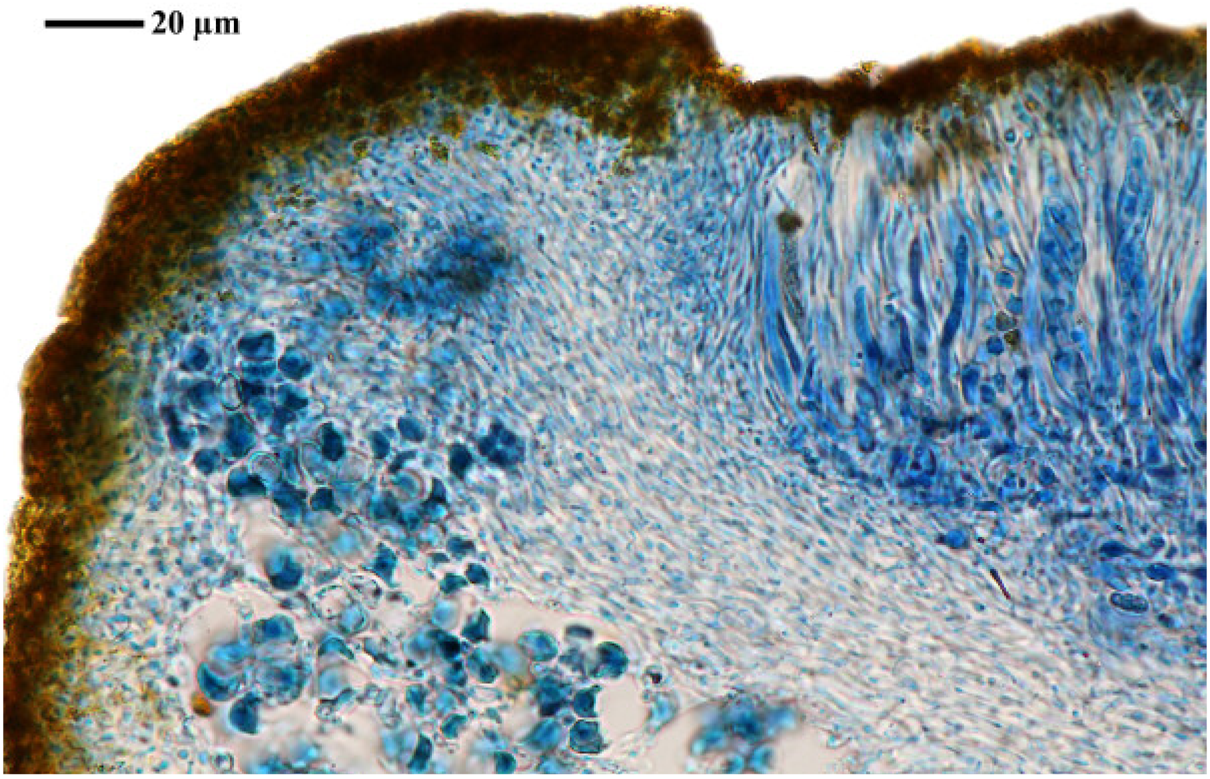


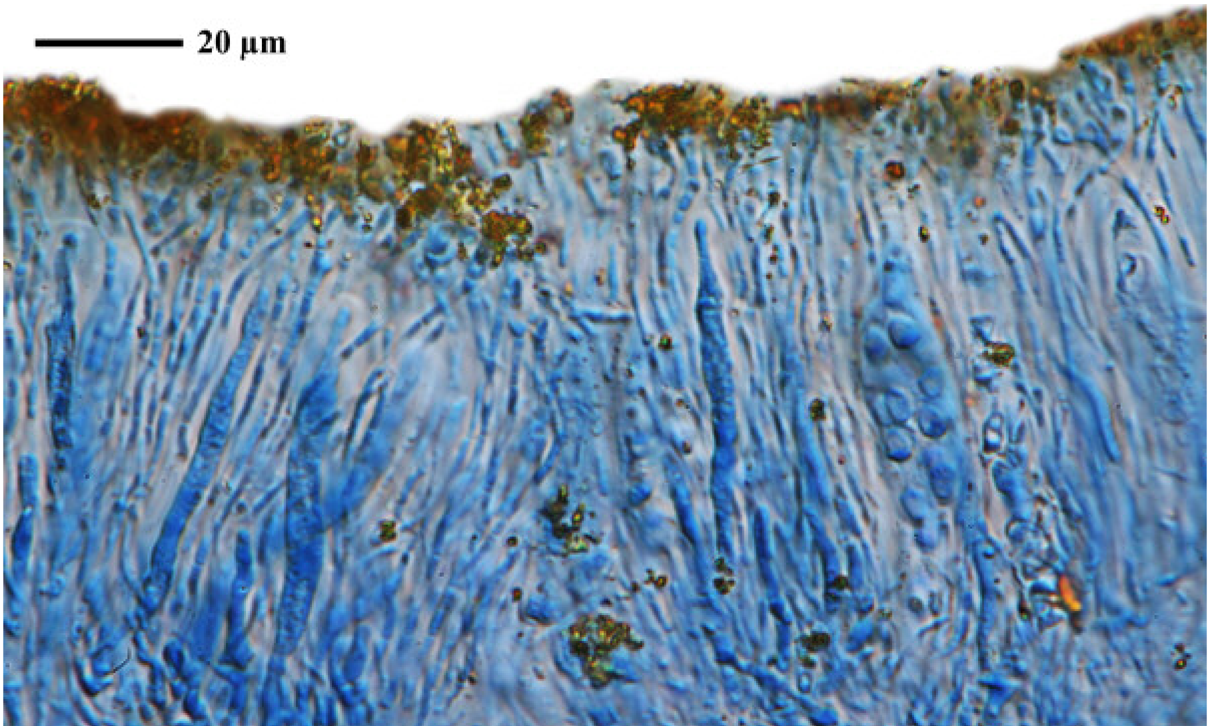


Caloplaca chilensis

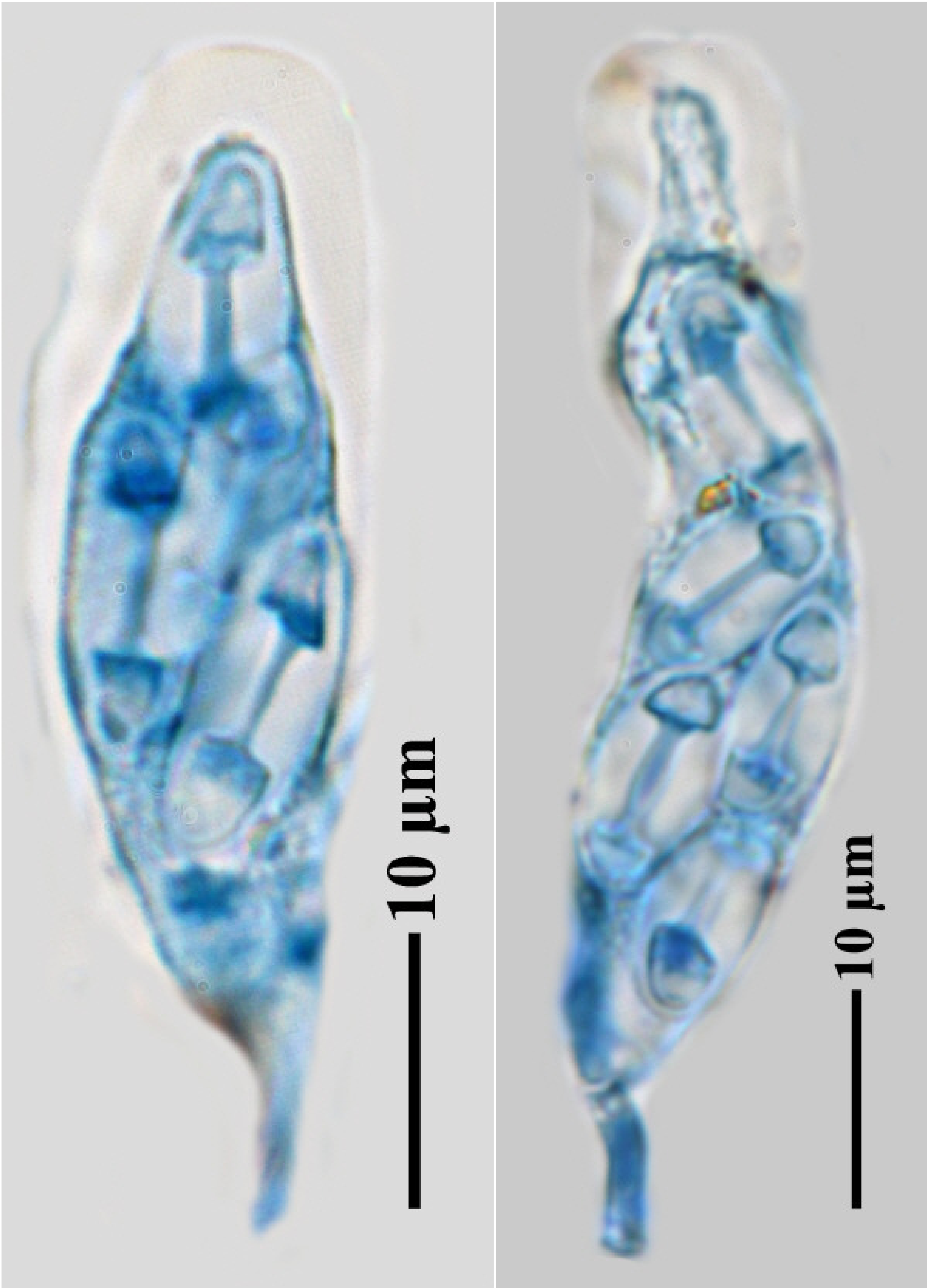


Caloplaca chilensis





Caloplaca chilensis



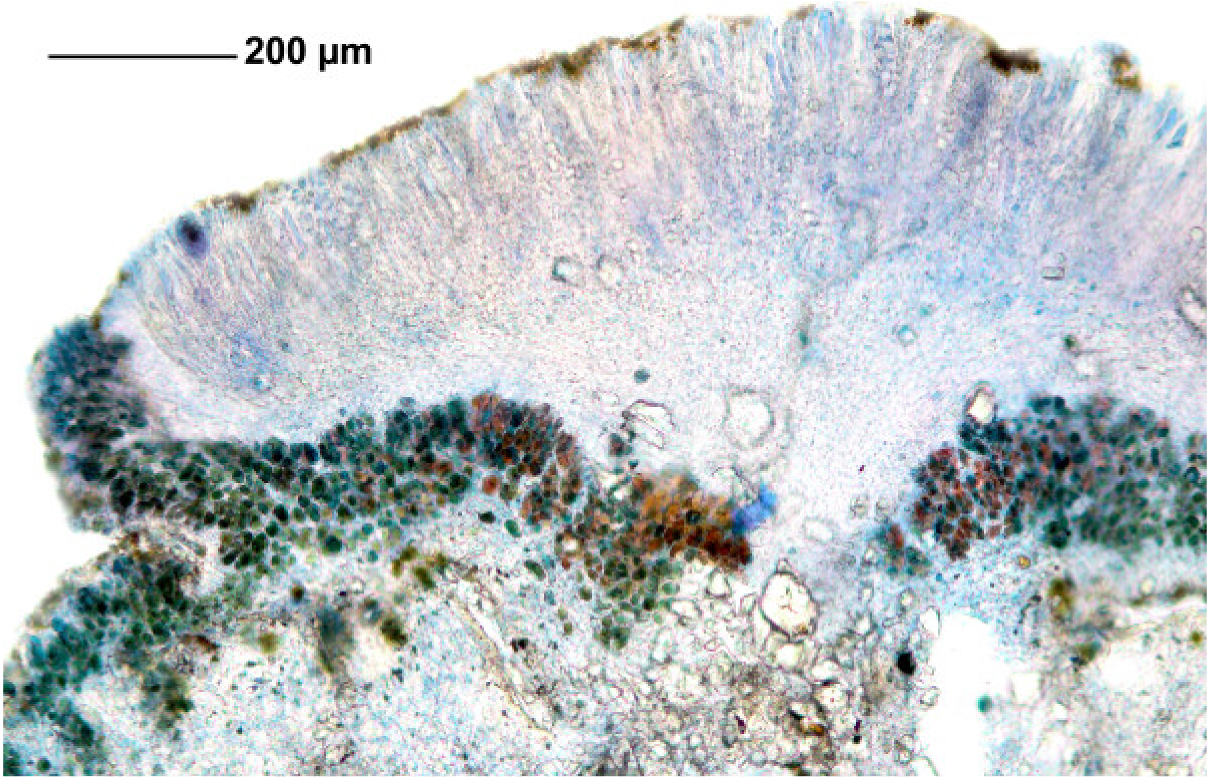
Caloplaca chilensis

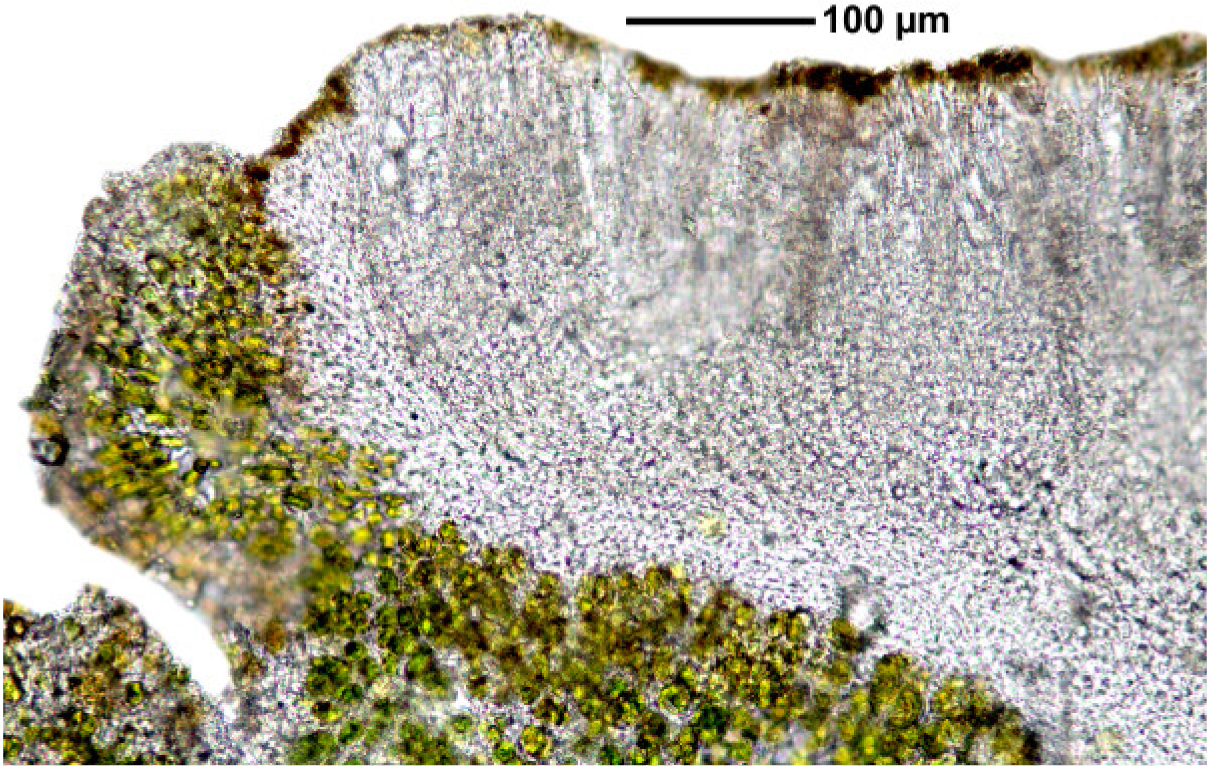
Caloplaca chlorina (Flot.) Sandst.

On rocks. Spores polarilocular, hyaline, 8/ascus, 21-23 x 11.5-13 µm, septum 8-10 µm.

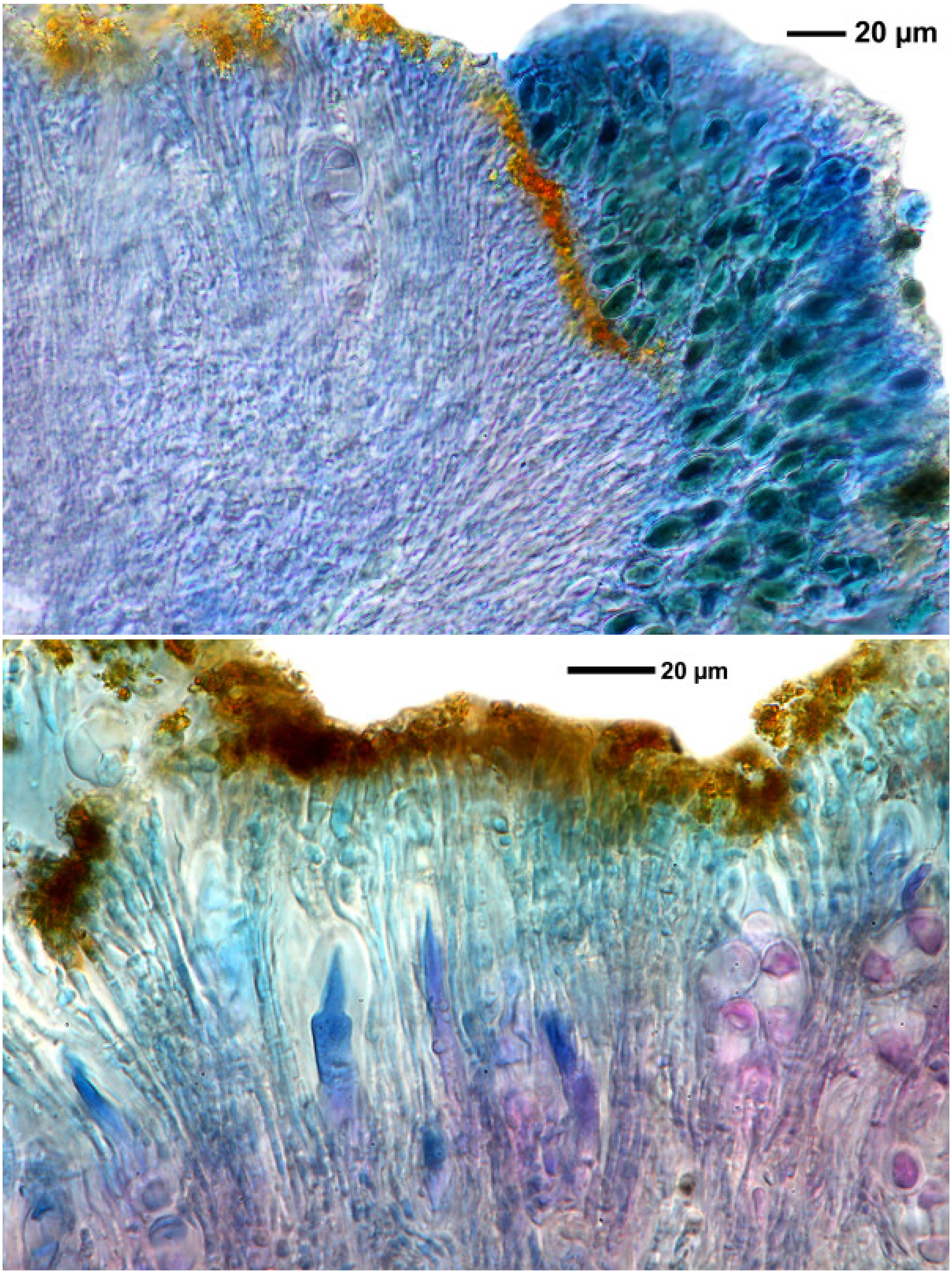
[10277], Spanien, Kanaren, La Gomera, SE-Rand des Nationalparks Garajonay nahe dem Aussichtspunkt Roque Agando, 28°06.544' N, 17°12.887' W, 1136 m; *Erica-Myrica* Zone.Leg. F. Schumm, 16.04.2003, det. A. Aptroot 2016.

Caloplaca chlorina cfr.

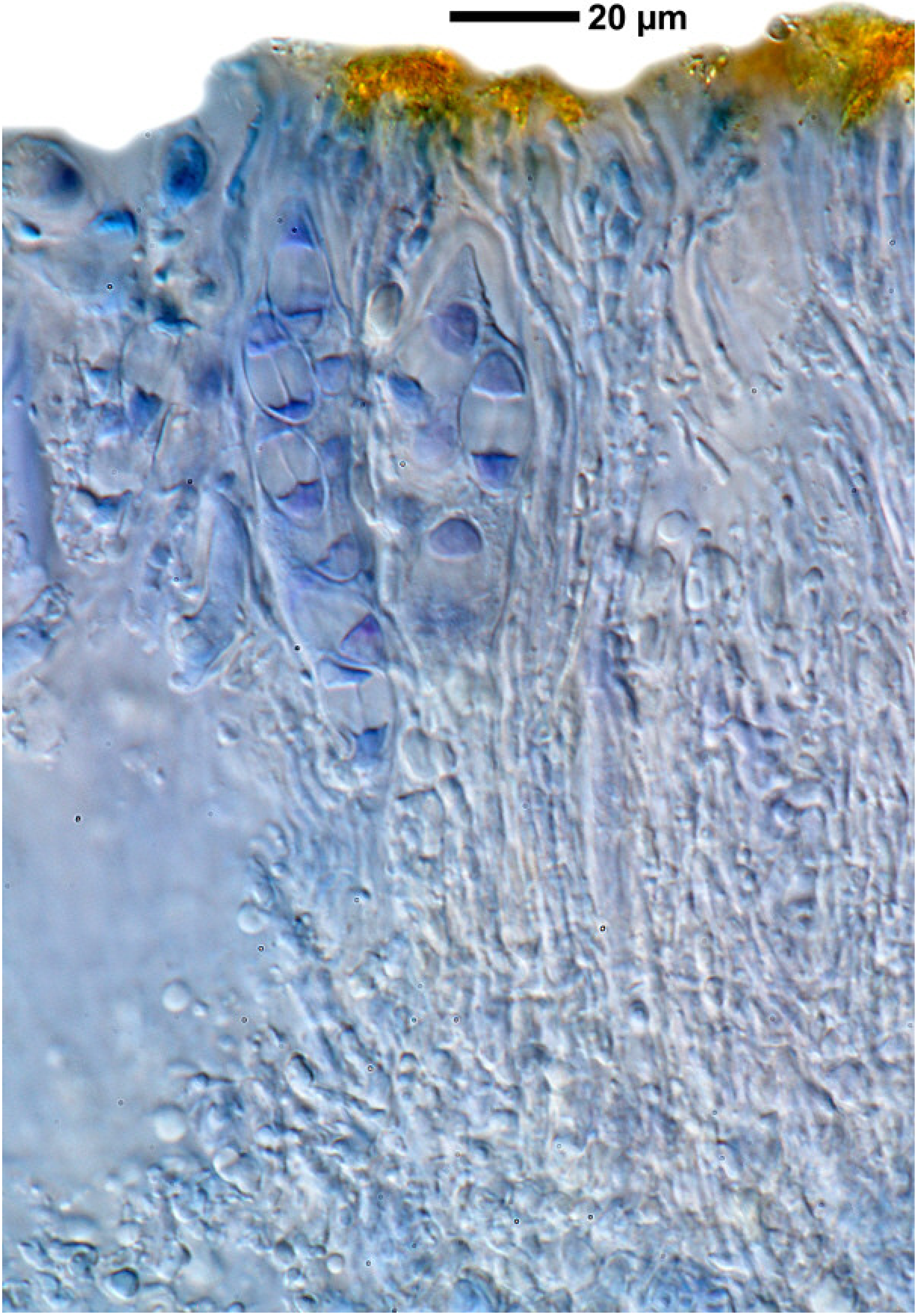




Caloplaca chlorina cfr.



Caloplaca chlorina cfr.

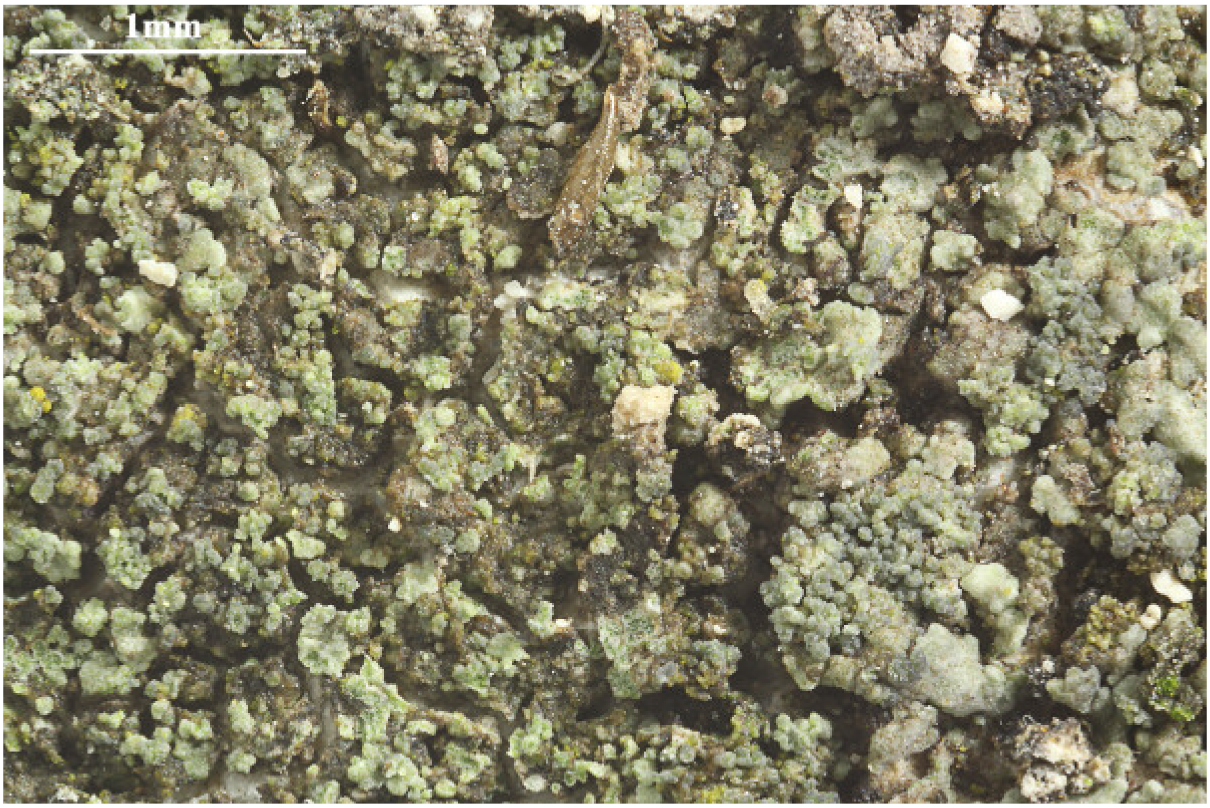


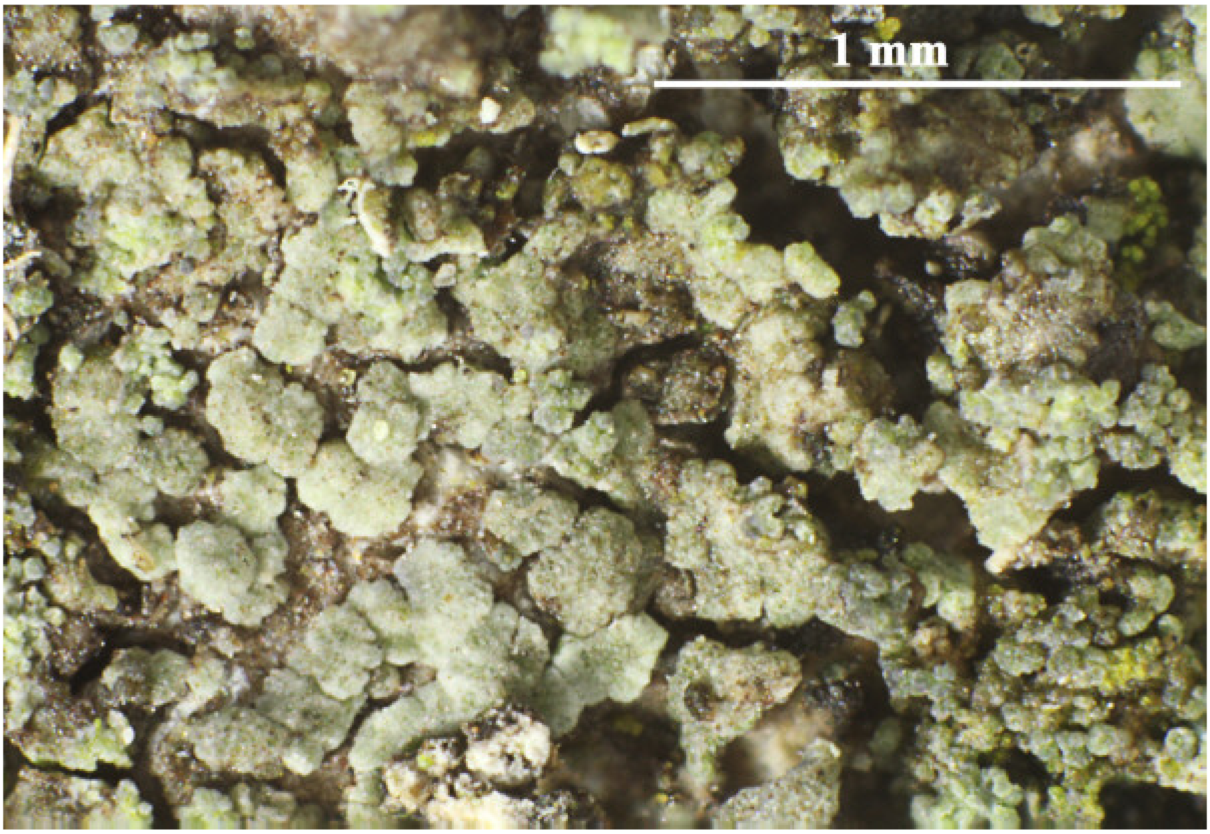
Caloplaca chlorina cfr.

Caloplaca chlorina (Flot.) Sandst.

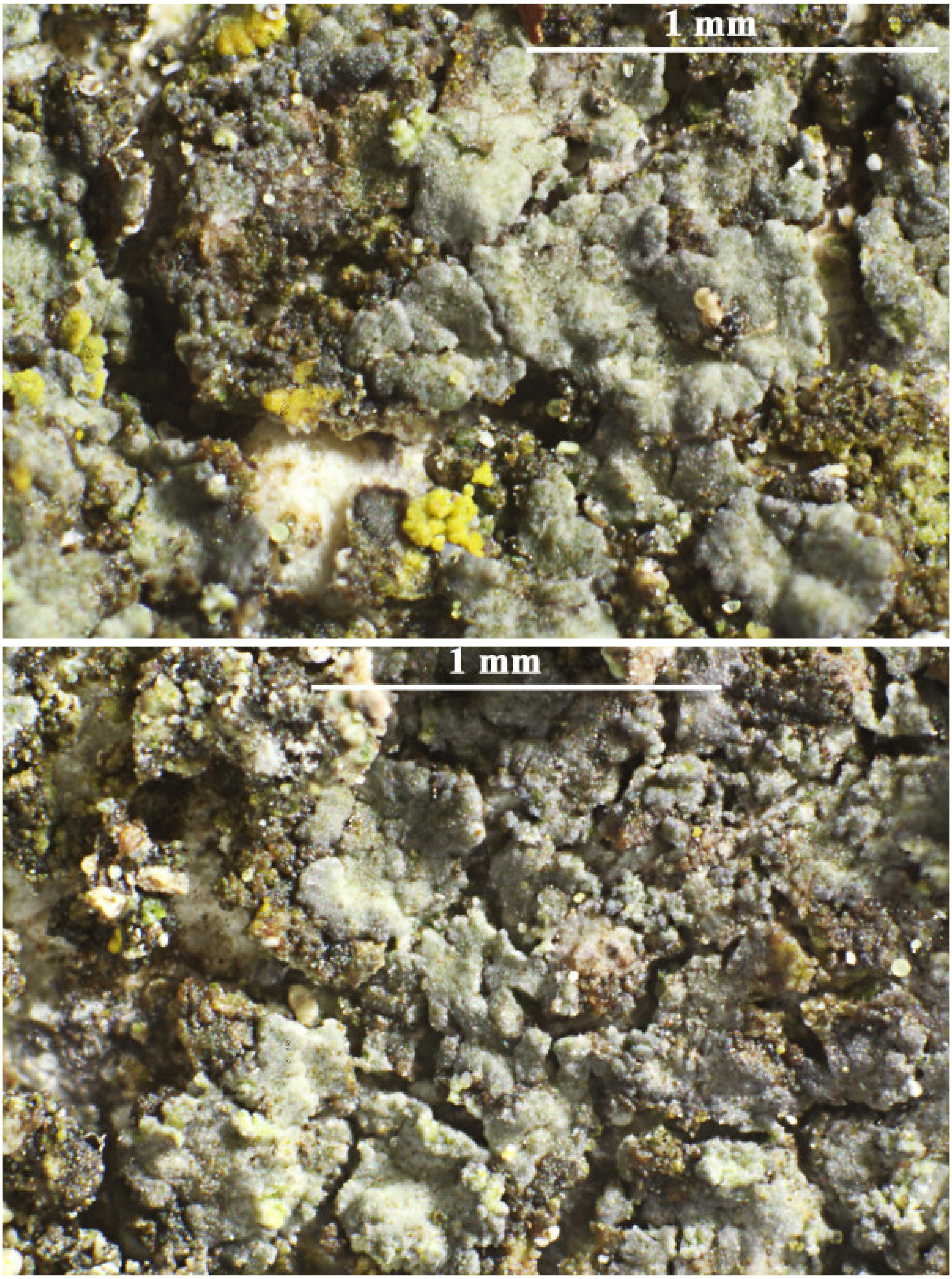
Thallus calcicol, nur steril gefunden, grau, feucht grün, kleinschuppig, stellenweise isidiös-sorediös. Chemistry of the thallus (p369/9): No lichen substances detected; K-, C-.

[19421], Germany, Baden-Württemberg, Schwäbische Alb, Kreis Göppingen, Kuchalb, beim Hohenstein, 48.6587811° N, 9.8919° W, 700 m, auf am Boden liegenden Kalksteinen. Leg. F. Schumm 20.04.2016, det. A. Aptroot.

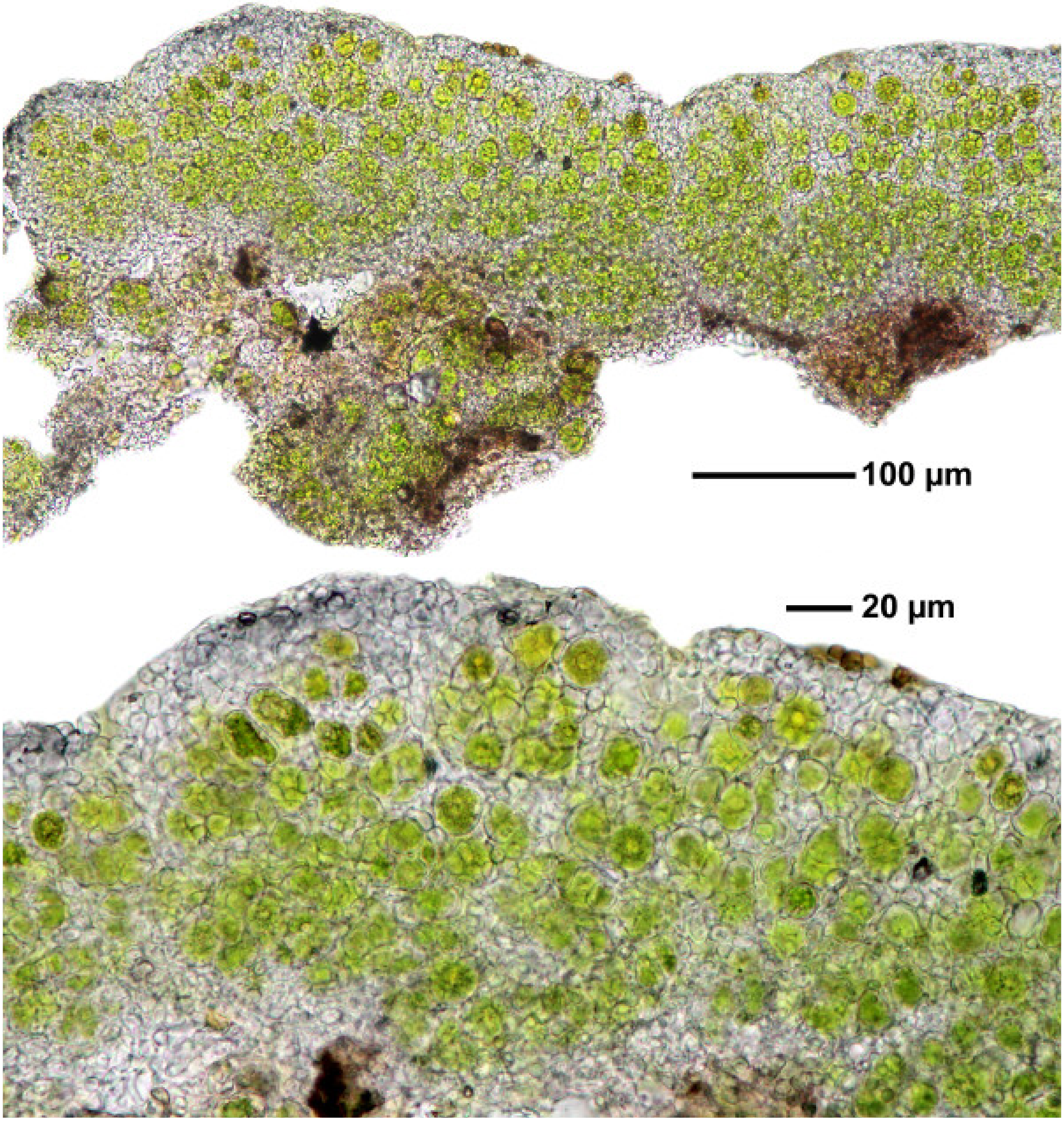




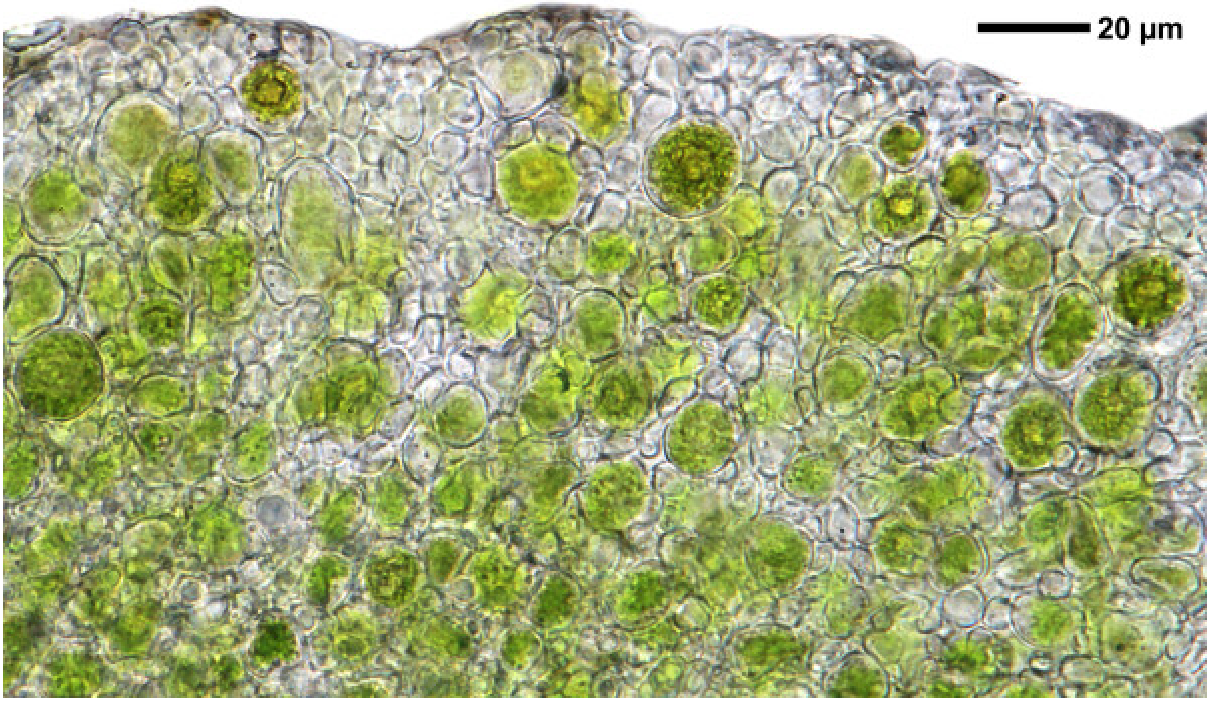
Caloplaca chlorina

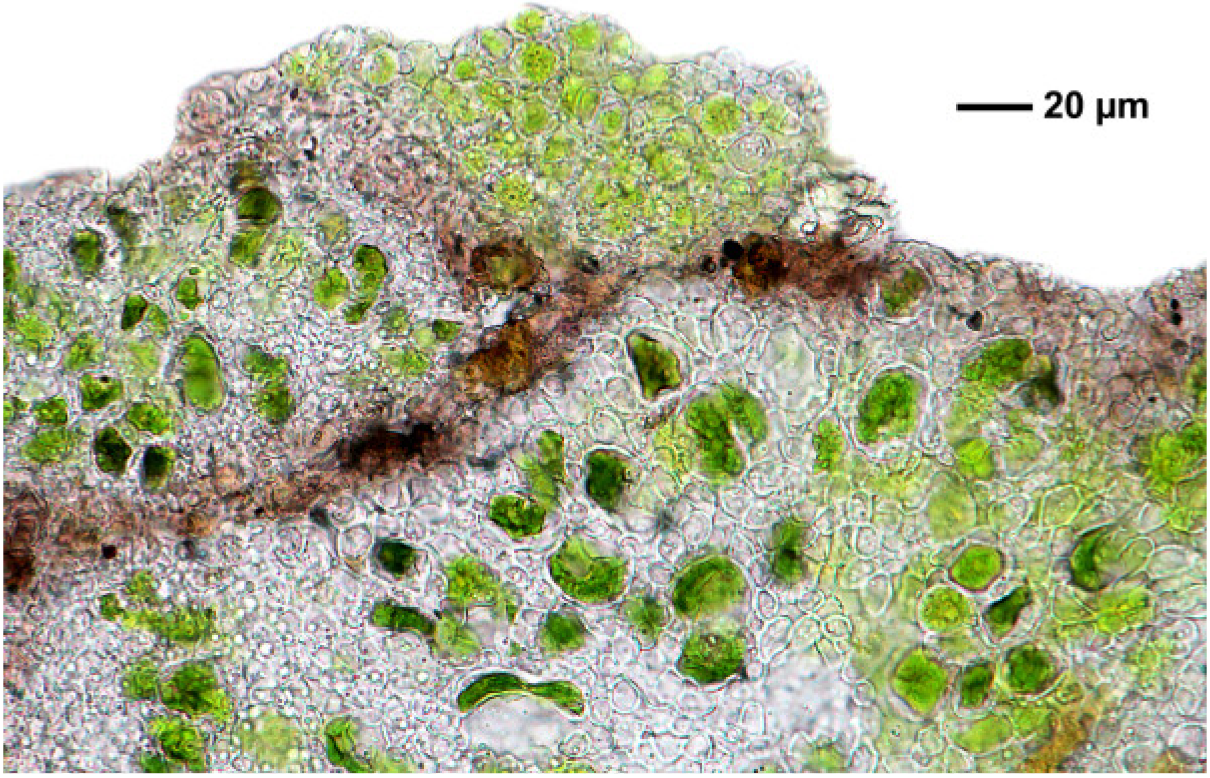


Caloplaca chlorina

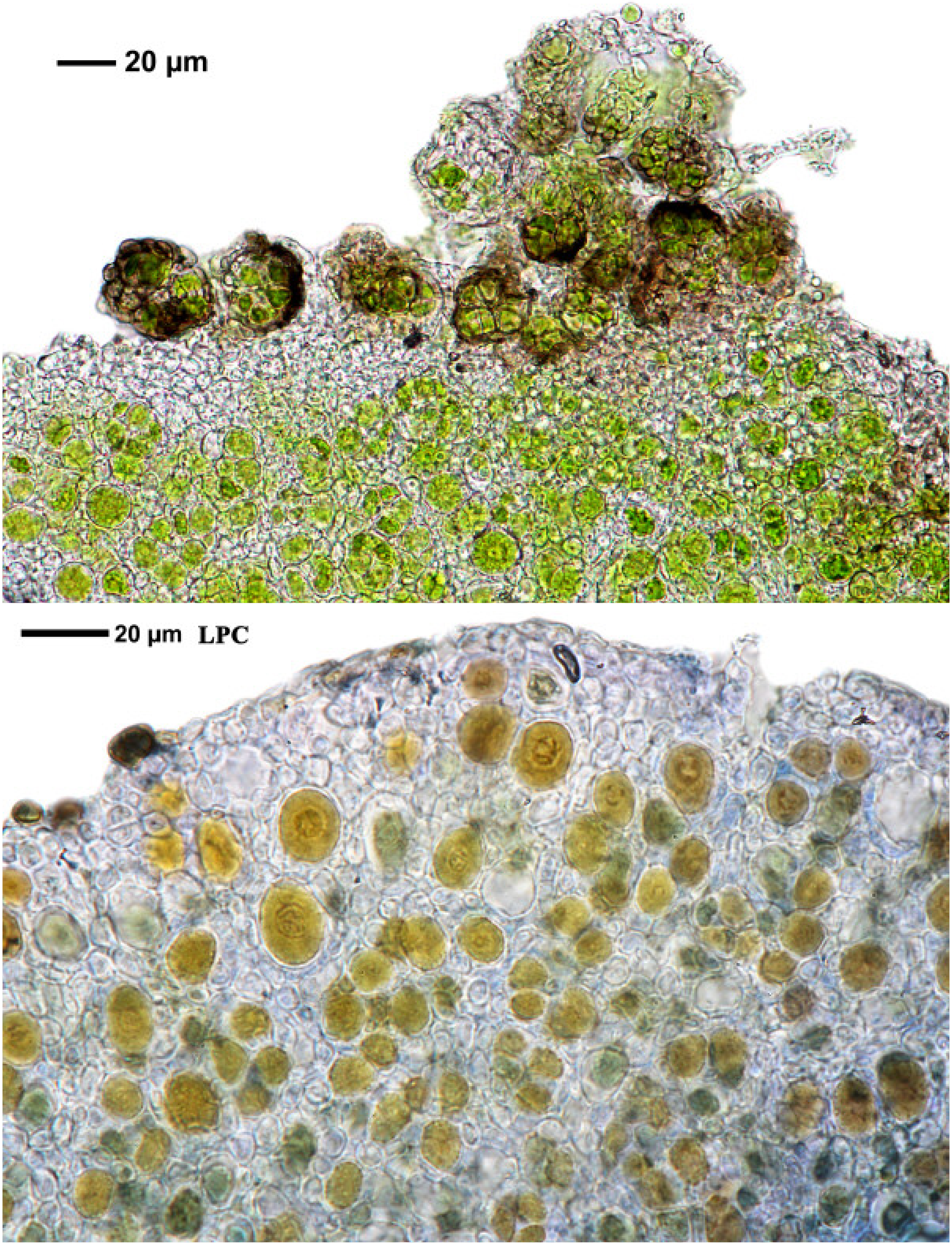


Caloplaca chlorina

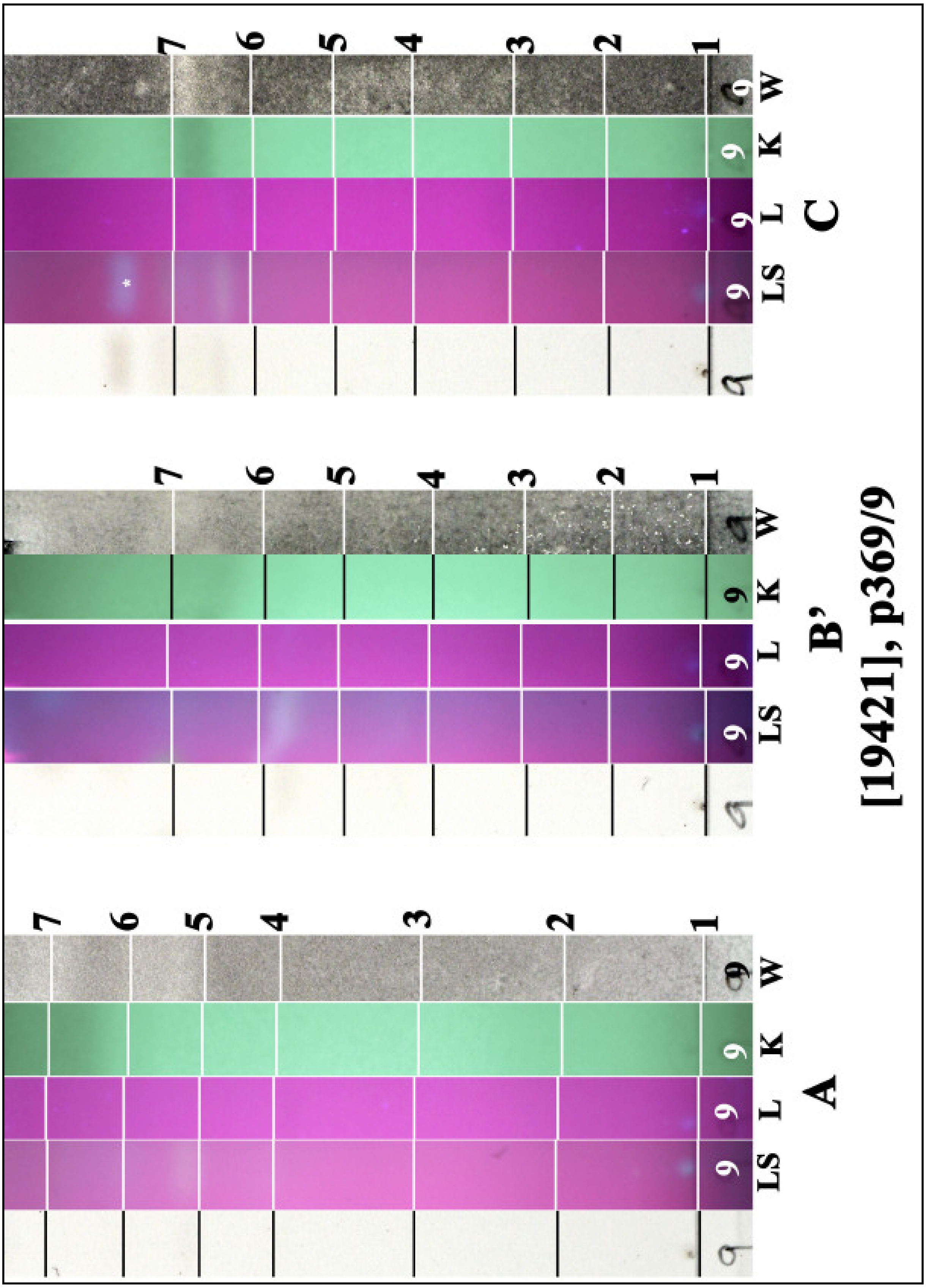




Caloplaca chlorina



Caloplaca chlorina



HPTLC of the thallus

Caloplaca chlorina

Calopaca chlorina cfr. (Flot.) Sandst.

