F. Schumm (2025):

Images of Lichens Vol. 27
Vezda Lichenes Rariores Exsiccati part 2

ARCHIVE FOR LICHENOLOGY Vol. 68, ISSN 1868-4173
online VIII. 2025

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

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

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

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

F. Schumm, 08.2025

Caloplaca thamnoblasta Nimis & Poelt, in Vězda, Lichenes Rariores Exsiccati, Fasc. 6 (nos 51) (1993)

[VZR51, 19560], Italia, Pelagiae insulae, insula Lampedusa, scopulum "Capo Grecale" dictum, 30-50 m, ad saxa calcarea. ISOTYPUS. Leg. P. L. Nimis, J. Poelt & A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 51.

Thallus episubstratic, yellow-orange, forming up to 1 cm wide patches (but several thalli often confluent, covering larger surfaces), at first crustose-subsquamulose, with convex, sometimes lobulate squamules/areoles surrounded by a white to ochraceous prothallus, then minutely subfruticose, with globose to coralloid, 20-50 µm thick, often proliferating, isidia-like outgrowths. Apothecia biatorine/zeorine, yellow-orange, usually sparse, sessile or immersed amongst the granules, at first rounded, then irregular in shape, with a flat to slightly convex, rough disc, and an initially smooth and raised, finally excluded margin. Proper exciple fan-shaped, irregularly corticate, the medulla containing algae at the base; epithecium orange-brown, K+ purple-red; hymenium colourless, 60-80 µm high; paraphyses 1.5-2 µm thick at mid-level, the apical cells 2-3(-5) µm wide; hypothecium colourless, of conglutinated hyphae. Asci 8-spored, clavate, functionally unitunicate, apically thickened with a broad internal beak, the inner part of apex and external cap I+ blue, Teloschistes-type. Ascospores 2-celled, polarilocular, hyaline, ellipsoid, 11-14 x 4-7 µm, the equatorial thickening ("septum") 3-4.5 µm. Pycnidia immersed, the ostiolar region poorly pigmented. Conidia ovoid, 2-3 x 1-1.5 µm. Photobiont chlorococcoid. Spot tests: thallus and apothecia K+ purple-red, C-, KC-, P-. Chemistry: thallus and apothecia with parietin (major), fallacinal, emodin, teloschistin and parietinic acid (minor), corresponding with chemosyndrome A of Søchting (1997). - Note: on calcareous rocks near the coast; hitherto known only from the type locality (Lampedusa). A very characteristic and easily recognizable species, to be looked for throughout the Mediterranean Region. According to Vondrák (in litt.) it belongs to Haloplaca.