On bark.

[14007], Griechenland, W-Samos, nördlich von Kalithea, Bachtal mit Platane, Zypressen, etc.; 37°44.558' N, 26°35.606' E, 170 m. F. Schumm & R. Düll, 24.05.2008, det. A. Aptroot 2016.

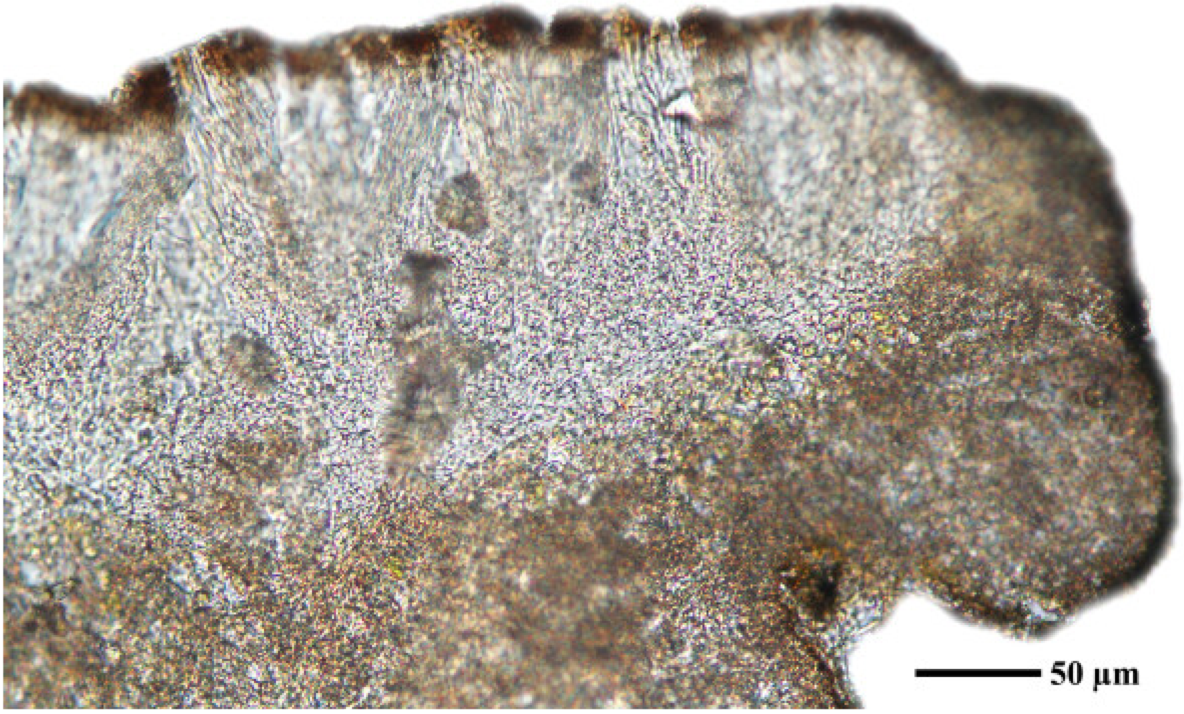
Caloplaca chlorina

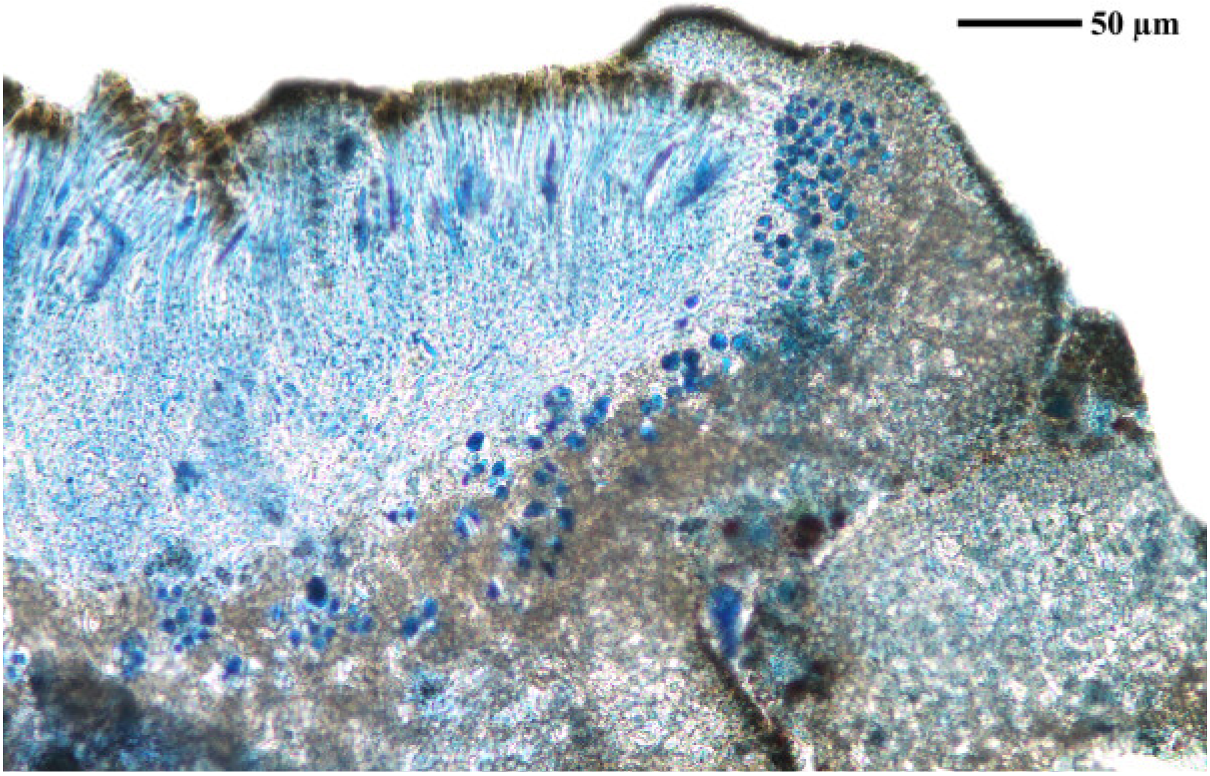
Caloplaca chrysophora Zahlbr.

Thallus brown. Spores 15 x 7 µm, septum long, hymenium inspers (AA); spores 11-12.7 x 6.5-7.5 µm, septum 3.5-4.8 µm, hymenium inspers (FS)

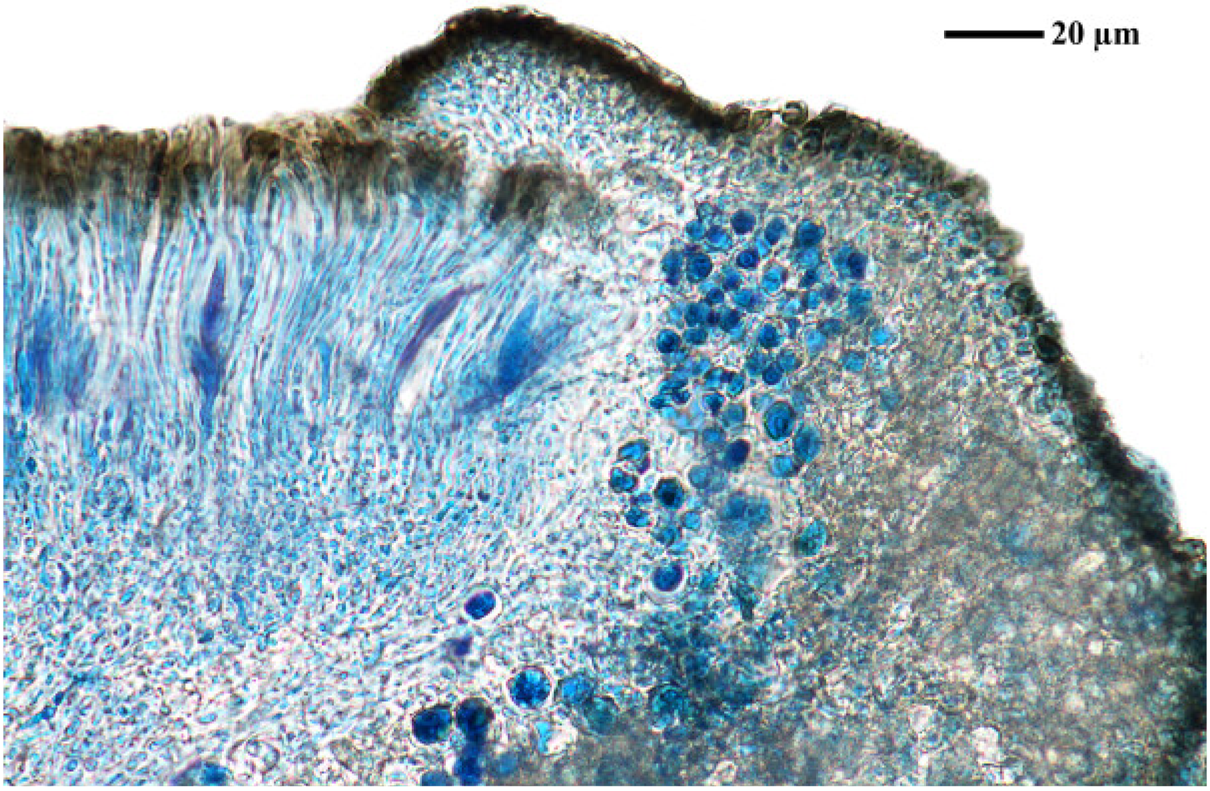
[BR5030066917818], China, Yunnan Prov., Jianchuan Co., 75 km S of Lijiang, Mt. Shibaoshan Park, *Pinus yunannensis* and sclerophyll shrub, on sandstone, 26°21'32" M, 99°50'24" E, 2500 m. Leg. A. Aptroot (55740), 19. October 2002, det. A. Aptroot 2003

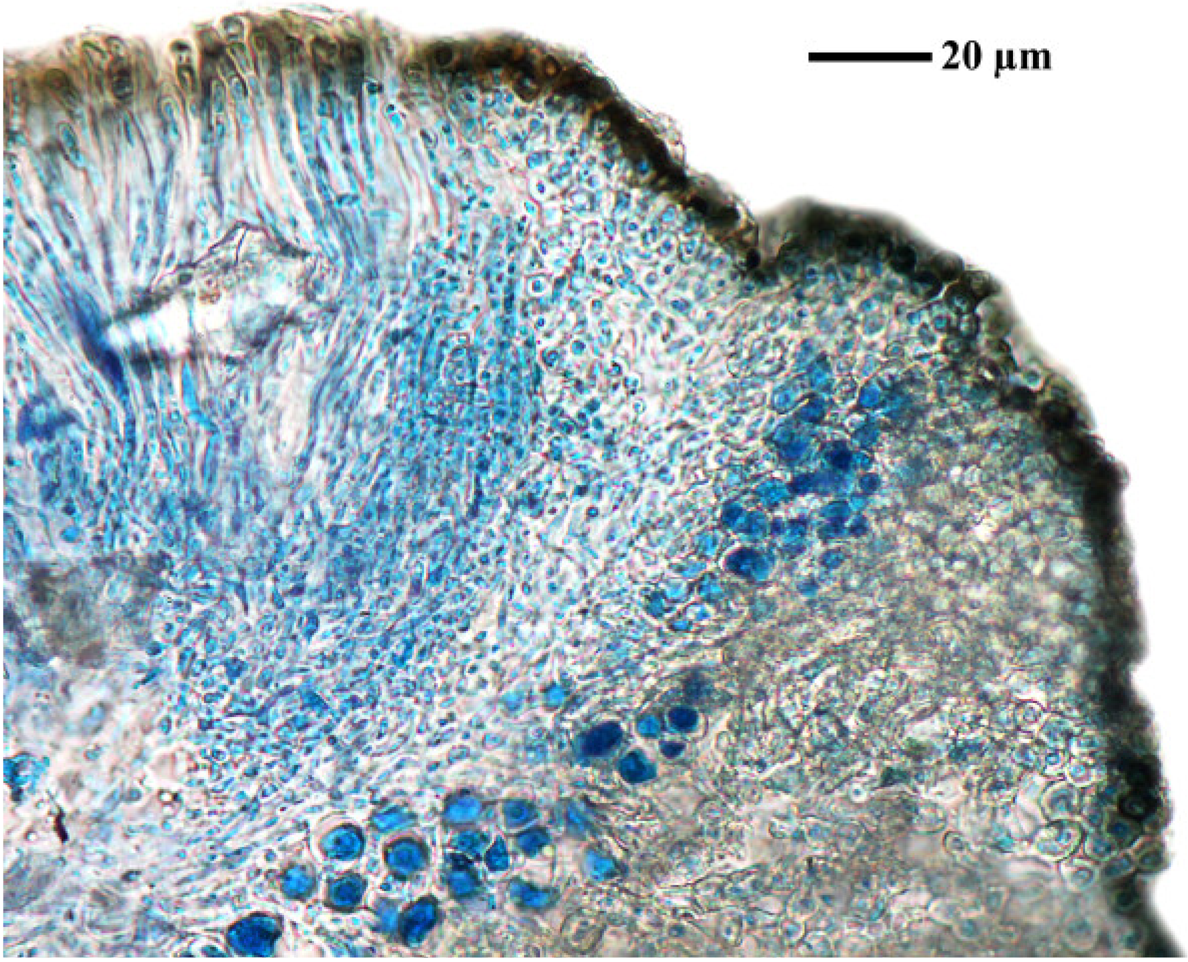
Caloplaca chrysophora



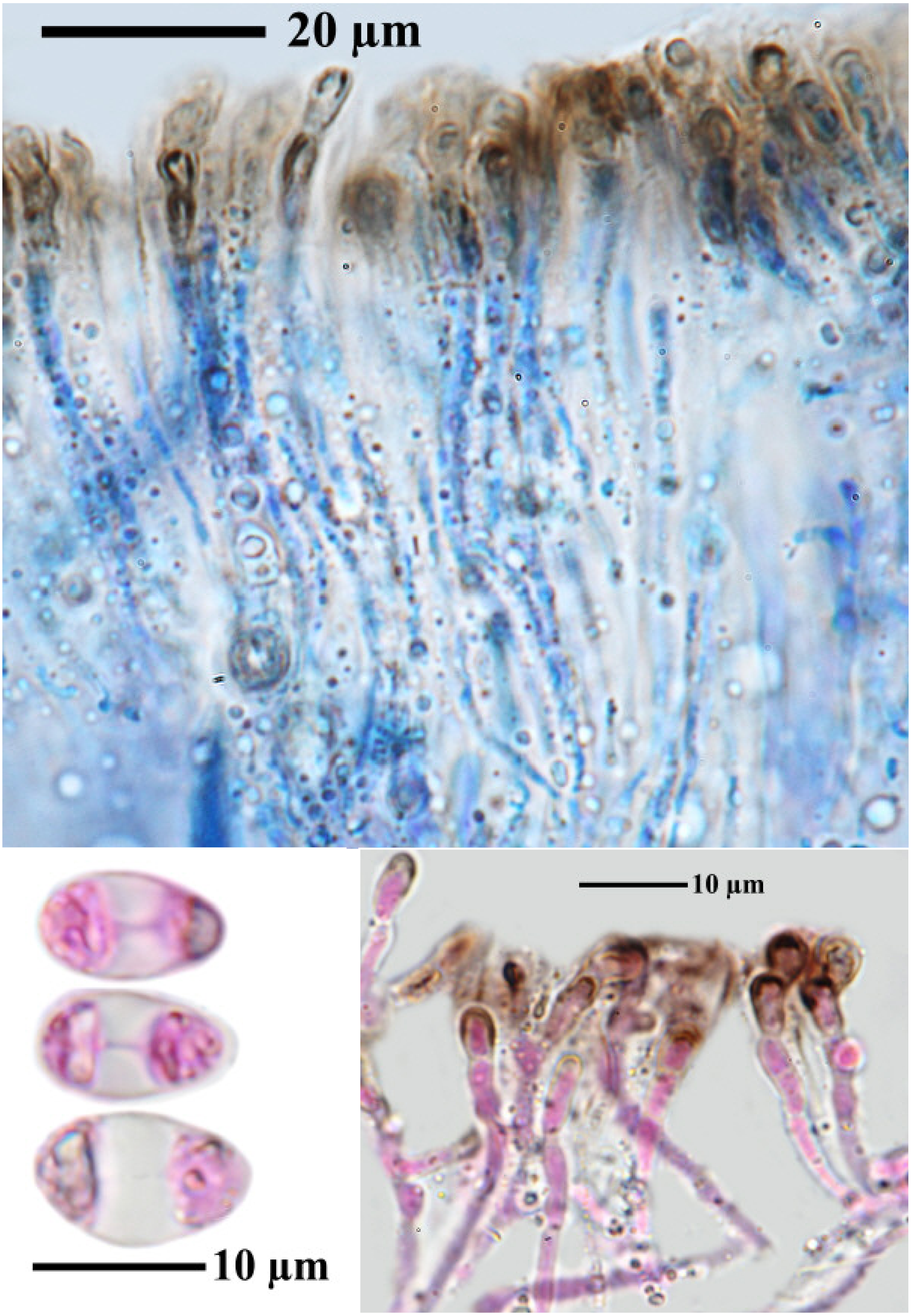


Caloplaca chrysophora





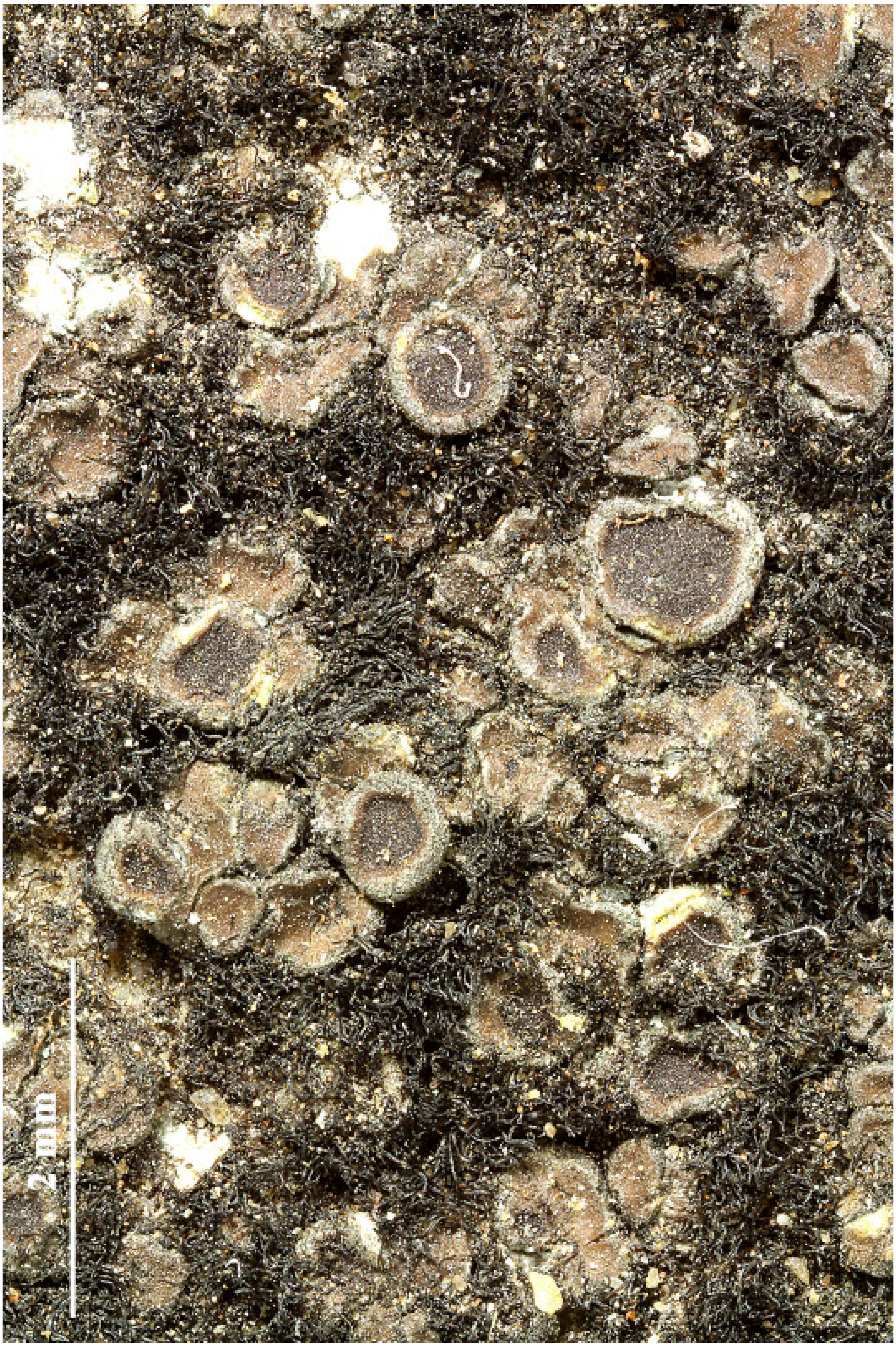
Caloplaca chrysophora

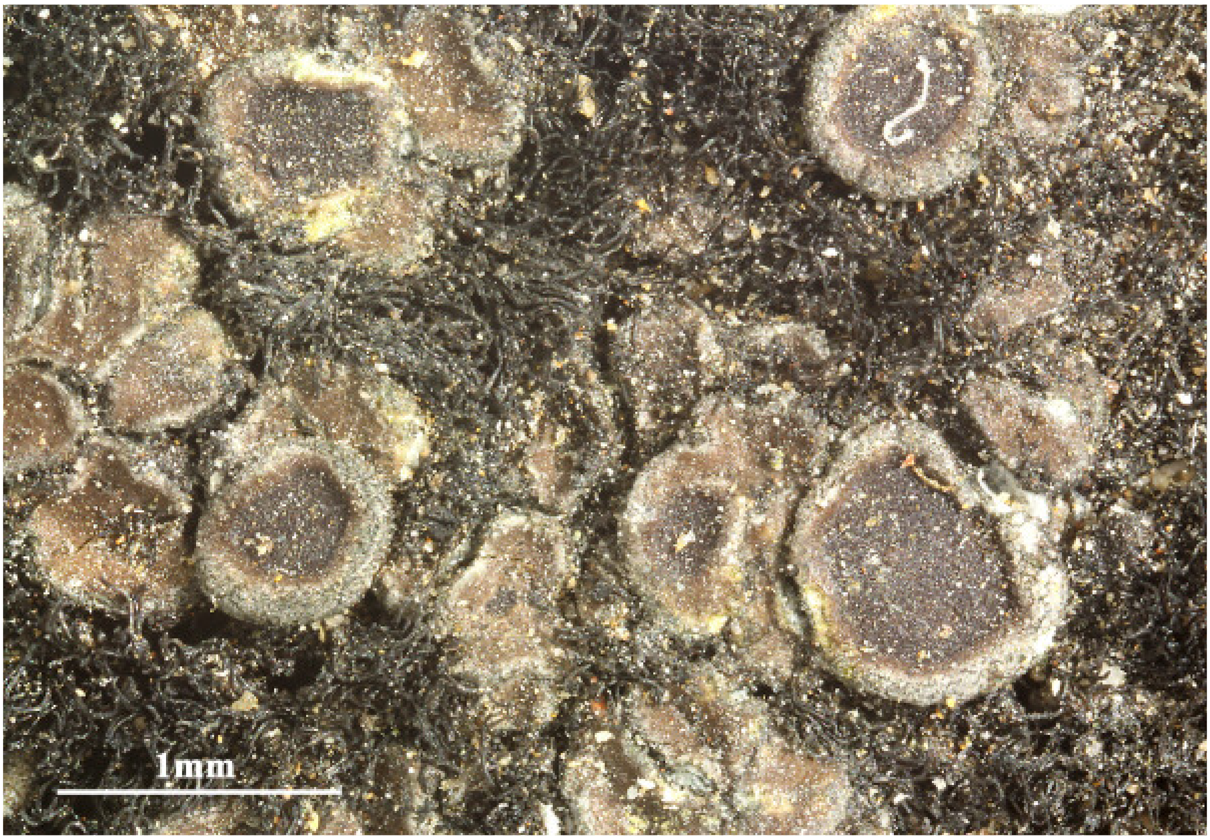


Caloplaca chrysophora

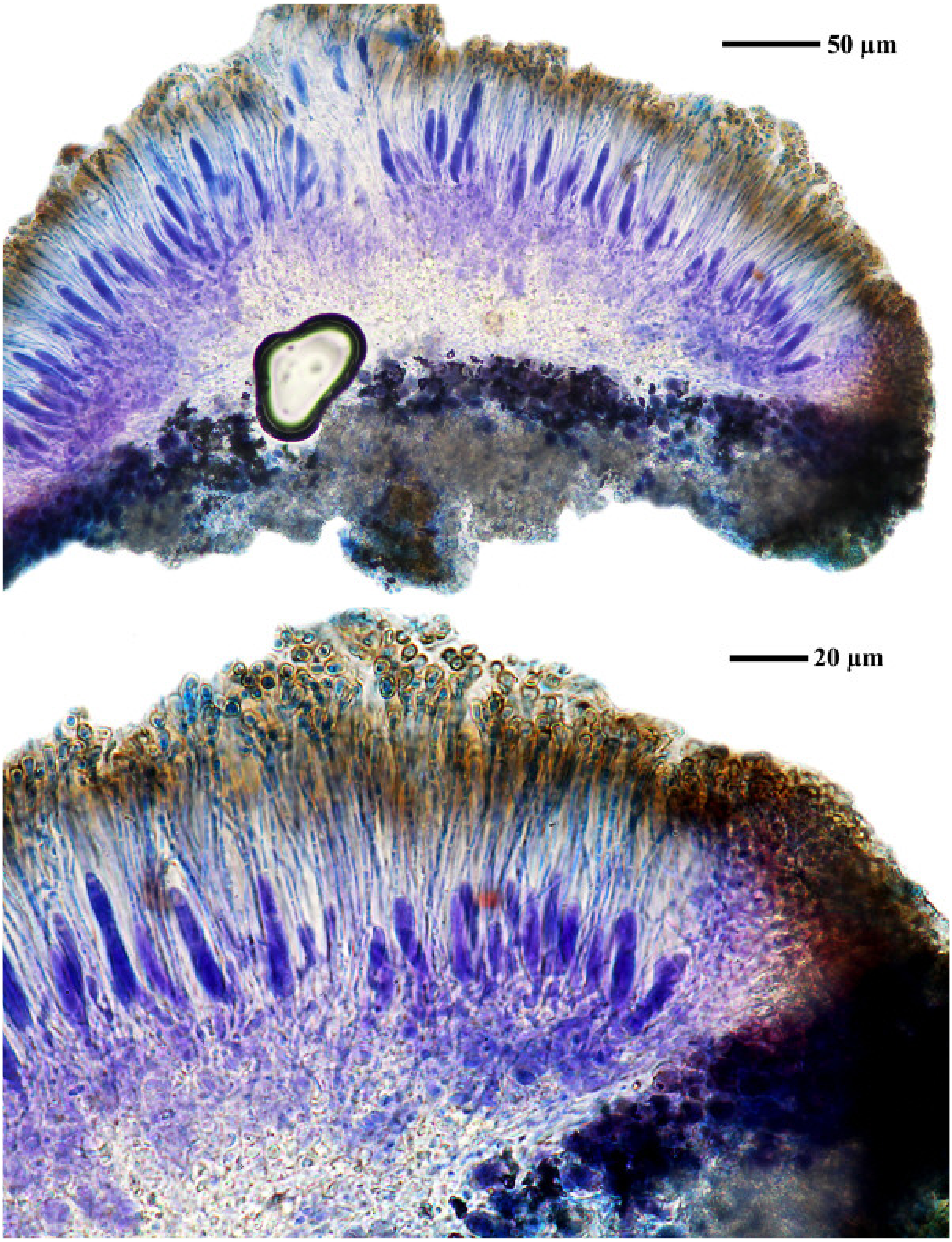
Caloplaca chrysophora Zahlbr.

[BR5030066920610], China, Yunnan Prov., Jianchuan Co., 75 km S of Lijiang, along ridge road in Mt. Shibaoshan Park, *Pinus yunnanensis* and sclerophyll shrubs among sandstone outcrops. 26°22'50" N, 99°49'47" E, 2500 m, on sandstone. Leg. A. Aptroot (55985), 19. October 2002, det. A. Aptroot 2003.

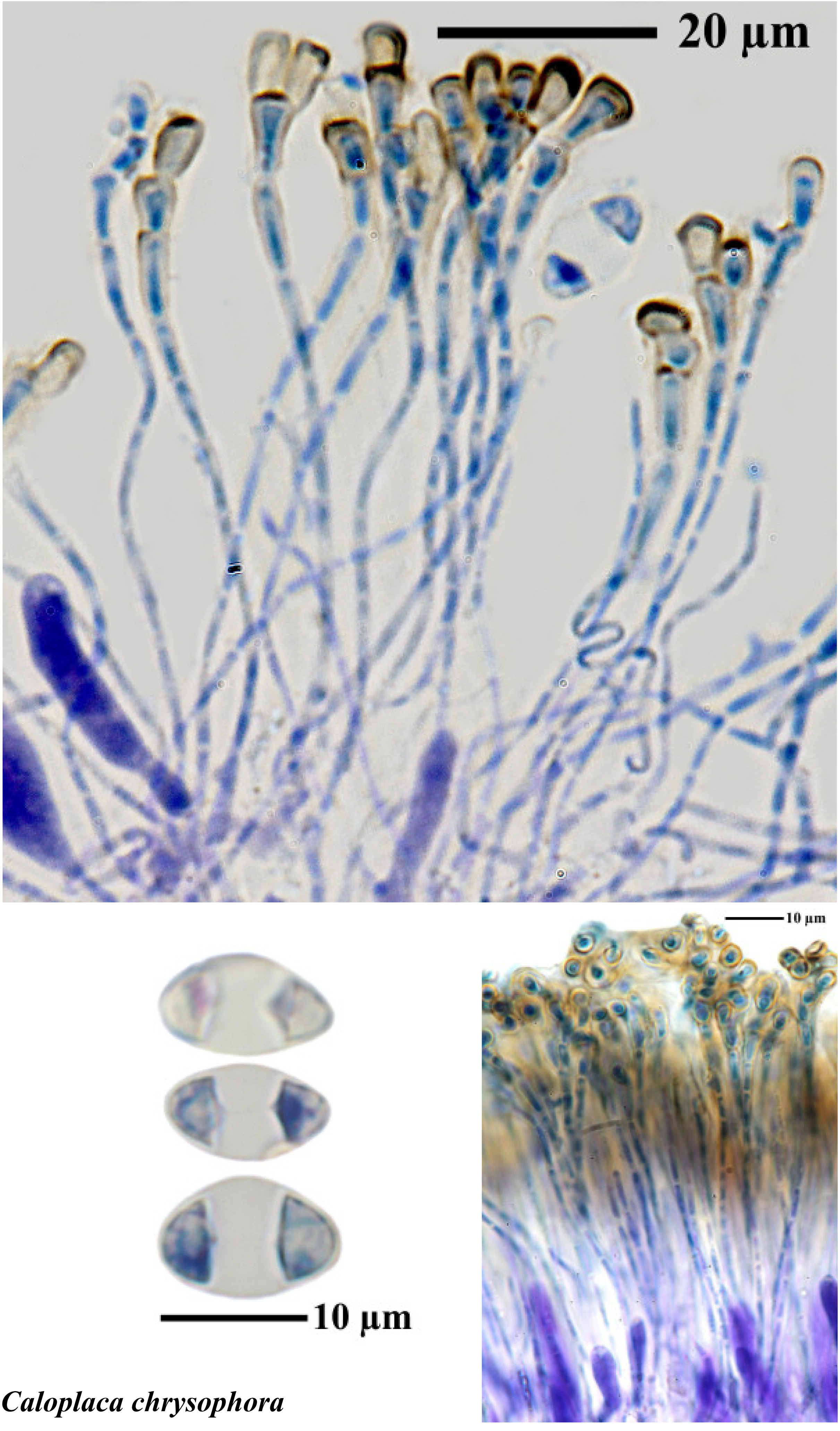




Caloplaca chrysophora



Caloplaca chrysophora

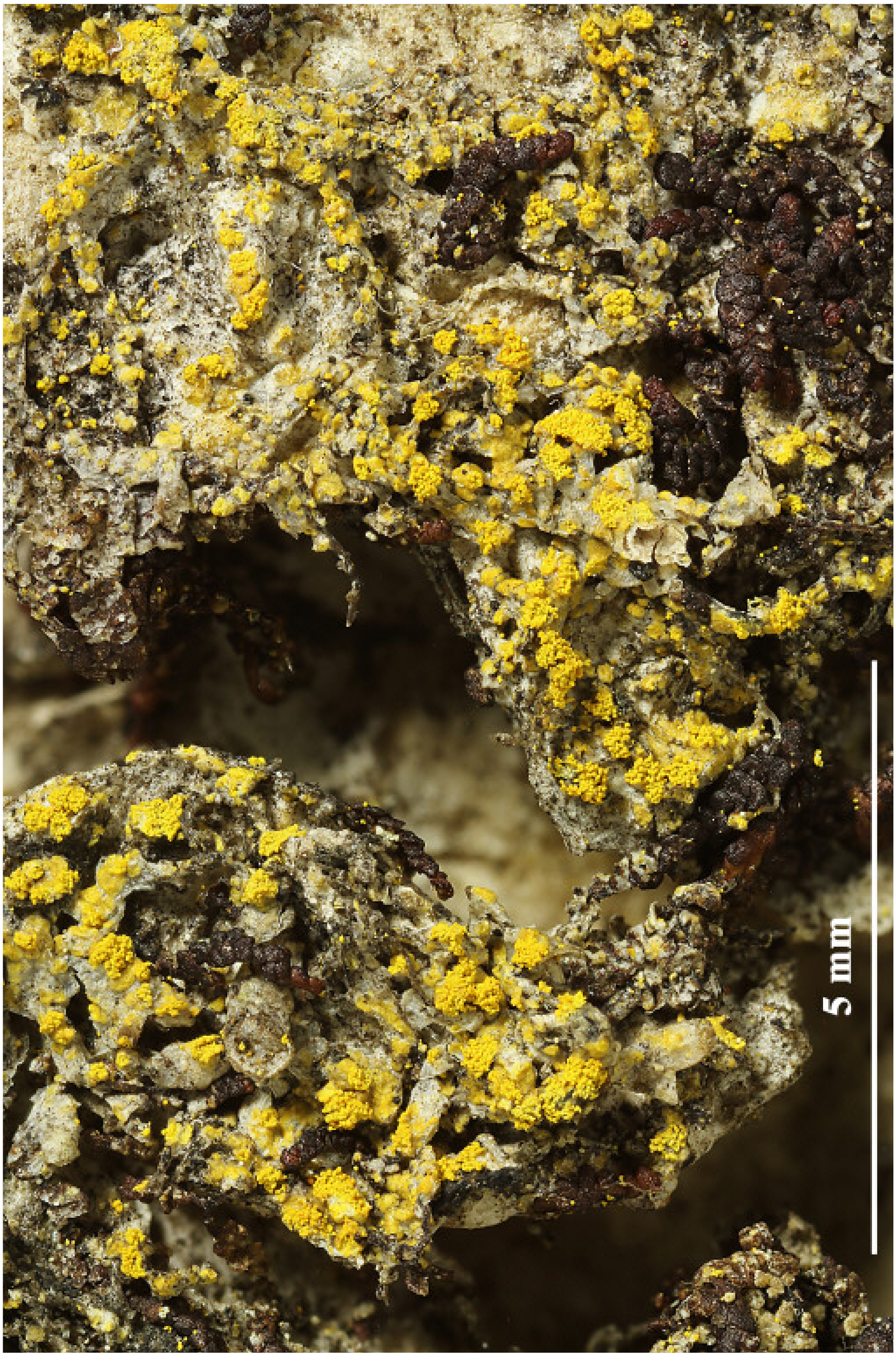


Caloplaca chrysophora

Caloplaca chrysophthalma Degel.
[= *Solitaria chrysophthalma* (Degel.) Arup, Søchting & Frödén]

On bark.

[16717], USA, Minnesota, Lake County, Superior National Forest, south of Little Isabella River Campground along highway 1, in ash bog with black ash and alder, Sec. 36, T60N, R9W. Leg. C. M. Wetmore (Nr. 64092), 17.09.1989.



Caloplaca chrysophthalma

Caloplaca cinnabarina (Ach.) Zahlbr., in Engler & Prantl, Nat. Pflanzenfam., Teil. I (Leipzig) 1(1*): 228 (1908)
[= *Brownliella cinnabarina* (Ach.) S.Y. Kondr., Kärnefelt, A. Thell, Elix, J. Kim, A.S. Kondr. & Hur, in Kondratyuk et al., Acta bot. hung. 55(3-4): 271 (2013)]

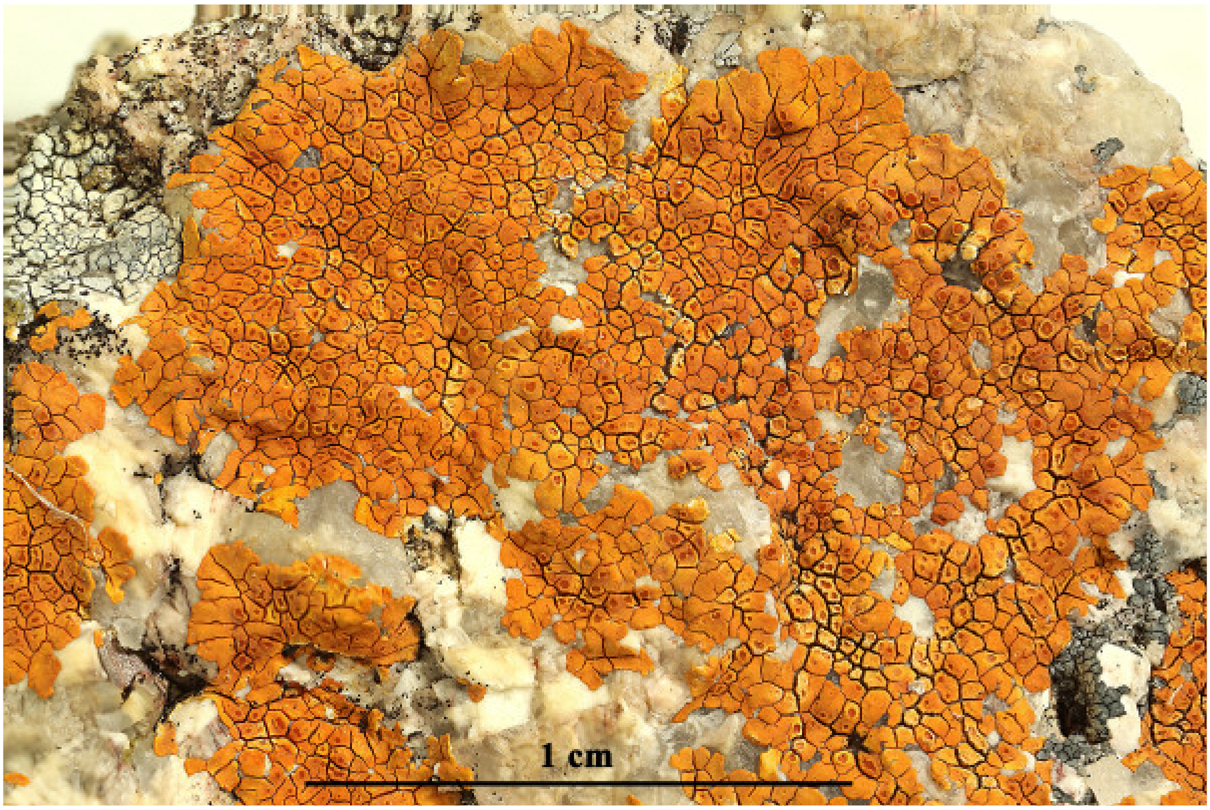
[19618], Sri Lanka, Kalupahana (Kal 59). On rocks. Leg. G. Weerakoon, 03.02.2011, det. A. Aptroot 2019.

Caloplaca cinnabarina

Caloplaca cinnabarina (Ach.) Zahlbr., in Engler & Prantl, Nat. Pflanzenfam., Teil. I (Leipzig) 1(1*): 228 (1908)
[= *Brownliella cinnabarina* (Ach.) S.Y. Kondr., Kärnefelt, A. Thell, Elix, J. Kim, A.S. Kondr. & Hur, in Kondratyuk et al., Acta bot. hung. 55(3-4): 271 (2013)]

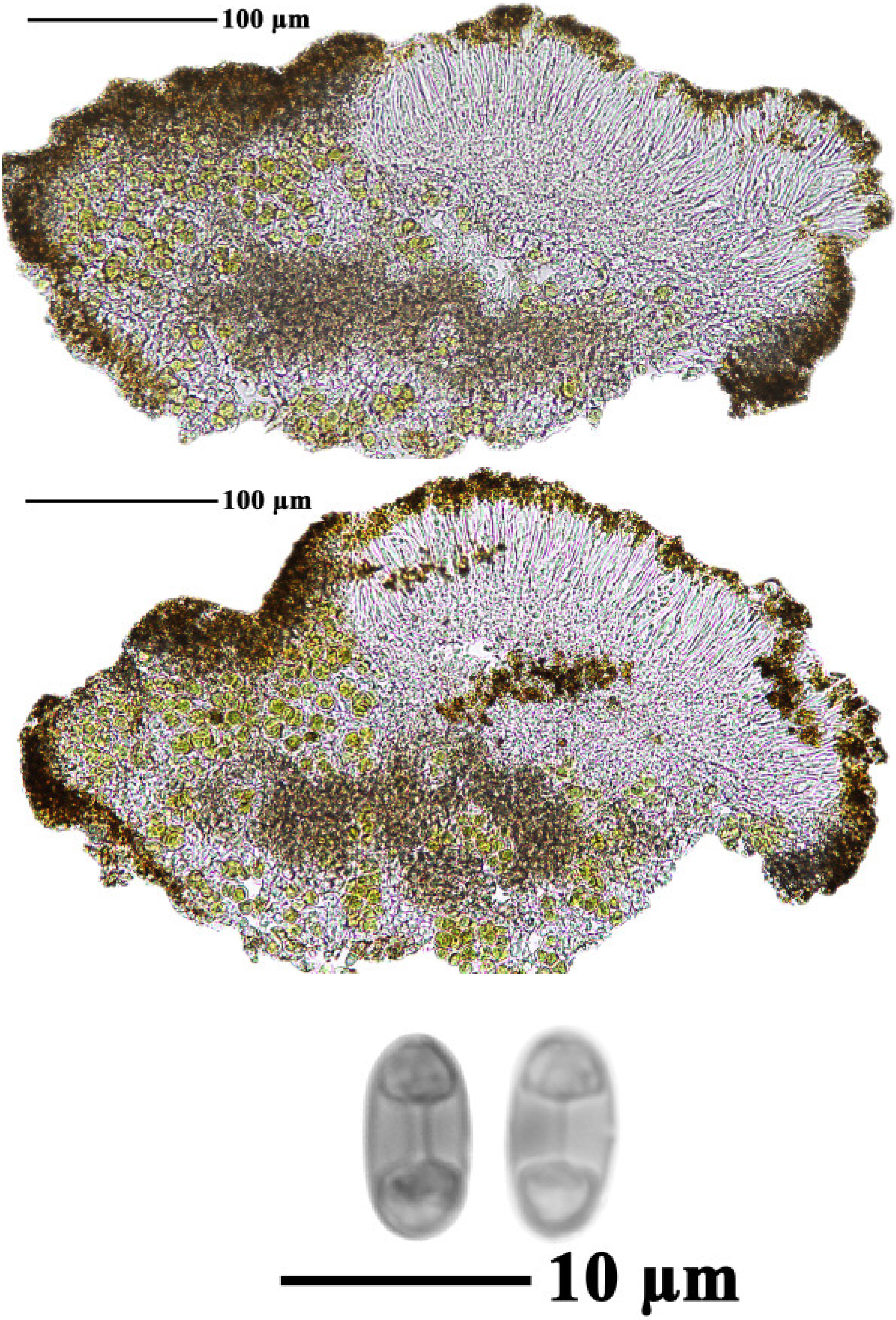
Thallus orange, at the margins not or only short appressed lobate, areolate, isidia and soralia absent. Apothecia first immersed (similar to *Acarospora*) then broadly sessile, disc darker orange than the thallus. Ascospores bipolar, hyaline, 8/ascus, 8-11 x 4 µm, septum 3 µm. Chemistry: parietin, fallacinal, emodin, teloschistin, parietinic acid.
Lit.: Wetmore, C.M. (2007): Caloplaca - in: Lichen Flora of the Greater Sonoran Desert Region, Vol. 3: 191.

[KK19232], Australia, Queensland, c. 20 km south of Townsville, growing on granitic rocks in a light *Eucalyptus* forest, 150 m, 21°20' S, 149°13' E. Leg. K. & A. Kalb, 21.08.1988, det. S.Y. Kondratyuk.