Caloplaca thamnoblasta



Caloplaca thamnoblasta



Caloplaca thamnoblasta

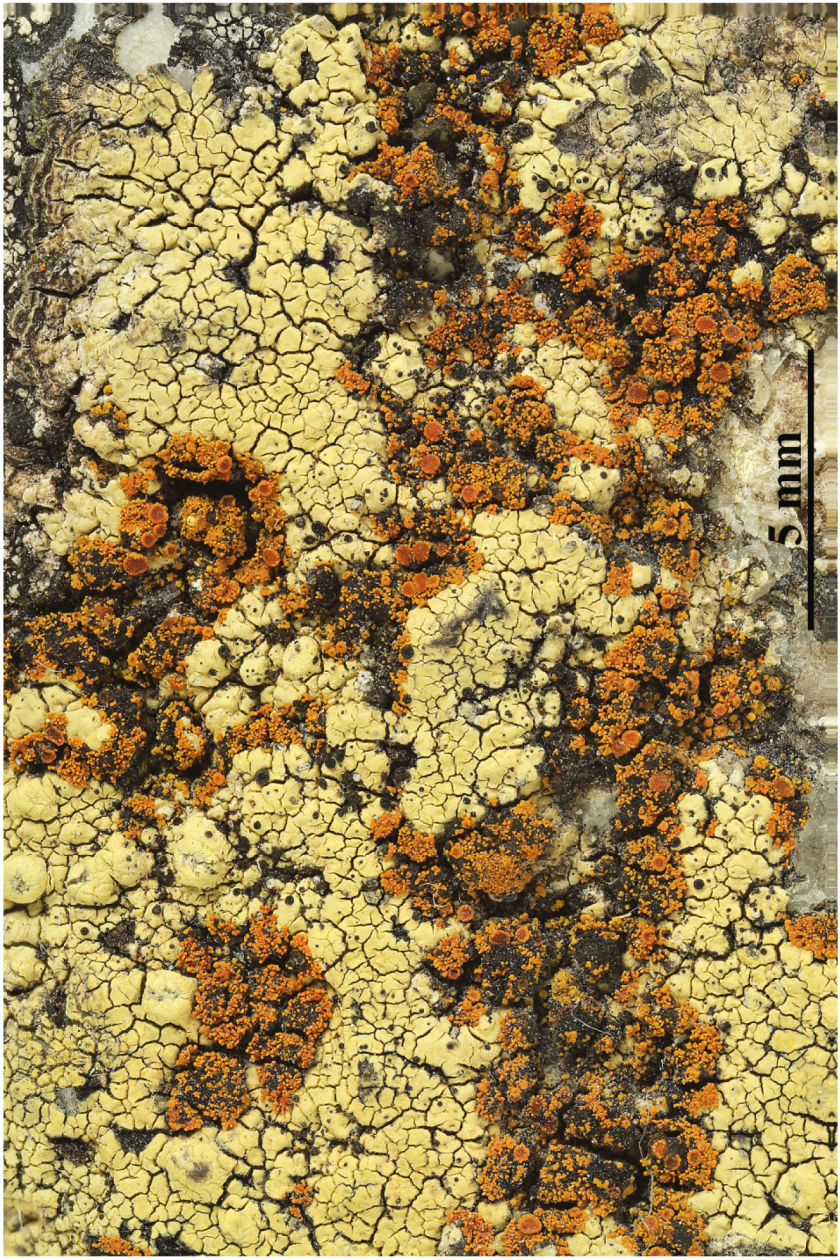


Caloplaca thamnoblasta

Caloplaca wetmorei Nimis, Poelt & Tretiach, Bryologist 97(2): 183 (1994)
= *Tassiloa wetmorei* (Nimis, Poelt & Tretiach) S.Y. Kondr., Kärnefelt, A. Thell, Elix, Jung Kim, A.S. Kondr. & Hur, in Kondratyuk, Kärnefelt, Thell, Elix, Kim, Kondratiuk & Hur, Graphis Scripta 27(1-2): 24 (2015)

[VZR152, 19561. Mexico, Baja California Sur, Sierra de la Laguna, 23°30' septentr. , 110°00' occid.,. 1700 m. Ad saxa granitica, in thallo Pertusariae sp. & Buelliae sp. vigens. Leg. P. L. Nimis & M. Tretiach, 16.2.1993. Ex A. Vězda: Lichenes Rariores Exsiccati Nr.152.

Thalli aurantiaci, parasiticis, ad margines indistincte lobulati, in centro lobulis erectis isidiiformibus, cylindricis, dense tecti. Apothecia 0.3-0.7 mm diam., discis planis ad subconvexis, fusco-aurantiacis. Excipulum indistincte paraplectenchymaticum. Paraphyses parce ramosae, ca. 2 µm diam., cellulis apicalis incrassatis. Sporae octonae (rarius quaternae), late ellipsoideae, simplices vel uniseptatae, septis tenuibus saepe imperfecti. Spermatia bacilliformia. Thalli atque apothecia K+ rubescentes. Thalli vivid orange-yellow, small (to 2 cm diam.), parasitic on thalli of different saxicolous lichens (mainly *Aspicilia*, *Buellia*, and *Pertusaria*), with small peripheral lobules which often disappear in old thalli; well-developed, elongate, erect, finger-like lobules present, ca. 60-90 µm diam., to 1 mm long.simple, or more rarely branched, densely covering first central parts, and then the whole thalli; apical part of lobules slightly thickened, often with paler, more yellowish color. Cortex paraplectenchymatous, with anticlinal hyphae. Apothecia mainly in central parts of thalli, ca. 0.3-0.4 mm diam.,thalline margin distinct, crenulate to papillose, more rarela smooth; disc flat to slightly convex, dark orange; epithecium covered by thick layer of crystals;; paraphyses branched, 2 µm diam., apical cells ca. 3.0-3.5 µm; algae forming dense layer beneath colorless hypothecium, lacking in central part; ascospores 8 (very rarely 4) per ascus, broad-ellipsoid, 6-8 x 12-17 µm (when in 4-spored asci, long-ellipsoid and up to 10-11 x 28-30 µm), generally 0-1 septate; septum very thin, entire or more often collapsing, especially visible at maturity. A few spores with two septa were also observed. Spermagonia immersed in the thallus, appearing as small, darker reddish-orange spots. Spermatia bacilliform, 3.5-4 x 0.8-1 µm. Thalli and apothecia K+ red. Microscopical investigations were carried out in water mounts.



Caloplaca wetmorei



Caloplaca wetmorei



Caloplaca wetmorei

Catapyrenium tenellum Breuss, Stapfia 23: 126 (1990)
= *Placidium tenellum* (Breuss) Breuss. Ann. naturhist. Mus. Wien, 98B: 41, 1996.

[VZR52], Italia. Pelagiae insulae: insula Lampedusa: Punta Alaimo (pars septentr. insulae), 120 m. Ad terram calcaream. Leg. A. Vězda, 17.4.1992, det. O. Breuss. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 52.

Thallus squamulose, the squamules 0.7-2(-3.5) mm broad, 0.2-0.4 mm thick, medium to dark brown, dull, epruinose, mostly rounded at least when young, flattened, smooth, scattered to contiguous. Lower surface pale, but often darkening especially in central parts, attached by 3-4.5(-5) µm thick, colourless rhizohyphae. Upper cortex 45-100 µm thick, paraplectenchymatous, of 8-15 µm wide cells, with an up to 40 µm thick epinecral layer; medulla poorly developed, of globular cells intermixed with a few elongated cells; lower cortex poorly differentiated from the medulla, of 7-12 µm wide cells. Perithecia frequent, laminal, pyriform, up to 0.5 mm across, immersed in the squamules, without involucrellum. Exciple pale throughout; paraphyses absent, periphyses measuring 30-35 x c. 3.5 µm. Asci 8-spored, cylindrical, thin-walled, non-amyloid and without an ocular chamber, with uniseriately arranged spores, 65-75 x 10-13 µm. Ascospores 1-celled, hyaline, ellipsoid, thin-walled, 11-15 x 5-7.5 µm. Pycnidia multilocular, Dermatocarpon-type, black, laminal, immersed. Conidia ellipsoid to subcylindrical, 3-4 x 1.5 µm. Photobiont chlorococcoid. Spot tests: cortex and medulla K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a widespread but rare species of dry, very open Mediterranean grasslands and garrigues on calcareous substrata, extending eastward to Mongolia.