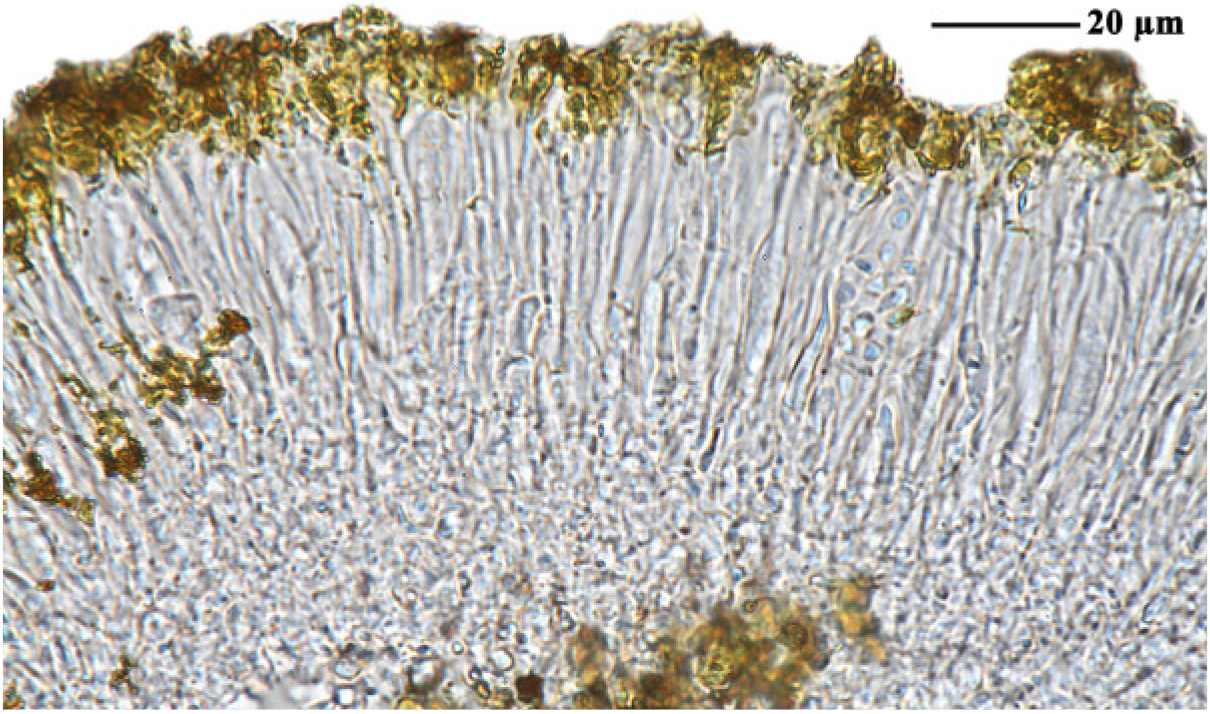


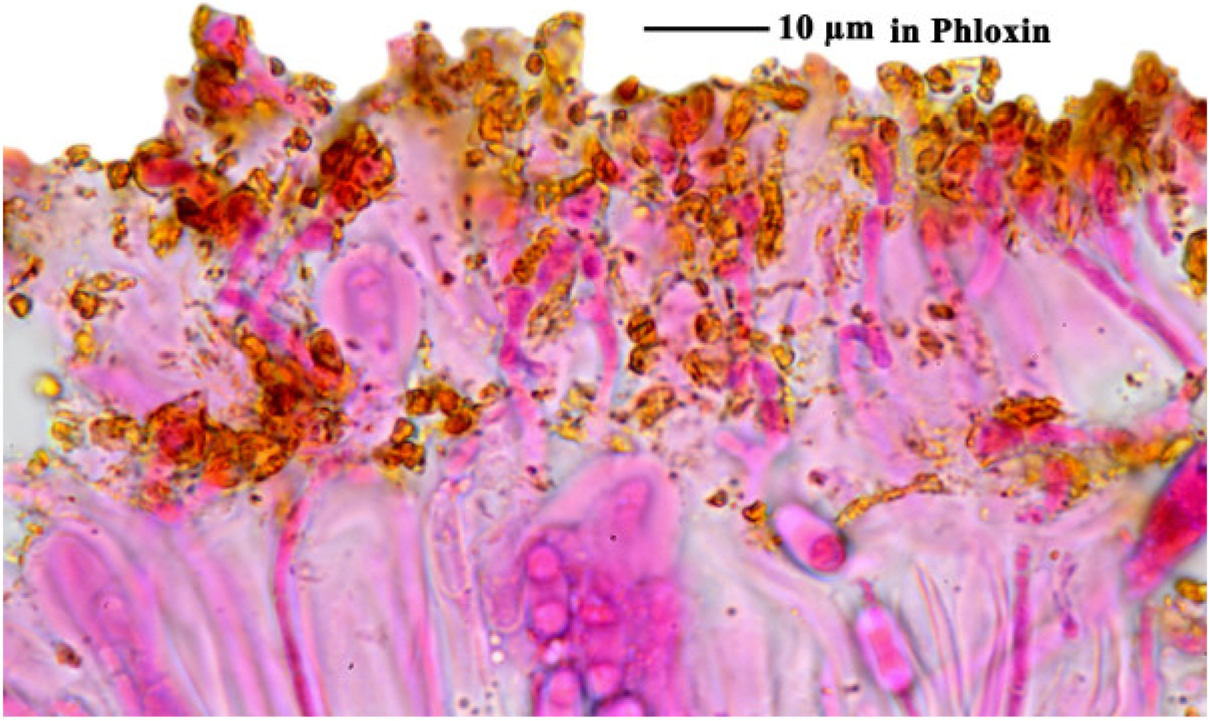
Caloplaca cinnabarina

Caloplaca cinnabarina

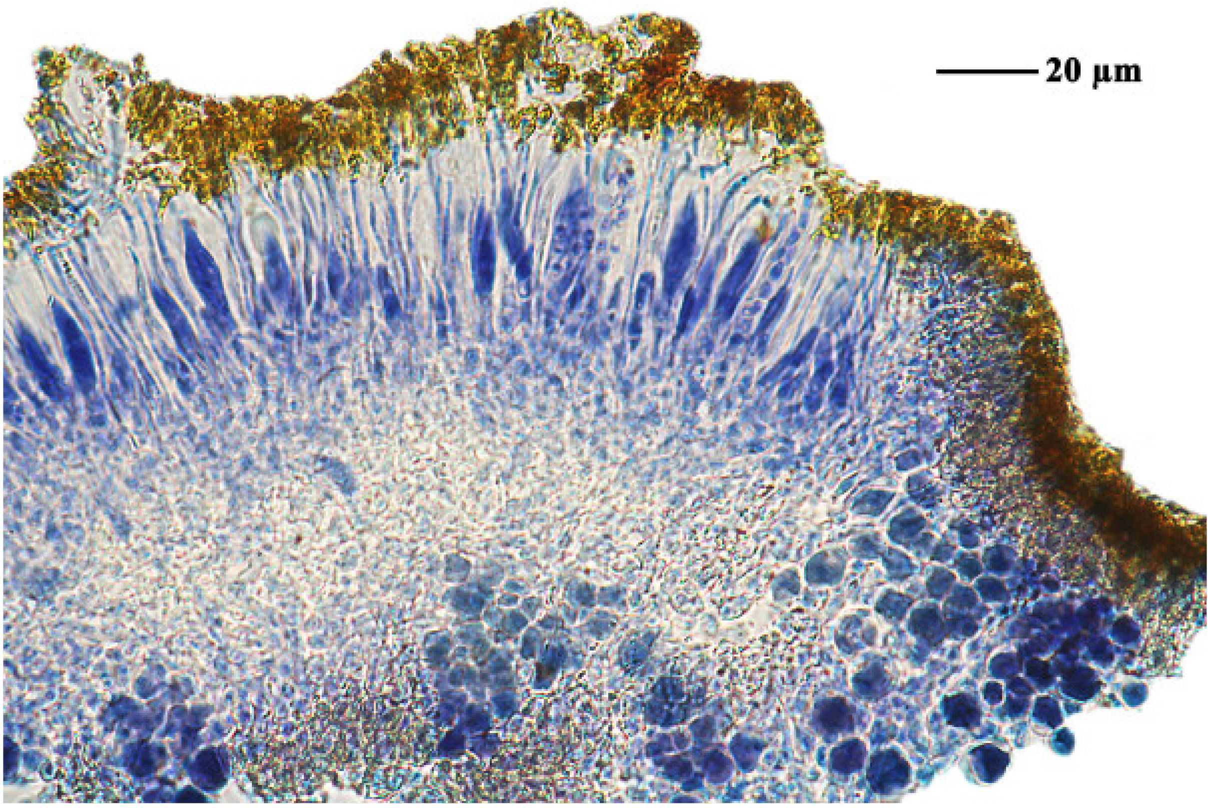


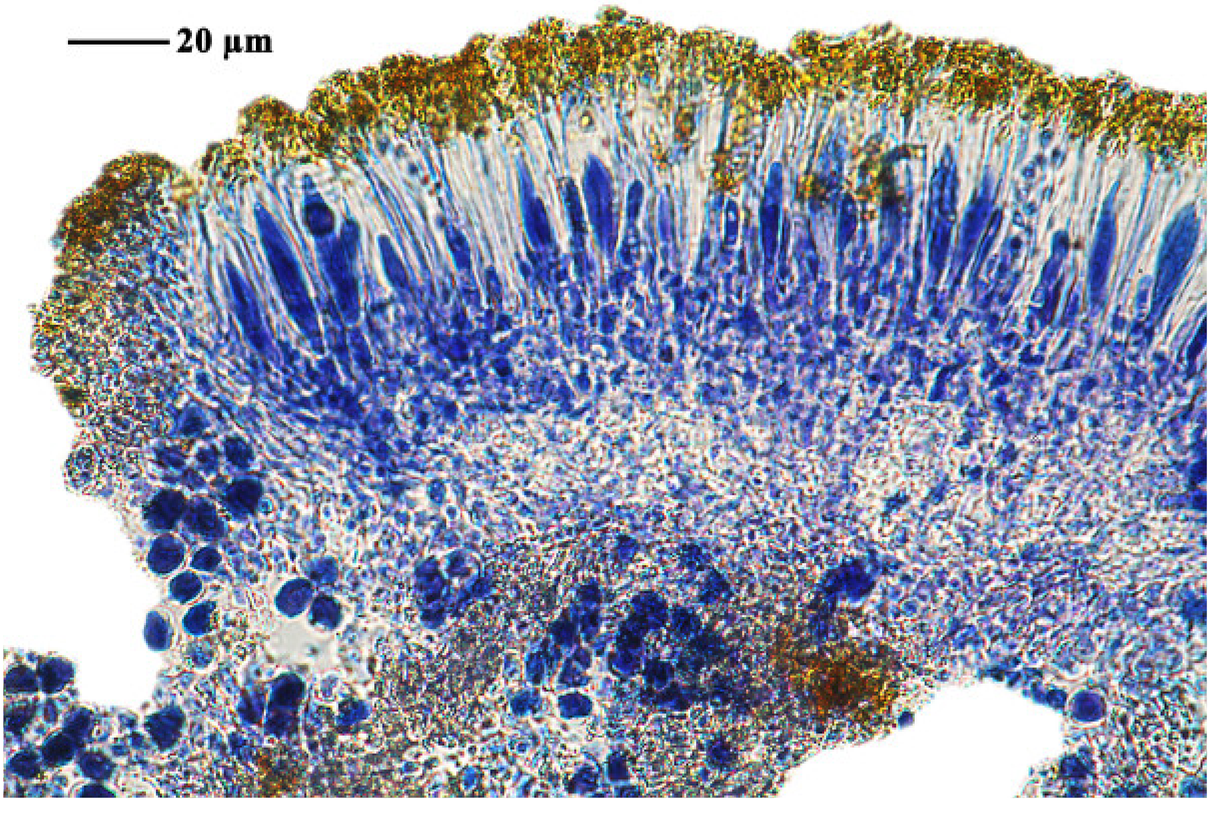
Caloplaca cinnabarina



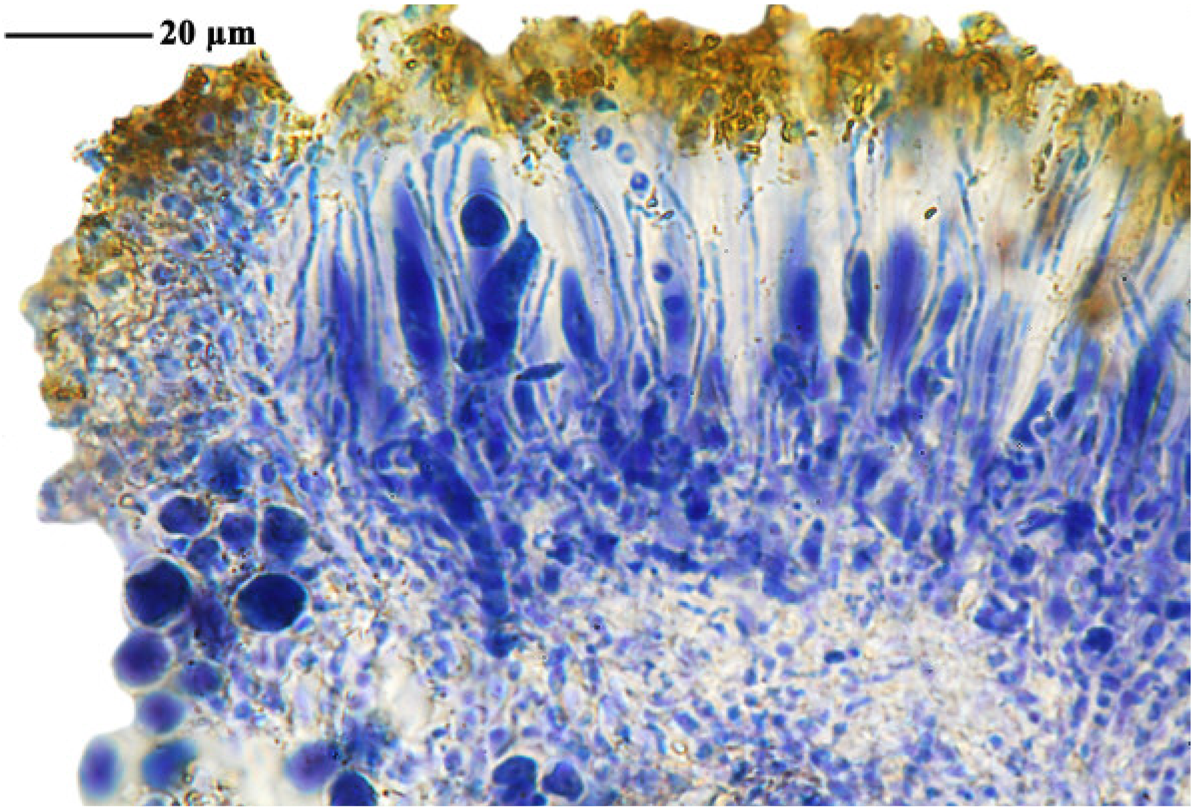


Caloplaca cinnabarina





Caloplaca cinnabarina

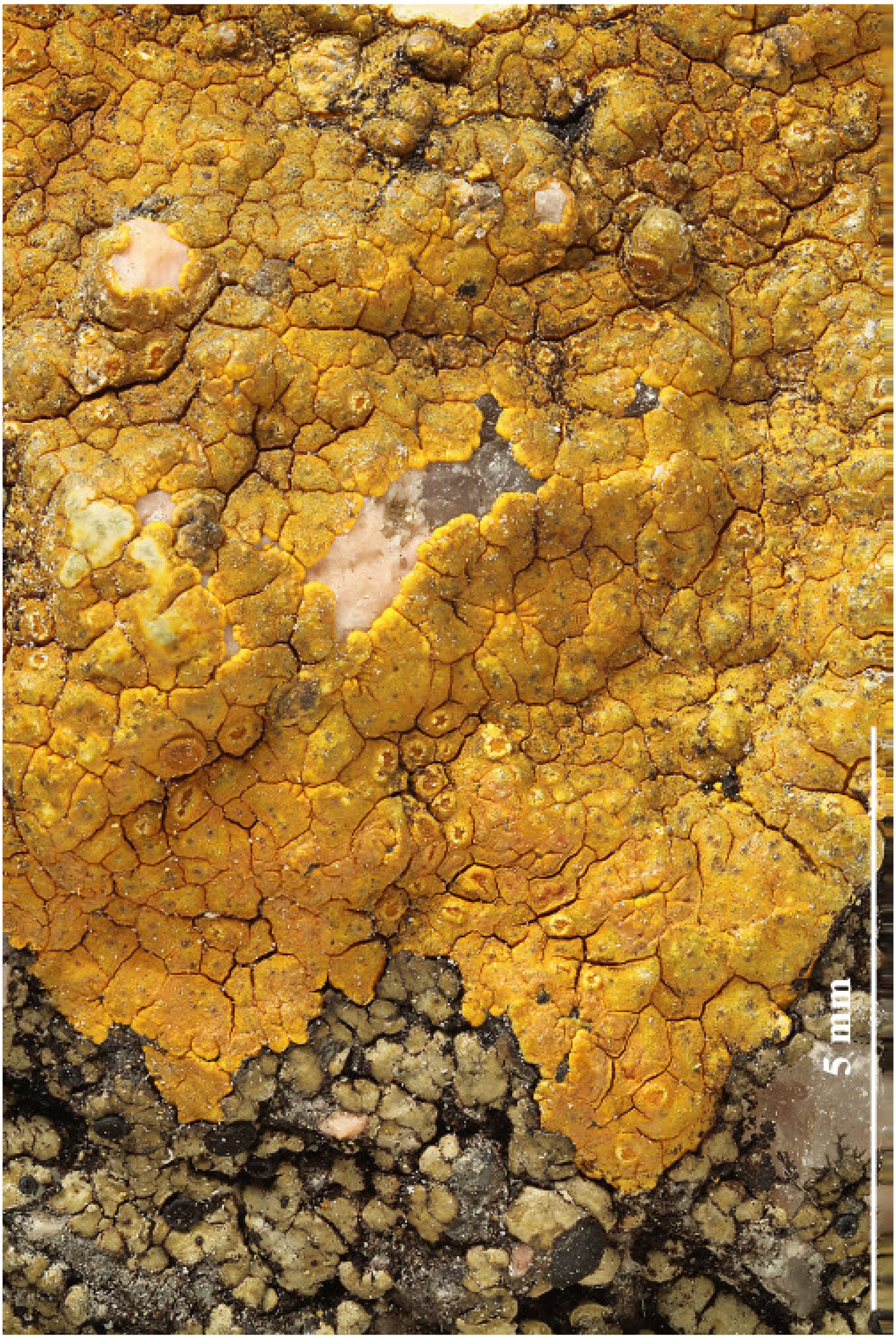


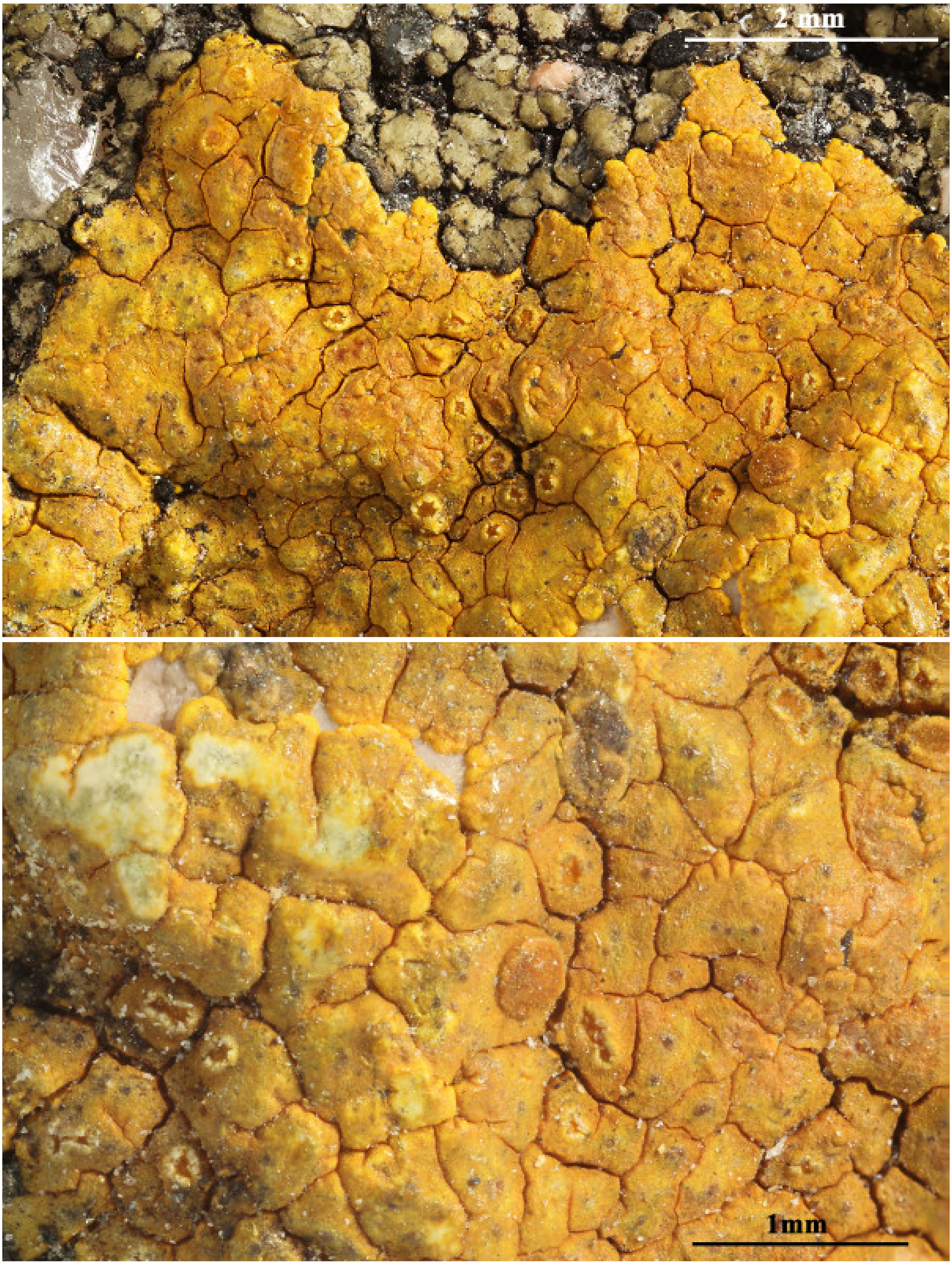
Caloplaca cinnabarina

Caloplaca cinnabarina (Ach.) Zahlbr., in Engler & Prantl, Nat. Pflanzenfam., Teil. I (Leipzig) 1(1*): 228 (1908)
[= *Brownliella cinnabarina* (Ach.) S.Y. Kondr., Kärnefelt, A. Thell, Elix, J. Kim, A.S. Kondr. & Hur, in Kondratyuk et al., Acta bot. hung. 55(3-4): 271 (2013)]

Spores 8-9 x 3.5-4.5 µm, septum c. 1.7-3.6 µm.

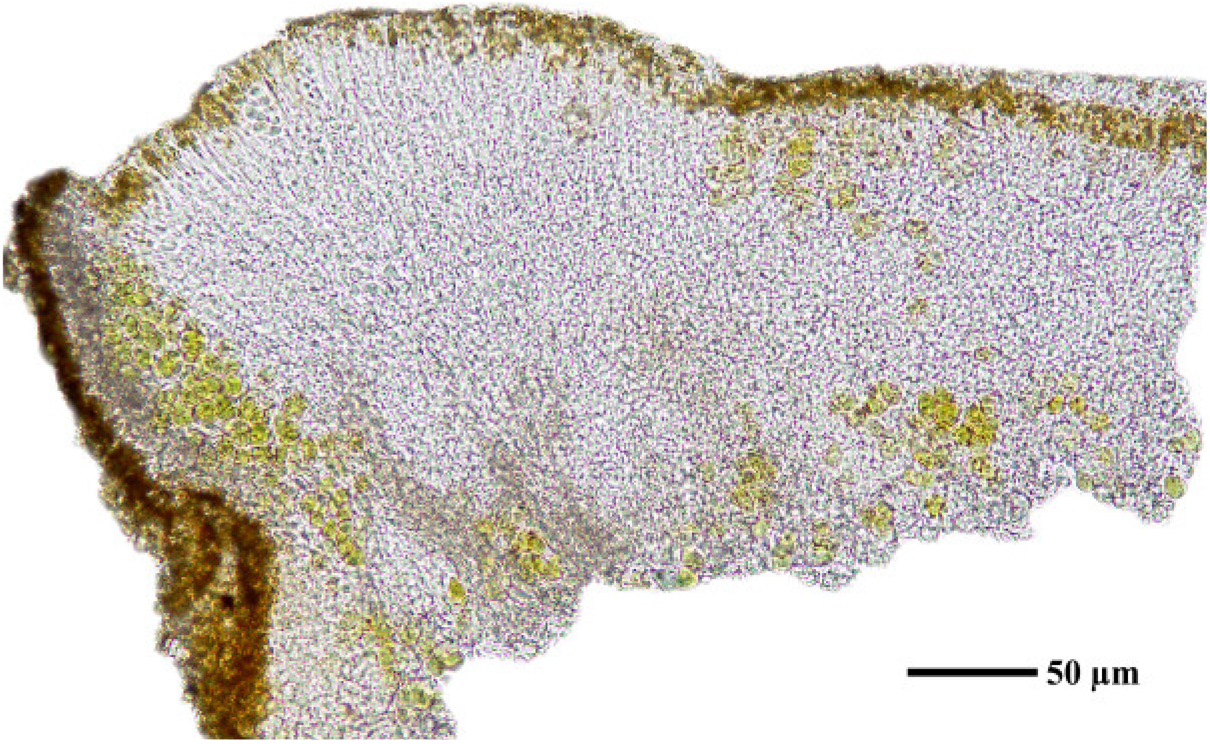
[BR50300673114462], Hong Kong Island, Shek O Beach, in coastal area on exposed granite, 1-50 m. Leg. A. Aptroot (43/45) June 1998, det. A. Aptroot 2019.

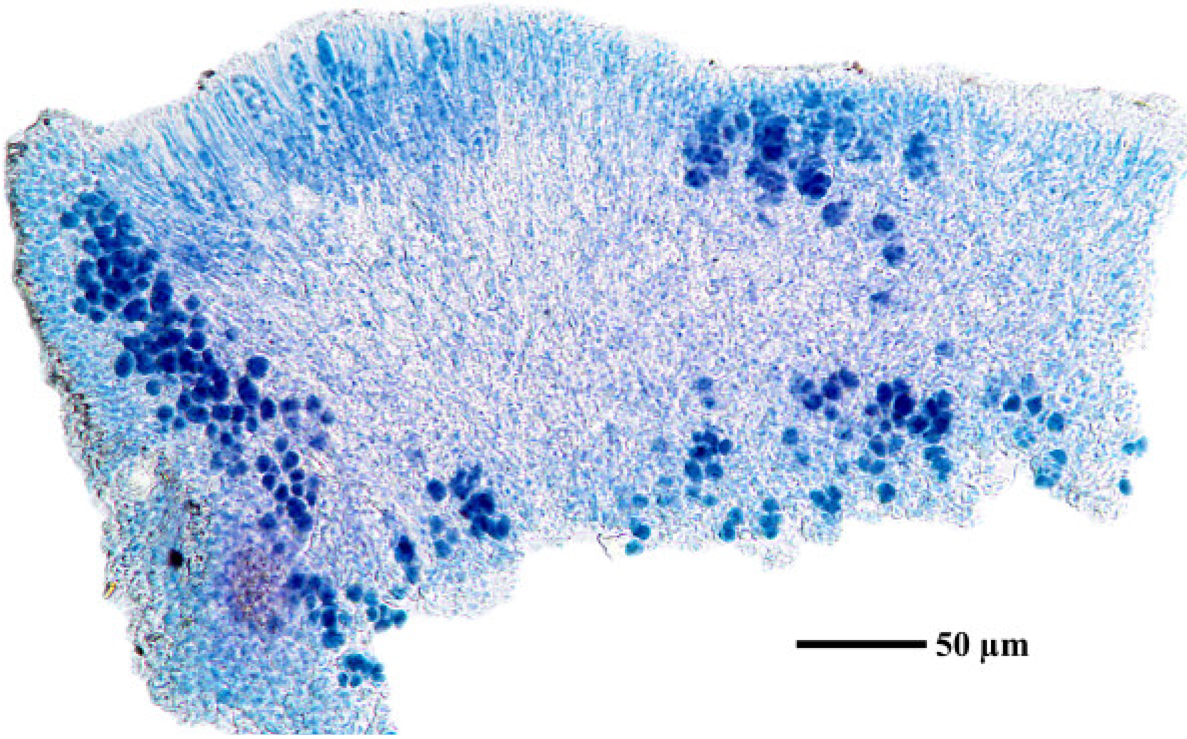




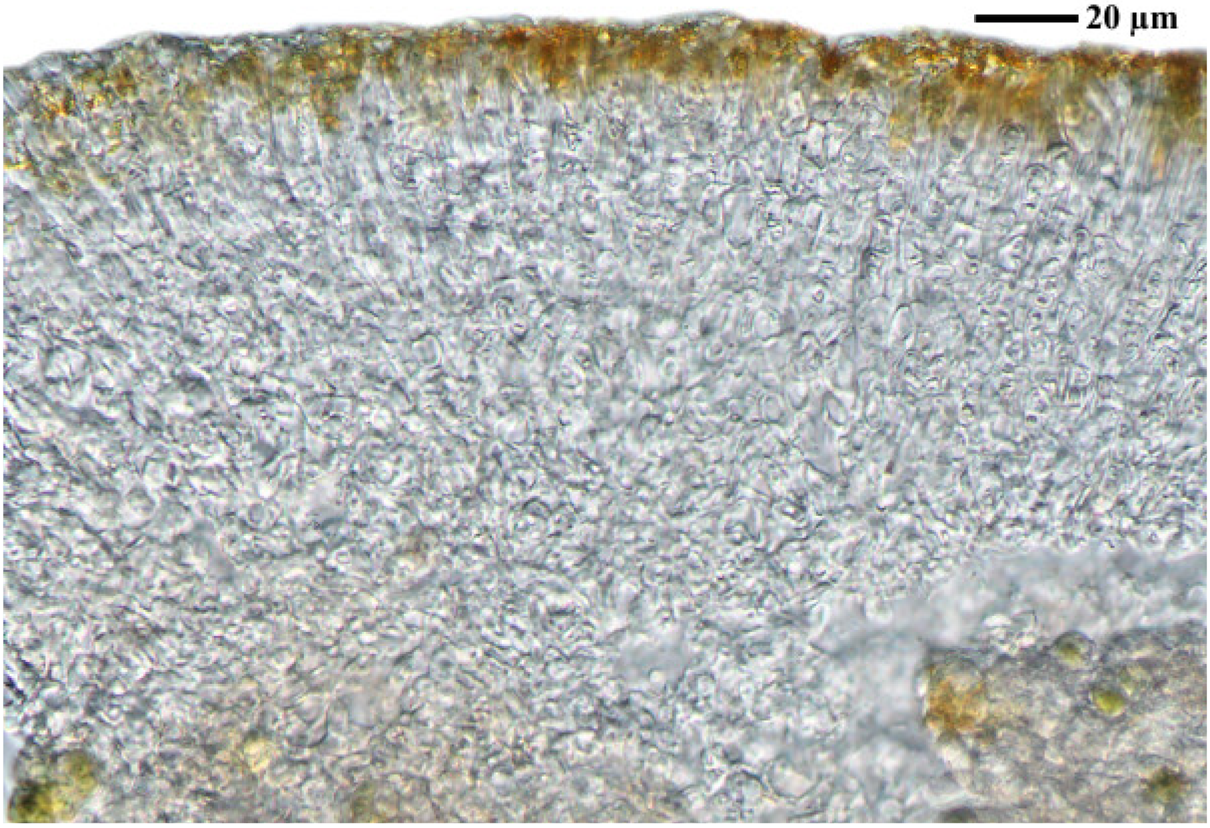
Caloplaca cinnabarina

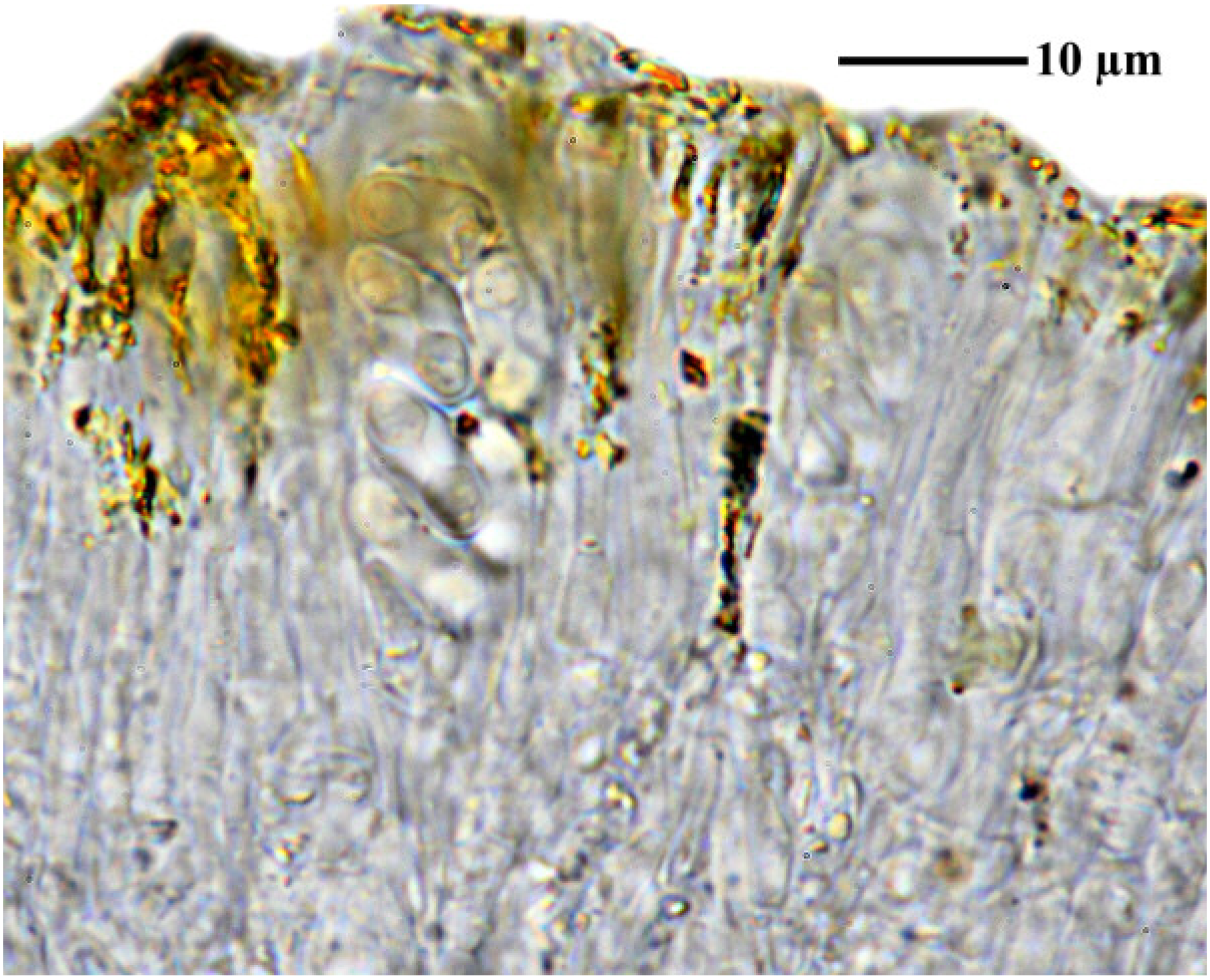
Caloplaca cinnabarina



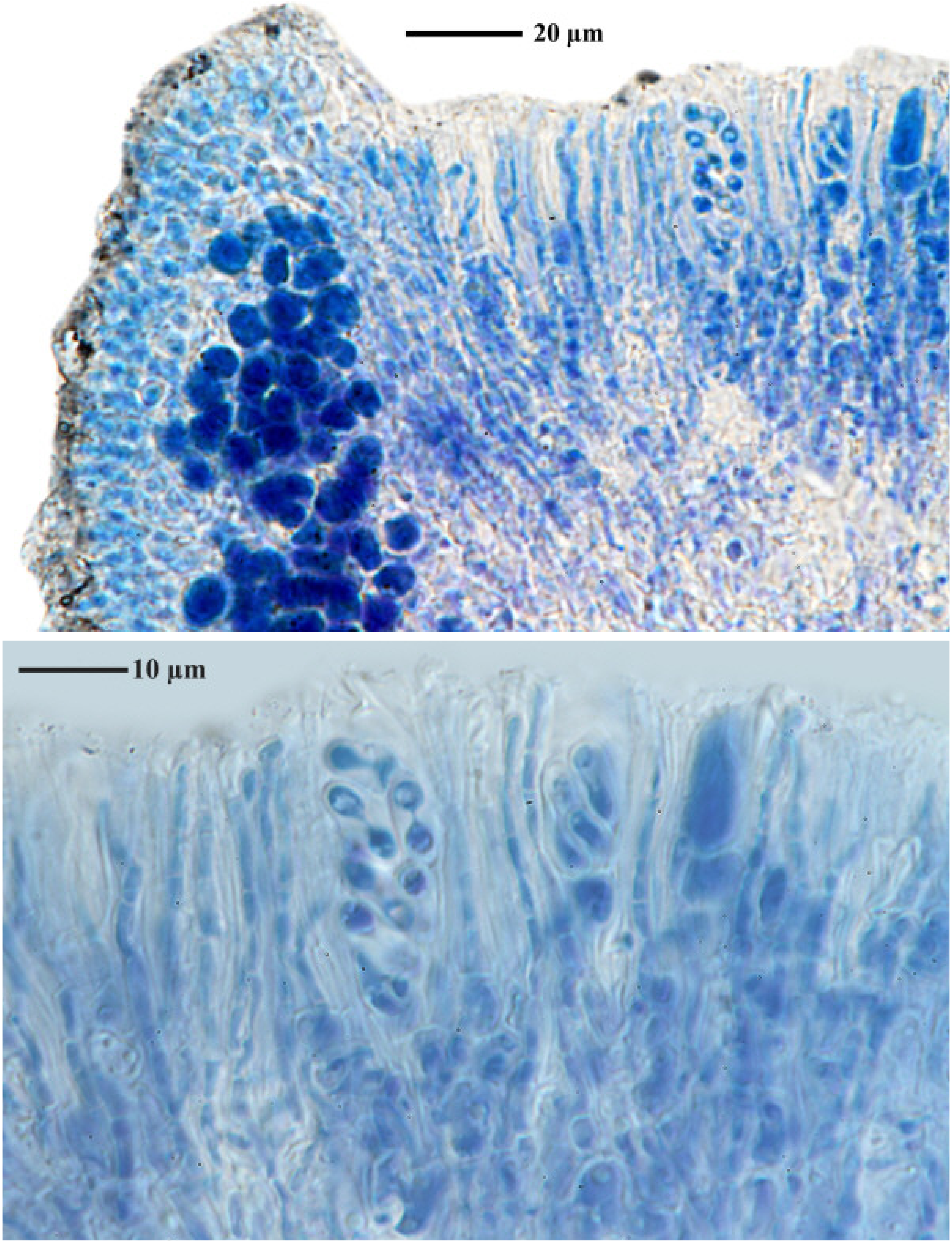


Caloplaca cinnabarina

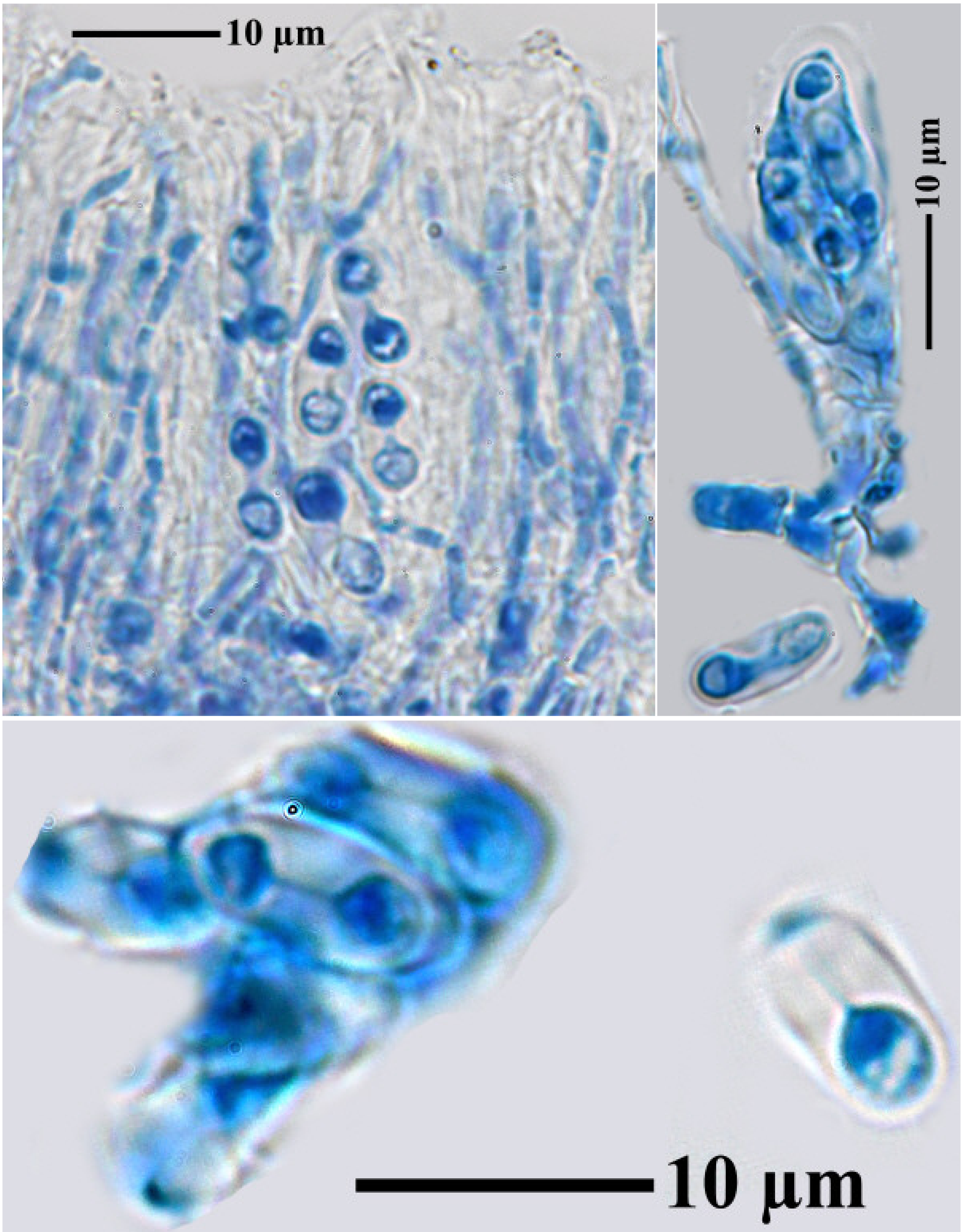




Caloplaca cinnabarina



Caloplaca cinnabarina



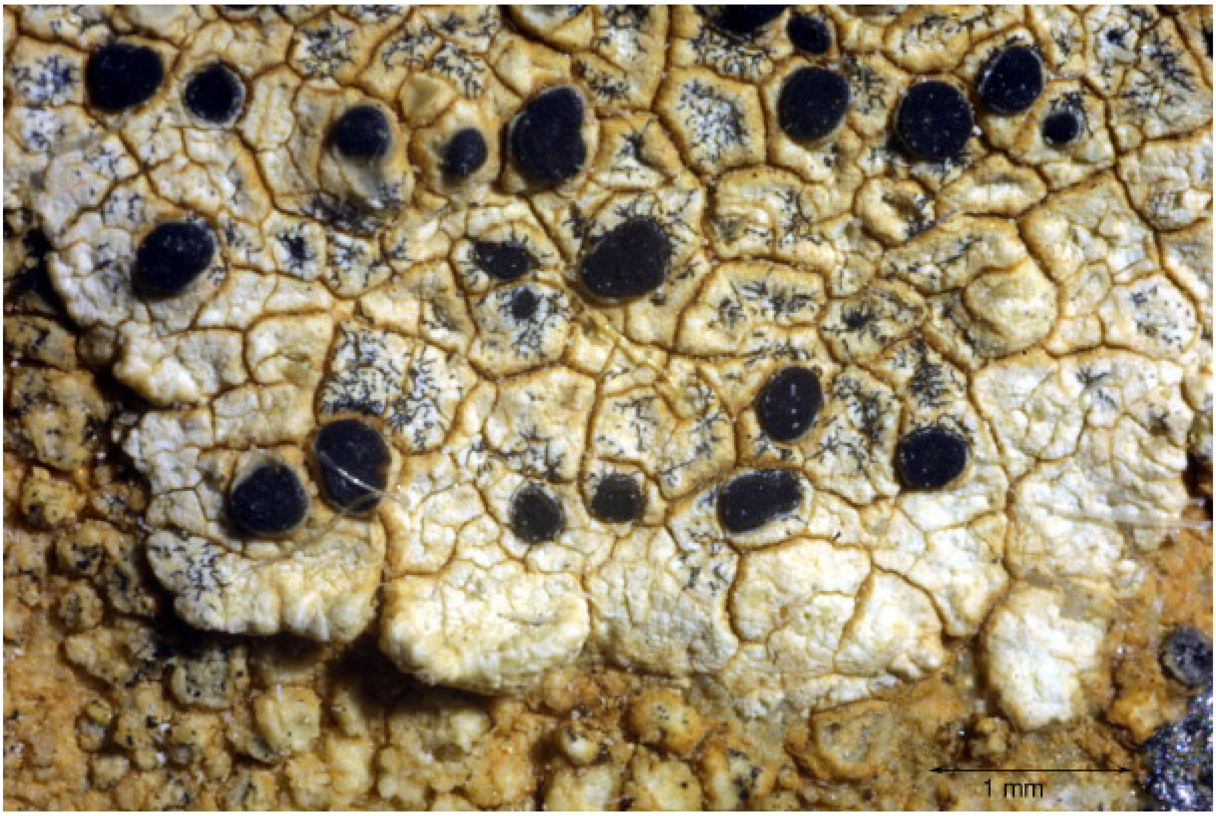
Caloplaca cinnabarina

Caloplaca circumalbata (Müll.Arg.) Wunder

On calcareous stones.

Thallus reinweiß bis schmutzigweiß, ziemlich dick (bis 1 mm), rissig bis areoliert, randlich schwach gelappt, oft geschädigt; Prothallus nicht erkennbar. Apothecien 0,1-0,7 mm, meist in die Areolen eingesenkt; Scheiben flach, schwarz jedoch meist weiß bereift, mit feinem schwarzem Eigenrand, der von thallusfarbenem Lagerrand umgeben ist; Epithecium 5-15 µm, lila-graulich, braun oder grau, K+ rötlich lila; Hymenium 75-130 µm; Hypothecium 60-110 µm, hyalin. Sporen polar-2-zellig, ellipsoidisch, 9-14-24 x 5-8-12 µm, Septum 2-4-6 µm. Chemie: unbekannt. Thallus K-, C-, KC-, P- (um die Pyknidien K+ lila). Saxicol, auf Kalkfelsen, xerotherm; Verbreitungsschwerpunkt Nordafrika. Bem.: Von *Caloplaca chalybaea* und *Caloplaca variabilis* vor allem durch den weißen und dicken Thallus verschieden.

[2175], Tunesien, Chenínin, Wüstenvegetation, auf Kalksteinen, ca. 460 m, zusammen mit Rinodina miocenensis. Leg. Schumm 21.03.1973, det. H. Mayrhofer, Graz 1979.