Catapyrenium tenellum



Catapyrenium tenellum

Catillaria alba Coppins & Vězda, in Vězda, Lichenes Rariores Exsiccati, Fasc. 6 (nos 51-60) (Brno): 2 (1993)

= *Biatora veteranorum* Coppins & Sérus., in Sérusiaux, Brand, Motiejunaite, Orange & Coppins, Bryologist 113(2): 337 (2010)

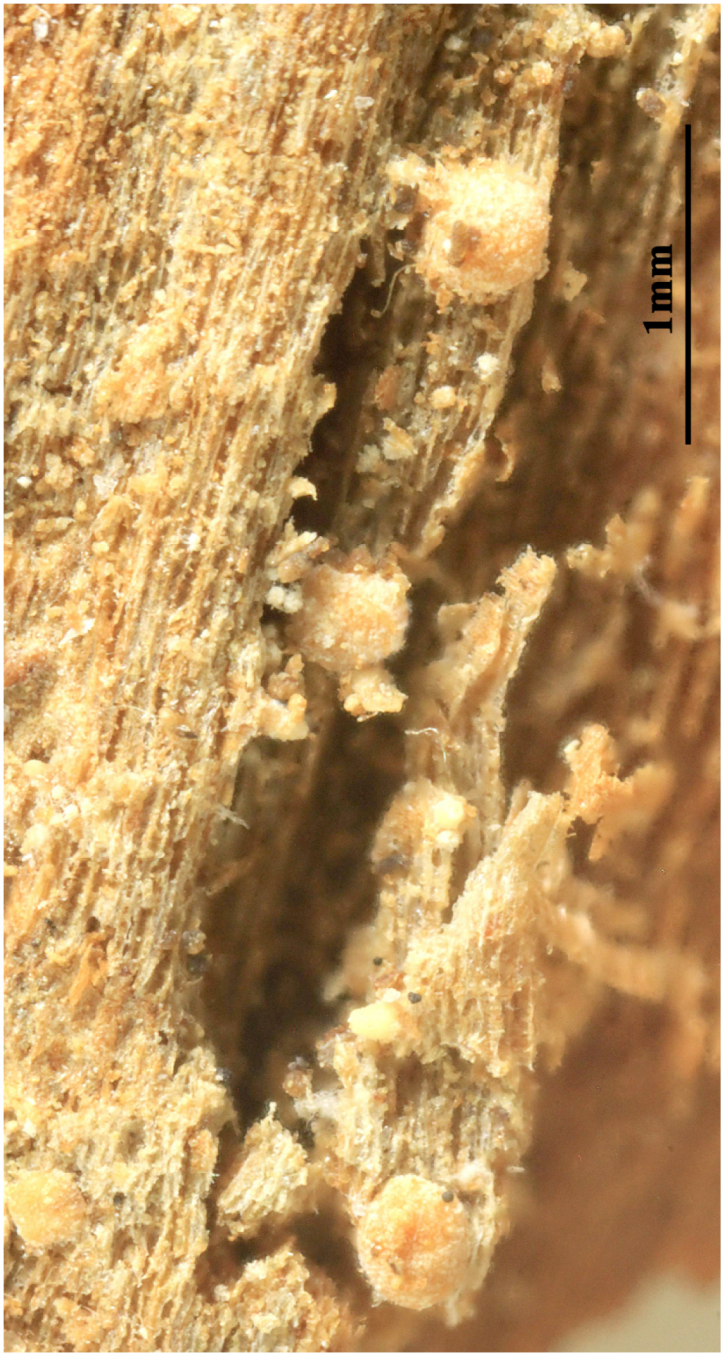
= *Coppinsidea alba* (Coppins & Vězda) S.Y. Kondr., Farkas & Lőkös, in Kondratyuk, Lőkös, Farkas, Jang, Liu, Halda, Persson, Hansson, Kärnefelt, Thell & Hur, Acta bot. hung. 61(3-4): 301 (2019)

[VZR53], Austria . Tirolia. Hohe Tauern: Virgen, Hinteregg, 1600 m, ad truncum putridum *Laricis*. - isotypus. Leg. A. Vězda 1.9.1988. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 53.