Caloplaca circumalbata (Müll.Arg.) Wunder

On calcareous stones. Spores 12 x 8 µm,

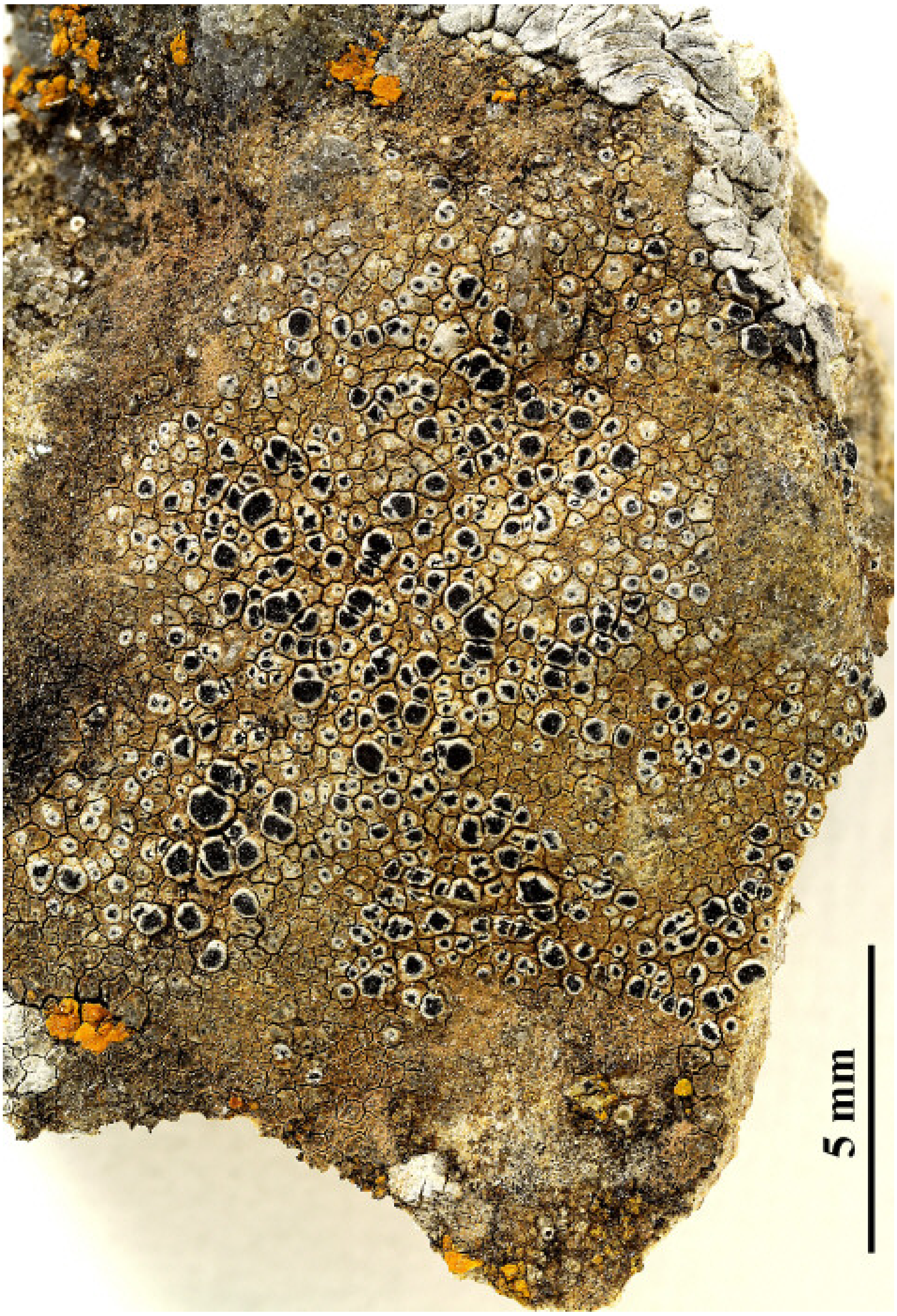
[2179], Tunesien, Cheninin, auf trockenen sonnigen Steinblöcken von ca. 50-100 cm Durchmesser auf einem NW-Hang, ca. 430 m. Leg. F. Schumm 21.03.1973, det. F. Schumm 1973

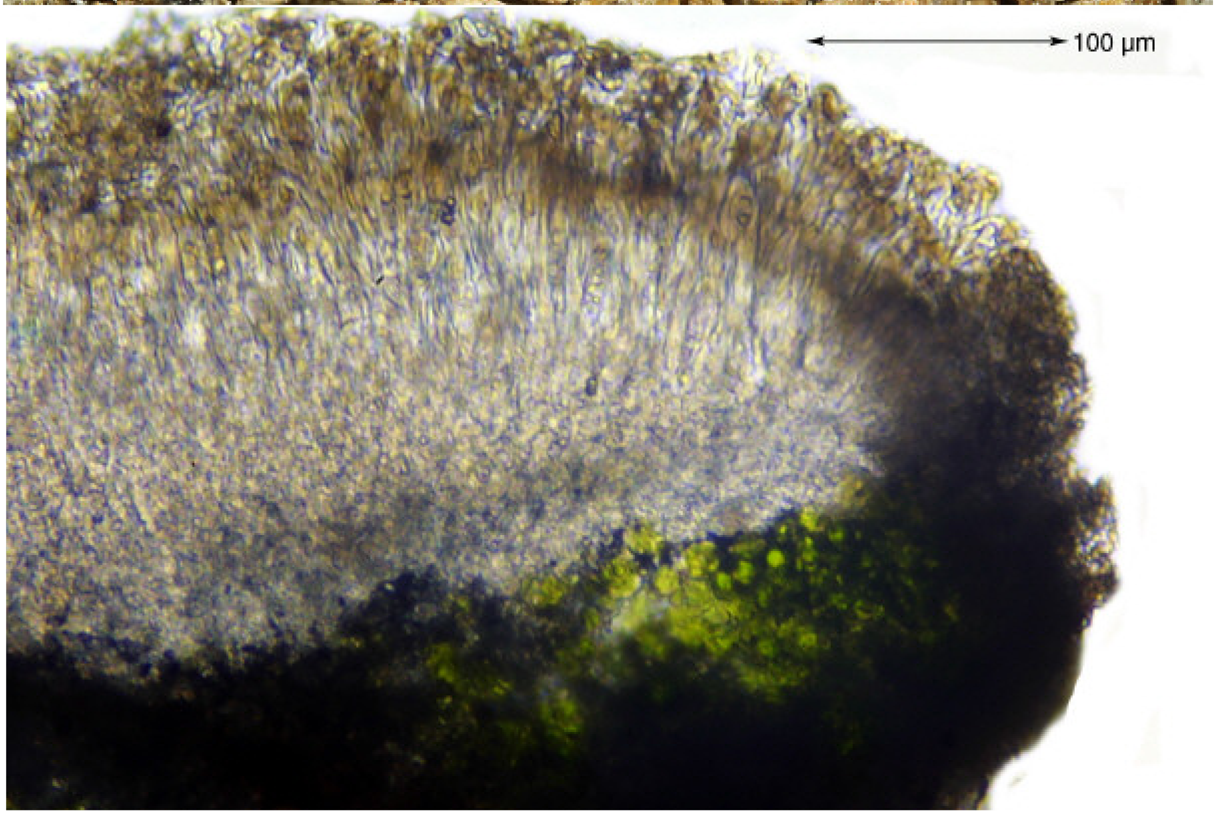
Caloplaca circumalbata

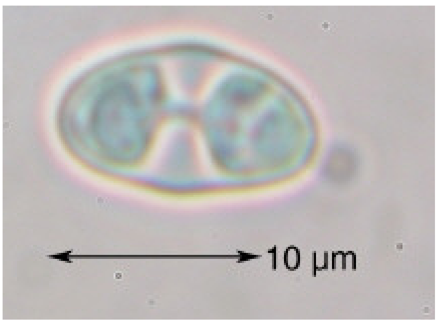
Caloplaca circumalbata (Müll.Arg.) Wunder

Thallus reinweiß bis ockerfarben bis0,1-0,3 mm hoch, areoliert. Isidien fehlen. Sorale fehlen. Apothecien aufsitzend oder etwas eingesenkt, weiß berandet, 0,2-0,7 mm; Scheiben flach, schwarz, manchmal bereift; Epithecium 5-15 µm, K+ violett. Sporen polar-2-zellig, ellipsoidisch, 9-*14*-24 x 5-*8*-12 µm, Septum 2-6 µm. Chemie: Th.: K-, C-, KC-, P-. Saxicol, auf Kalksteinen und Mauern.

[12287], Griechenland, N-Samos, bei Manolates südlich von Agios Konstandinos, 37°47.185'N, 26°49.533'E, 341 m; halbschattige bis besonnte Terrassenmauern. Leg. Schumm, 02.05.2006, det Schumm 2006.





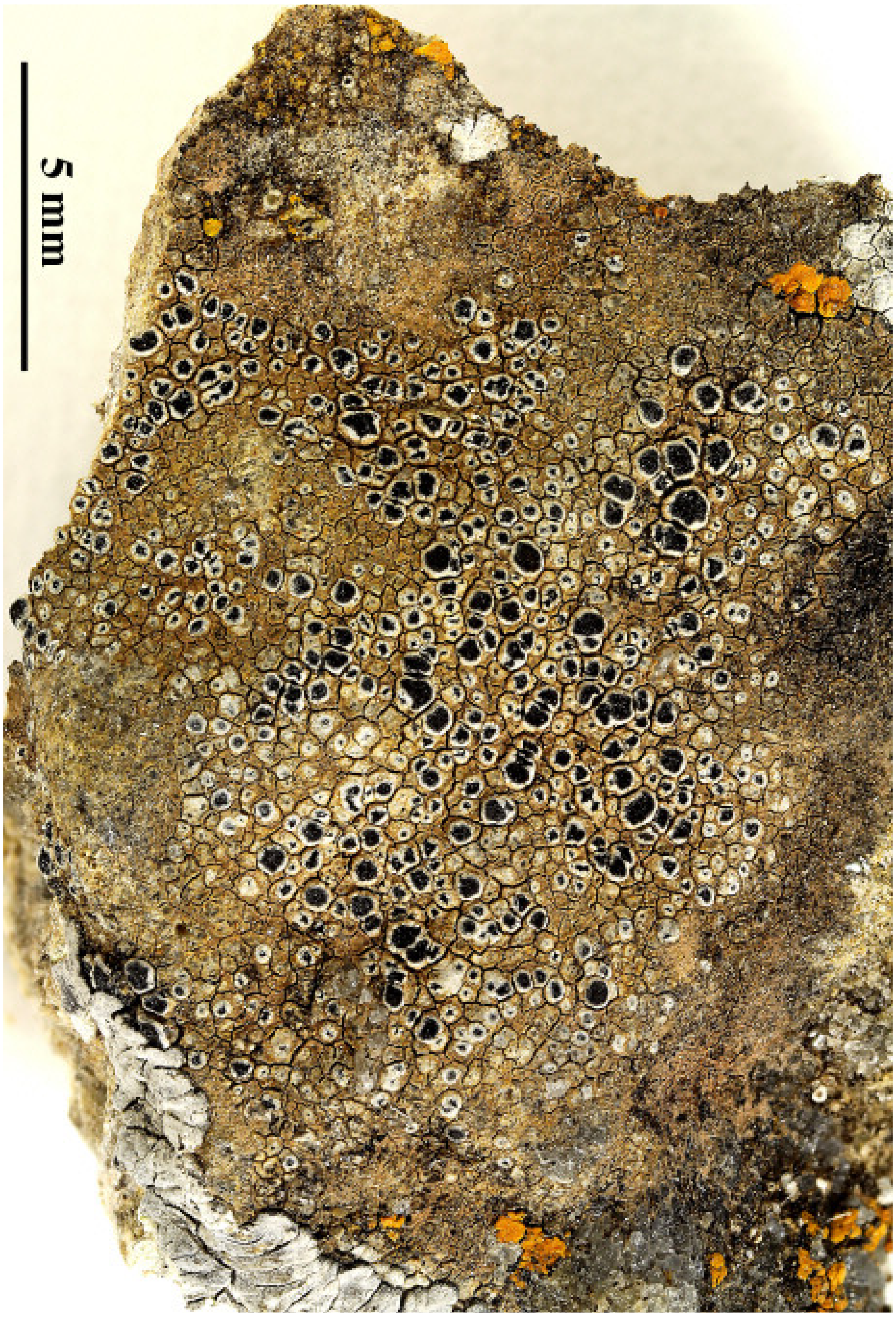


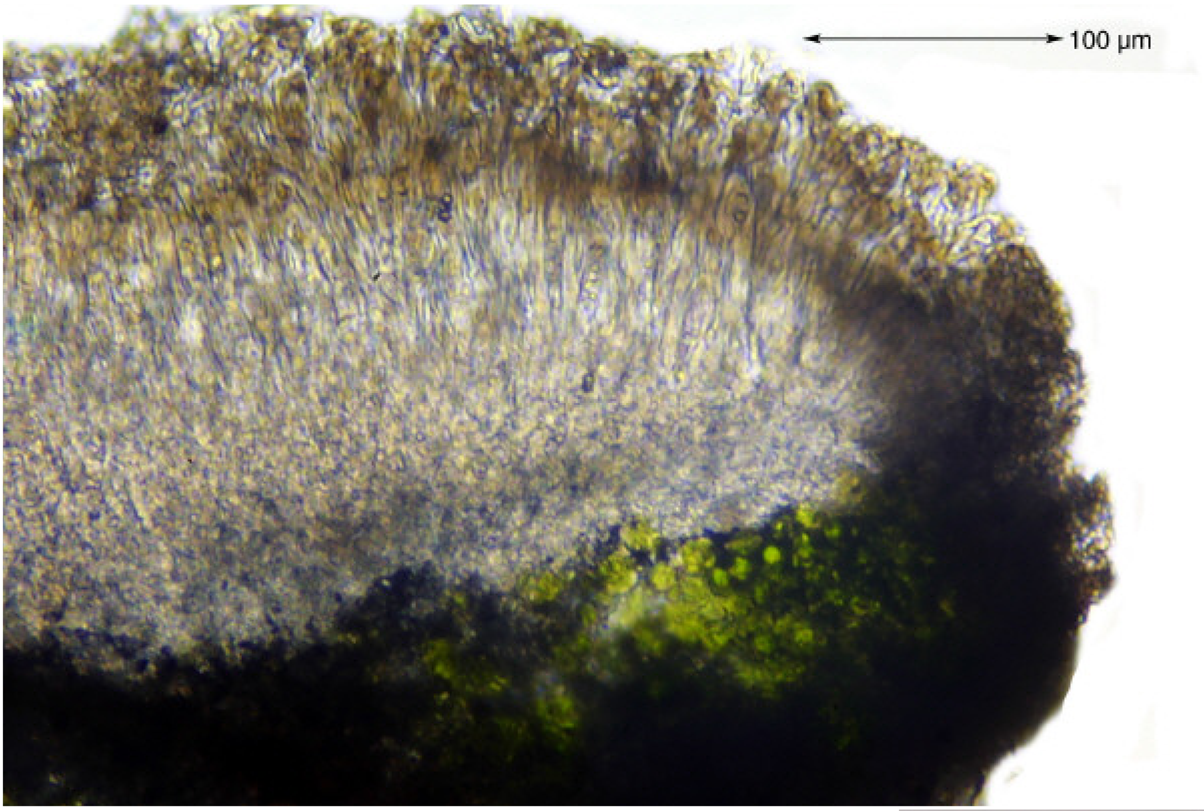
Caloplaca circumalbata

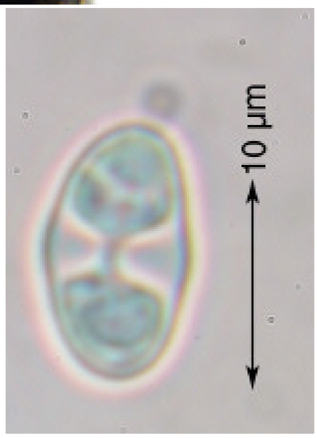
Caloplaca circumalbata (Müll.Arg.) Wunder

On rocks.
Thallus reinweiß bis ockerfarben bis 0,1-0,3 mm hoch, areoliert. **Isidien** fehlen. **Sorale** fehlen. **Apothecien** aufsitzend oder etwas eingesenkt, weiß berandet, 0,2-0,7 mm; Scheiben flach, schwarz, manchmal bereift; Epithecium 5-15 µm, K+ violett. **Sporen** polar-2-zellig, ellipsoidisch, 9-*14*-24 x 5-*8*-12 µm, Septum 2-6 µm. **Chemie**: Th.: K-, C-, KC-, P-. Saxicol, auf Kalksteinen und Mauern.

[12287], Griechenland, N-Samos, bei Manolates südlich von Agios Konstandinos, 37°47.185' N, 26°49.533' E, 341 m; halbschattige bis besonnte Terrassenmauern. Leg. Schumm 02.05.2006, det Schumm 2006.





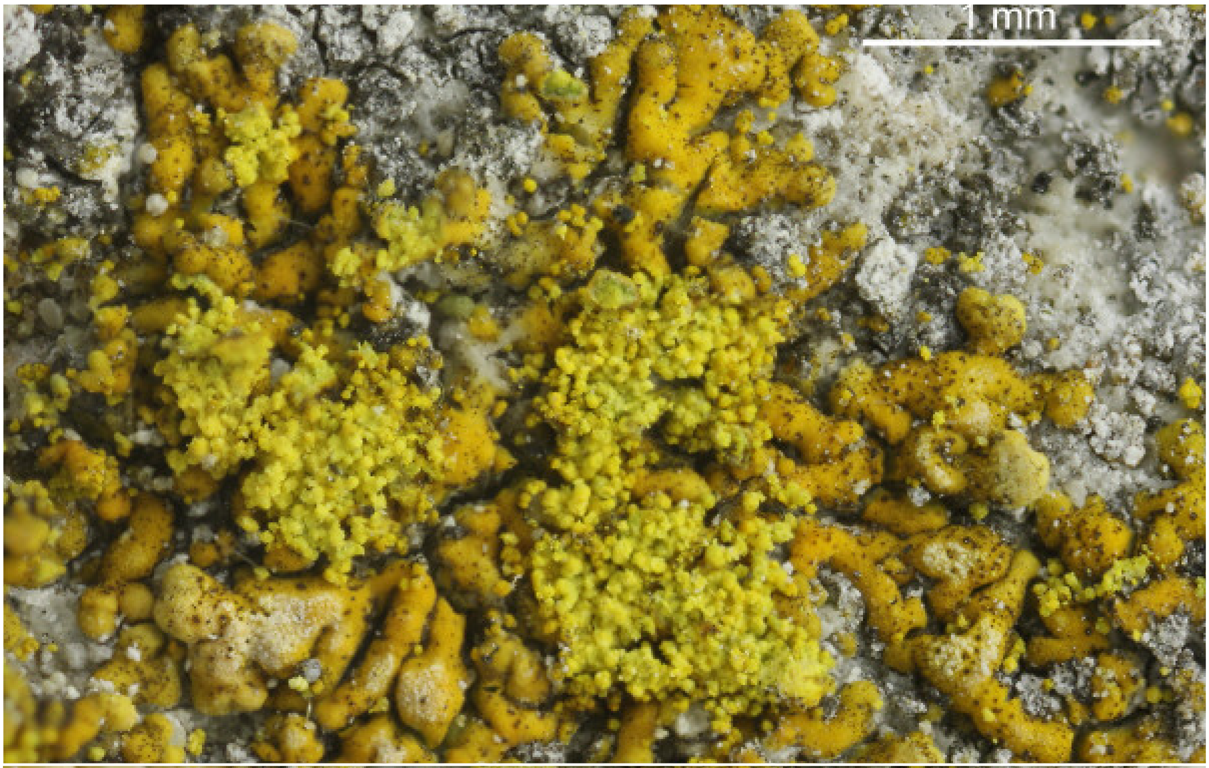


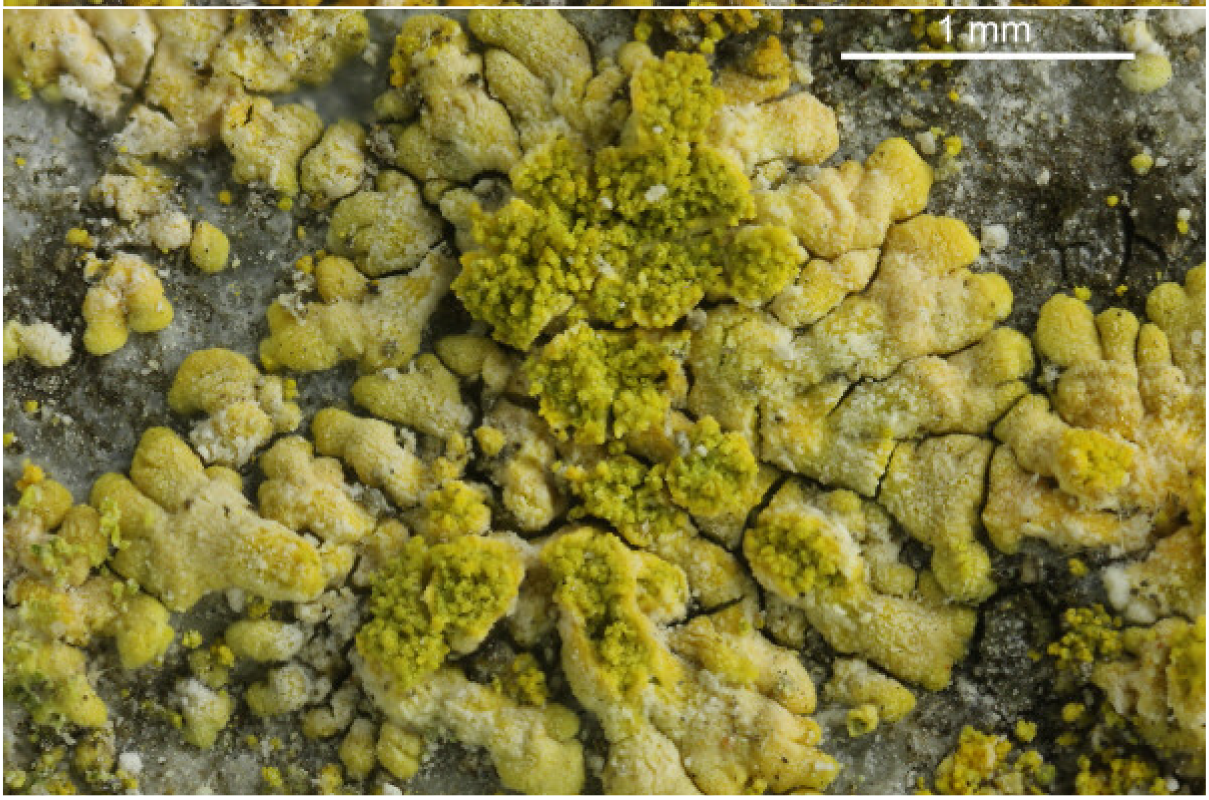
Caloplaca circumalbata

Caloplaca cirrochroa (Ach.) Th.Fr.
[= *Leproplaca cirrochroa* (Ach.) Arup, Frödén & Søchting]

Thallus steril, Lappen klein, oft bereift, im Zentrum teil ganz sorediös aufgelöst. Sorale erst kreisförmig, konvex, intensiv gelb, farblich von nicht sorediösen Teilen auffallend unterschiedlich.

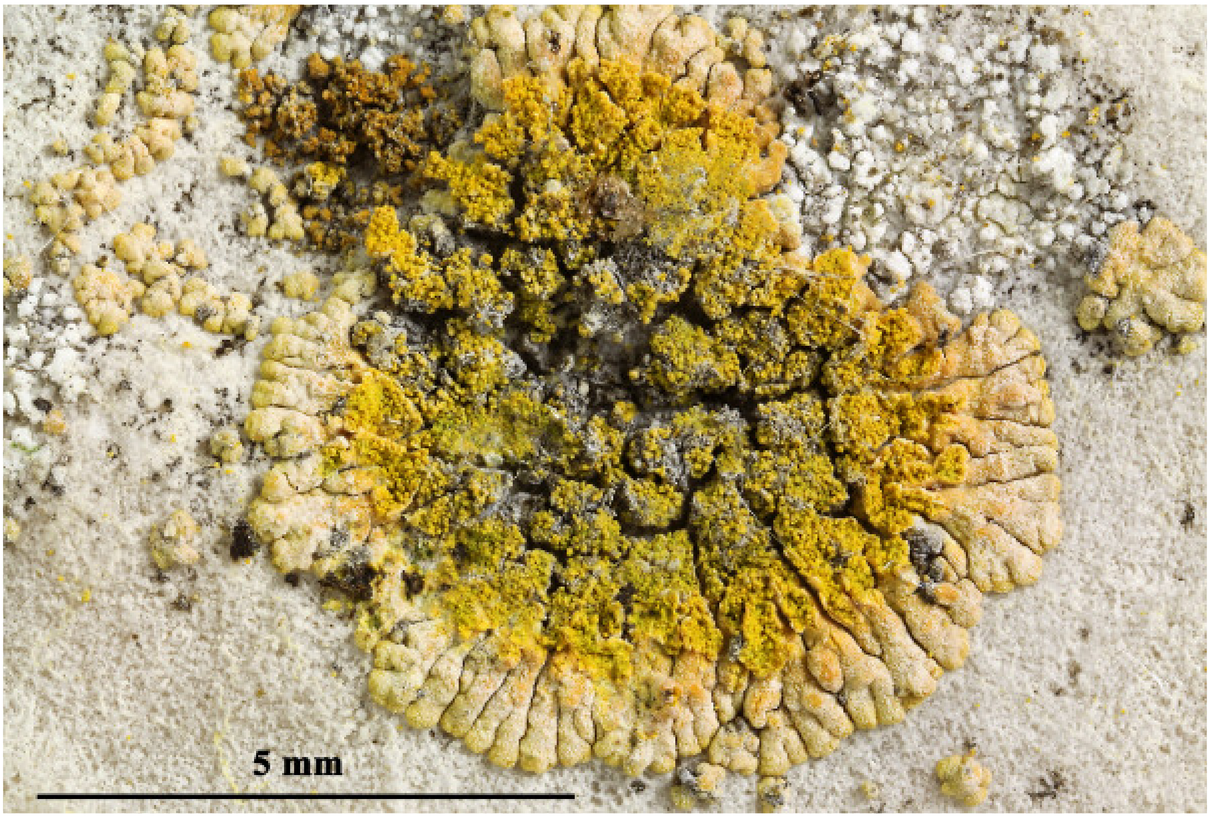
[16471], Germany, Baden-Württemberg, Kreis Göppingen, bei der Ruine Helfenstein oberhalb Geislingen, an überhängenden Kalkfelsen, 48,61613° N, 9,85064° E, 644 m. Leg. et det. Schumm 15.04.2010.





Caloplaca cirrochroa (Ach.) Th.Fr.
[= *Leproplaca cirrochroa* (Ach.) Arup, Frödén & Søchting]

[19685], Germany, Baden-Württemberg, Schwäbische Alb, westlich von Ochsenwang, auf Kalkfelsen im Randecker Maar, 48.57156° N, 9.52611° E, 708 m, TK 7423. Leg et det. F. Schumm, 18.08.2017.



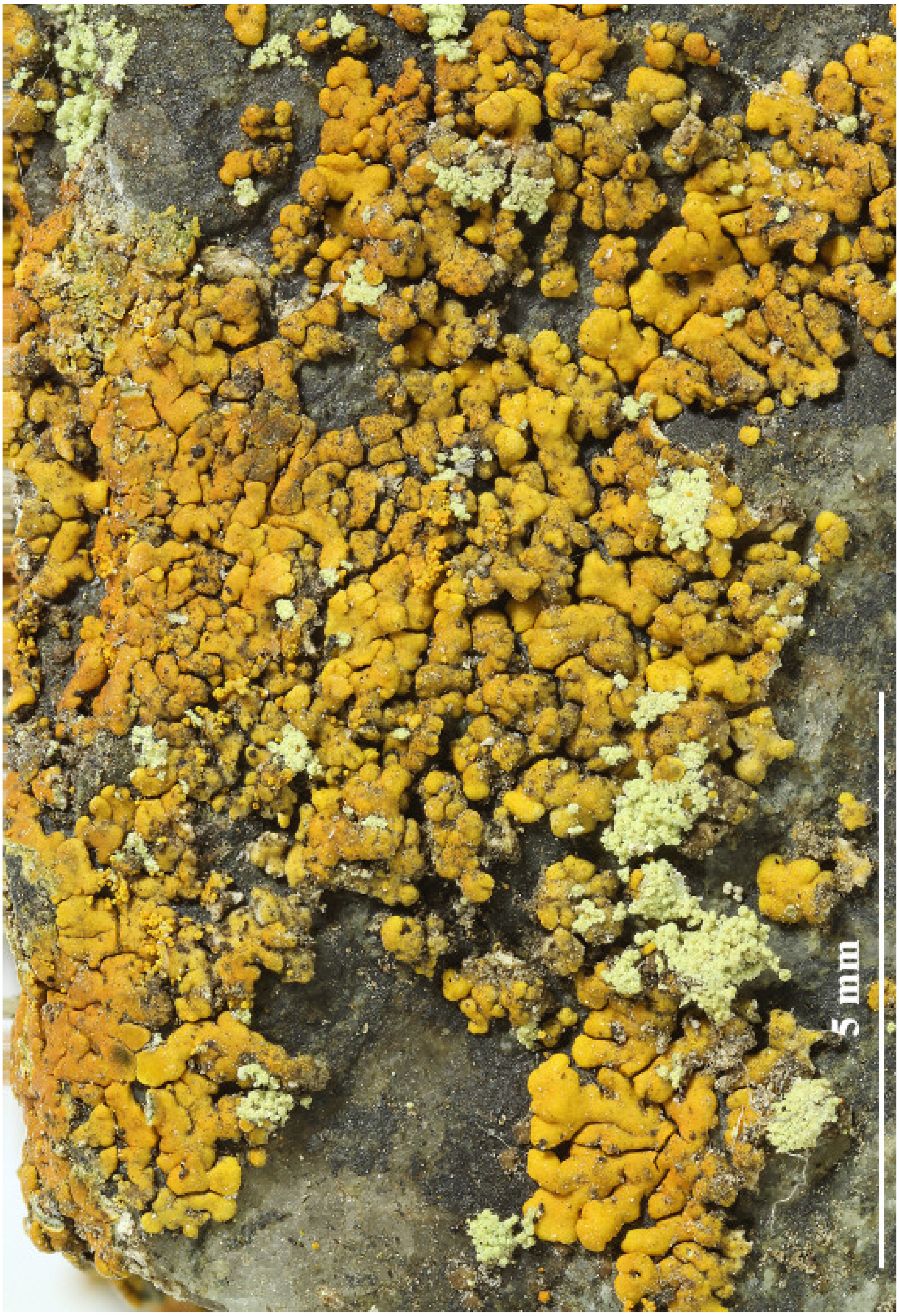
Caloplaca cirrochroa

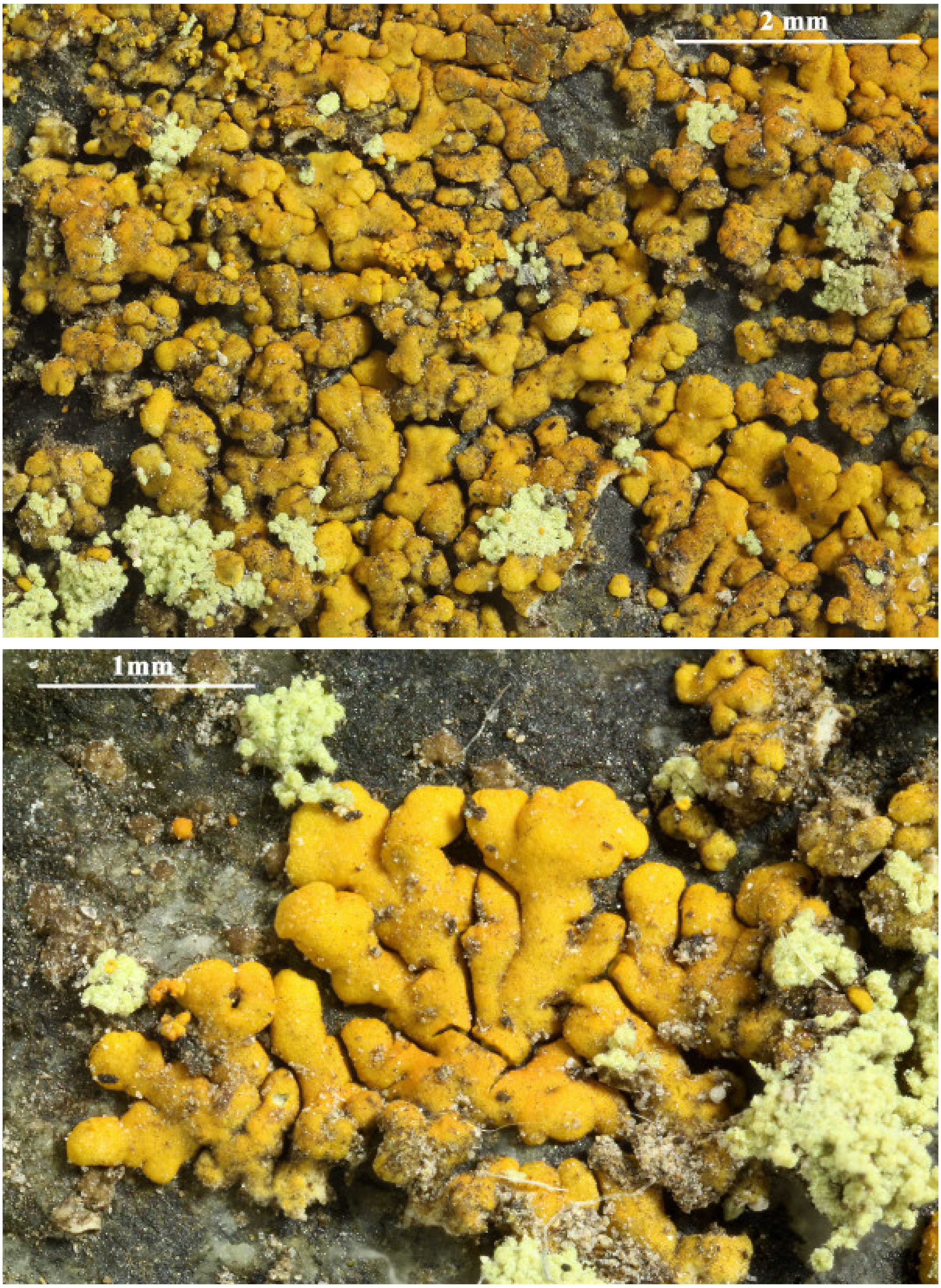
Caloplaca cirrochroa

Caloplaca cirrochroa (Ach.) Th.Fr.
[= *Leproplaca cirrochroa* (Ach.) Arup, Frödén & Søchting]

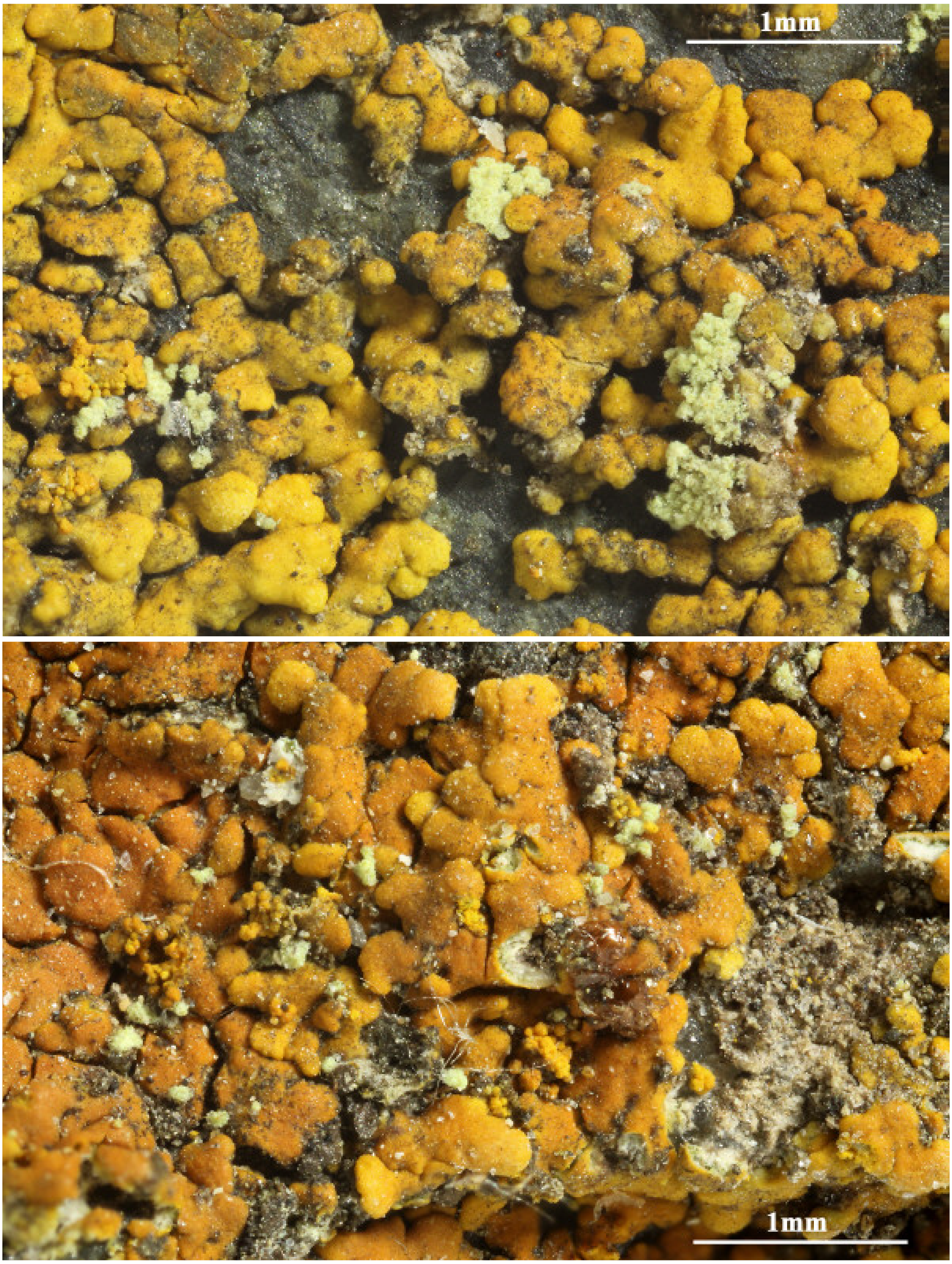
On non-calcareous rock.

[ABL 73056], Korea, Gangwon-do, Dist. Yangyang-gun, Seo-myeoun, Osaek-ri, Mt. Seorak, Seoraksan National Park, en route from Osaek spring to Mt. Daecheong-bomg, c. 38°07' N, c. 128°28' E, c. 1000-1600 m, on siliceous rock. Leg. A. Aptroot 22.10.2014, det. A. Aptroot 2014.





Caloplaca cirrochroa

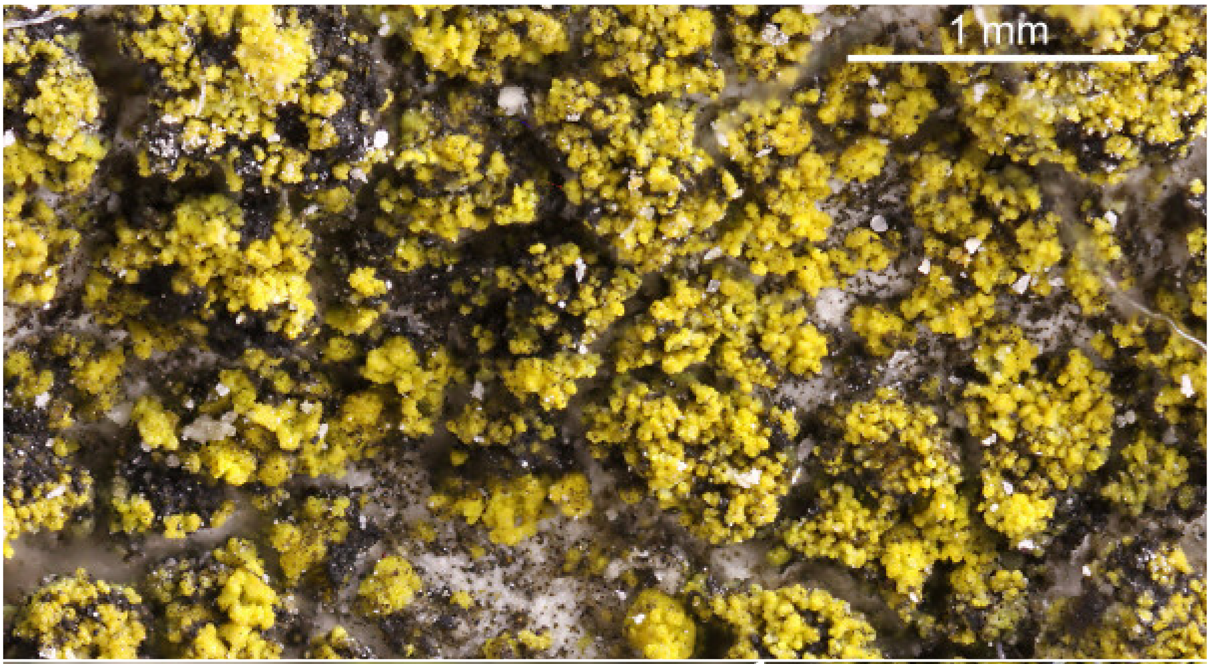


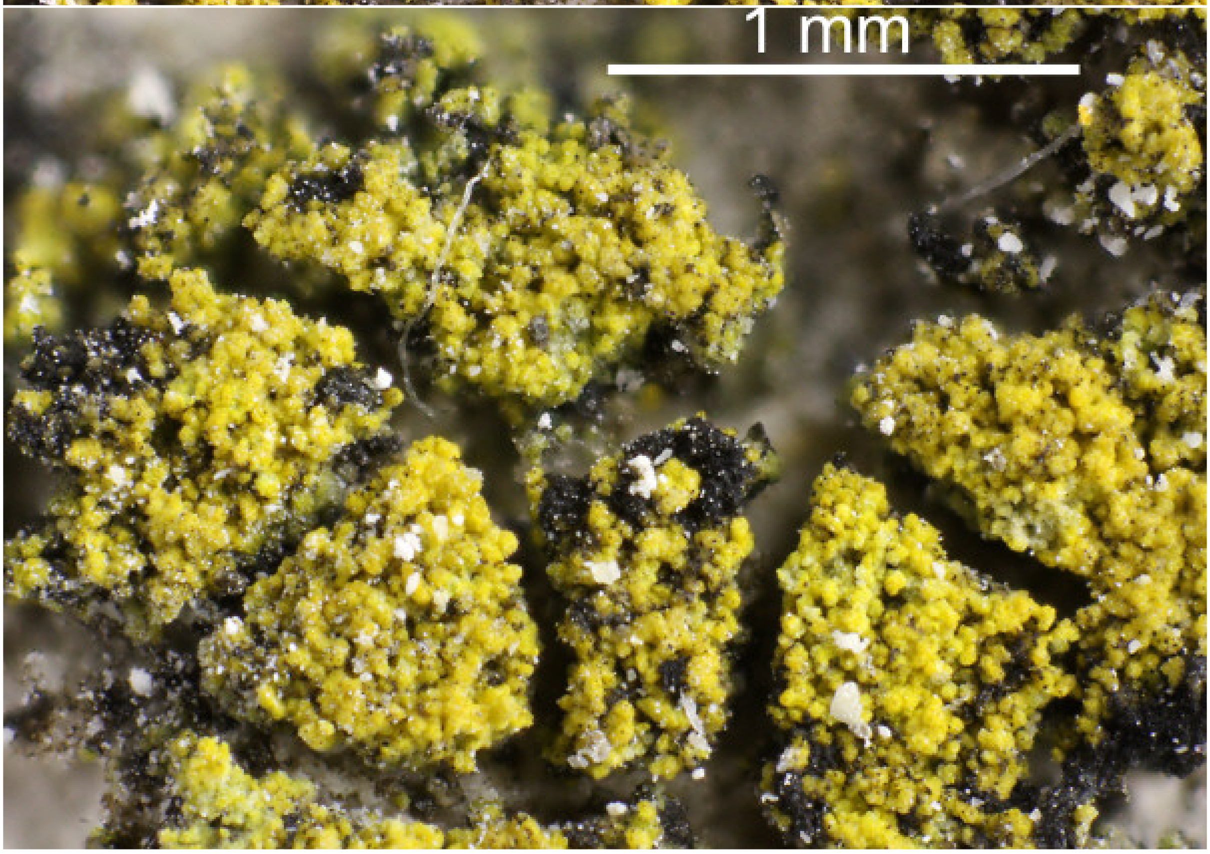
Caloplaca cirrochroa

Caloplaca citrina (Hoffm.) Th.Fr.
[= *Flavoplaca citrina* (Hoffm.) Arup, Frödén & Søchting]

Thallus gelbgrün, pulverig, ± völlig körnig sorediös aufgelöst, meist in unregelmäßige Areolen geteilt. Körnchen 0,03-0,08 mm groß. Apothecien 0,3-1,5 mm, mit sorediösen Rändern. Sporen breitelliptisch 10-15 x 4-8 µm, Septum 3-5 µm.

[16509], Germany, Baden-Württemberg, Schwäbische Alb, Kreis Göppingen, Gosbach-Bad Ditzenbach, Tierstein, 48,57461° N, 9,68471° E, 737 m, auf Kalkfelsen am Albrand. Leg. F. Schumm 20.06.2010.





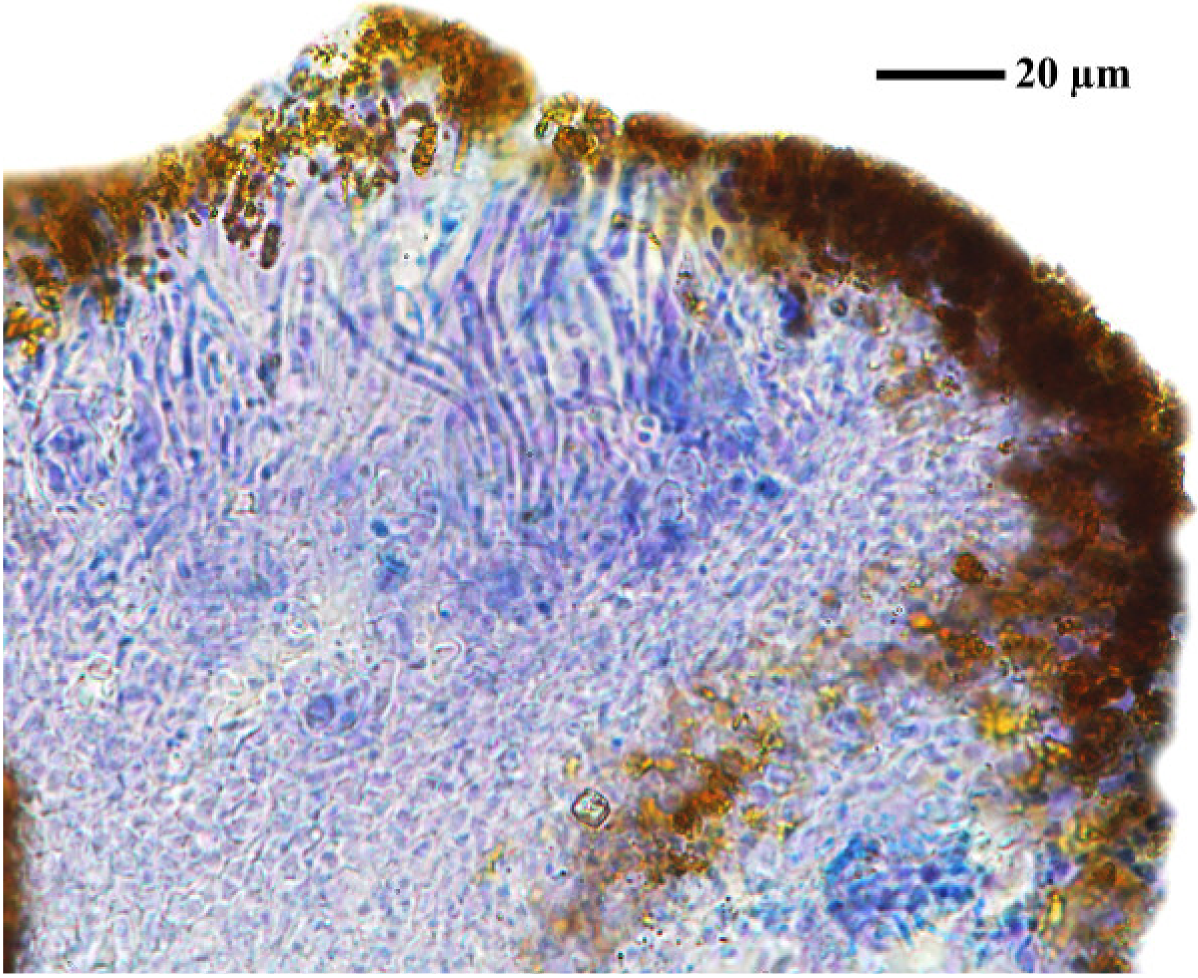
Caloplaca coccinea (Müll.Arg.) Poelt

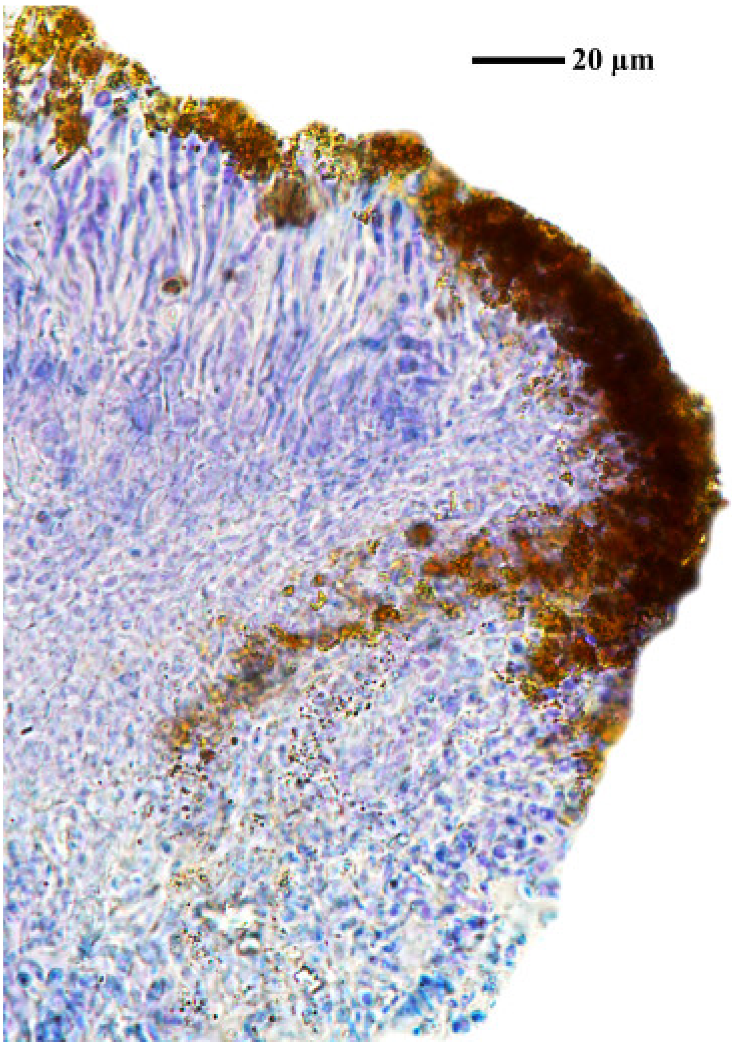
Spores 7.5-9 x 5-5.8 µm, septum 1.5-2.5 µm (FS). On calcareous rocks. Poelt J. in Mitt. Bot. München 12: 5 (1975)

[19574], Austria, Salisburgia, Tennengebirge, Abtenau, in pede orient. montis, Fritzer-Kogels, alt. 2120 m, ad saxa calcarea. Leg. H. Wittmann (8446), 25.5.1986. VĚZDA: LICHENES SELECTI EXSICCATI NR. 2112.

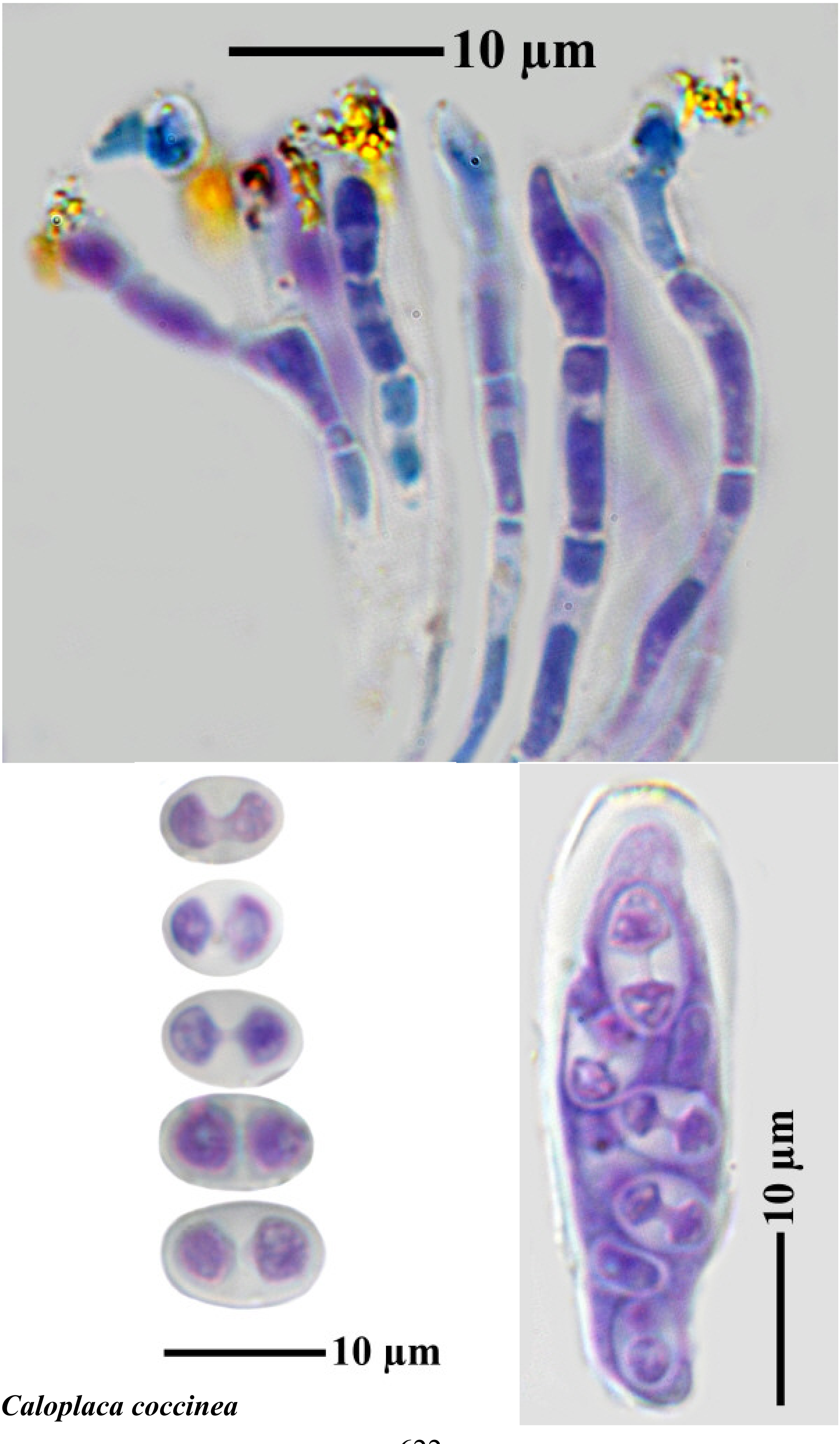
Caloplaca coccinea

Caloplaca coccinea





Caloplaca coccinea

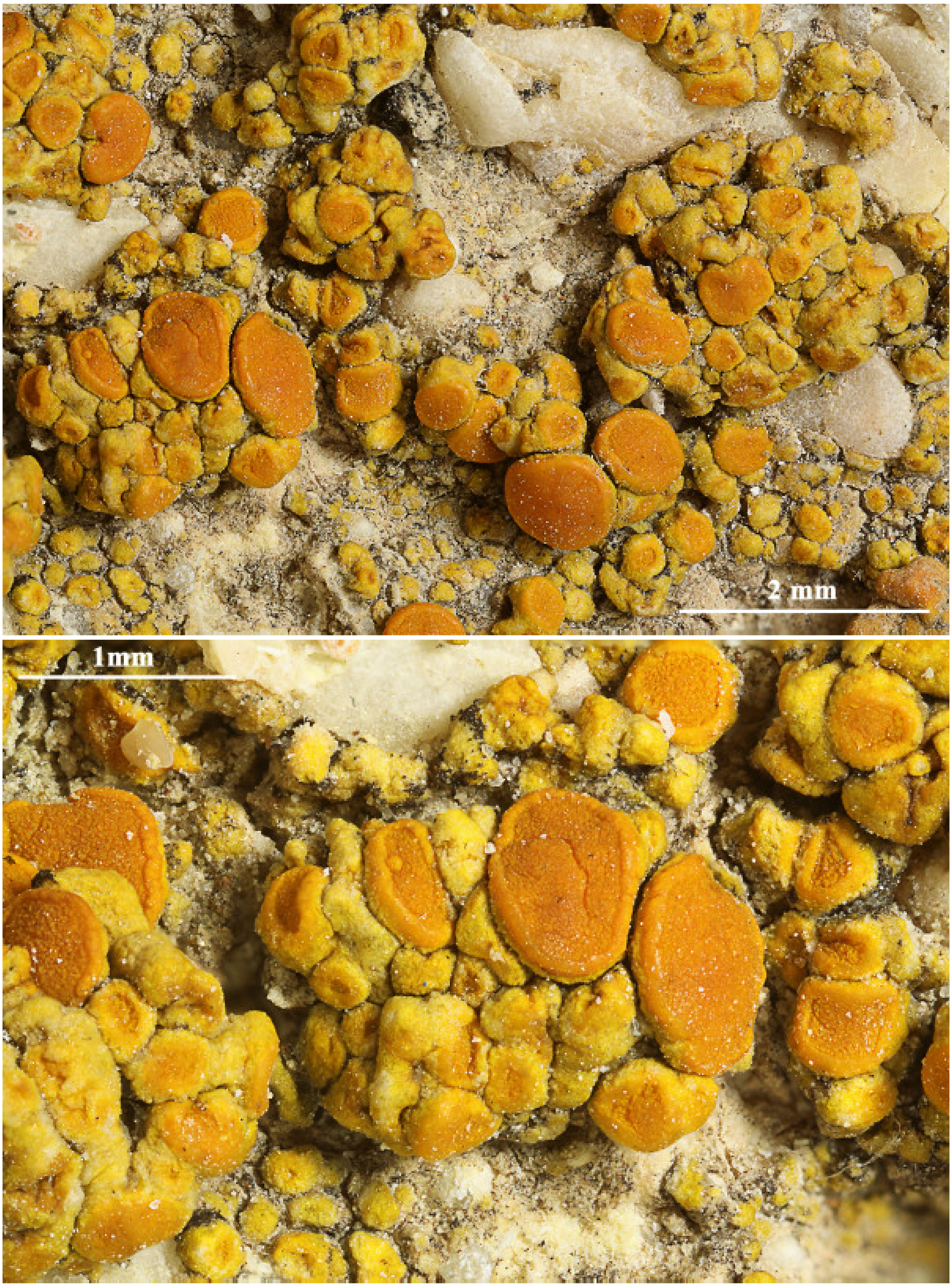


Caloplaca coccinea

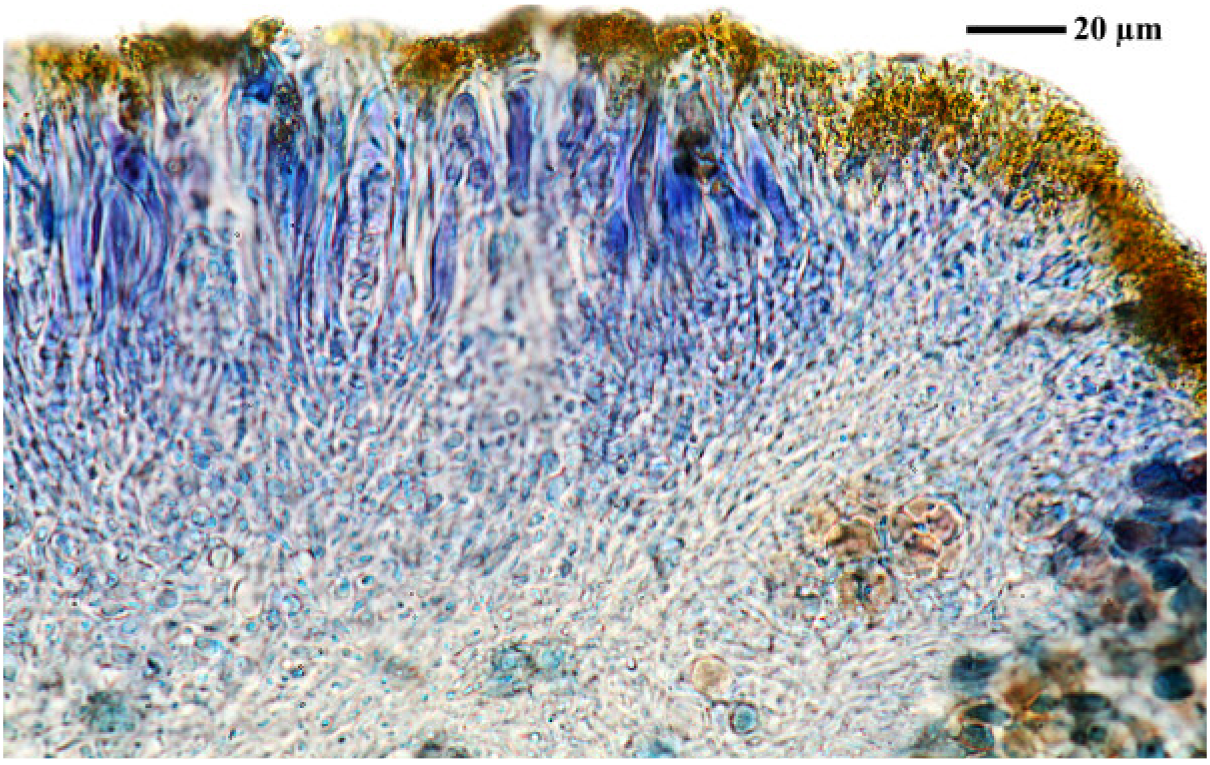
Caloplaca communis Vondrák, Říha, Arup & Søchting
[= *Flavoplaca communis* (Vondrák, Říha, Arup & Søchting) Arup, Søchting & Frödén]

Spores c. 11.5-12.2 x 5.8-7.1 µm, septum 3.4 µm (FS).

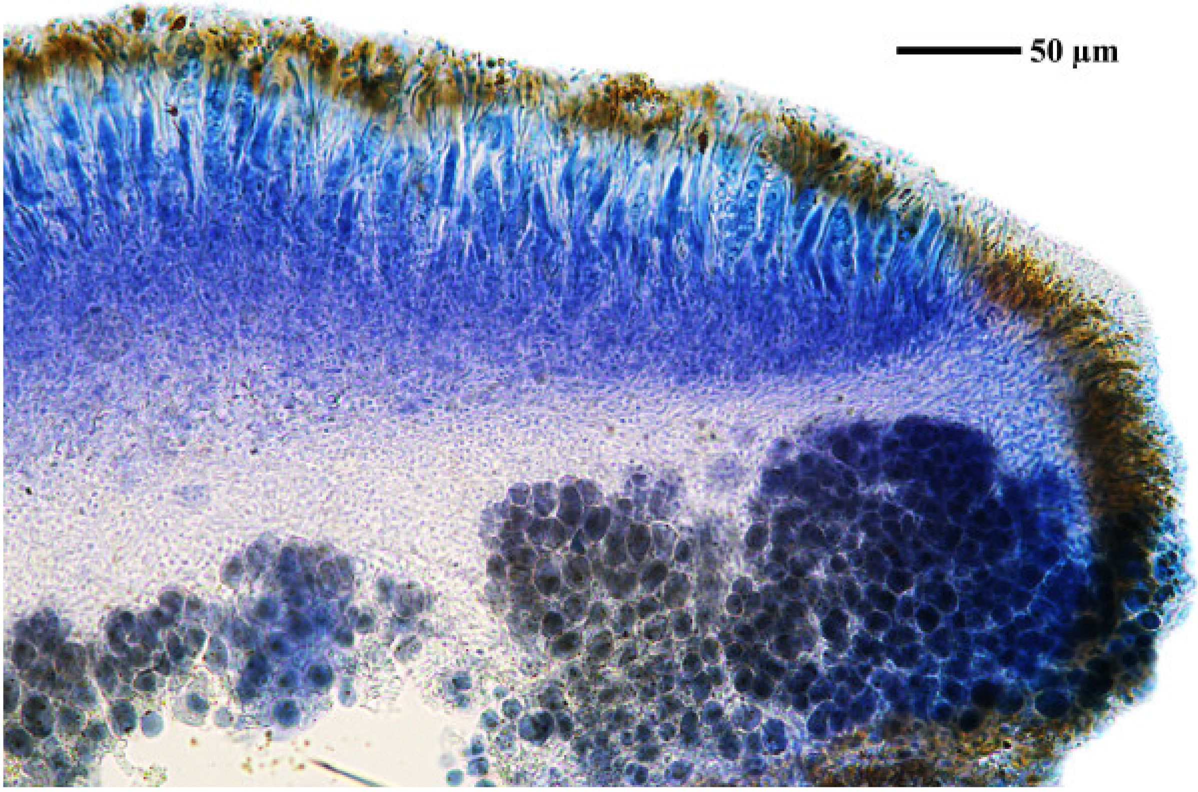
[B 60 0192188], Kazakhstan, Mangystau region, Tupkaragan district, Caspian Sea coast, between Fort Shevchenko and Aktau, village Saura, rocky valley of the river Saura, saxicolous on soft limestone coastal cliff. 44°13.9' N, 50°48.2' E, 0-100 m. Leg. O. Vondráková, A. Khodosovtsev & J. Vondrák, 3.6.2009, det. J. Vondrák. Vondrák: Selected Exsiccates of Caloplaca No 54.

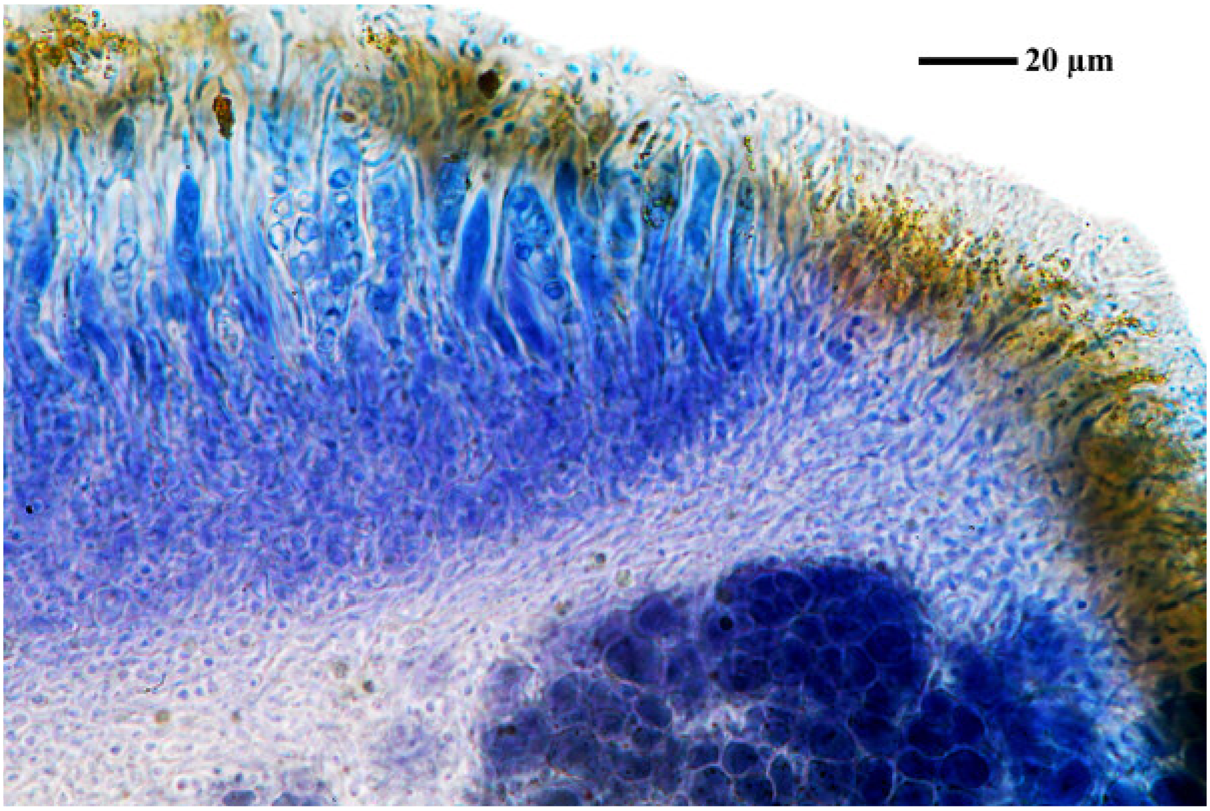


Caloplaca communis

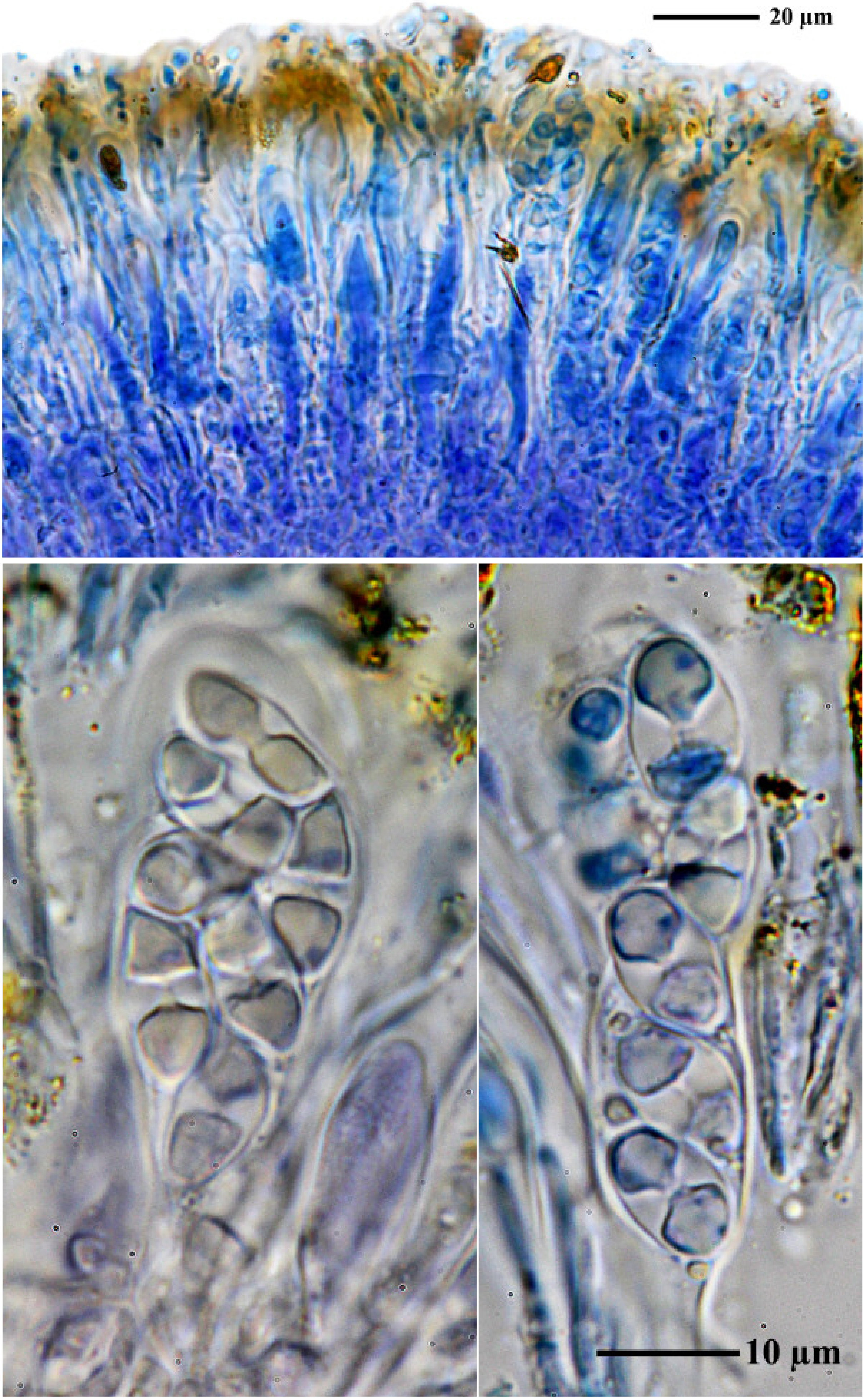


Caloplaca communis

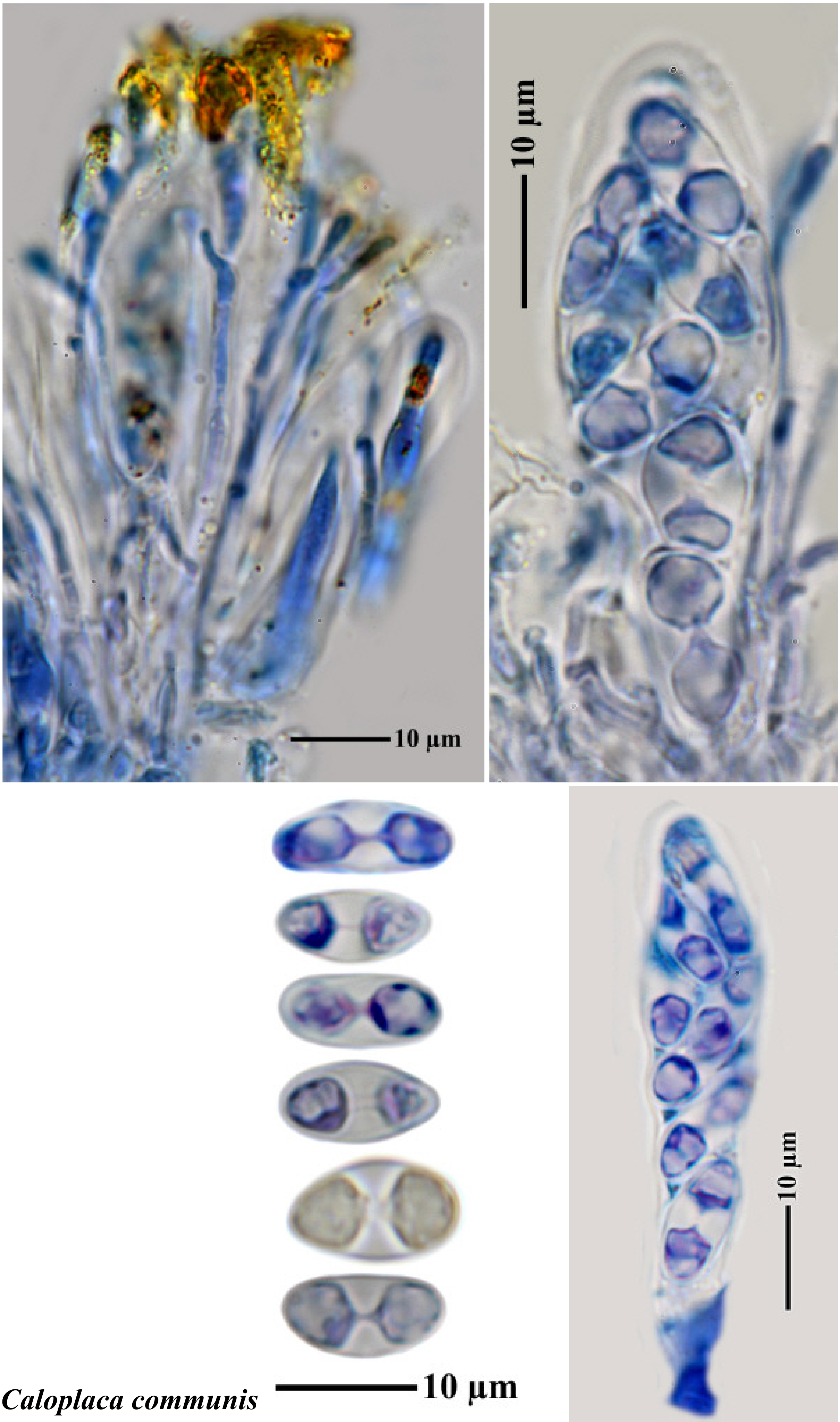




Caloplaca communis



Caloplaca communis

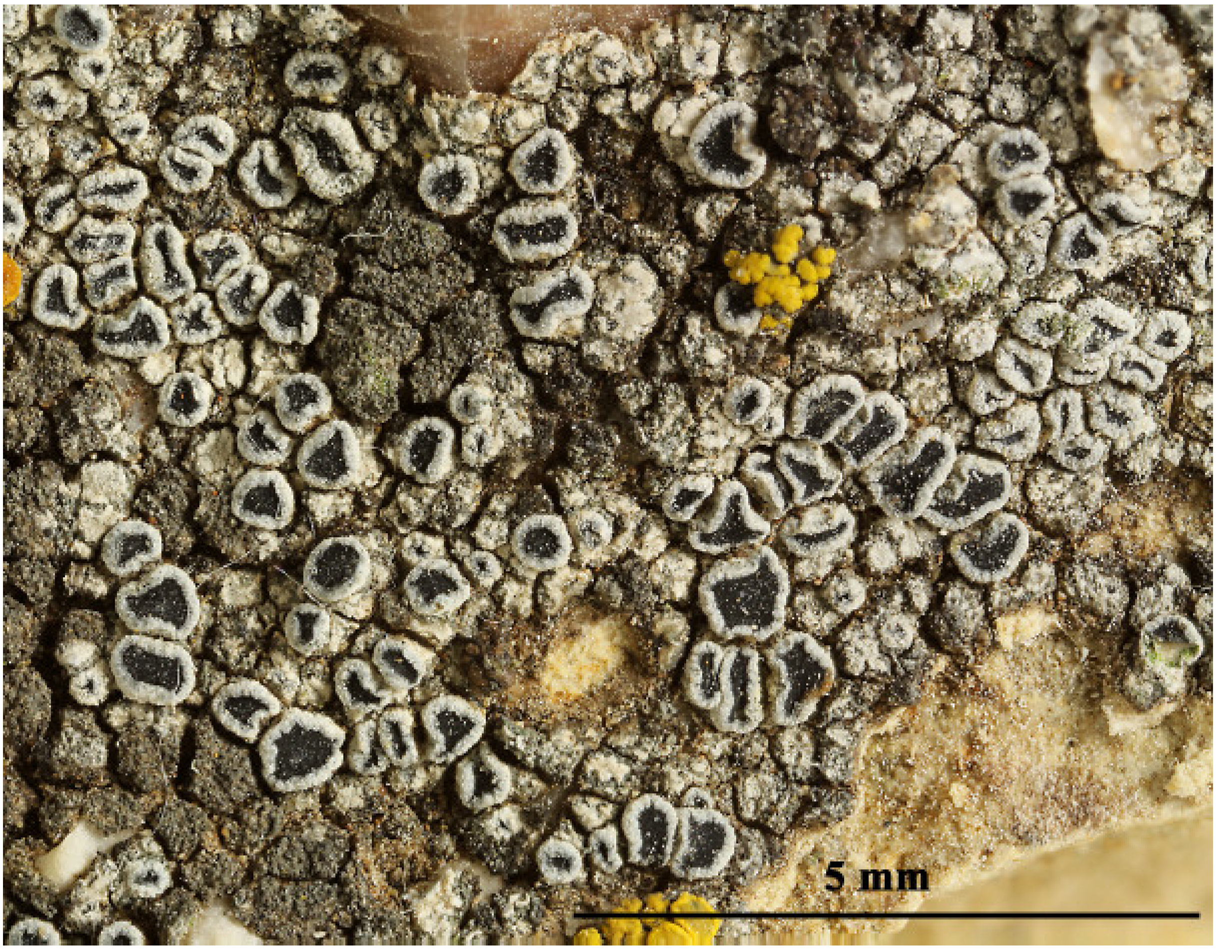


Caloplaca communis

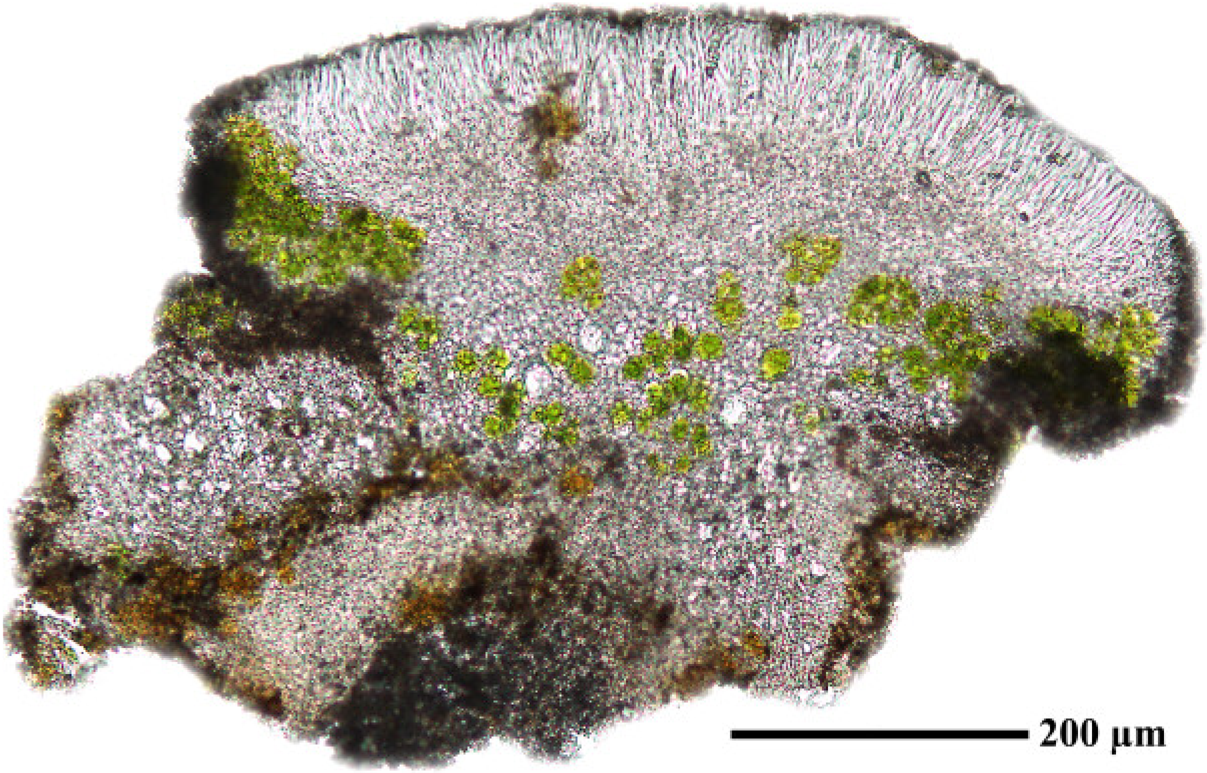
Caloplaca concreticola Vondrák & Khodos.
[= *Pyrenodesmia concreticola* (Vondrák & Khodos.) Søchting, Arup & Frödén]

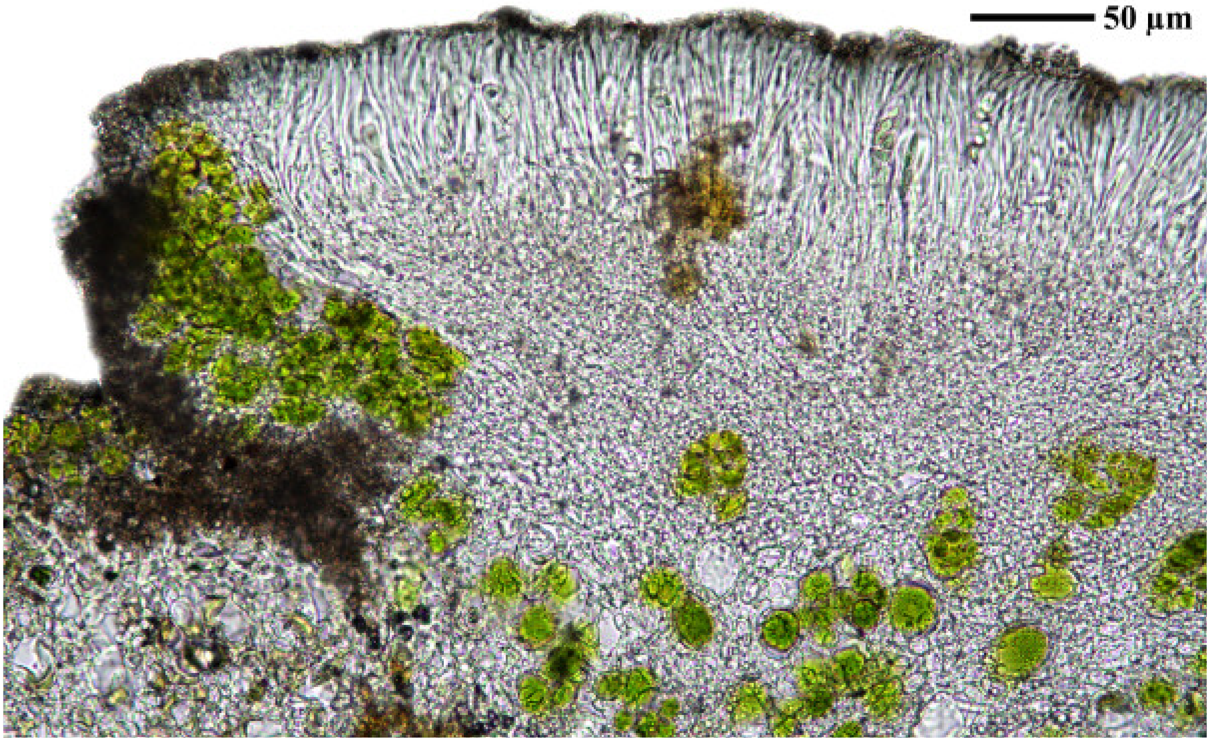
Thallus whitish-grey, areolate, sorediate. Apothecia with brown to black disc and whitish margin. Epihymenium K+ violett. Spores hyalin. 8/ascus, 11-18 x 5-9 µm, septum 2.2-4.3 µm (FS)

[B 60 0192180], Russia, Orenburg region, 15 km NE of Orenburg, village Grebeni, on a hill W of the village, saxicolous on sandstone blocks and pebbles on SE-exposed slope covered by shrubby steppe. 51°56.5' N, 55°16.8' E, 120-160 m. Leg. I. Frolov & J. Vondrák, 7.6.2011, det. J. Vondrák, identification confirmed by ITS fingerprinting. VONDRáK: SELECTED EXSICCATES OF CALOPLACA NO 55.