Thallus crustose, very thin, effuse, usually poorly evident. Apothecia biatorine, round, 0.15-0.4 mm across, white to pale brown or pale pinkish brown, with a strongly convex, often pruinose disc, without a distinct margin. Proper exciple colourless, poorly developed, of conglutinated, radiating, thick-walled hyphae; epithecium pale yellow-orange, with minute crystals dissolving in K; hymenium colourless, 25-35 µm high; paraphyses simple or sparingly branched in upper part, 1-1.5(1.7) µm thick at mid-level, the apical cells up to 3 µm wide; hypothecium colourless. Asci 8-spored, clavate, with a K/I+ blue apical dome penetrated by a narrow, K/I– apical cushion surrounded by a narrow, deeply K/I+ blue zone, the wall K/I- but surrounded by an I+ red-brown, K/I+ blue outer layer, the ocular chamber relatively small, Biatora-type. Ascospores 1-septate, hyaline, (6.5-)8-10(-11.5) x 2.3-3 µm. Pycnidia conspicuous, sessile to short-stalked, white-pruinose, 80-120 µm across, 80-150 µm high. Conidia 1-celled, hyaline, bacilliform, 3-4 x c. 1 µm. Photobiont chlorococcoid. Spot tests: thallus and apothecia K-, C-, KC-, P-, UV-. Chemistry: unknown, probably without lichen substances. - Note: a cool-temperate lichen found on mostly soft wood of decorticated old deciduous and coniferous trees; certainly rare, but to be looked for elsewhere, especially in the Alps. For further details see Sérusiaux & al. (2010).



Catillaria alba



Catillaria alba

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

[VZR1062], Gallia. Montes Pyrenaei occident. Sauveterre-de Béarn. Insula parva in torrente Gave d'Oloron, 50 m. Ad folia *Buxi sempervirenti*. Leg. J. Vivant, 28.1.1972. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 1062.

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

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

Catillaria bouteillei



Catillaria bouteillei



Catillaria bouteillei

Catillaria nigroclavata (Nyl.) J. Steiner, Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 107: 157 (1898)
= *Biatorina lenticularis* var. *nigroclavata* (Nyl.) Flagey, Mém. Soc. ému. dep. Doubs, sér. 6 7: 26 (1893)
= *Biatorina nigroclavata* (Nyl.) Arnold, Flora, Regensburg 53(30–31): 474 (1871) [1870]
= *Catillaria lenticularis* f. *nigroclavata* (Nyl.) Boistel, Nouv. Fl. Lich. (Paris) 2: 199 (1903)
= *Lecanora nigroclavata* (Nyl.) Nyl., Flora, Regensburg 56(13): 206 (1873)
= *Lecidea lenticularis* var. *nigroclavata* (Nyl.) Nyl., Not. Sällsk. Fauna et Fl. Fenn. Förh., Ny Ser. 5: 242 (1861)
= *Lecidea nigroclavata* Nyl., Bot. Notiser(10-11): 160 (1853)
= *Microlecia nigroclavata* (Nyl.) M. Choisy, Bull. mens. Soc. linn. Soc. Bot. Lyon 18(7): 150 (1949)

[VZR487], Italia, Venezia, Cavallino Treporte, prope Treporte, 3 m, ad corticem arborium (*Robinia pseudoacacia*), 12°27'10,6" orient., 45°28'05.6" septentr., Leg. & det. K.Kalb, 25.5.2002. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 487.

Thallus crustose, very thin, often immersed and inapparent, white-grey or grey-brown, without a distinct prothallus. Apothecia lecideine, round, broadly adnate, (0.15-)0.3-0.4(-0.5) mm across, with a dark brown to dull black, flat to finally convex, epruinose disc and a thin, smooth, raised, finally sometimes excluded proper margin. Proper exciple with a thin, pale to dark brown outer zone composed of pigmented caps of hyphal end-cells, colourless within; epithecium brown-black, K-, N-; hymenium colourless, 30-40 µm high; paraphyses mostly simple, easily made free, 1.5-2 µm thick at mid-level, the apical cells distinctly capitate, up to 6 µm wide, with a cap of dark brown pigment deposited within the hyphal wall; hypothecium pale to dark brown at least in upper part, paler in lower part. Asci 8-spored, clavate, with a K/I+ blue outer coat and a K/I+ uniformly blue apical dome, Catillaria-type. Ascospores 1-septate, hyaline, oblong-ellipsoid, (7-)8-10(-12) x (2-)2.5-3.5(-4) µm, thin-walled, without a perispore. Photobiont chlorococcoid. Spot tests: thallus K-, C-, KC-, P-, UV-. Chemistry: without lichen substances. - Note: a mainly mild-temperate, holarctic species found on isolated deciduous trees, also in rather disturbed habitats, e.g. in parklands, and on wayside trees, sometimes growing as a parasite on other lichens (Brackel 2015). For the distinction towards *C. mediterranea* and *C. servitii* see Tretiach & Hafellner (1998).