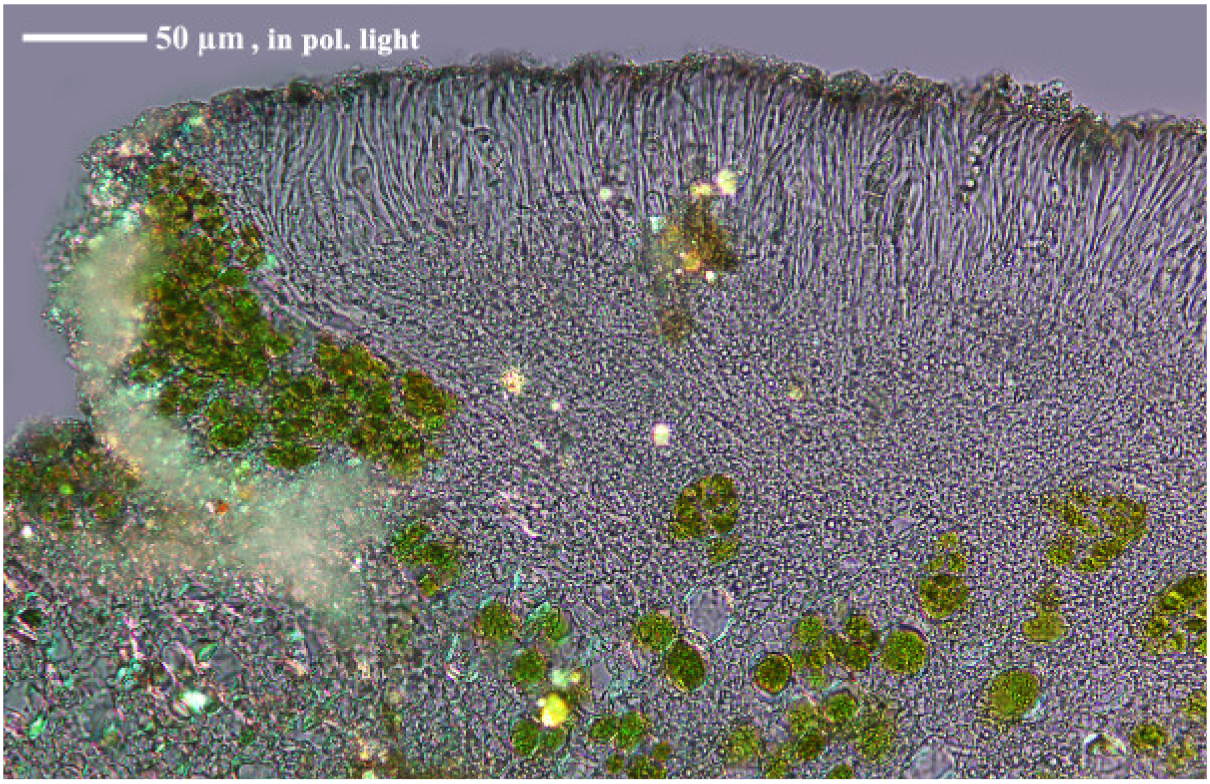


Caloplaca concreticola

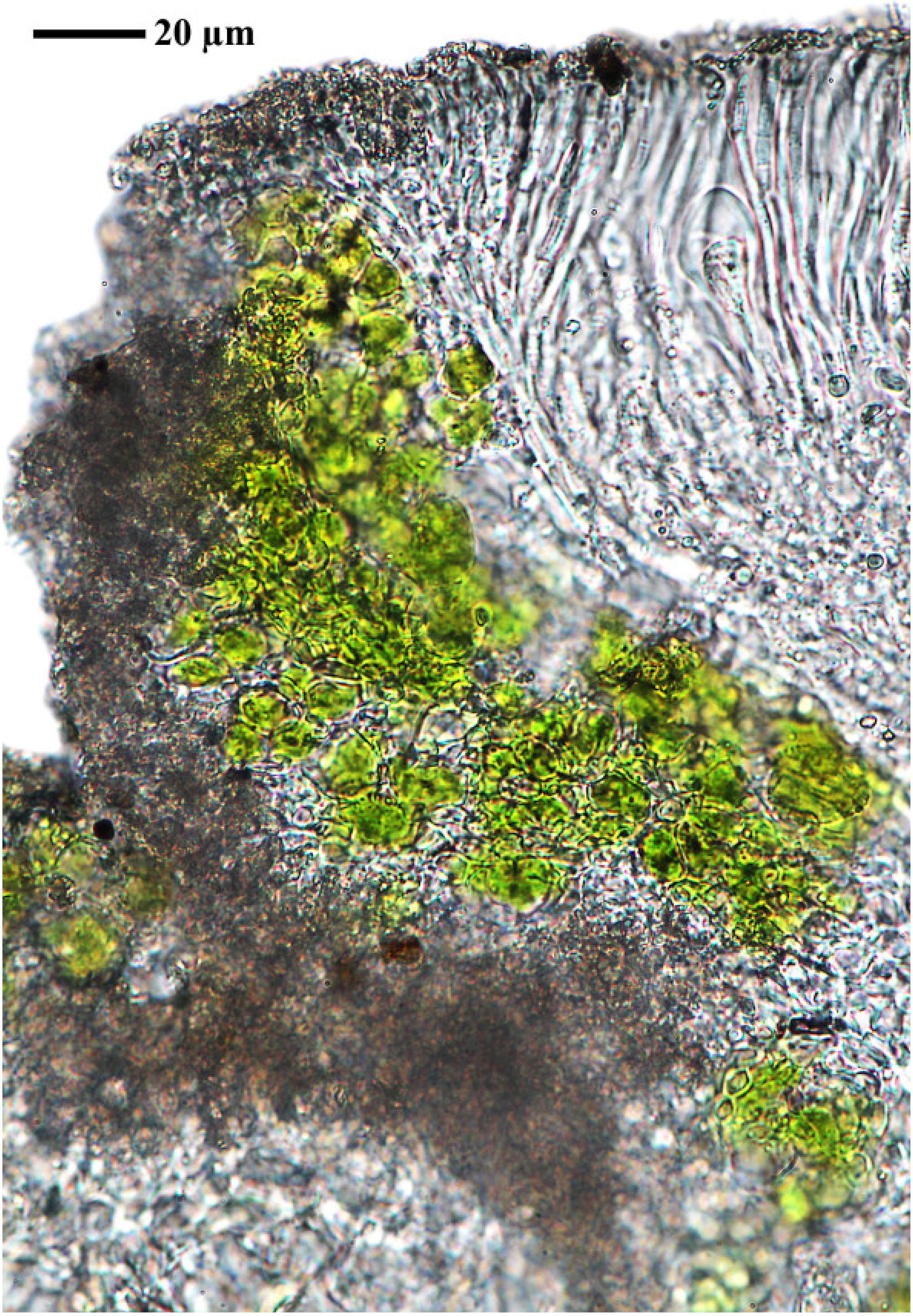




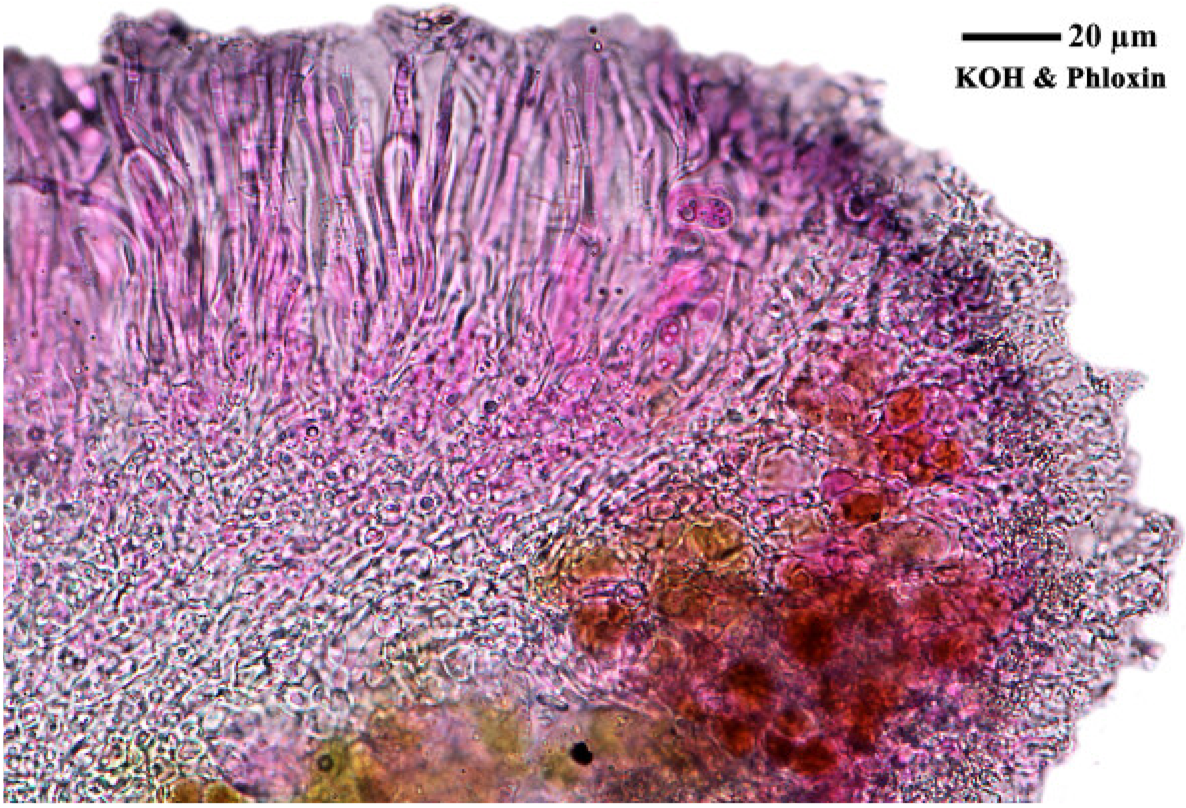
Caloplaca concreticola

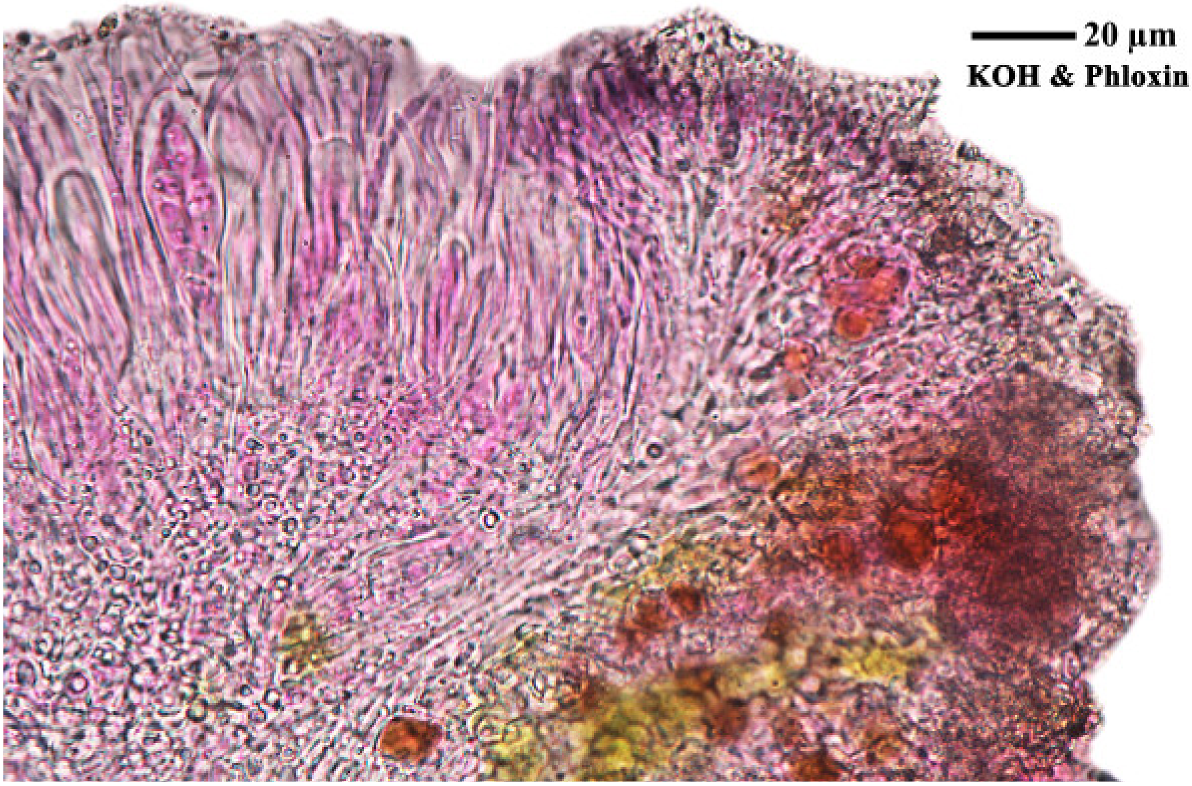


Caloplaca concreticola

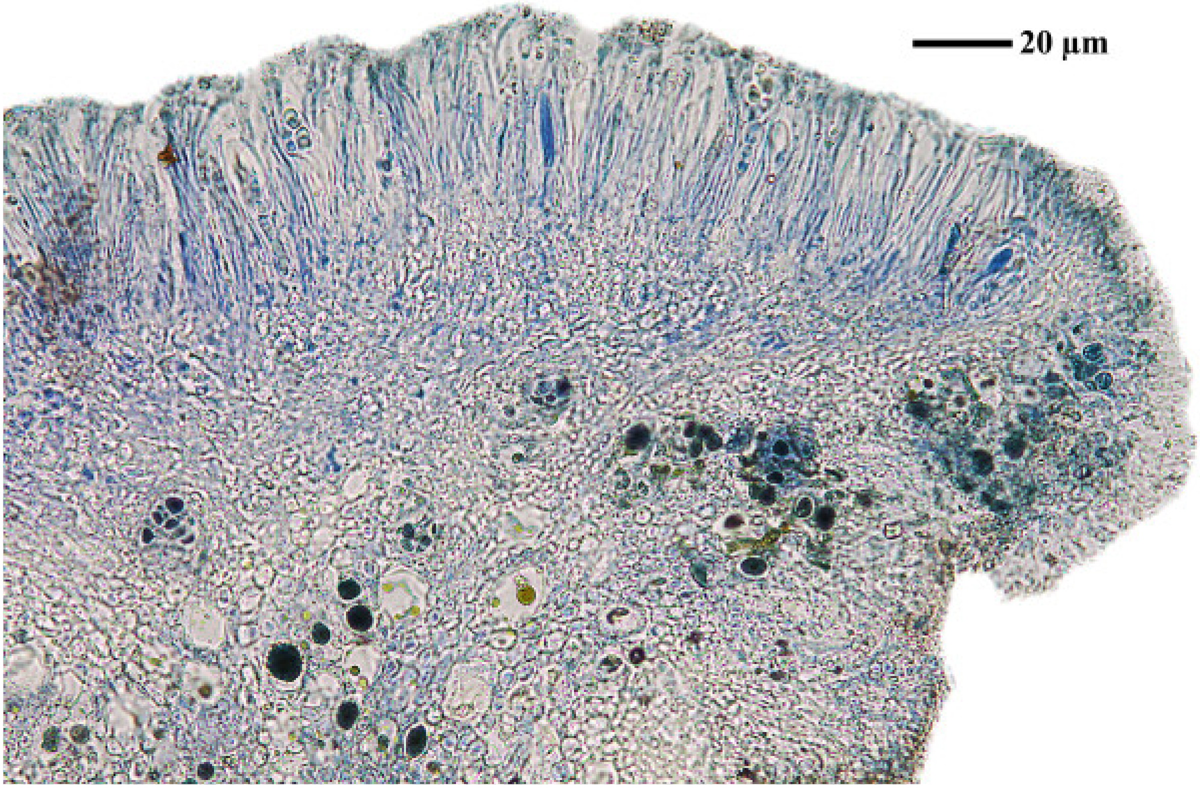


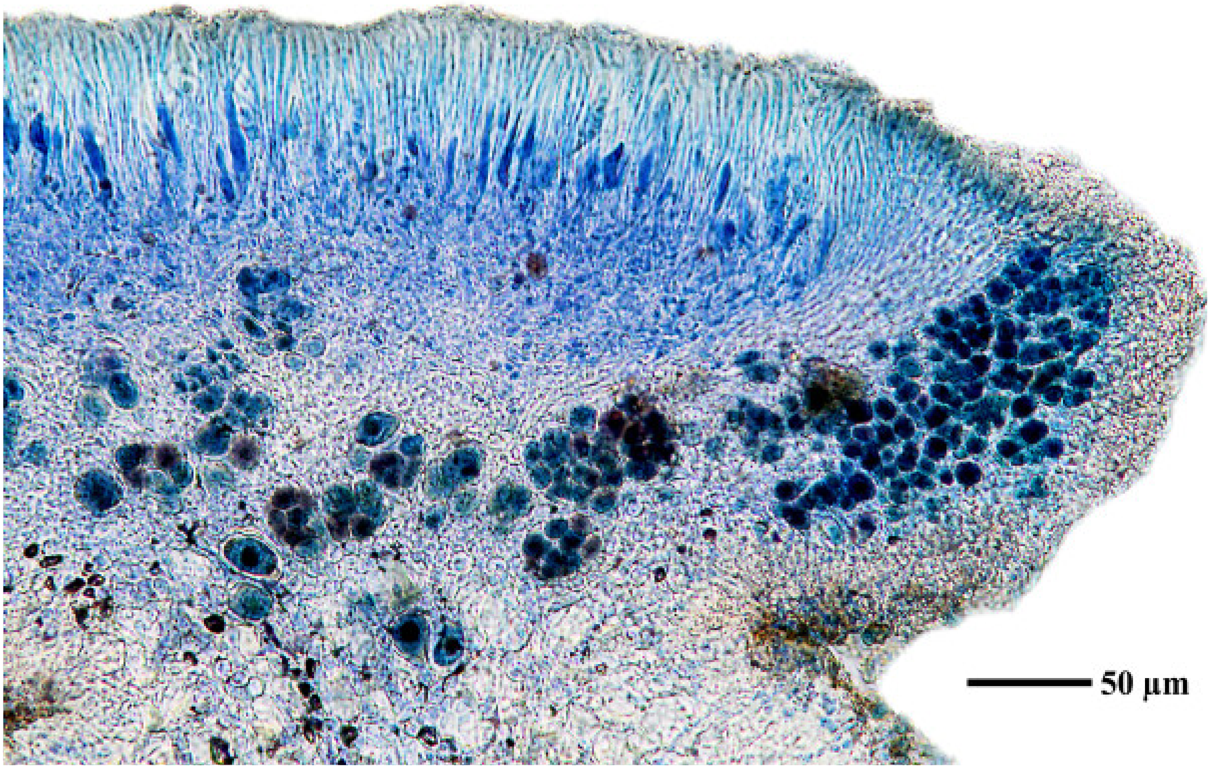
Caloplaca concreticola



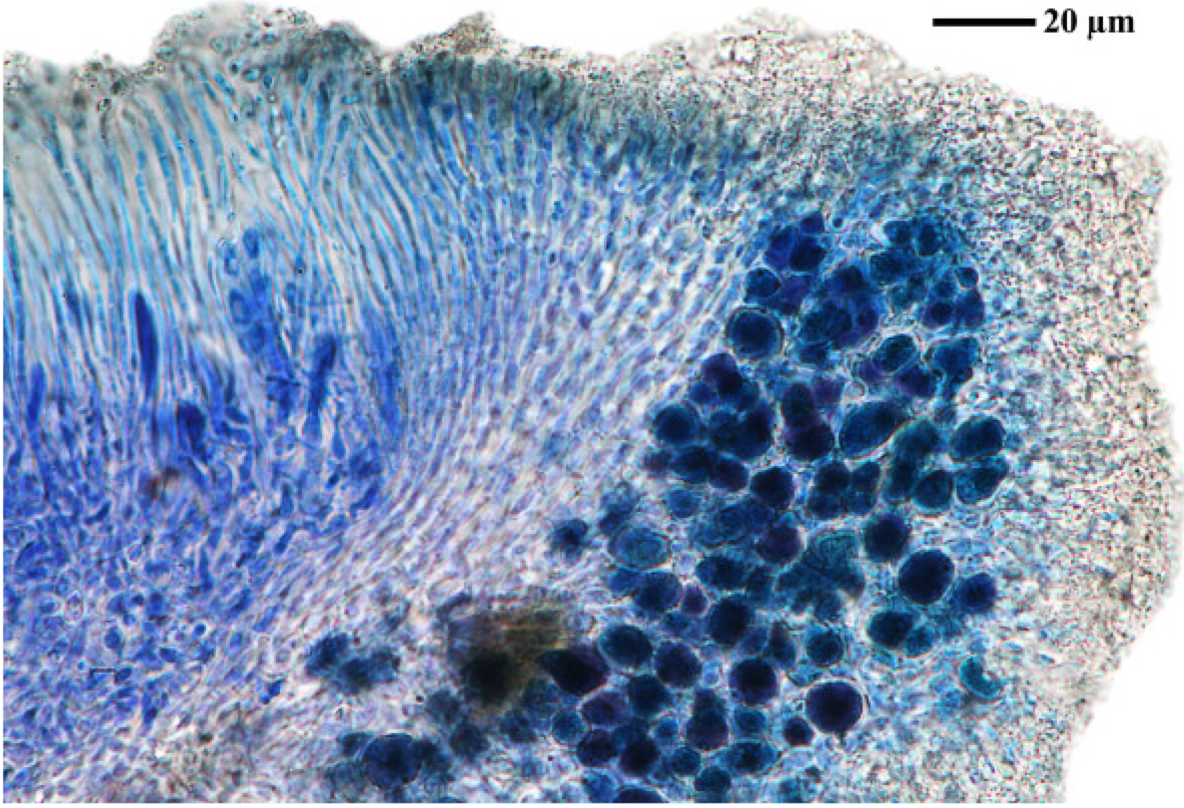


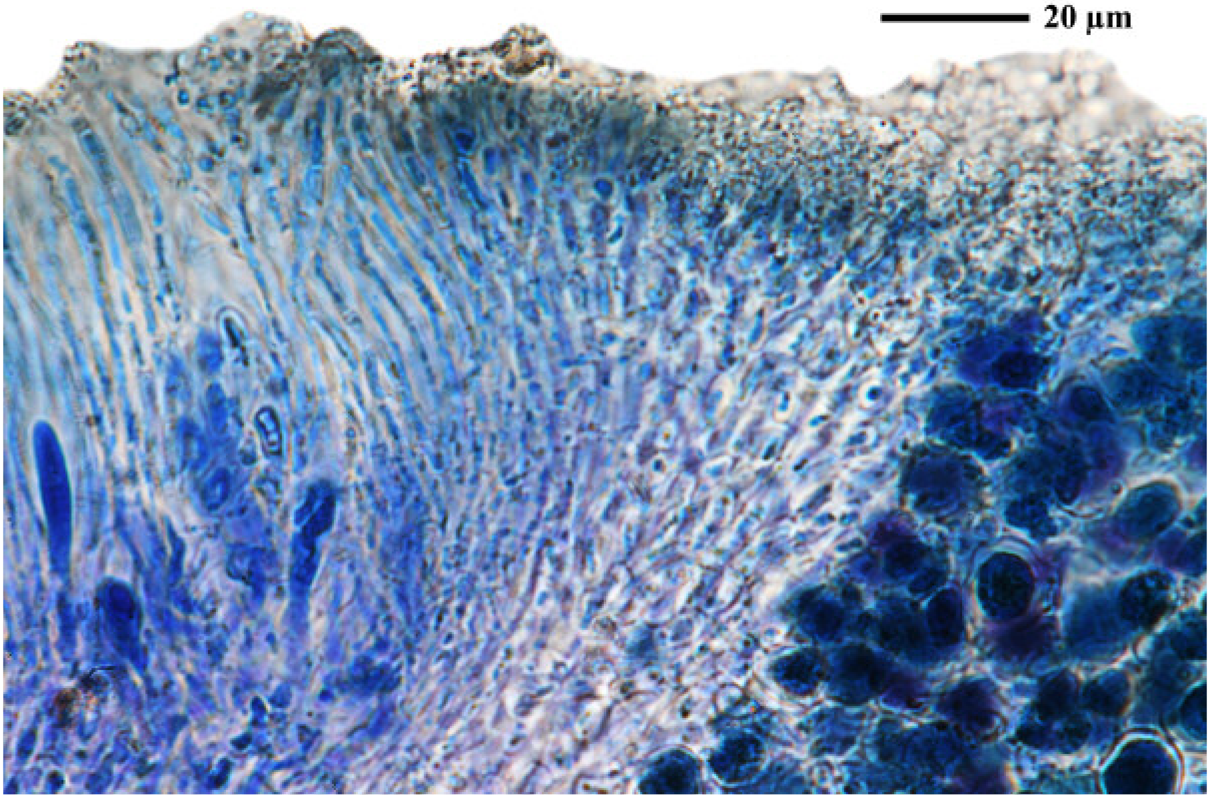
Caloplaca concreticola



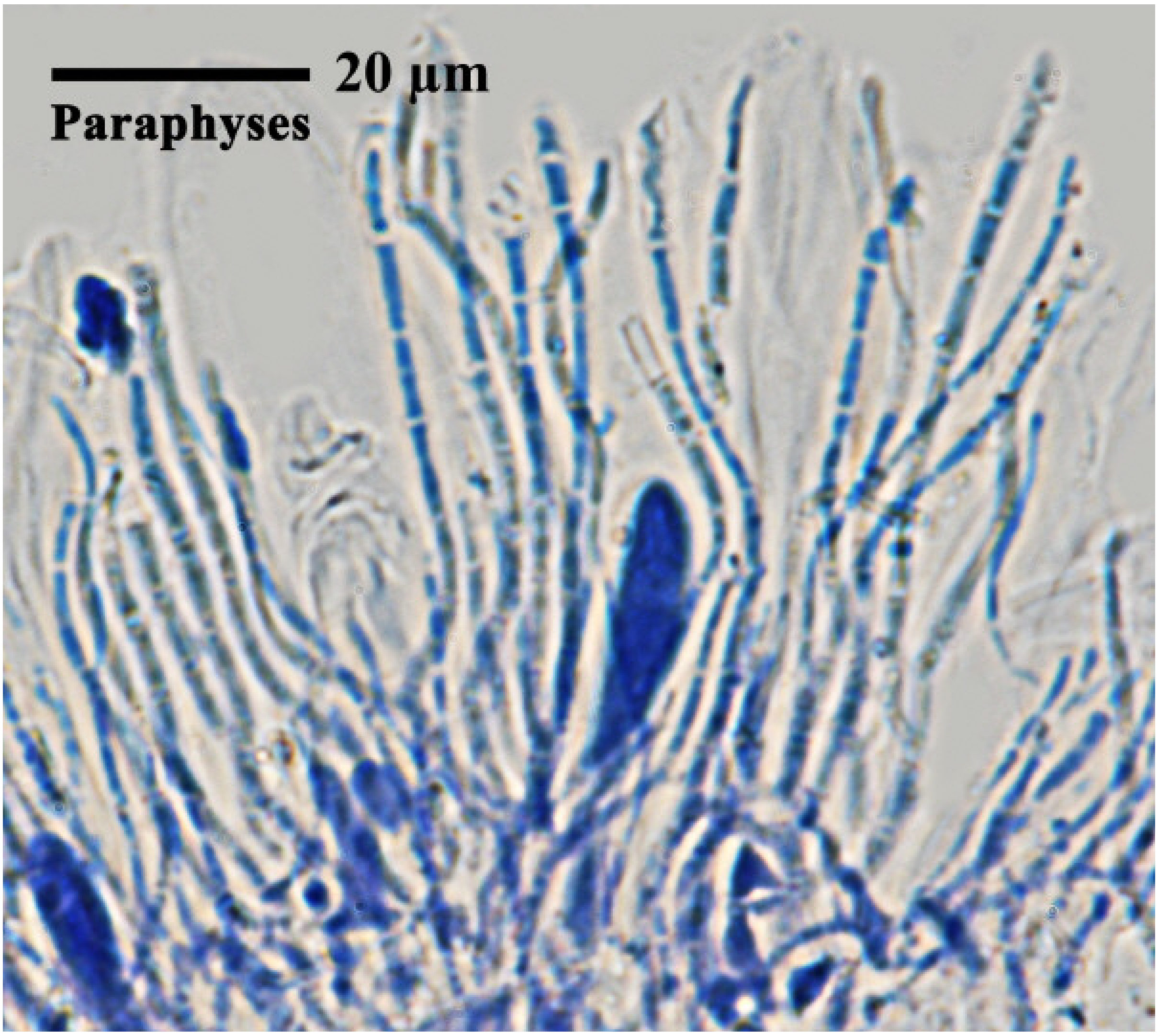


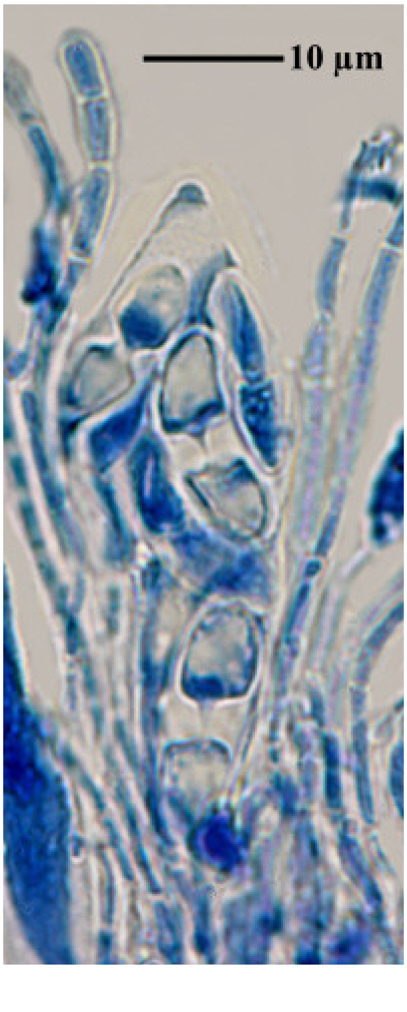
Caloplaca concreticola





Caloplaca concreticola



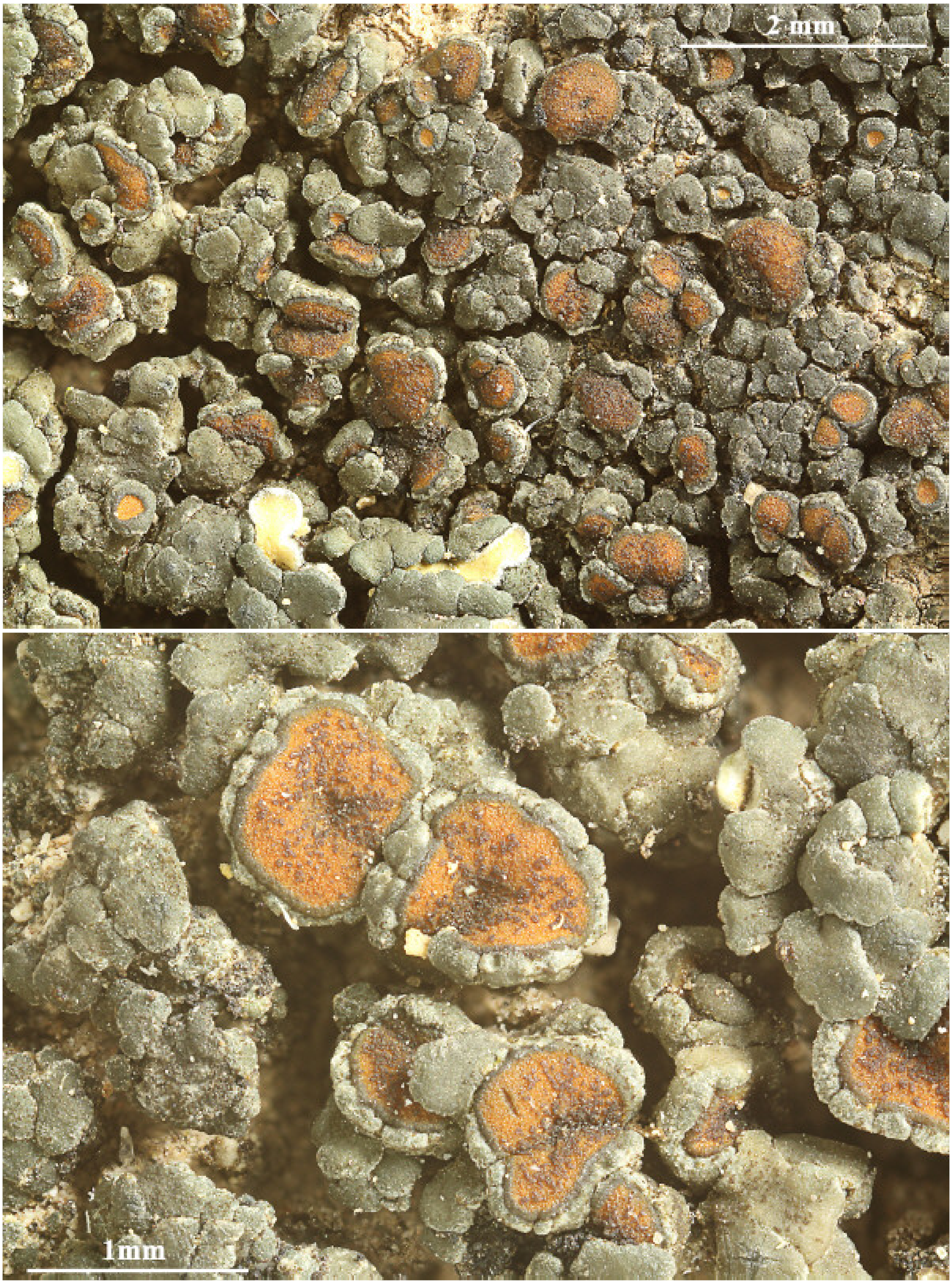


Caloplaca concreticola

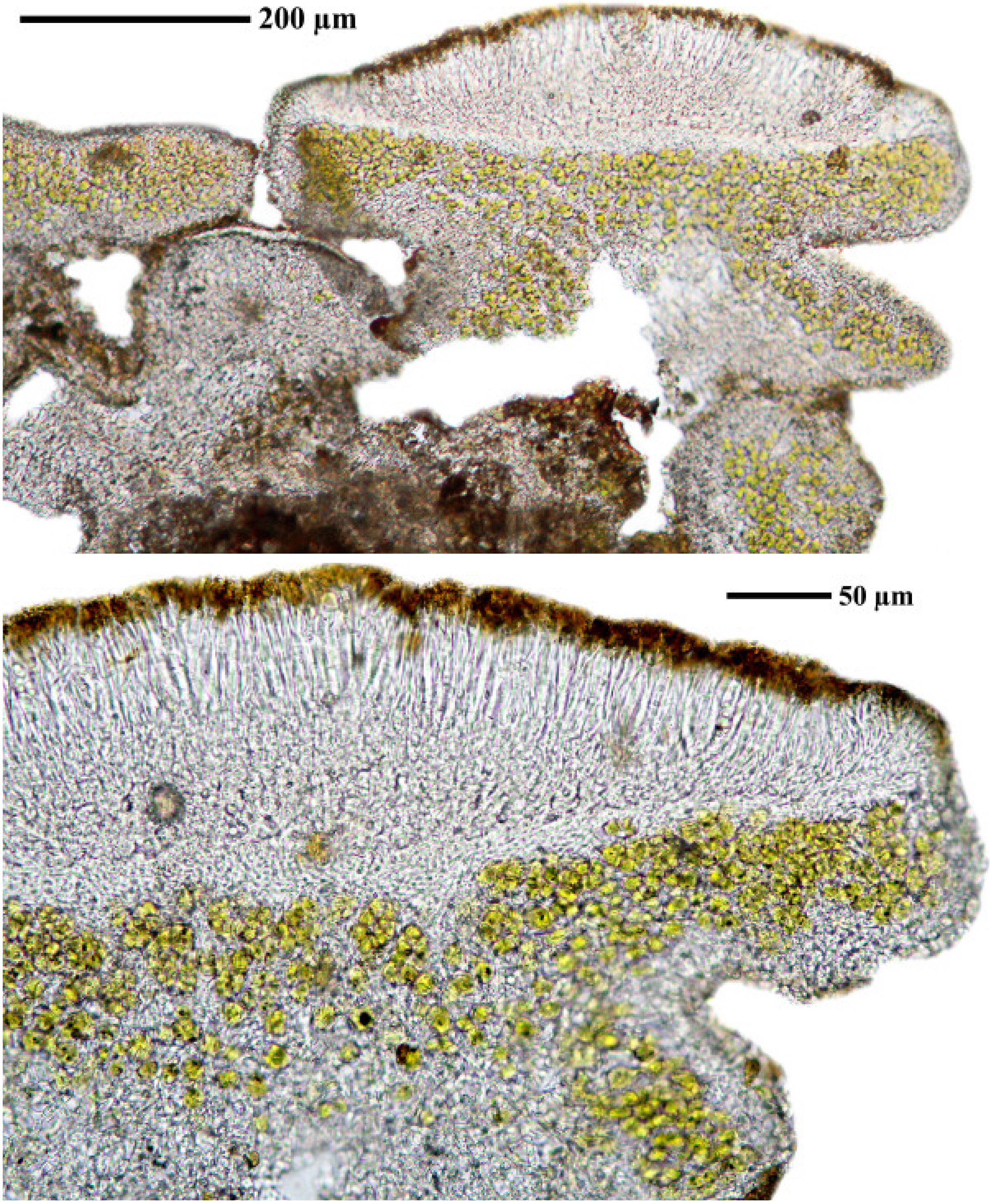
Caloplaca conglomerata (Bagl.) Jatta

Spores 8.5-9.5 x 4.7-5.3 µm, septum 3.2-3.4 µm (FS). On non-calcareous rocks. Lit. Jatta A., Syll. Lich. Ital. (1900): 255.

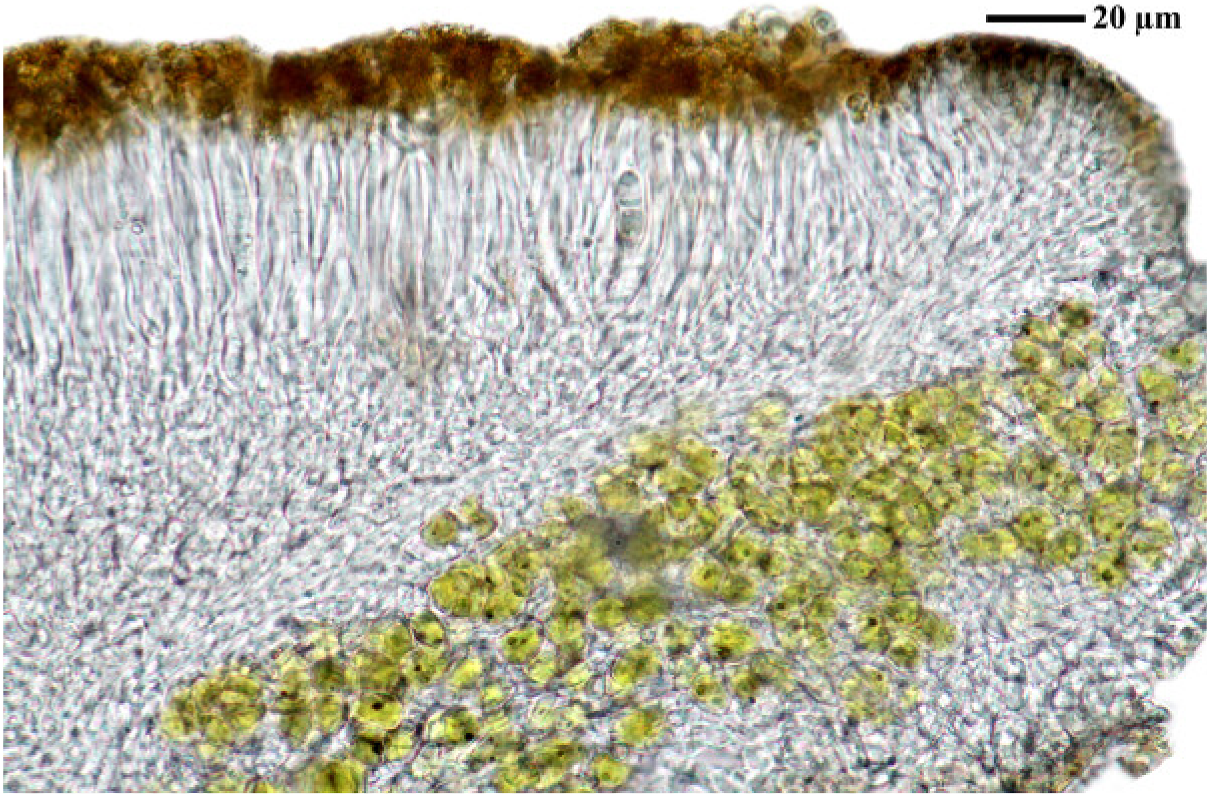
[19575], Italia, Sardinia, Prov. Nuoro, scopulum Torre Argentina dictum, prope oppidum Bosa, alt. 5-20 m, ad saxa eruptiva mollia. Leg. J. Poelt et A. Vězda, 19.07.1987. VĚZDA: LICHENES SELECTI EXSICCATI NR. 2215.

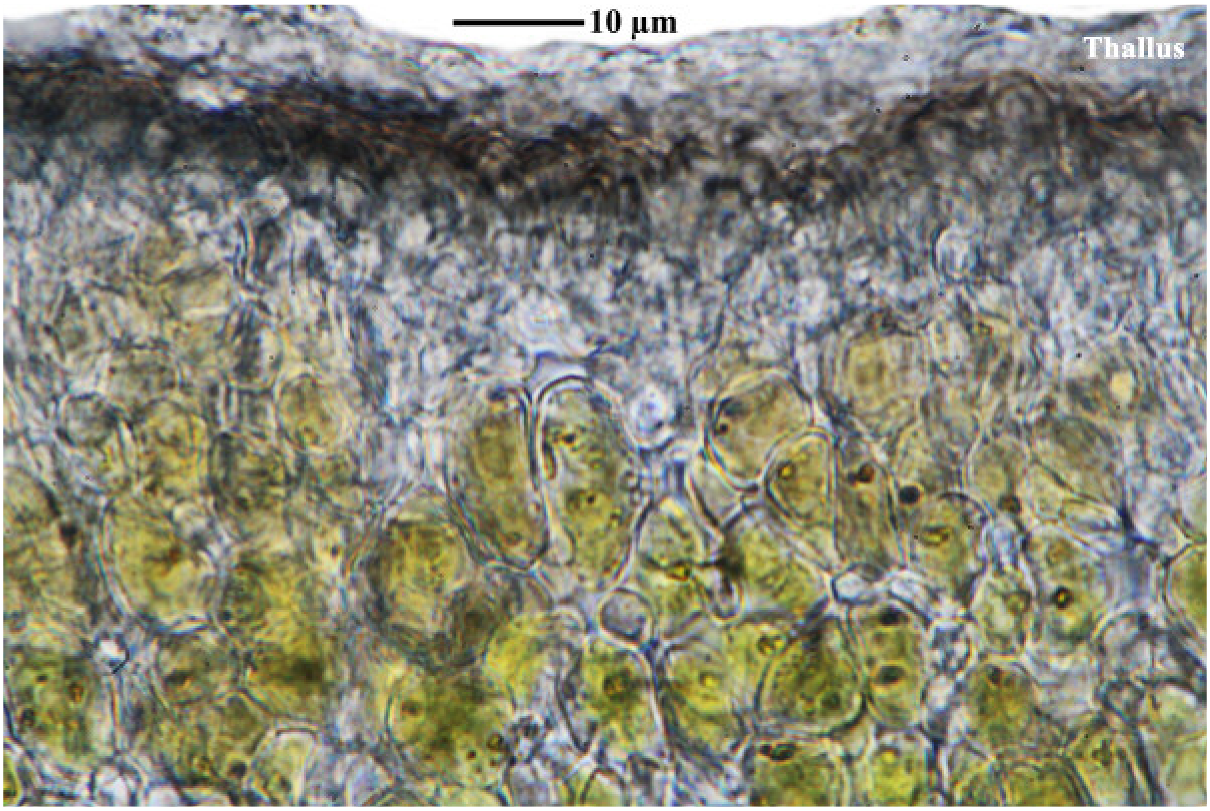


Caloplaca conglomerata

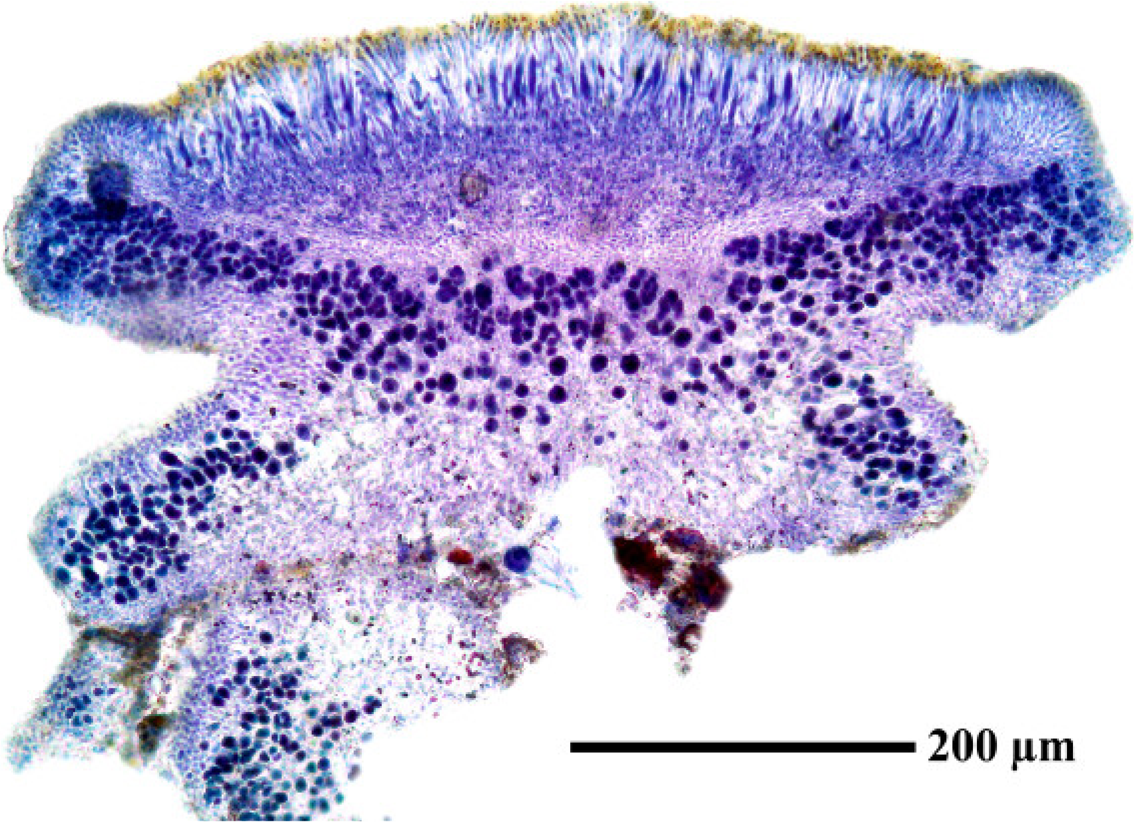


Caloplaca conglomerata

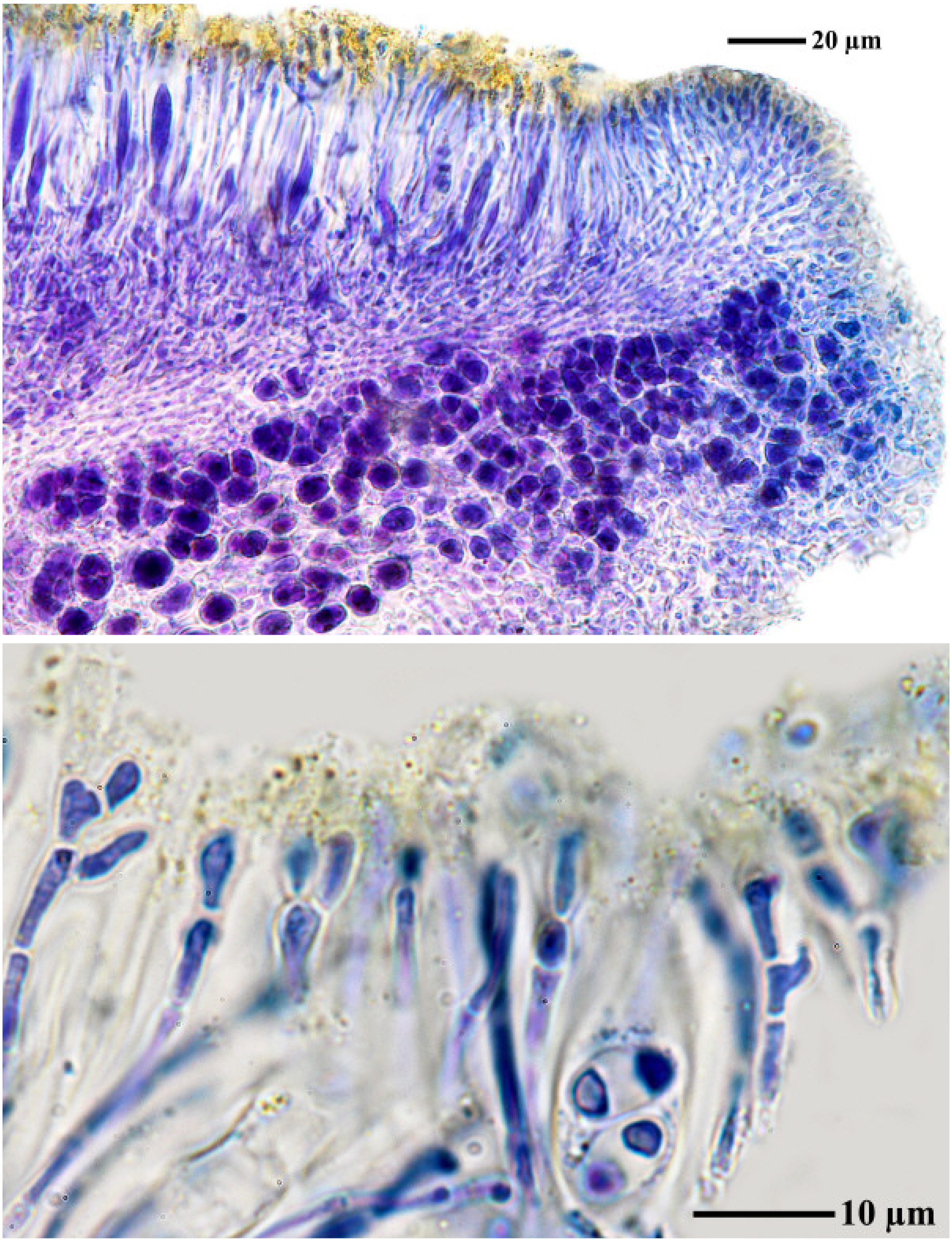




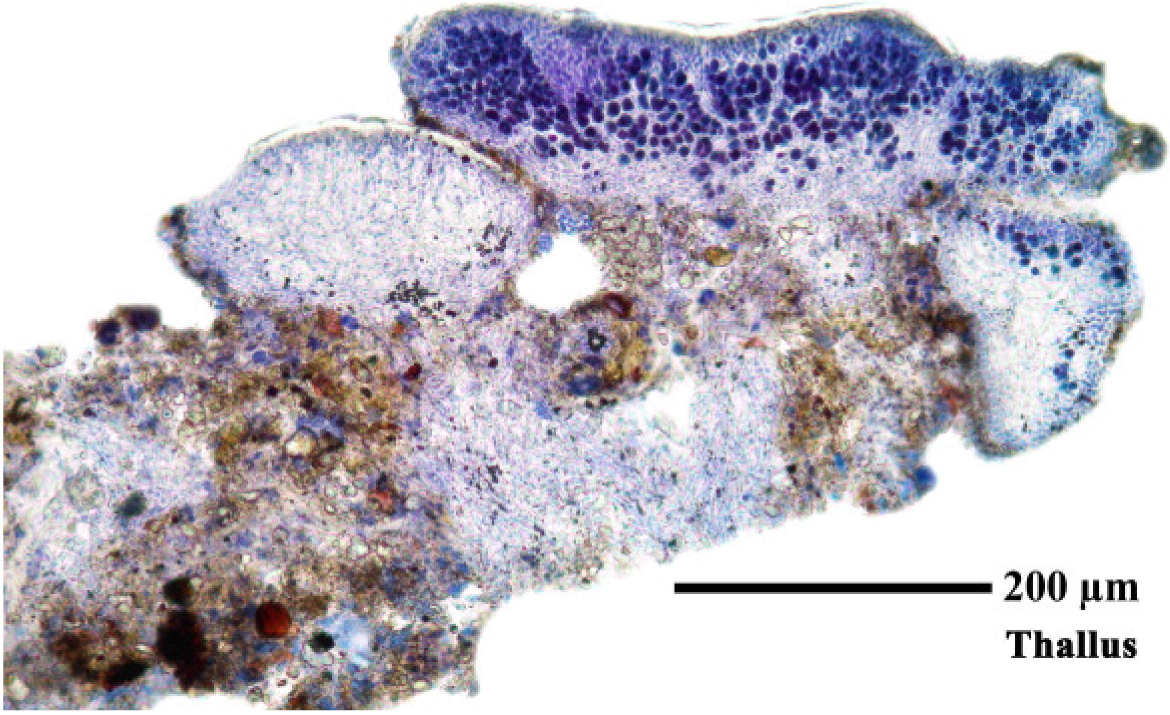
Caloplaca conglomerata

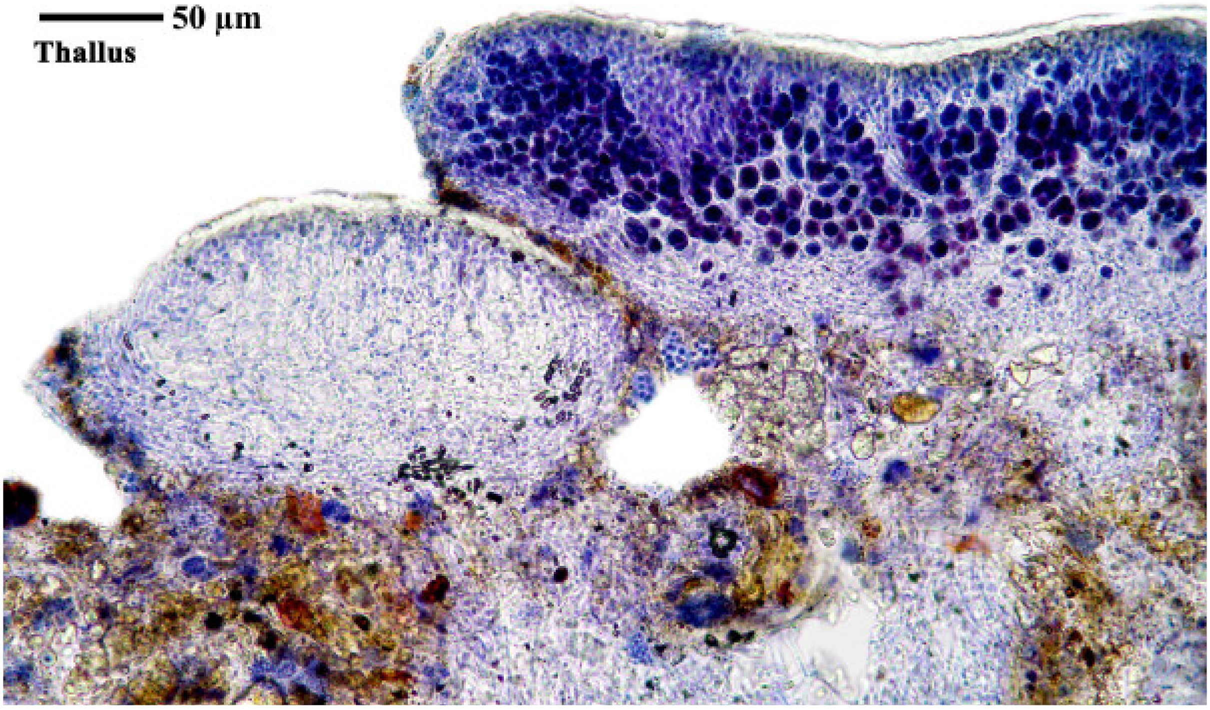


Caloplaca conglomerata



Caloplaca conglomerata





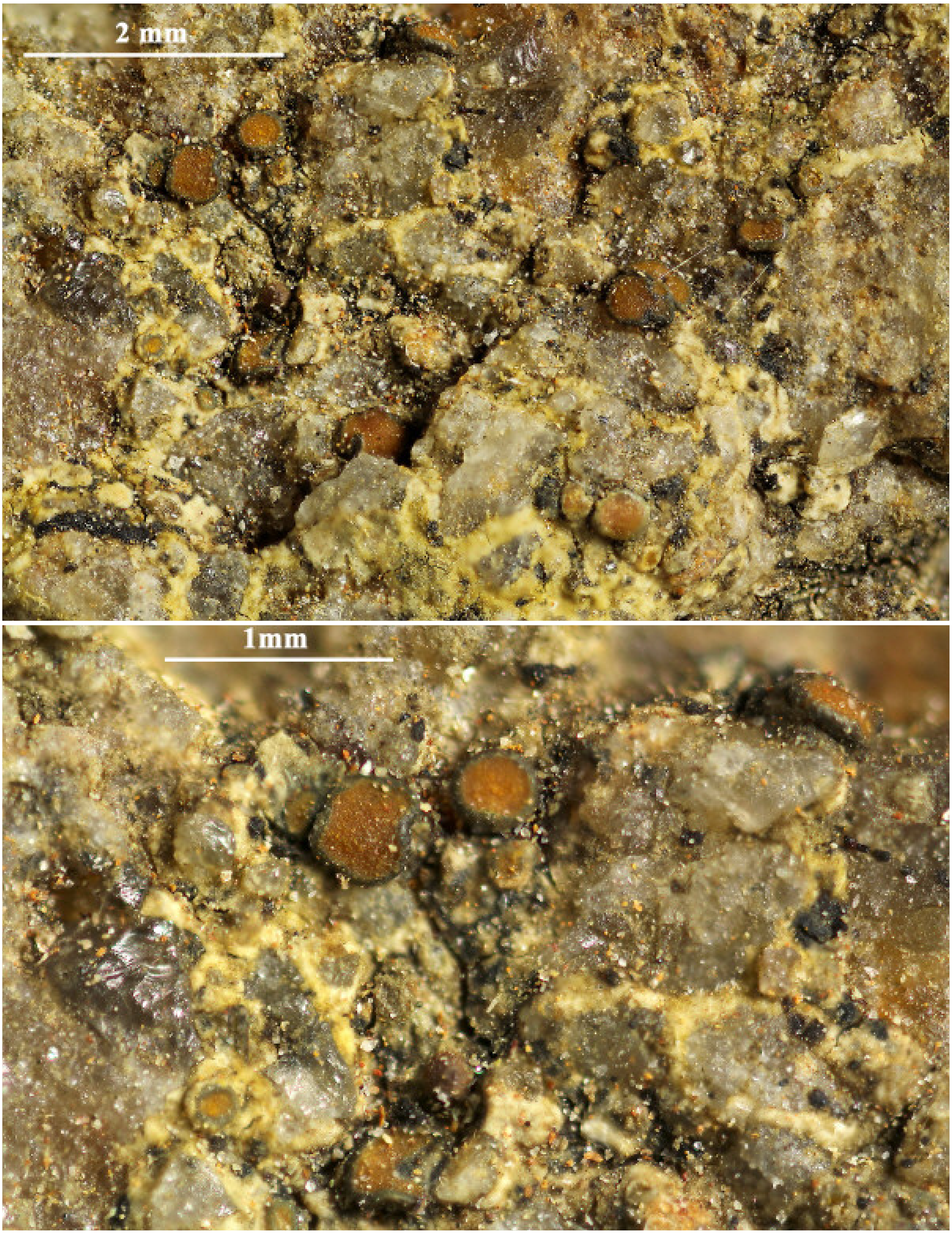
Caloplaca conglomerata

Caloplaca conglomerata

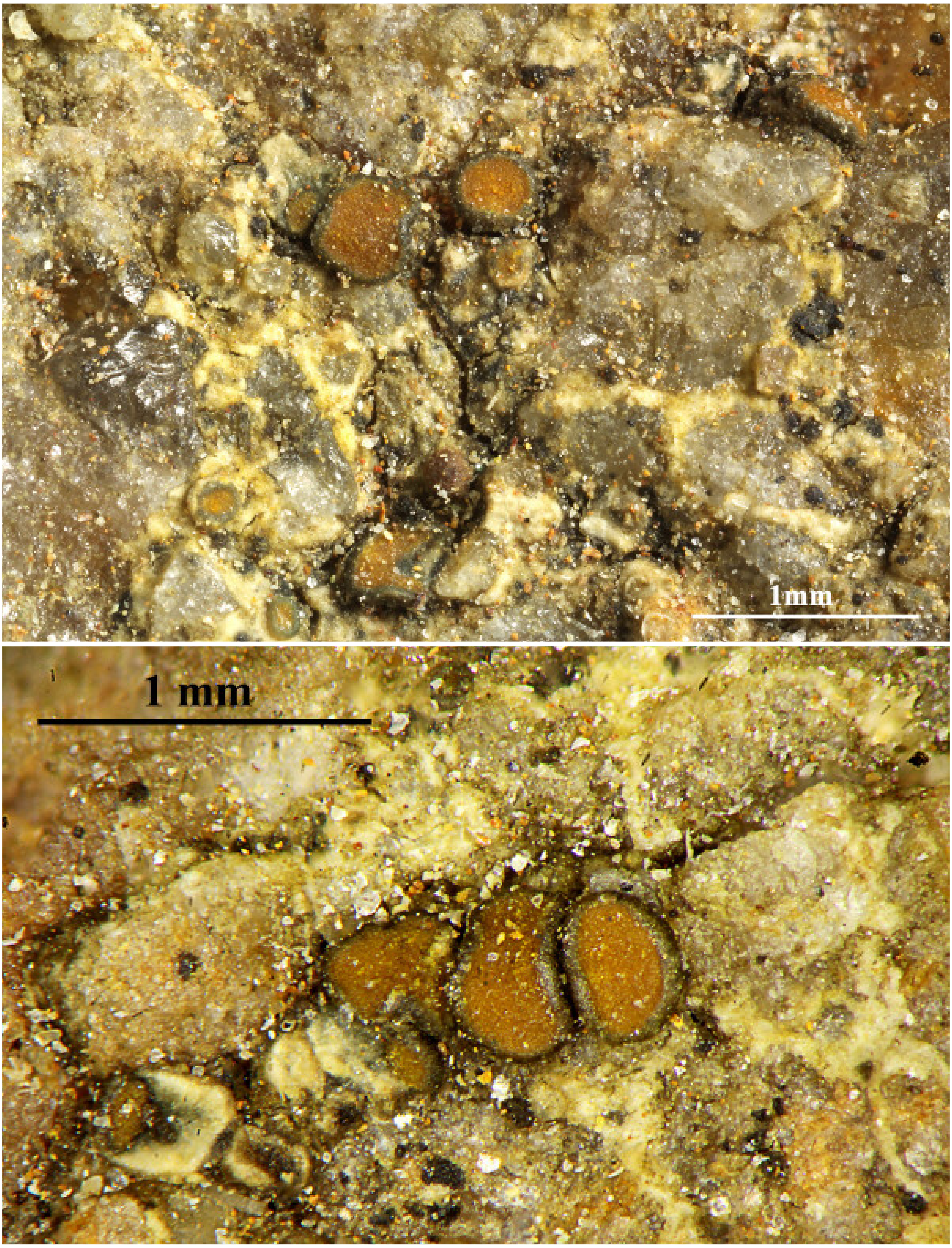
Caloplaca conversa (Kremp.) Jatta

Spores 12-14.2 x 4.2 µm, septum 2.2-3.3 µm (FS), hyaline, 8/ascus.

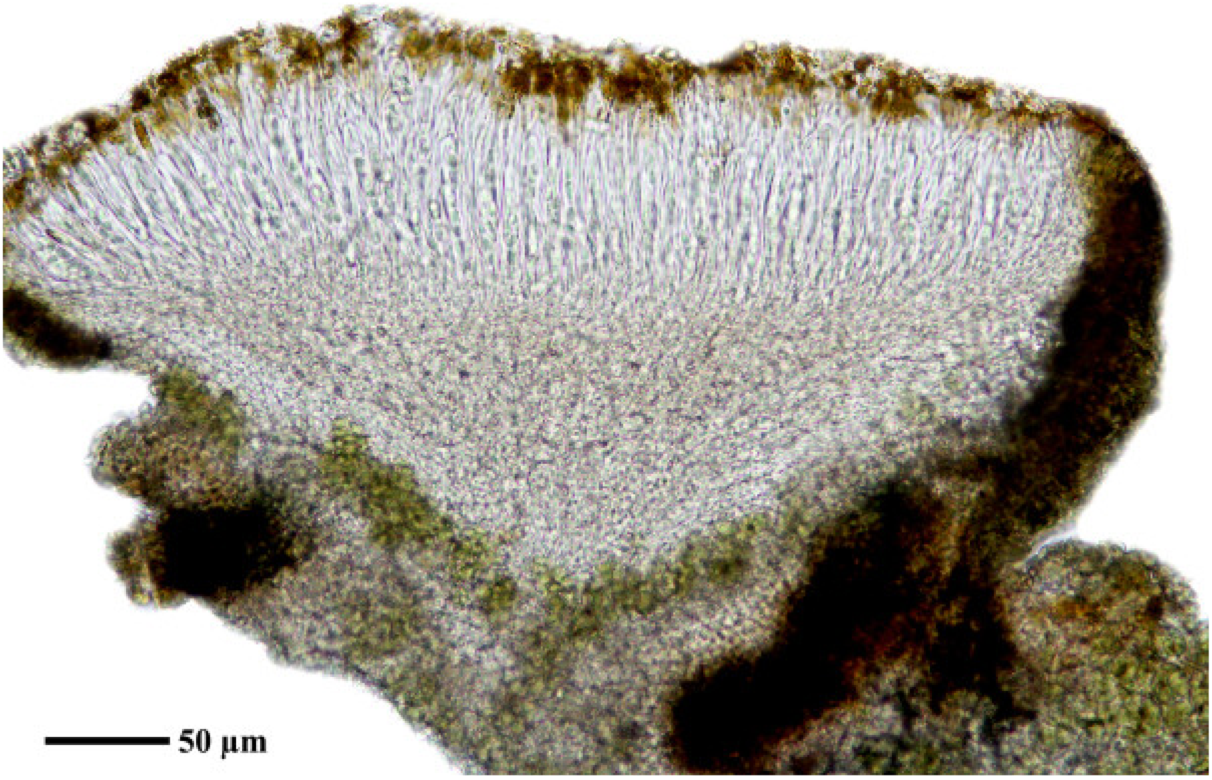
[BR5030040900638], Hong Kong Island, Pok Fu Lam, near cementary, 1 m, in coastal area on siliceaous rock. Leg. A. Aptroot (43006), June 1998, det. A. Aptroot 1998.

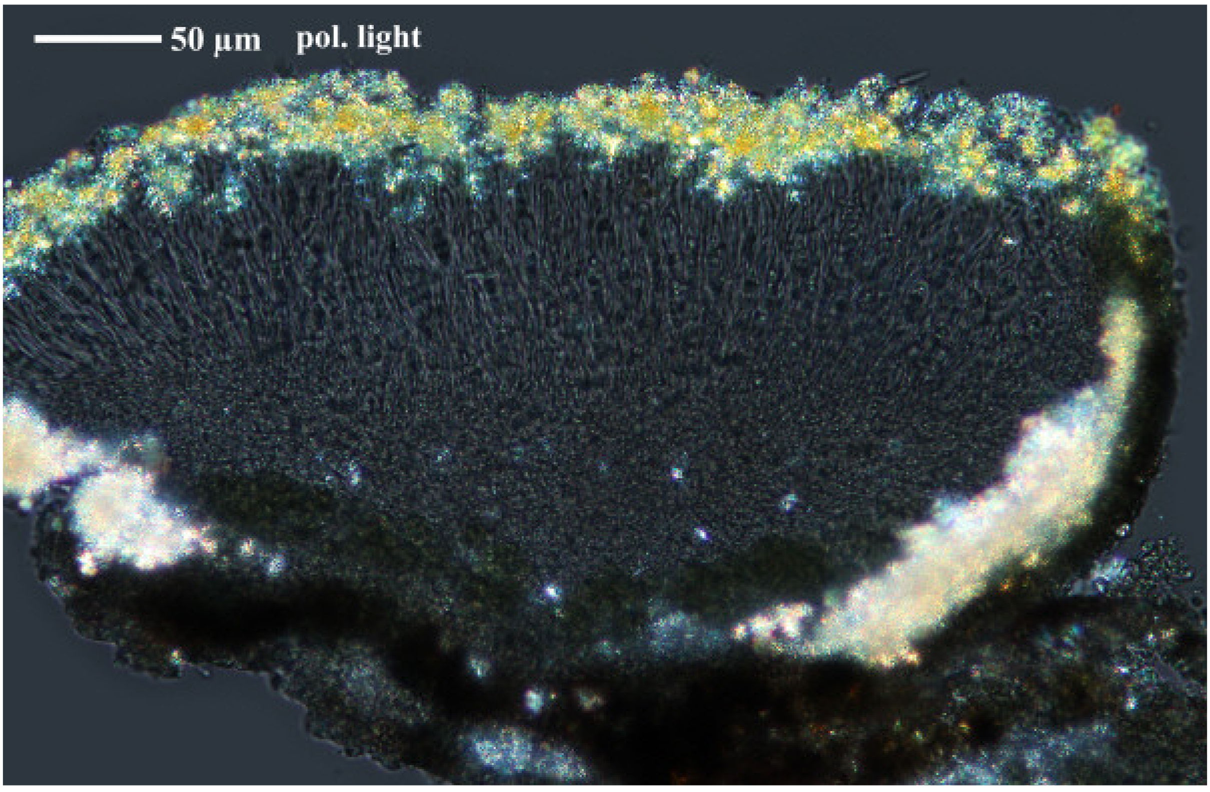


Caloplaca conversa

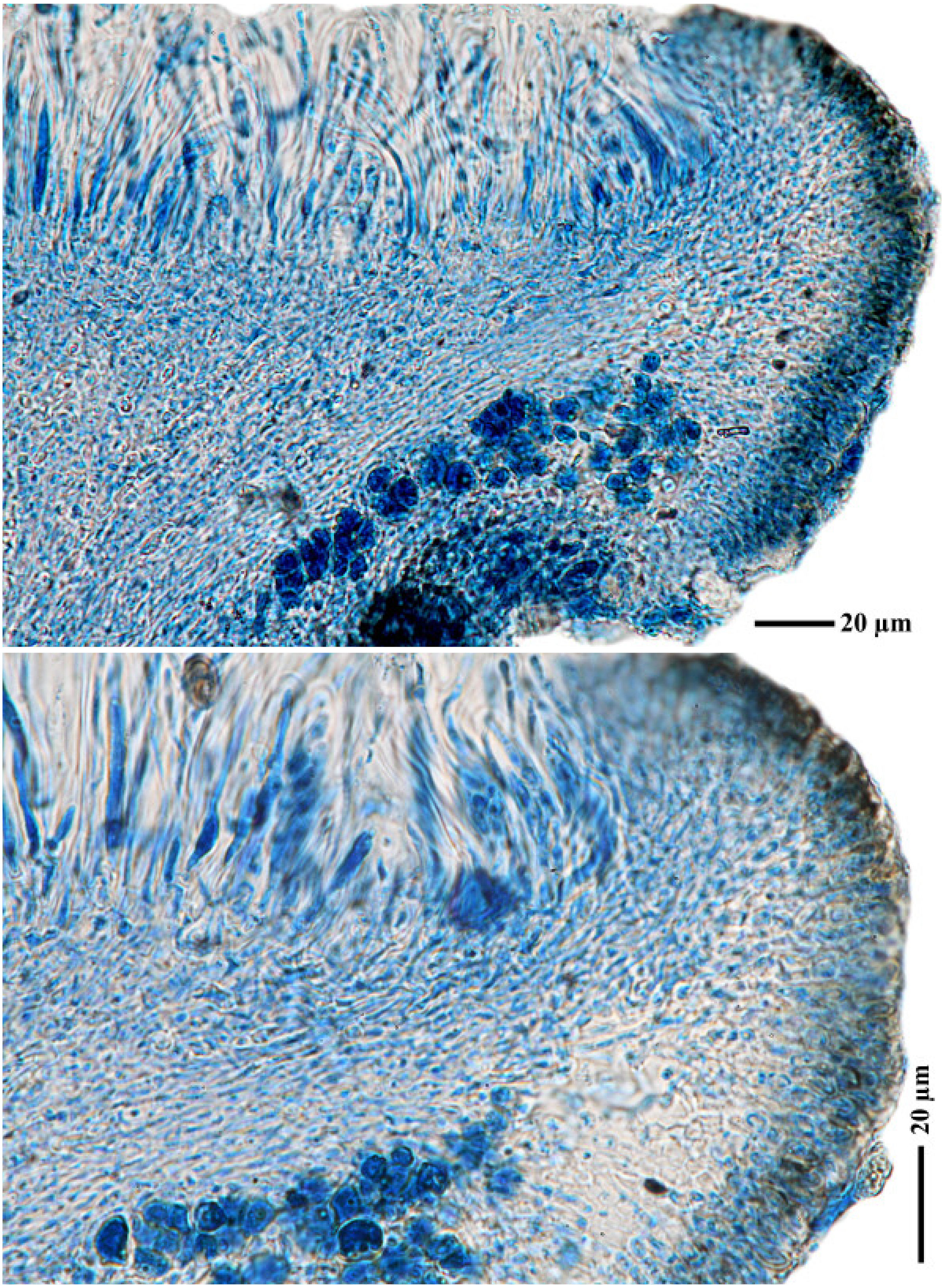


Caloplaca conversa





Caloplaca conversa



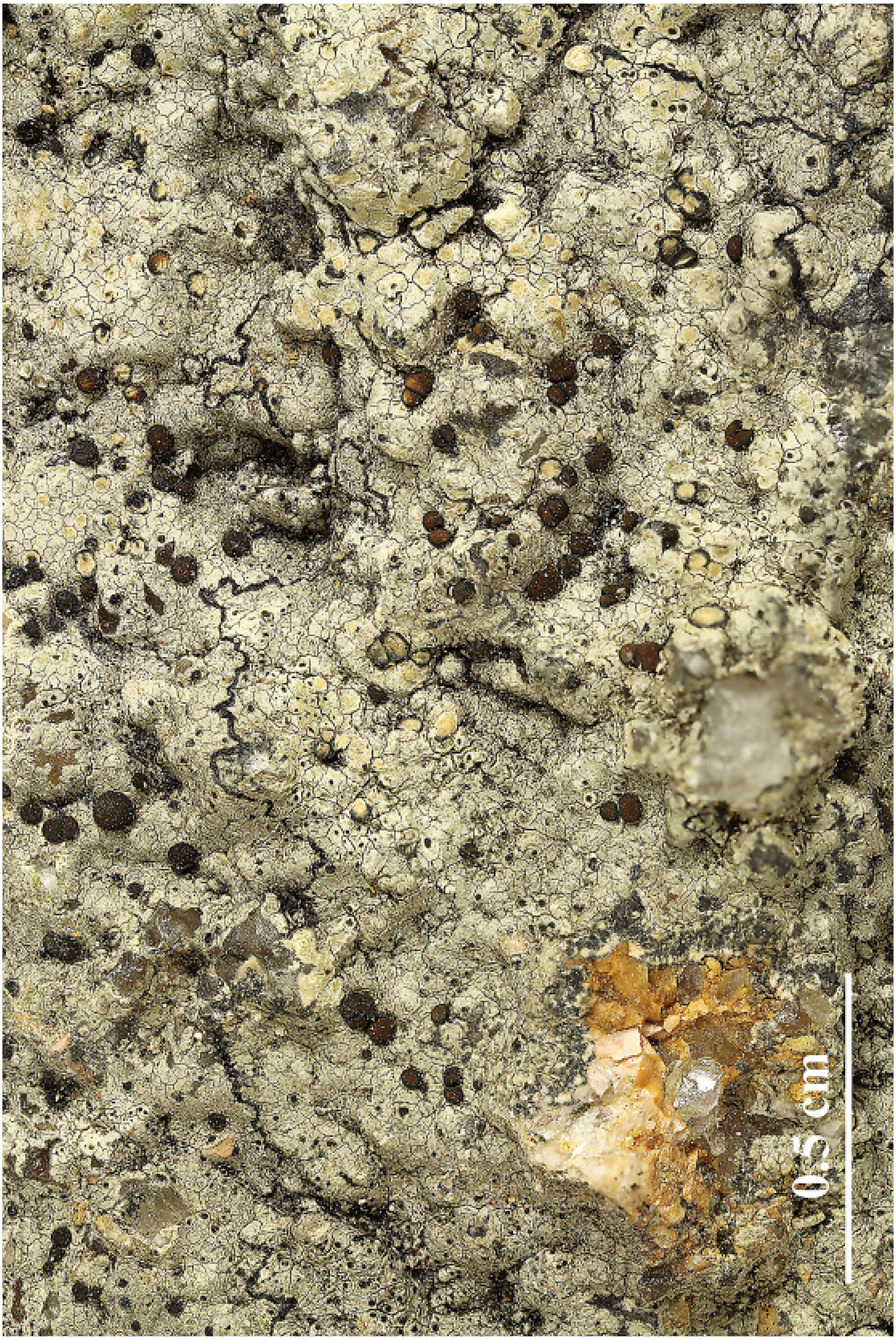
Caloplaca conversa

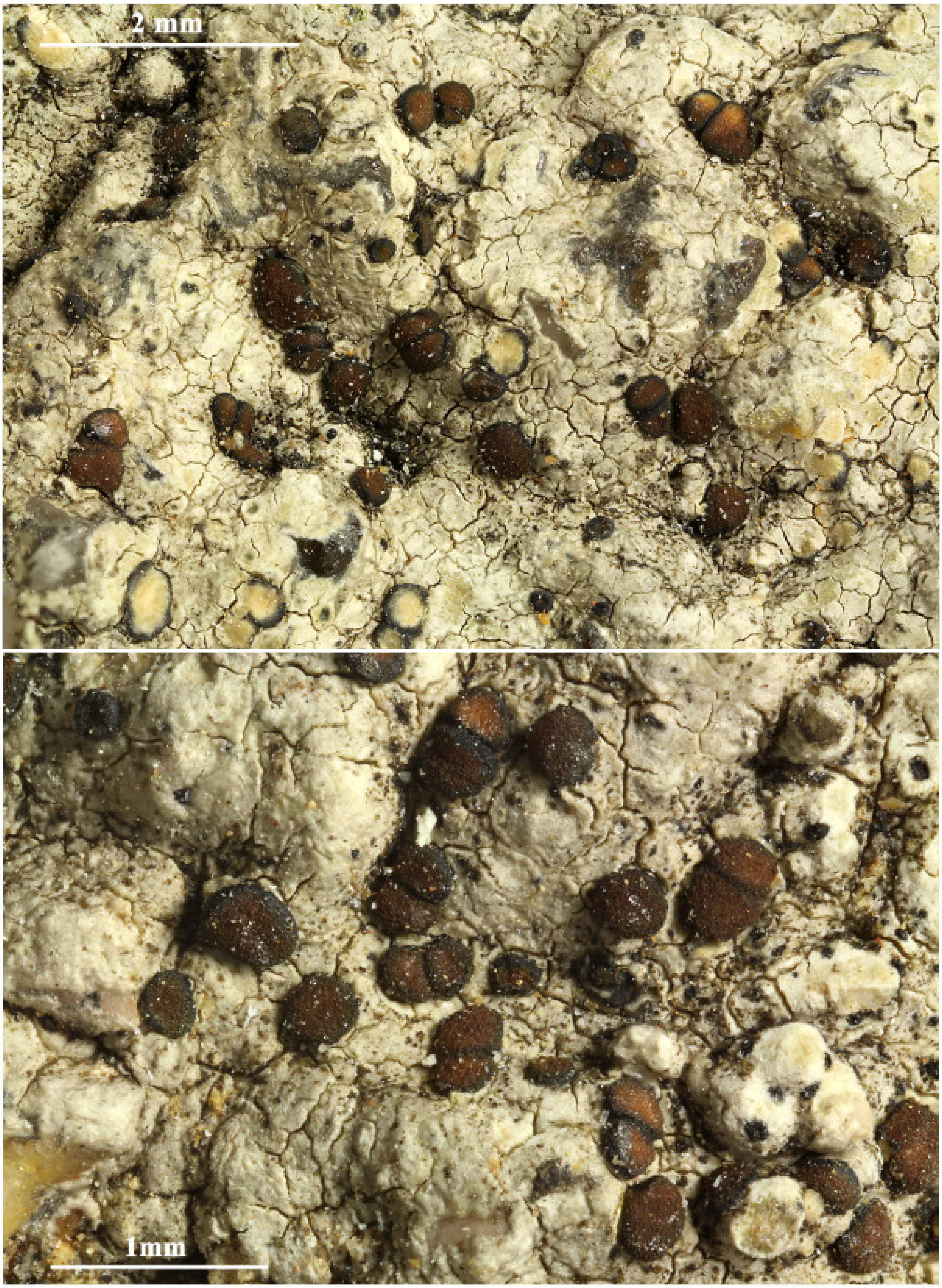
Caloplaca conversa

Caloplaca conversa (Kremp.) Jatta

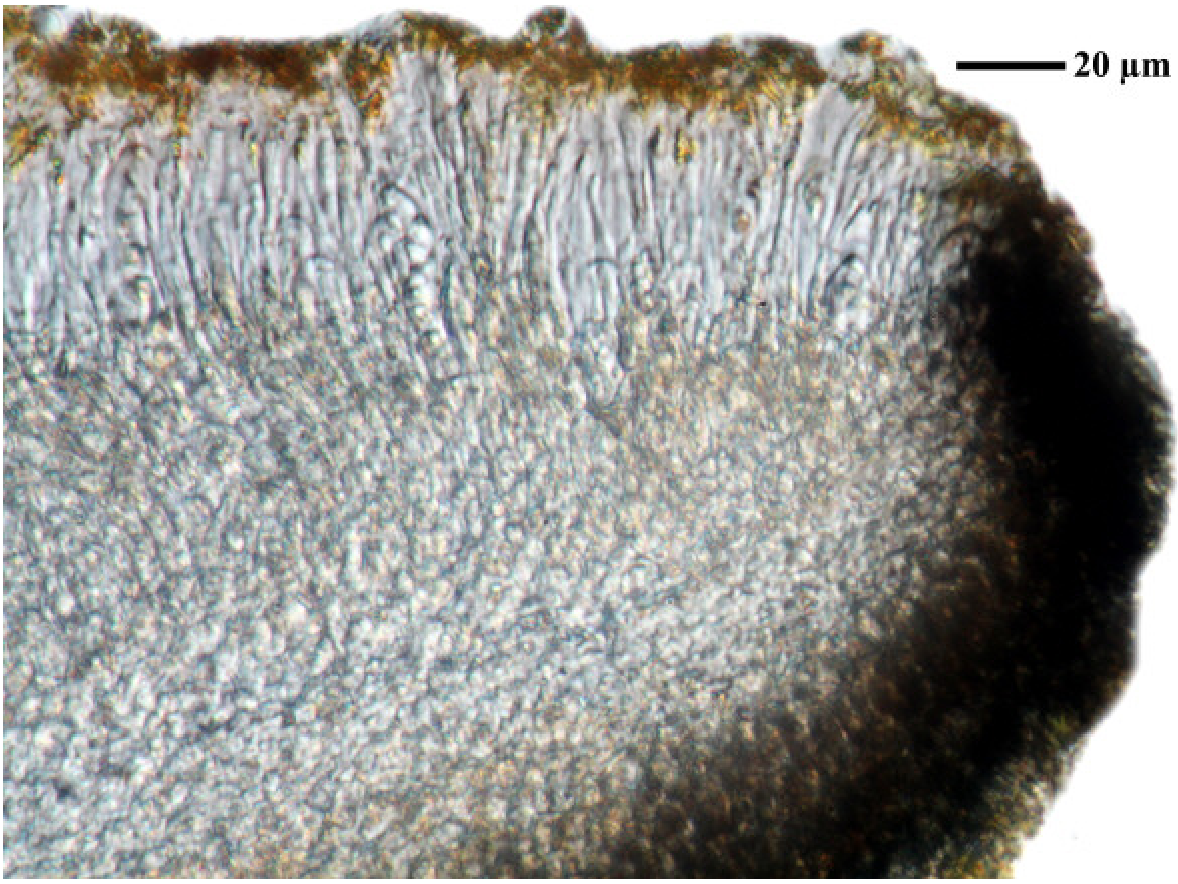
Spores 13-15 x 5-6 µm (AA); 9.5-11.4 x 5-6 µm, septum 3-4.5 µm (FS)

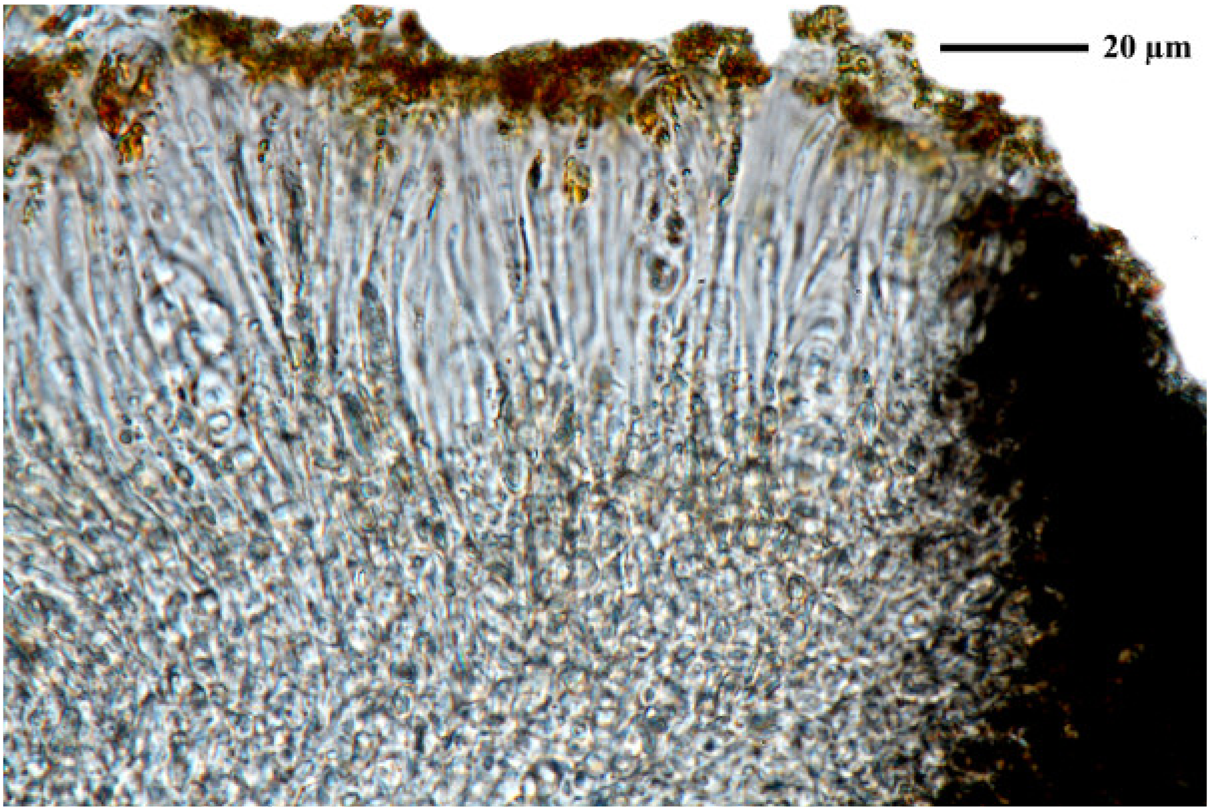
[BR5030040901642], Hong Kong Island, Shek O Beach, 1-50 m, in coastal area on exposed granite. Leg. A. Aptroot (43206), June 1998, det. A. Aptroot 1998.



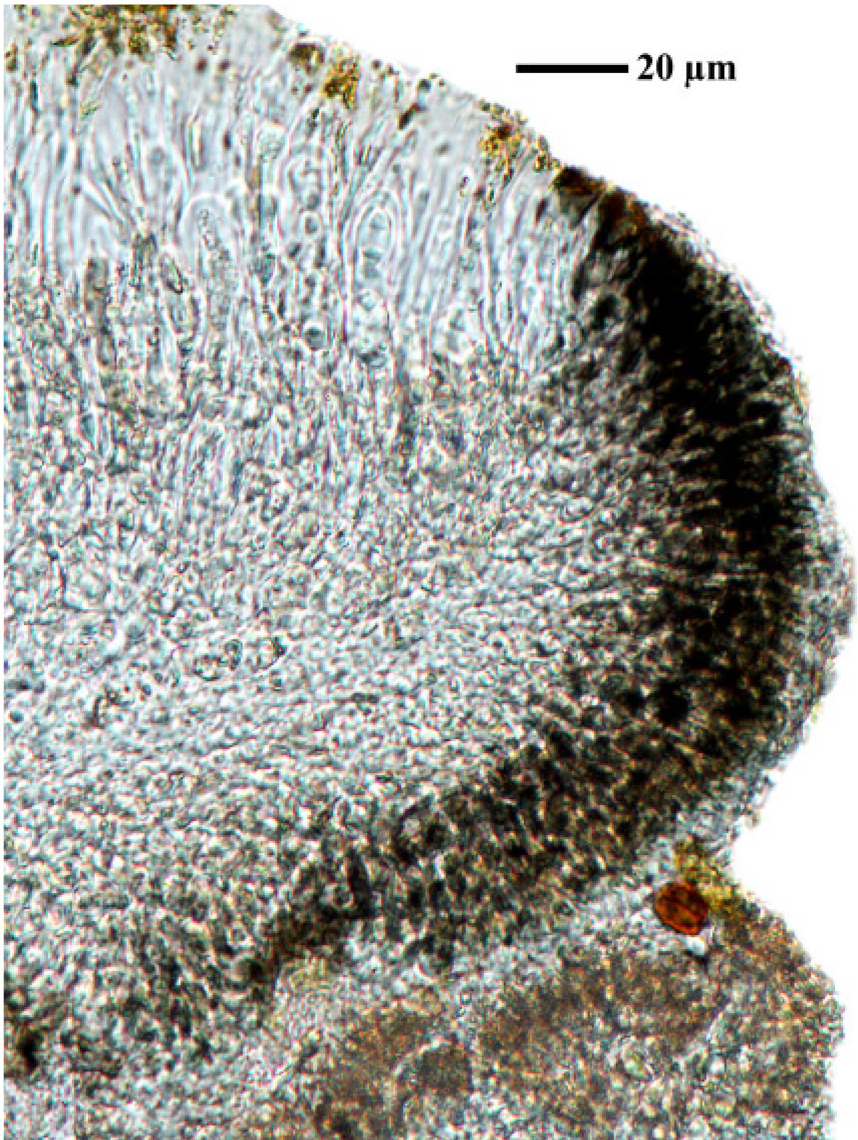


Caloplaca conversa

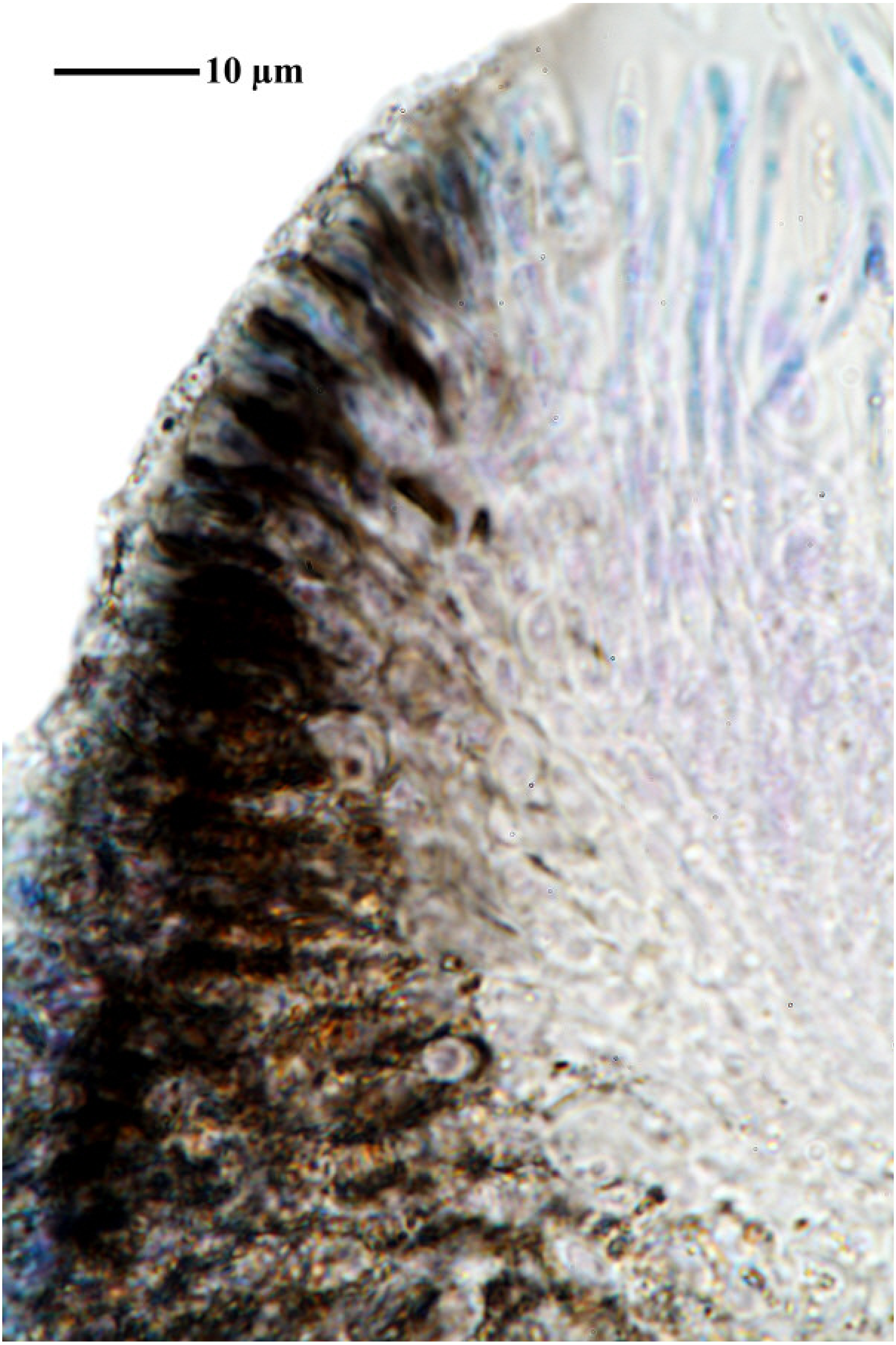




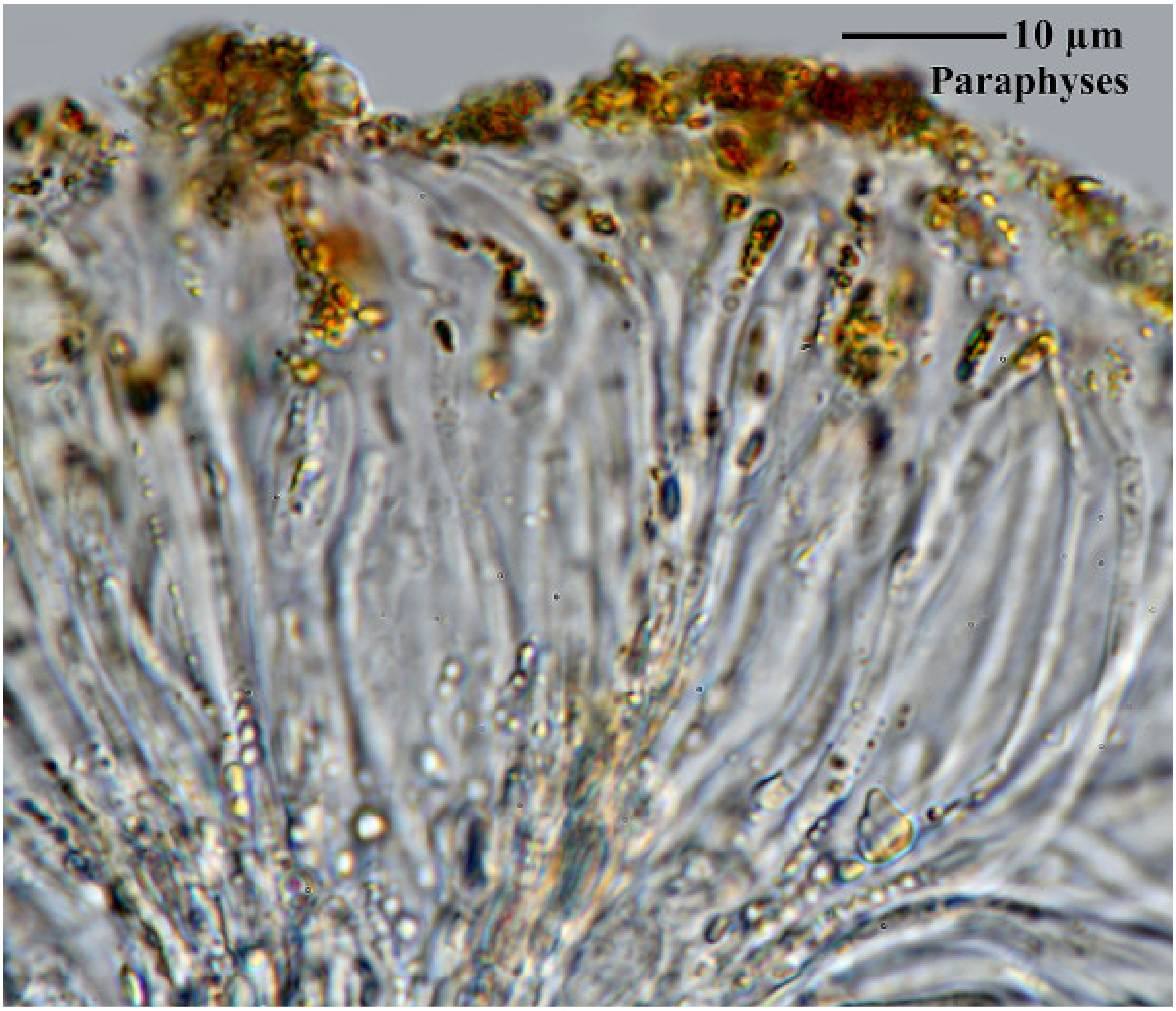
Caloplaca conversa

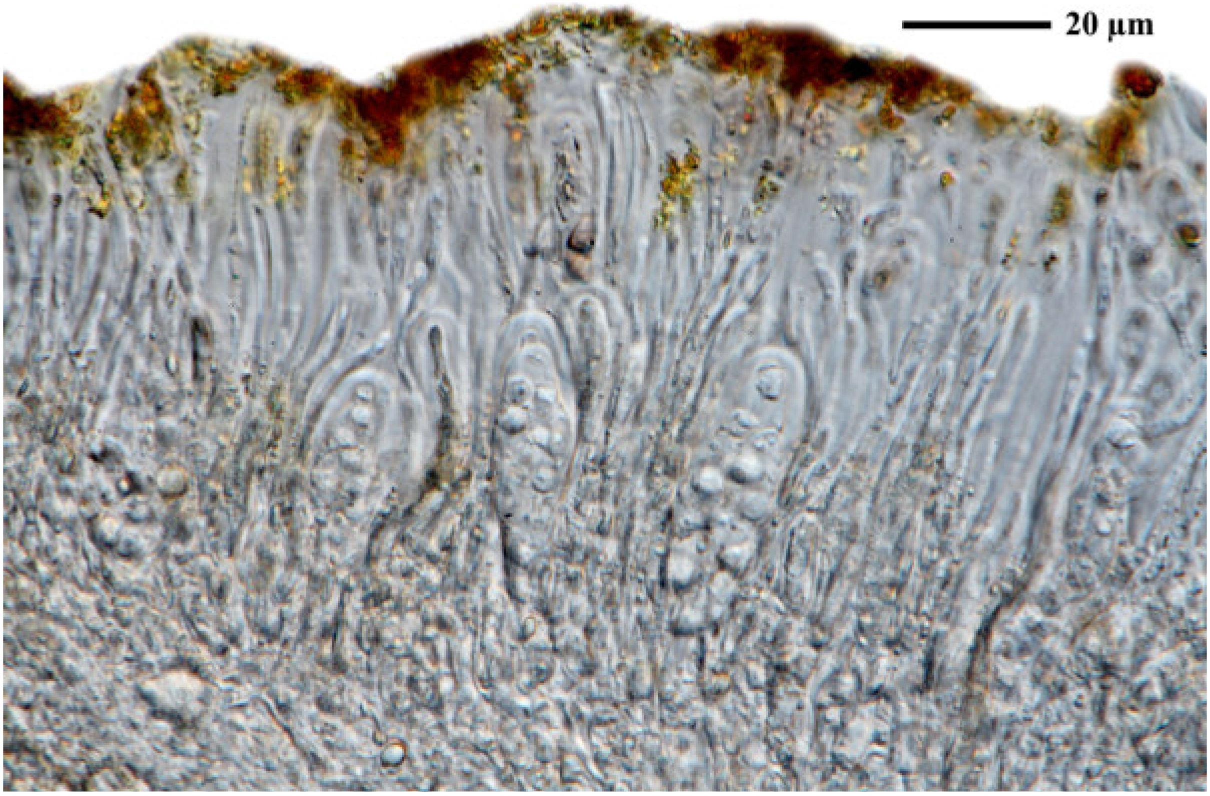


Caloplaca conversa

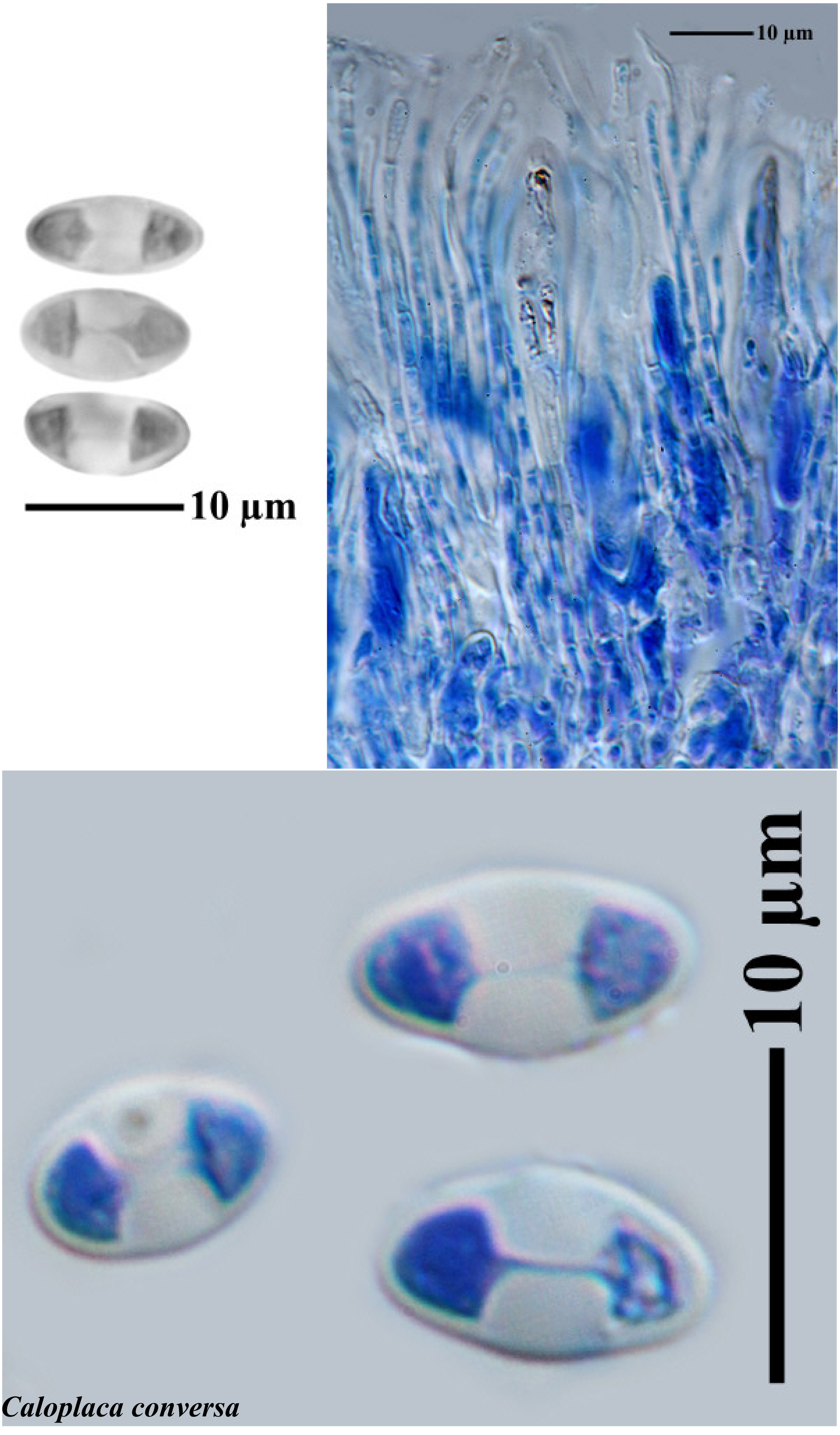


Caloplaca conversa

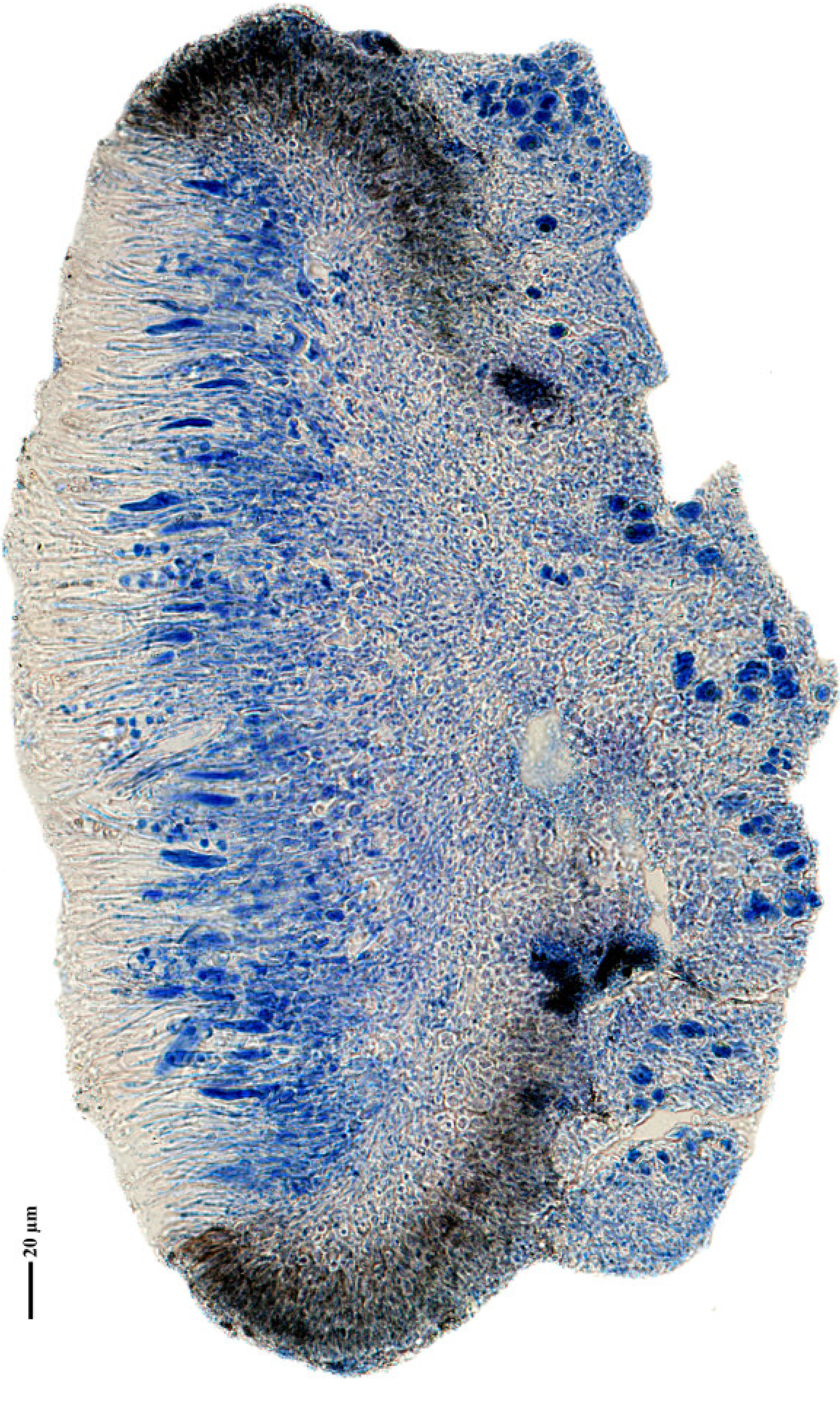




Caloplaca conversa



Caloplaca conversa

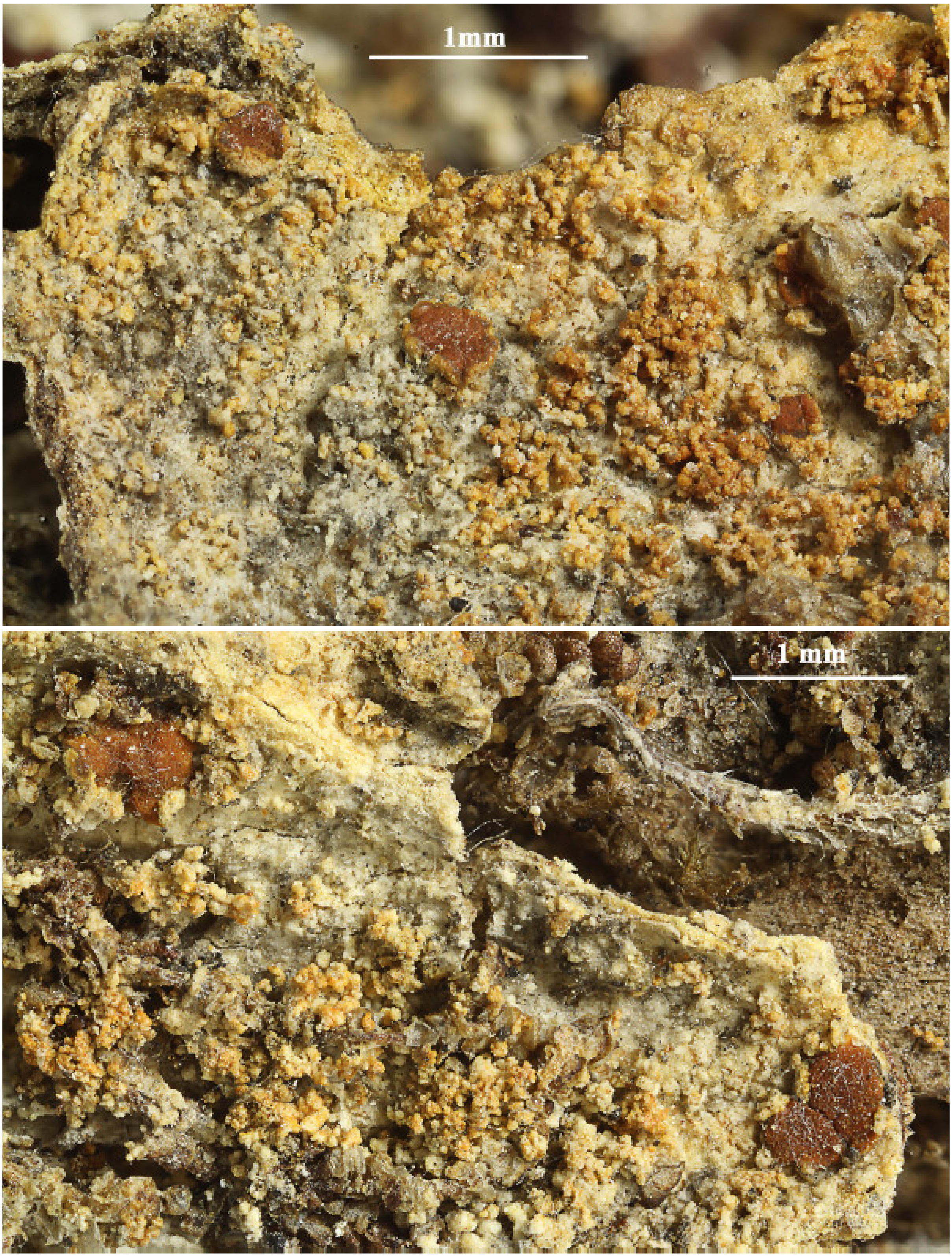


Caloplaca conversa

Caloplaca coralliza Arup & Åkelius
[= *Blastenia coralliza* (Arup & Åkelius) Arup, Søchting & Frödén]

[BR5030012897935], Belgium, chêne, bois St. Michel à la limite communale avec Nassogne; Tenneville (St. Hubert). Leg. E. Jacques (6810), 22.06.1969.