Catillaria nigroclavata



Catillaria nigroclavata

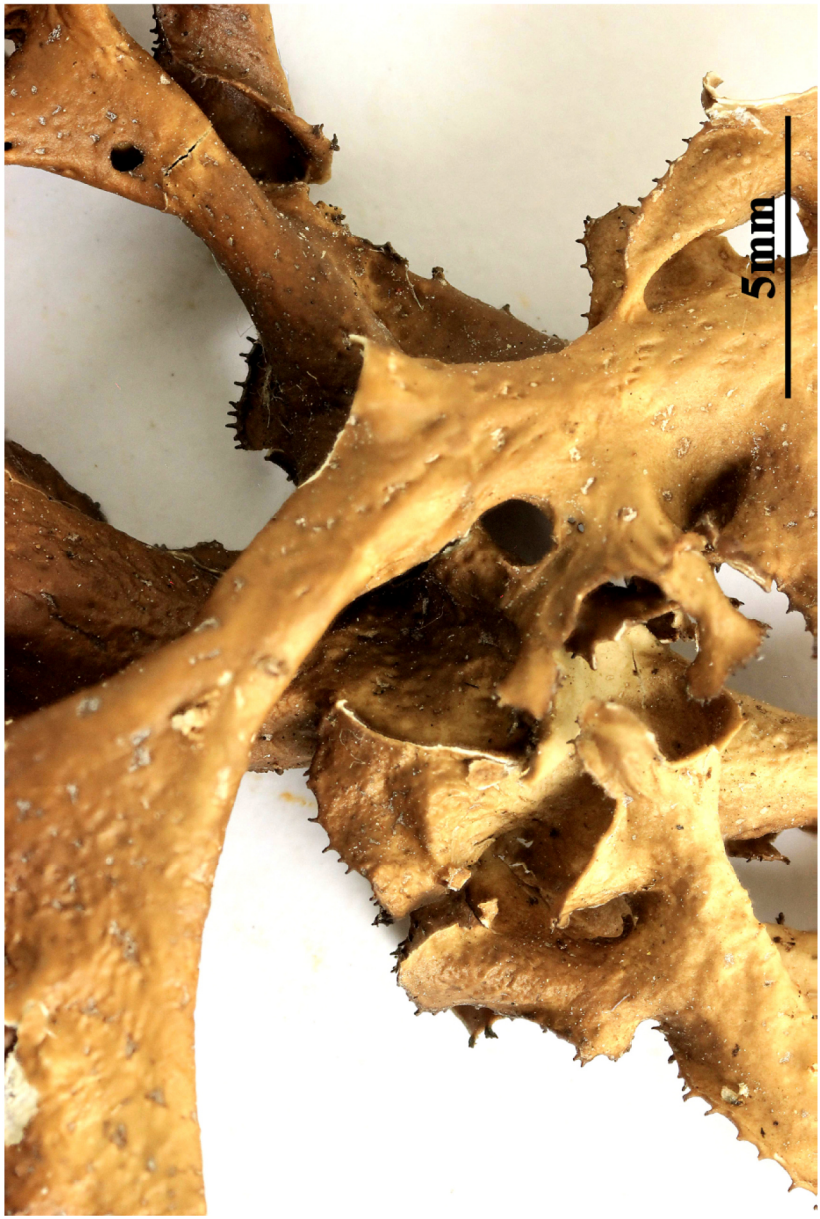
Cetraria andrejevii Oxner, J. Bot. Acad. Sci. RSS Ukraine 1(3-4): 44 (1940)
= *Nephromopsis andrejevii* (Oxner) Divakar, A. Crespo & Lumbsch, in Divakar, Crespo, Kraichak, Leavitt, Singh, Schmitt & Lumbsch, Fungal Diversity 84: 112 (2017)
= *Arctocetraria andrejevii* (Oxner) Kärnefelt & A. Thell, Bryologist 96(3): 402 (1993)

[VZR83], Groenlandia. Insula Disco: in statione Lyugmark prope pagum Godhasu, 100 m. Supta saxa basaltica. Leg. J. Poelt, 28.7.1983. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 83.