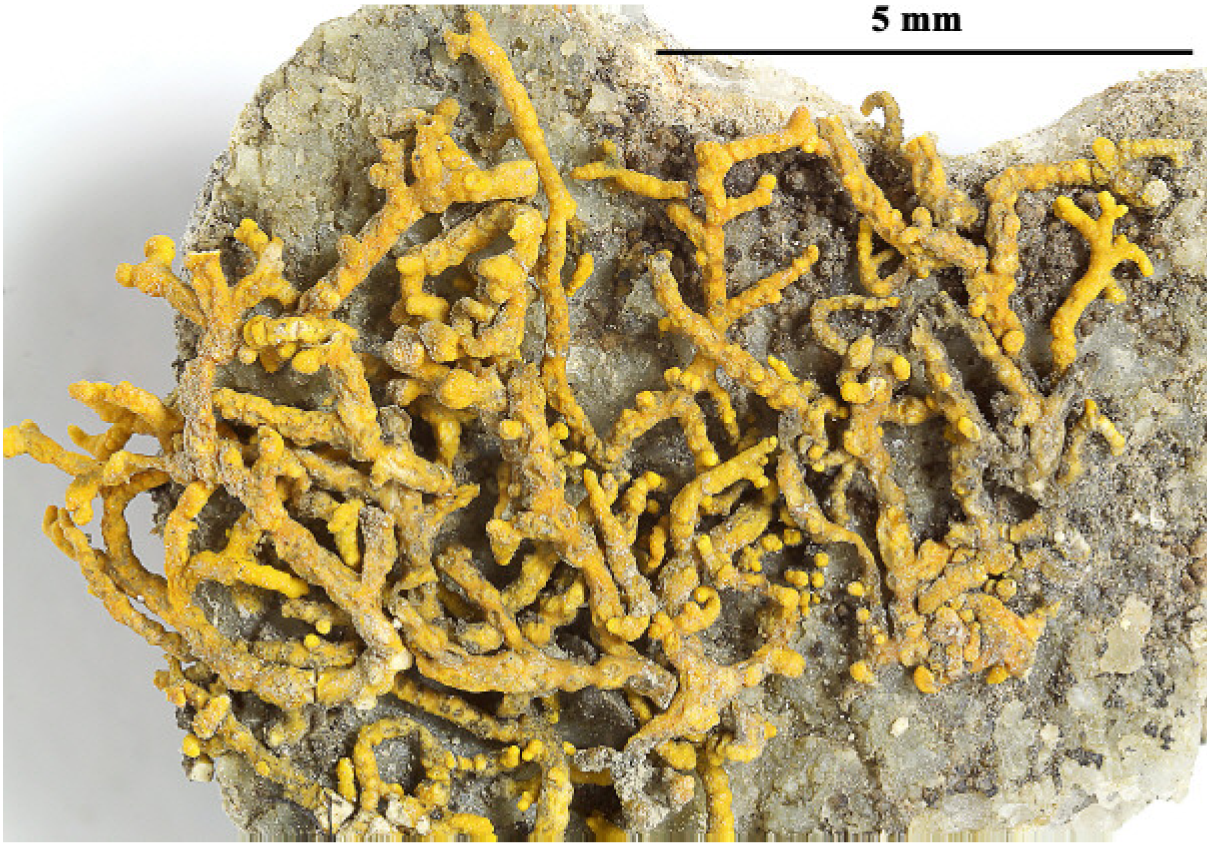
Caloplaca coralliza



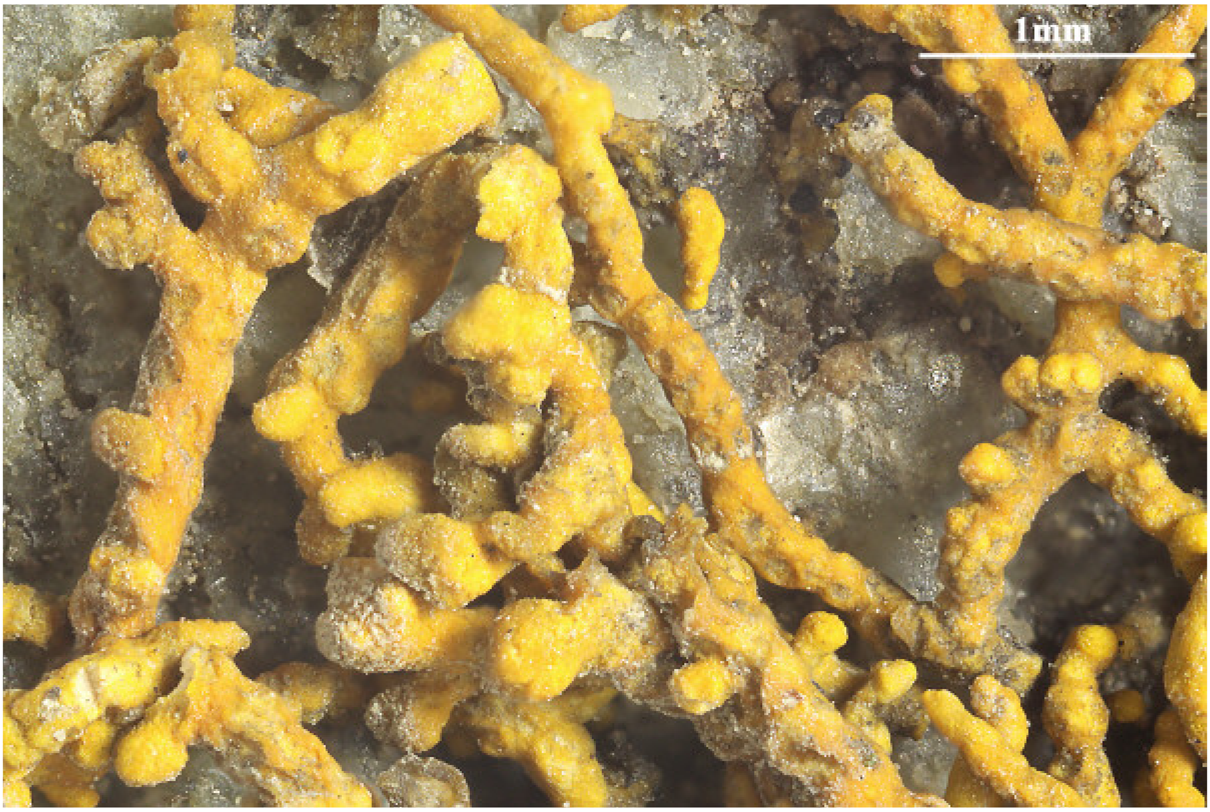
Caloplaca coralliza

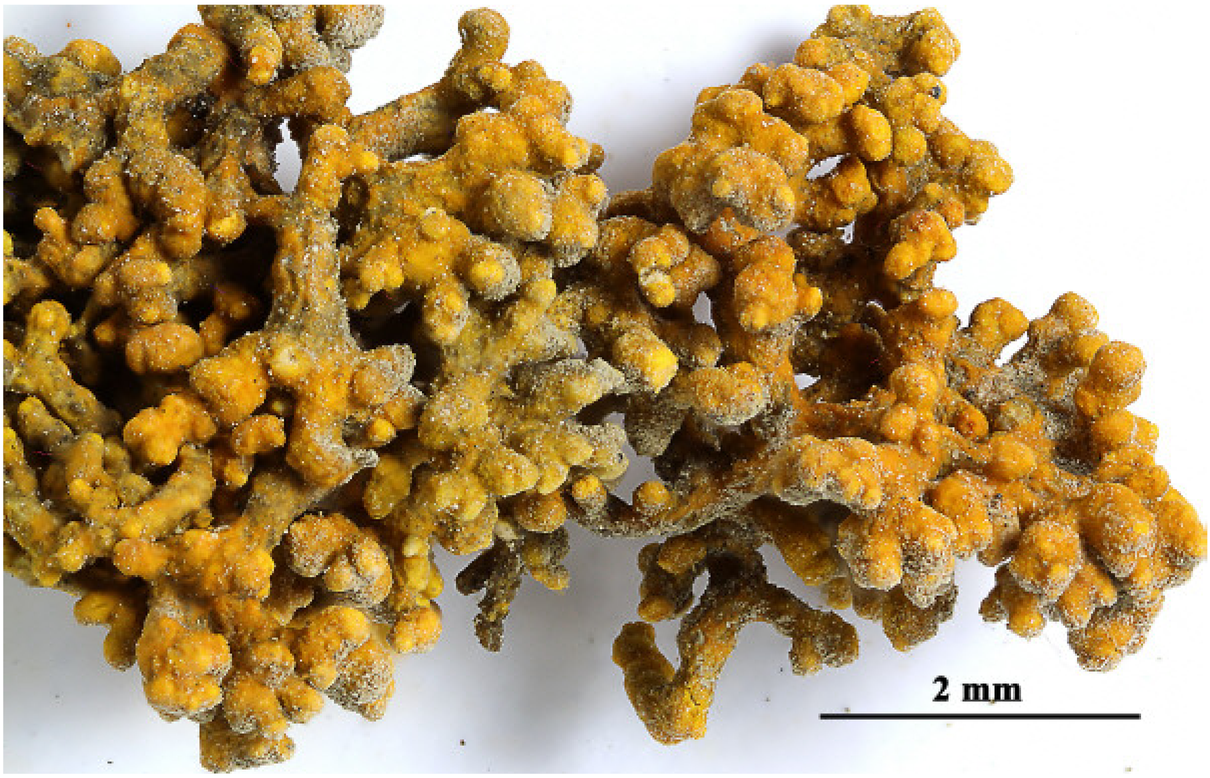
Caloplaca coralloides (Tuck.) Hulting

[BR5030040838016], USA, California, ad saxa maritima prope Point Lobos et bprope Pescadores Point. Leg. A. C. Herre. KRYPTOGAMAE EXSICCATAE NR. 1558.

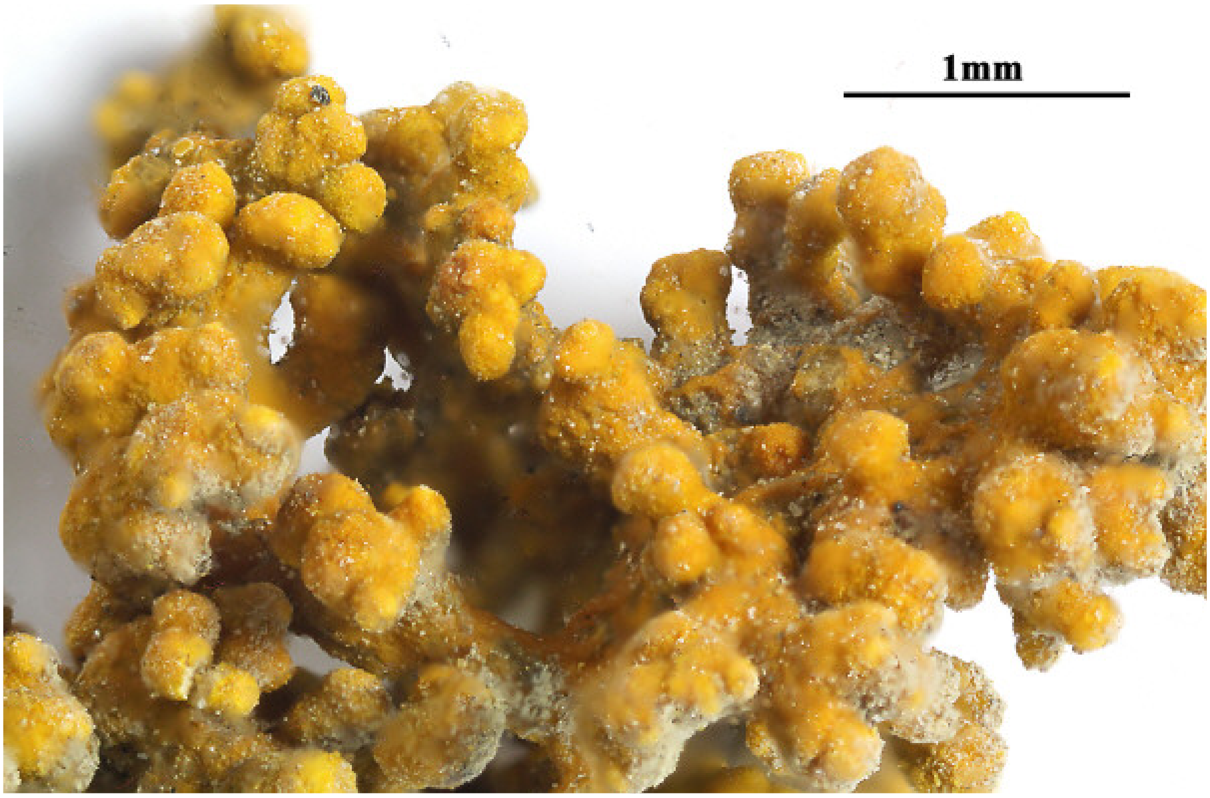


Caloplaca coralloides

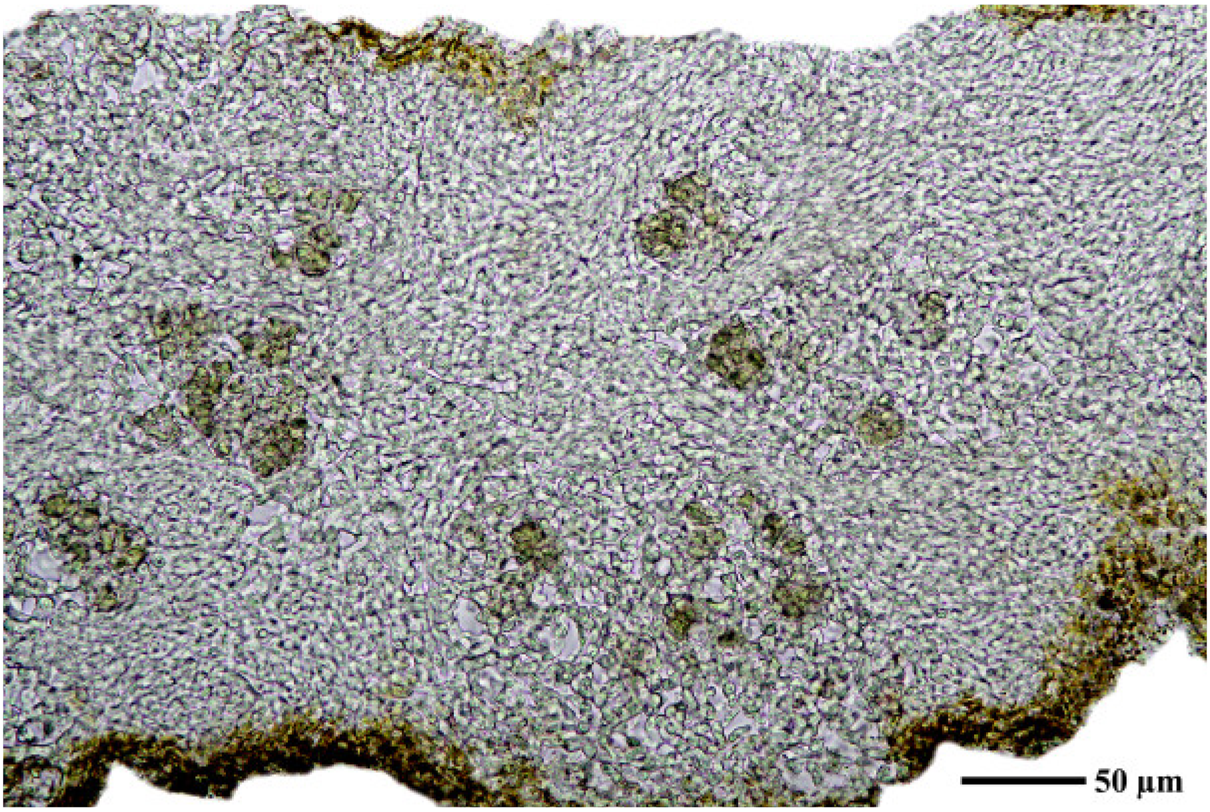


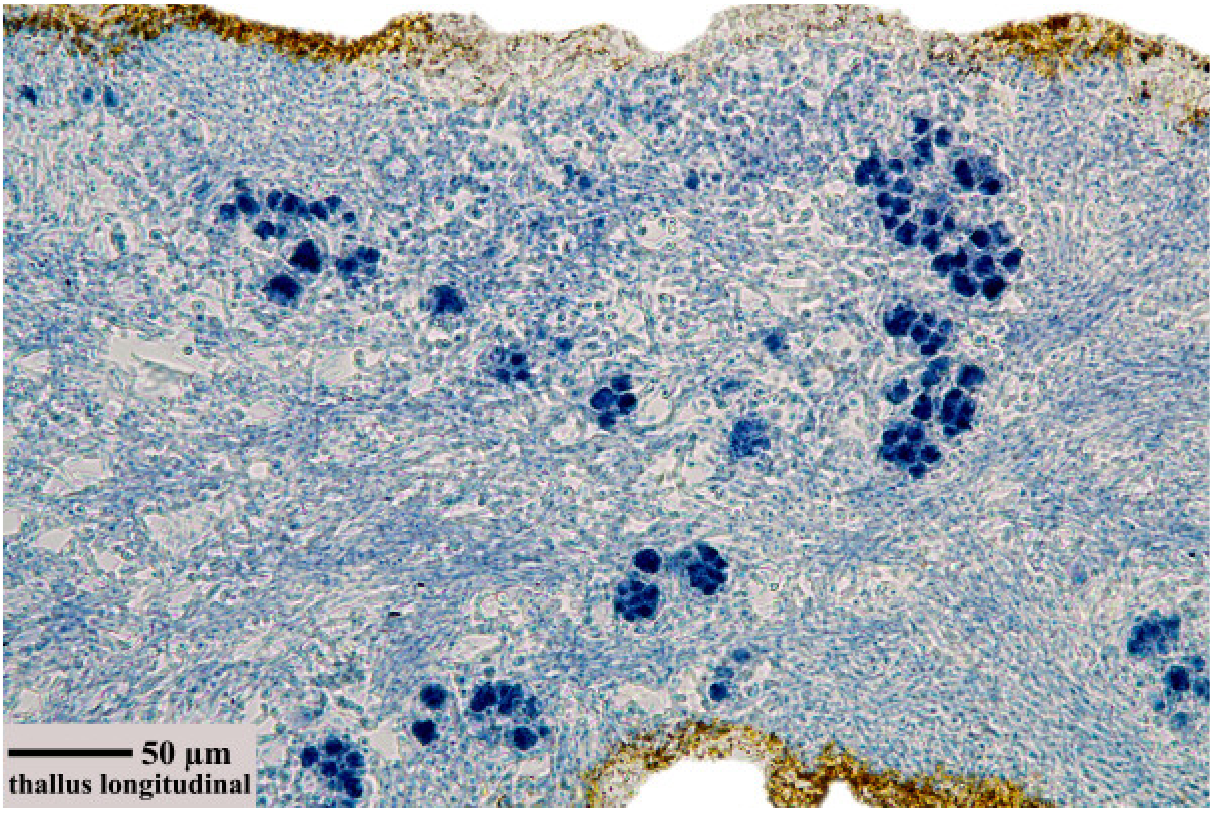


Caloplaca coralloides

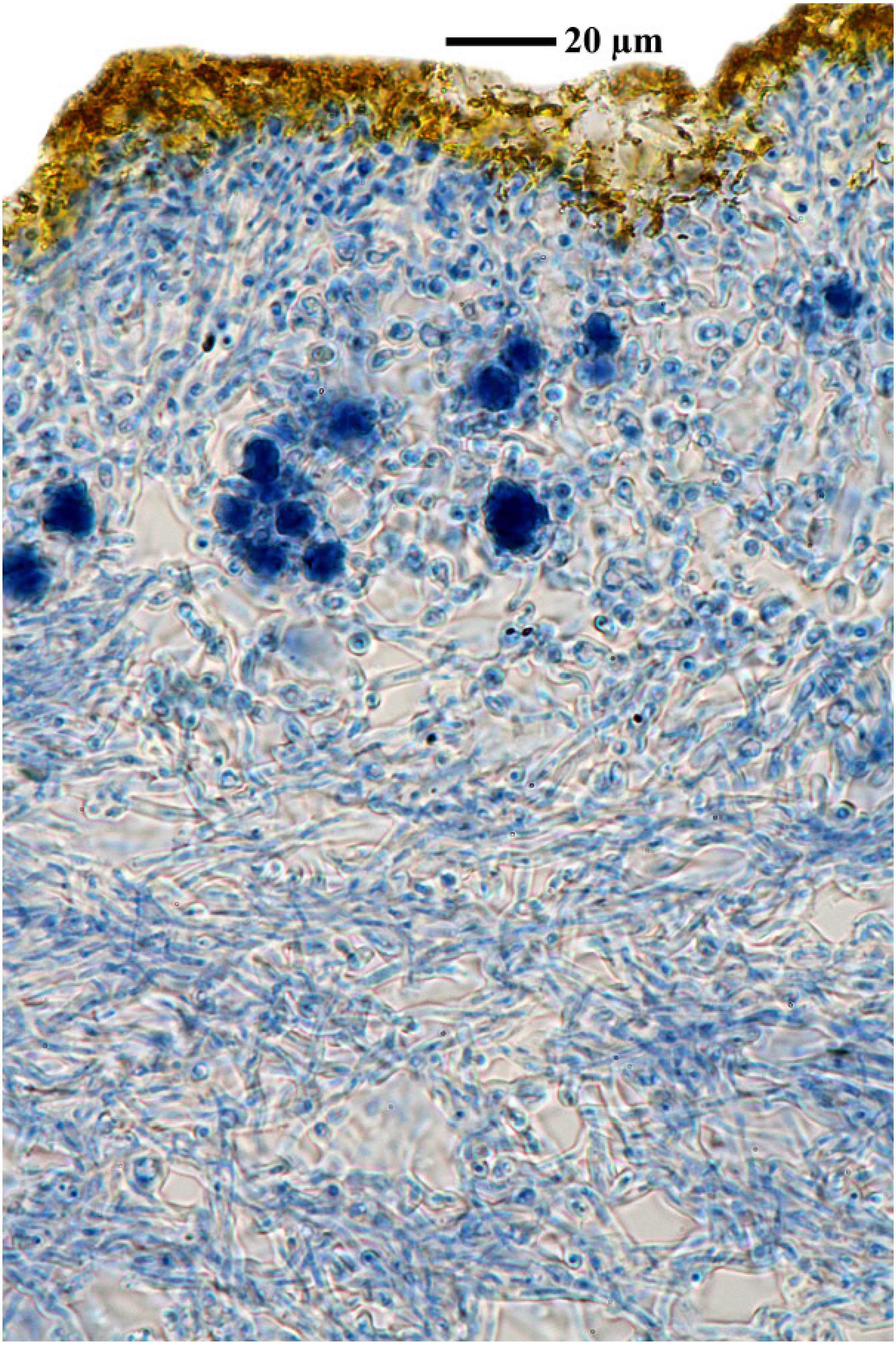


Caloplaca coralloides





Caloplaca coralloides



Caloplaca coralloides

Caloplaca coreana S.Y. Kondr. & Hur

On non-calcareous rock.

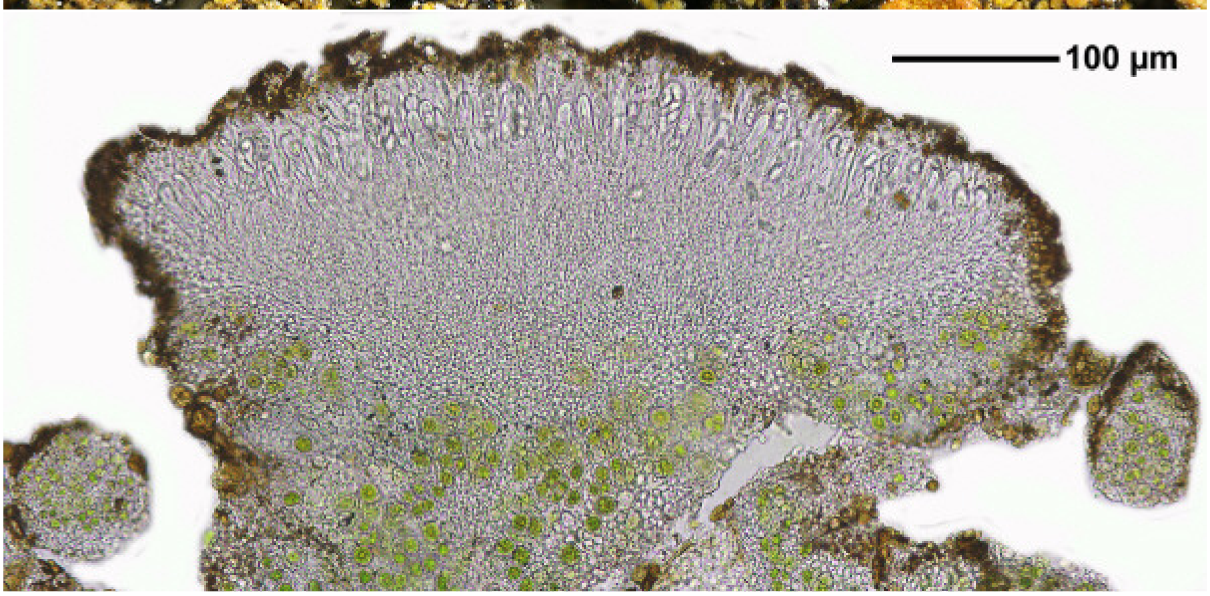
[ABL 72848], Korea, Gangwon-do, Dist. Pyeonchang-gun, Jinbu-my-eoun, Dongsan-ri, Mt. Odae, Odaesan National Park, along the Odae stream, en route from temple Woljeong-sa to temple Sangwon-sa, c. 37°48’ N, c. 128°34’ E, c. 700 m, on siliceous rock. Leg. A. Aptroot 16.10.2014, det. A. Aptroot 2014.

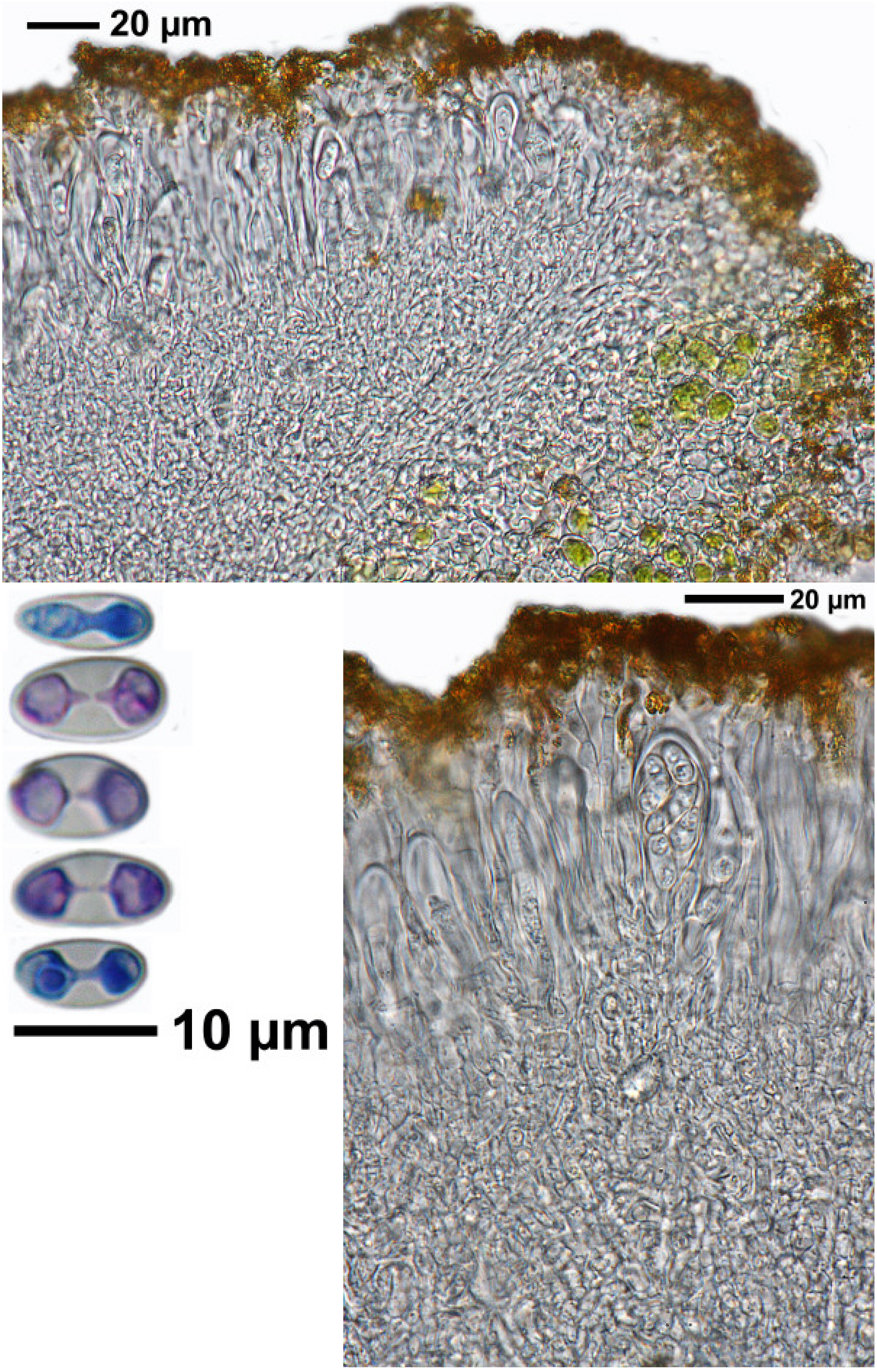
Caloplaca coreana

Caloplaca coronata (Kremp.) J. Steiner
[= *Flavoplaca coronata* (Kremp.) Arup, Frödén & Søchting]
[? = *Caloplaca dichroa* Arup 2006]

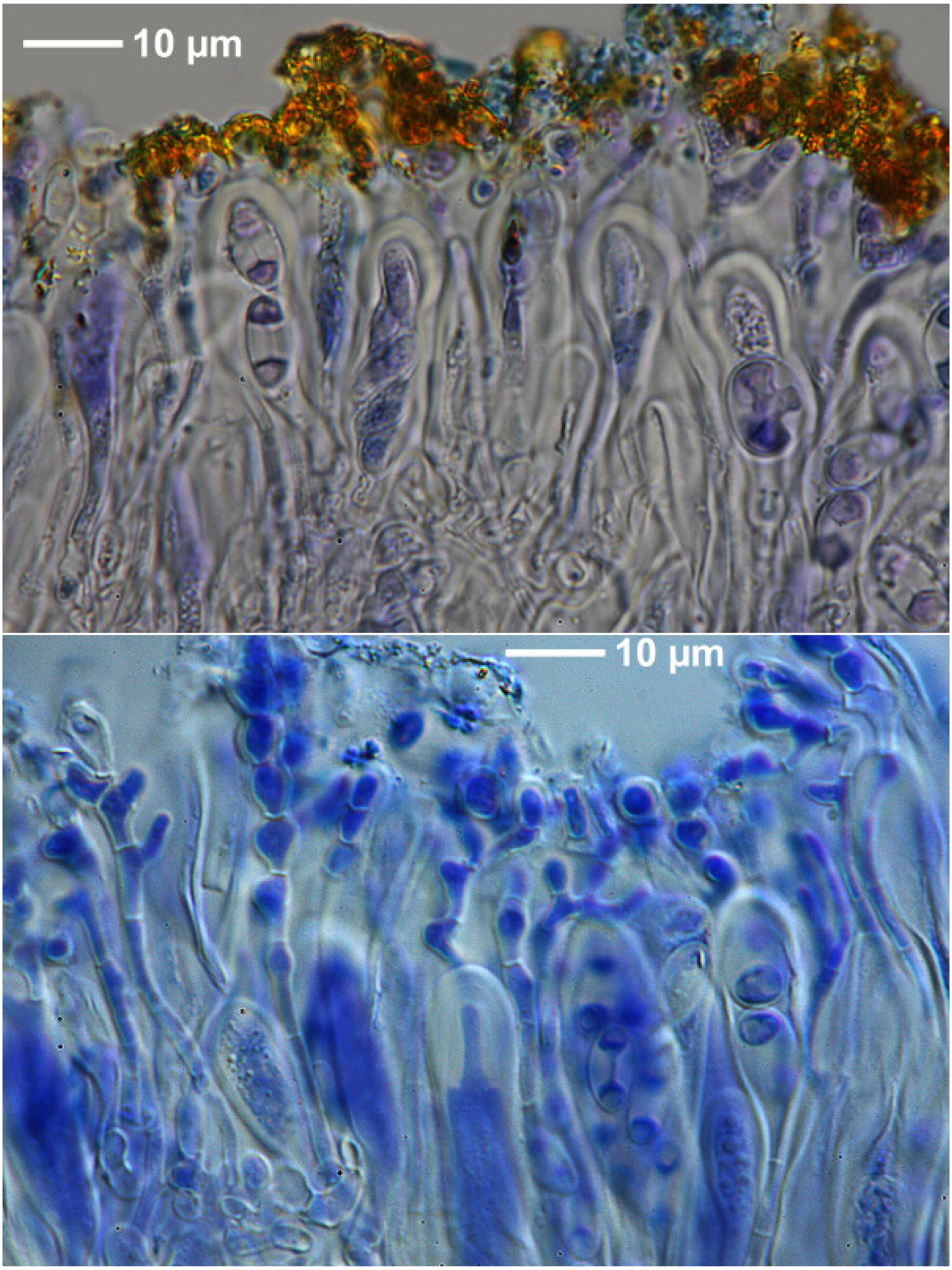
Thallus ohne Sorale, körnig bis fast isidiös. Apothecien sehr klein.

[16615], Germany, Baden-Württemberg, Alb-Donau-Kreis, zwischen Altheim und Gerstetten an südexponierten Kalkfelsen im Hungerbrunnental, 48,59616° N, 10,03926° E, 545 m. Leg. et det. Schumm 25.08.2010, test. A.Aptroot 2011.





Caloplaca coronata



Caloplaca coronata

Caloplaca coronata (Kremp.) J. Steiner, Verh. zool.-bot. Ges. Wien 69: 71 (1919)
[= *Flavoplaca coronata* (Kremp.) Arup, Frödén & Søchting, Nordic Jl Bot. 31(1): 45 (2013)]
[= *Caloplaca aurantiaca* var. *coronata* (Kremp.) Jatta, Syll. Lich. Ital.: 248 (1900)]

On calcareous rocks.

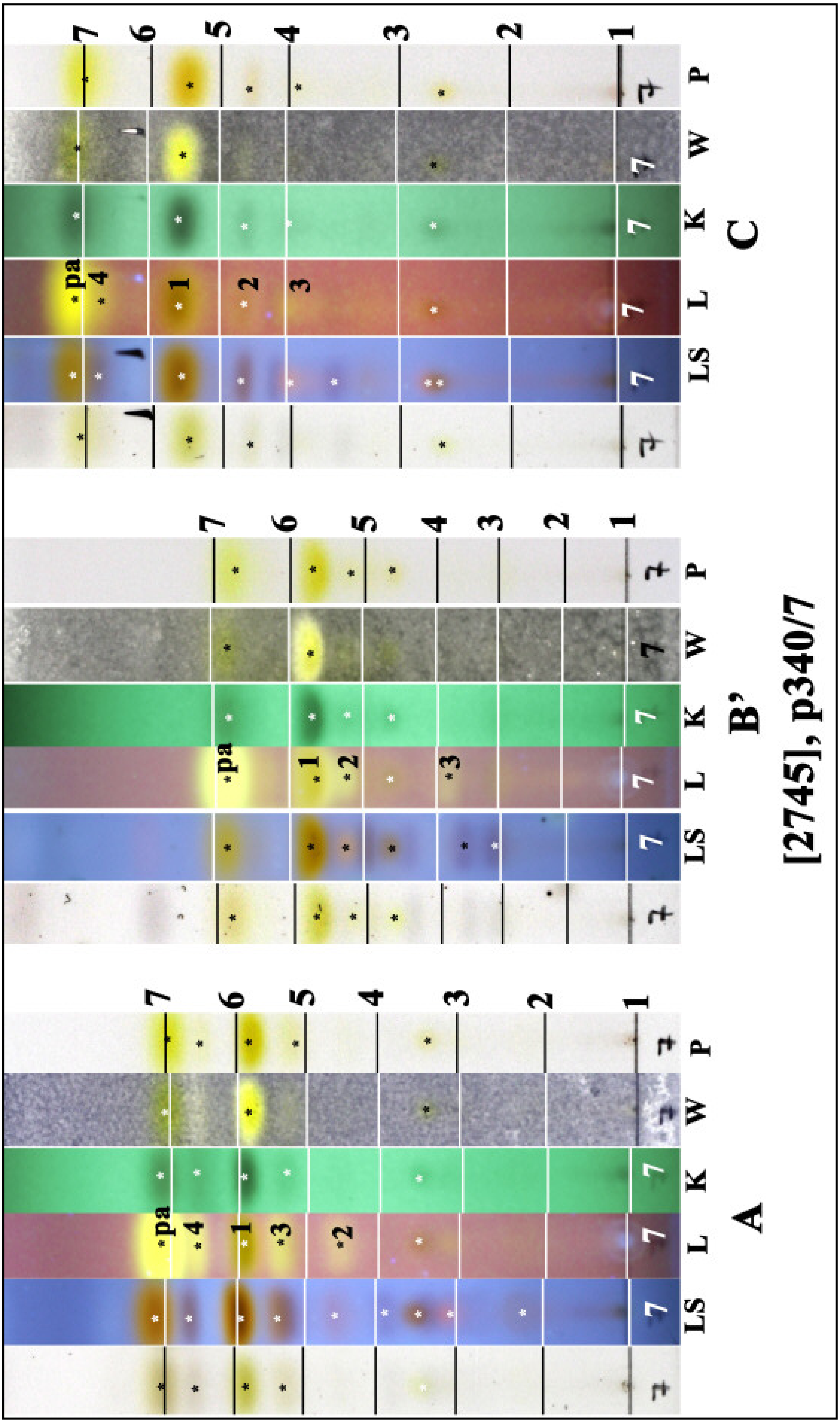
[2182], Tunesien, Cheninin, auf trockenen sonnigen Steinblöcken von ca. 50-100 cm Durchmesser auf einem NW-Hang, ca. 430 m. Leg. F. Schumm 21.03.1973, det. Aptroot 2019.

Caloplaca coronata

Caloplaca crenularia (With.) J.R.Laundon
[= *Blastenia crenularia* (With.) Arup, Søchting & Frödén
[= *Caloplaca festiva* (Ach.) Zwackh]

Chemistry: p340/7

[2745], Südspanien, Prov. Huelva, kleinfleckig an lichtoffenen staubgedüngten Kulm- und Stirnflächen feinkörniger kalkarmer Sandsteinblöcke im *Xanthorietum aureolae* Besch., 200 m, NW-SW, pH 6.8, schüttere Zistrosenbestände in den Montes de los Lirios zwischen San Silvestre de Guzman und Villanueva de los Castillejos. Leg. et det. G. Follmann 10.1976. Follmann: LICHENES EXSICCATI SELECTI A MUSEO HISTORIAE NATURALIS CASSELENSI EDITI No. 266.



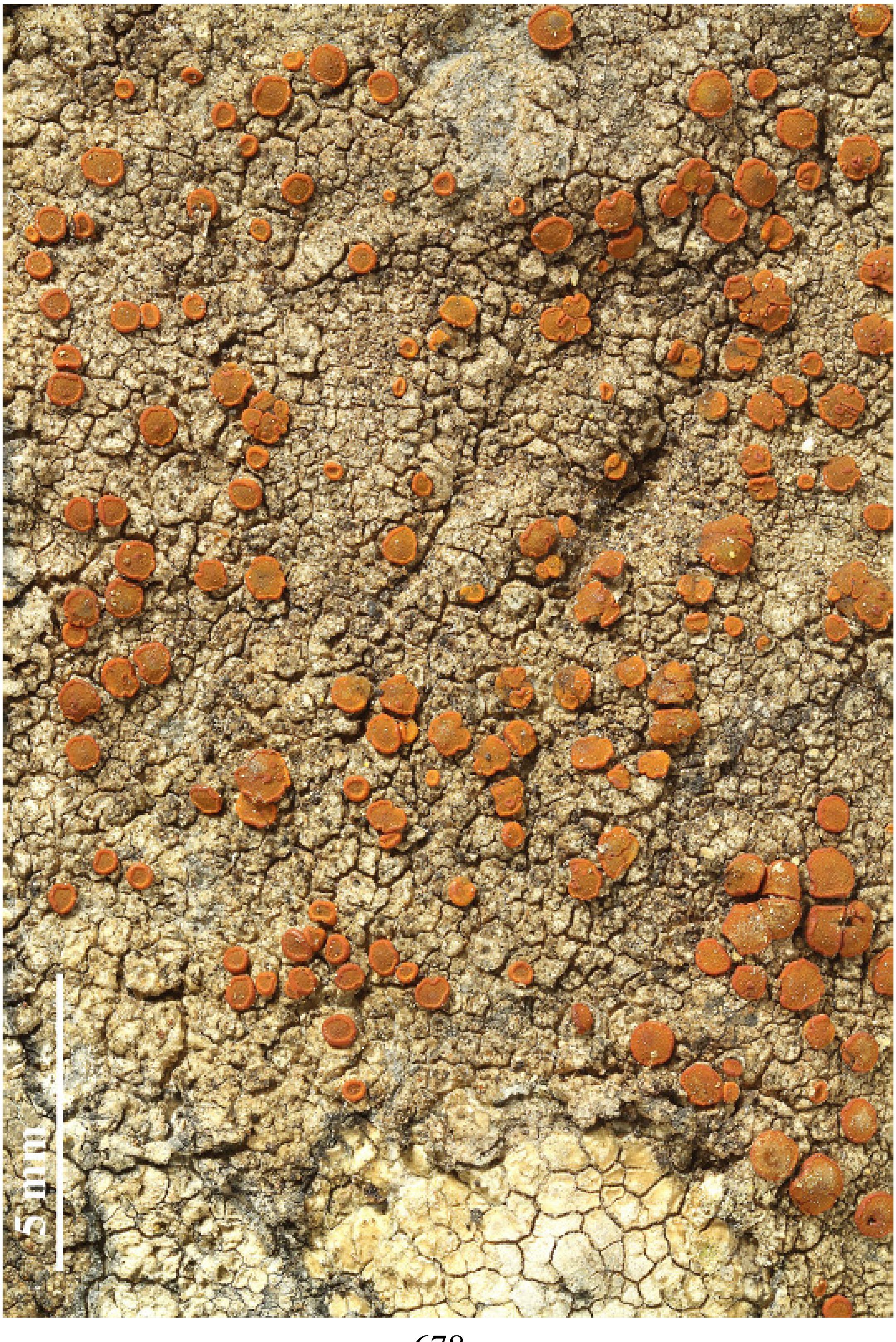
pa: parietin, 1: fallacinal, 2: parietinic acid, 3: teloschistin, 4:?

Caloplaca crenularia

Caloplaca crenularia (With.) J.R.Laundon
[= *Blastenia crenularia* (With.) Arup, Søchting & Frödén]

On rocks.

[5100], Spanien, Gran Canaria, ca 2 km westlich von Artenara an der Straße an einem felsigen, feuchten Nordhang; 28°01.523' N, 15°39.784' W, Höhe 1100 m . Leg. F. Schumm & U. Schwarz, 04.01.1999, A. Aptroot 2016.



Caloplaca crenularia

Caloplaca crenularia (With.) J.R.Laundon
[= *Blastenia crenularia* (With.) Arup, Søchting & Frödén]

On rocks.

[5177], Spanien, Gran Canaria, ca. 1,5 km südlich La Culata; felsiger trockener Nordhang, lückig mit *Pinus canariensis* bewachsen, 27°57.848' N, 15°36.136' W, Höhe 1570 m. Leg. F. Schumm & U. Schwarz, 25.12.1998, det. A. Aptroot 2016.

Caloplaca crenularia

Caloplaca crenularia (With.) J.R.Laundon
[= *Blastenia crenularia* (With.) Arup, Søchting & Frödén]

On rocks.

[5216], Spanien, Gran Canaria, ca. 1,5 km südlich La Culata; felsiger trockener Nordhang, lückig mit Pinus canariensis bewachsen, 27°57.848' N, 15°36.136' W, Höhe 1570 m. Leg. F. Schumm & U. Schwarz, 25.12.1998, det. A. Aptroot 2016.

Caloplaca crenularia

The lichen genus *Caloplaca* is very diverse. Species are often colouring whole rock faces bright yellow or orange. This is the first book illustrating hundreds of species of this genus. From many species microscopic sections are illustrated, often for the first time. It includes all common species and many rarer ones. Of the most common species usually several specimens are illustrated to show the variation. This book is a resource for the identification of *Caloplaca* species.