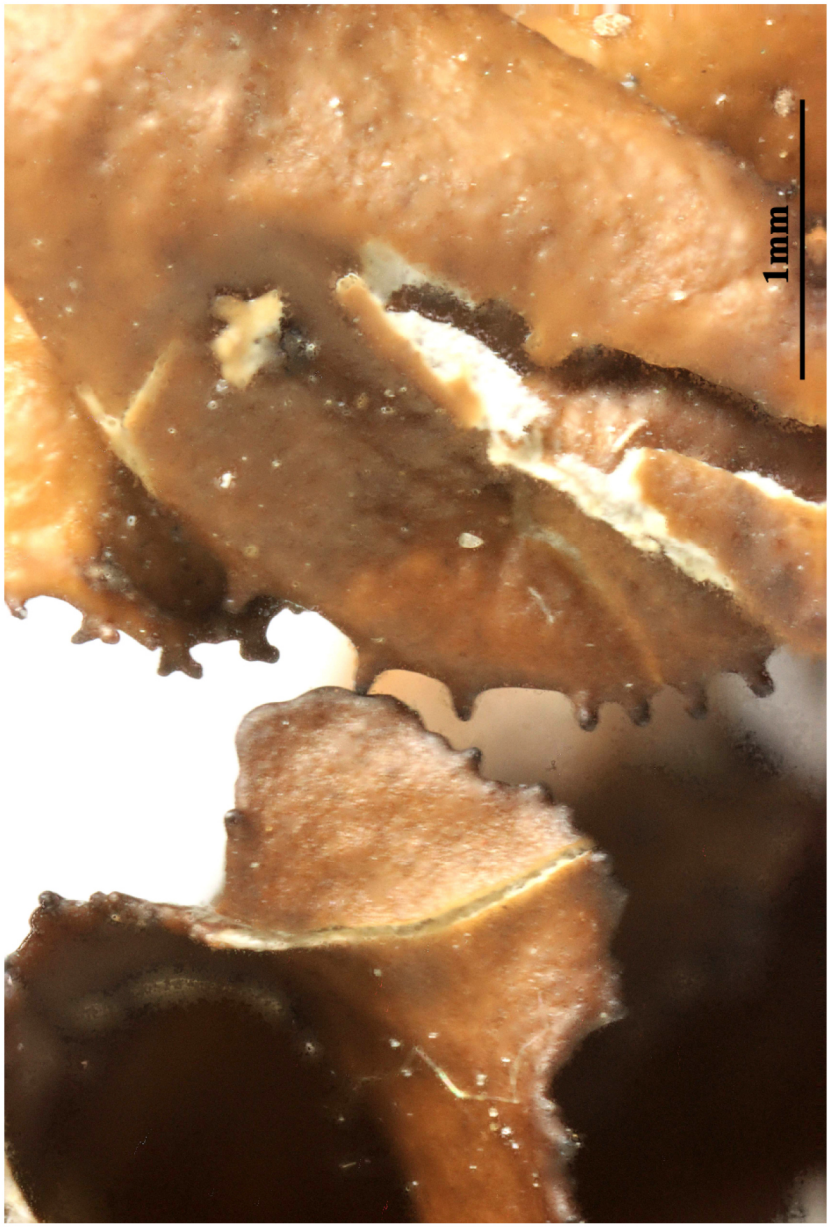
Asci 35-50 x 8-10 µm, spores ellipsoidal to subglobose, more or less uniseriate. 6-8.5 x 4-5 µm, axial body with c. 1.8 µm, maximum tholus thickness 1.5 µm; paraphyses 40-50 x 1-4 µm (broadest at basis); cortical tissue beneath pycnidium ptresent, conidia slightly bifusiform to oblong-citriform, c. 4-5.5 x 0.5-1 µm. Cetraria andrejevii has a very wide amphi-Beringian distribution reacjing also the northeastern-most part of the Scandinavian Peninsula.



Cetraria andrejevii



Cetraria andrejevii



Cetraria andrejevii

Cetraria merrillii Du Rietz, Ark. Bot. 20A(no. 11): 42 (1926)
= *Nephromopsis merrillii* (Du Rietz) Divakar, A. Crespo & Lumbsch, in Divakar, Crespo, Kraichak, Leavitt, Singh, Schmitt & Lumbsch, Fungal Diversity 84: 112 (2017)
= *Cetraria californica var. tuckermanii* R. Howe, Mycologia 3(3): 116 (1911)
= *Cetraria merrillii* Du Rietz, Ark. Bot. 20A(no. 11): 42 (1926)
= *Cornicularia californica f. tuckermanii* (R. Howe) Zahlbr., Cat. Lich. Univers. 6: 413 (1930)
= *Kaernefeltia merrillii* (Du Rietz) A. Thell & Goward, Bryologist 99(2): 128 (1996)
= *Tuckermannopsis merrillii* (Du Rietz) Hale, in Egan, Bryologist 90(2): 164 (1987)

[VZR466], Lusitania. Prov. Trás-os-Montes. Montesinho, secus viam a Varge ad Rio de Onor ducentem, 6°39.4' occid., 41°53.2' septentr., in margine silvae (*Pinus*), in ramulis fruticum (*Cistus ladanifer*), 500 m. Leg. et det. P. & B. van den Boom, 12.7.2001. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 466.

Thallus foliose to subfruticose, loosely adnate to erect, dark olive-green above, pale brown to dark brown below; lobes dorsiventral, smooth or occasionally ridged or foveolate, ca 0.5 to 11.0 mm wide, nonpruinose; pseudocyphellae sparse on upper surface, immersed; cilia sparse; isidia-like protuberances present on some broad-lobed specimens, flat or cylindric, single or in sparse clusters on upper surface; rhizines frequent on broad-lobed specimens, simple or dichotomously branched, light brown; cortex 1-layered, with a thin lower (inner) prosoplectenchymatous, 12-20 µm thick, the lower cortex soewhat thiner than upper, composed of 3-4 layers of isodiametric cells, 3-8 µm in diameter, cells, 3-8 µm in diameter, these somewhat larger in lower cortex; medulla lax, medullary hyphae 3-5 µm in diameter; algal cells to 20 µm in diameter, concentrated near the upper cortex. Apothecia frequent, marginal to laminal, disc to 6 mm in diameter, dark olivaceous, at first concave, later becoming convex; hymenium 40-55 µm; upper excipular layer 20-30 µm thick, lower excipular layer 40-60 µm; asci 40-50 x 15 µm;. tholus to 5 µm thick, axial body 3.5-5 µm broad; ascospores ellipsoid. 7.0-10.5 x 4.0-5.5 µm, poaraphyses slightly swollen, 2-3 µm thick, except to 5 mm at the tips; pycnidia laminal, immersed, 70-130 µm in diameter, pycnoconidia dis-bar-shaped, 6-7 x 1 µm. Chenmistry: Lichesterinic and protolichesterinic acids, and 2-3 loew-R, fatty acids

in the medulla. *Kaernefeltia merrillii* displays a relatively broad ecological amplitude (Kaernefelt 1980), occurring on conifers and shrubs at lower elevations (to 100 m) as well as in montane or even alpine areas (to 2,200 m). It is found most abundantly on *Pinus contorta*, but also commonly colonizes *Pseudotsuga menziesii*. It typically occurs with numerous macrolichen species characteristic of western North America, including *Bryoria fremontii, B. fuscescens, Letharia columbiana, Letharia vulpina, Nodobryoria abbreviata, Tuckermannopsis orbata, T. platyphylla*, and at lower elevations, *Vulpicida canadensis*. Morphologically, *Cetraria merrillii* varies from broadly foliose to subfruticose.

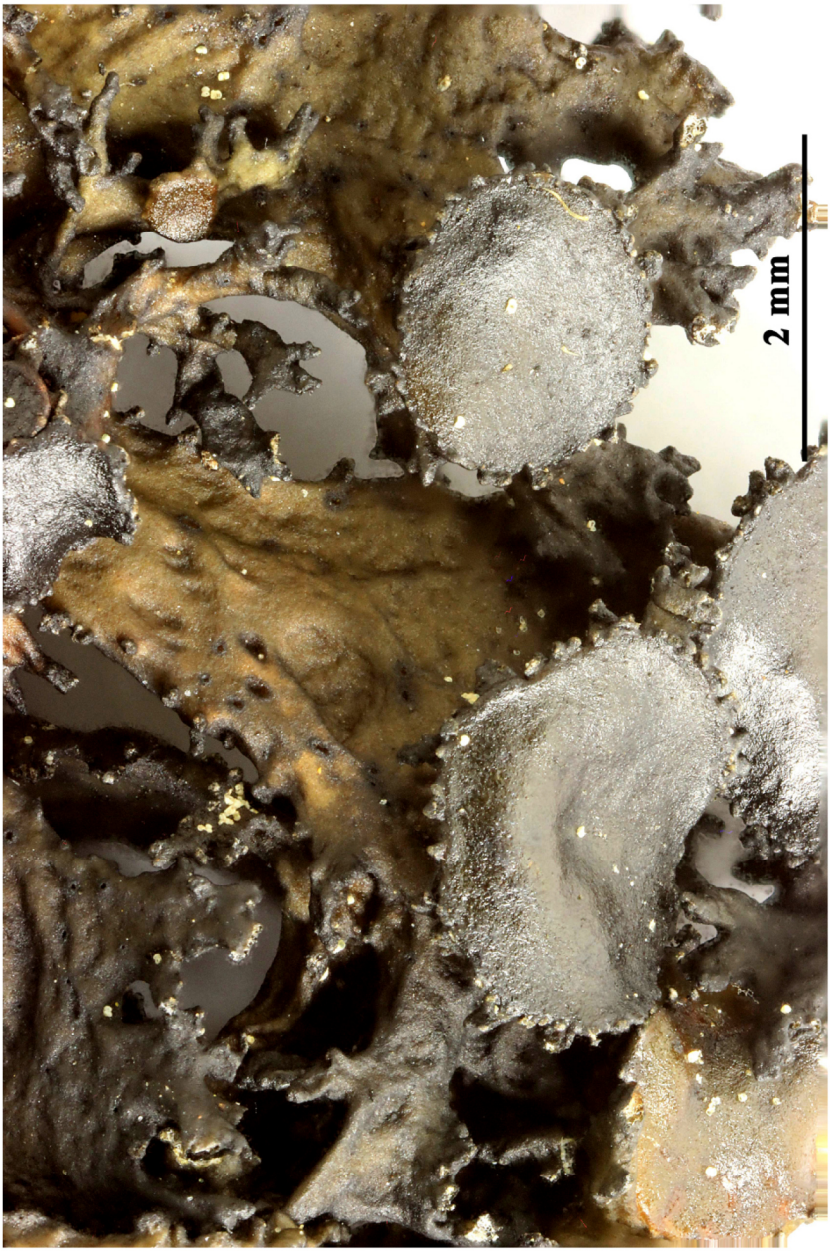
Cetraria merrillii



Cetraria merrillii



Cetraria merrillii



Cetraria merrillii

Cetrariastrum ecuadorense (R. Sant.) Sipman [as 'equadoriensis'], Proc. K. Ned. Akad. Wet., Ser. C, Biol. Med. Sci. 83(4): 343 (1980)

= *Hypotrachyna ecuadorensis* (R. Sant.) Divakar, A. Crespo, Sipman, Elix & Lumbsch [as 'ecuadoriensis'], in Divakar, Crespo, Núñez-Zapata, Flakus, Sipman, Elix & Lumbsch, Phytotaxa 132(1): 30 (2013)

= *Everniastrum ecuadorense* (R. Sant.) Hale [as 'ecuadoriense'], Mycotaxon 3(3): 347 (1976)

= *Parmelia ecuadorensis* R. Sant. [as 'ecuadoriensis'], Bot. Notiser: 328 (1942)

[VZR488], Aequatoria. Prov. Cotopaxi, reservatum nationale Cotopaxi, ad latera septentr-orient. volcani Cotopaxi supra vallem Quebrada Taniloma, 00°19' merid., 78°25' occid., in ramulis *Chuquiragua* sp., 4300-4350 m. Leg. Z. Palice (3732), 28.6.1999. det. H. Sipman. Ex A. VěZDA: LICHENES RARIORES EXSICCATI NR- 488.

Thallus 4-7 cm diam- Lobes ascending, 1-2 mm wide, repeately branched, with internodes c. 4-10 mm long. Upper surface weakly convex, grey or in pat brownish. Lower side weakly convave, brown to black. Cilie 3-5mm long, little dichotomously branched, but with numerous perpendicular branlets.TLKC: strain I: atranorin and protolichesterinic acid; strain II: atranorin and substance B



Cetrariastrum ecuadorense



Cetrariastrum ecuadorense

Chaenotheca brachypoda (Ach.) Tibell, Symb. bot. upsal. 27(no. 1): 71 (1987)

= *Calicium furfuraceum var. sulphurellum* Link [as 'sulphurella'], Grundr. Krauterk. 3: 223 (1833)

= *Coniocybe brachypoda* Ach., K. Vetensk-Acad. Nya Handl. 4: 287 (1816)

= *Coniocybe furfuracea subsp. brachypoda* (Ach.) Arnold, Flora, Regensburg 68(4): 59 (1885)

= *Coniocybe sulphurea* (Retz.) Nyl. ex Cromb., Grevillea 15(no. 73): 14 (1886)

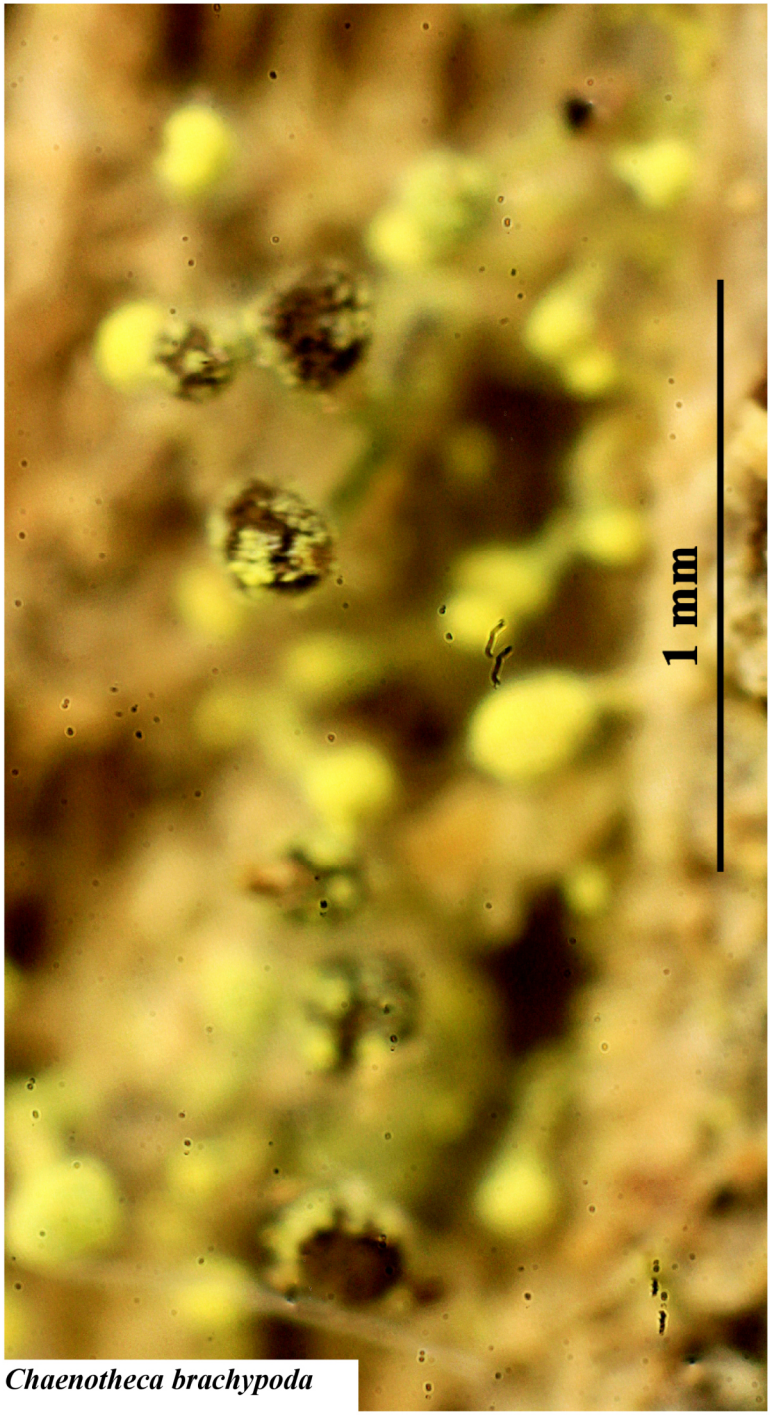
= *Lichen sulphureus* Retz., K. svenska Vetensk-Akad. Handl., ser. 1 30: 249 (1769)

[VZR372], Bohemia merid., montes Šumava (Gabreta), distr. Volary, 3 km ad meridiem versus a "Černy Kříž", ad latera montis "Jeleni vrch", 850 m. Ad lignum trunci Fagi vetustae. Leg. Z. Palice, S. Bayerova &. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 372.

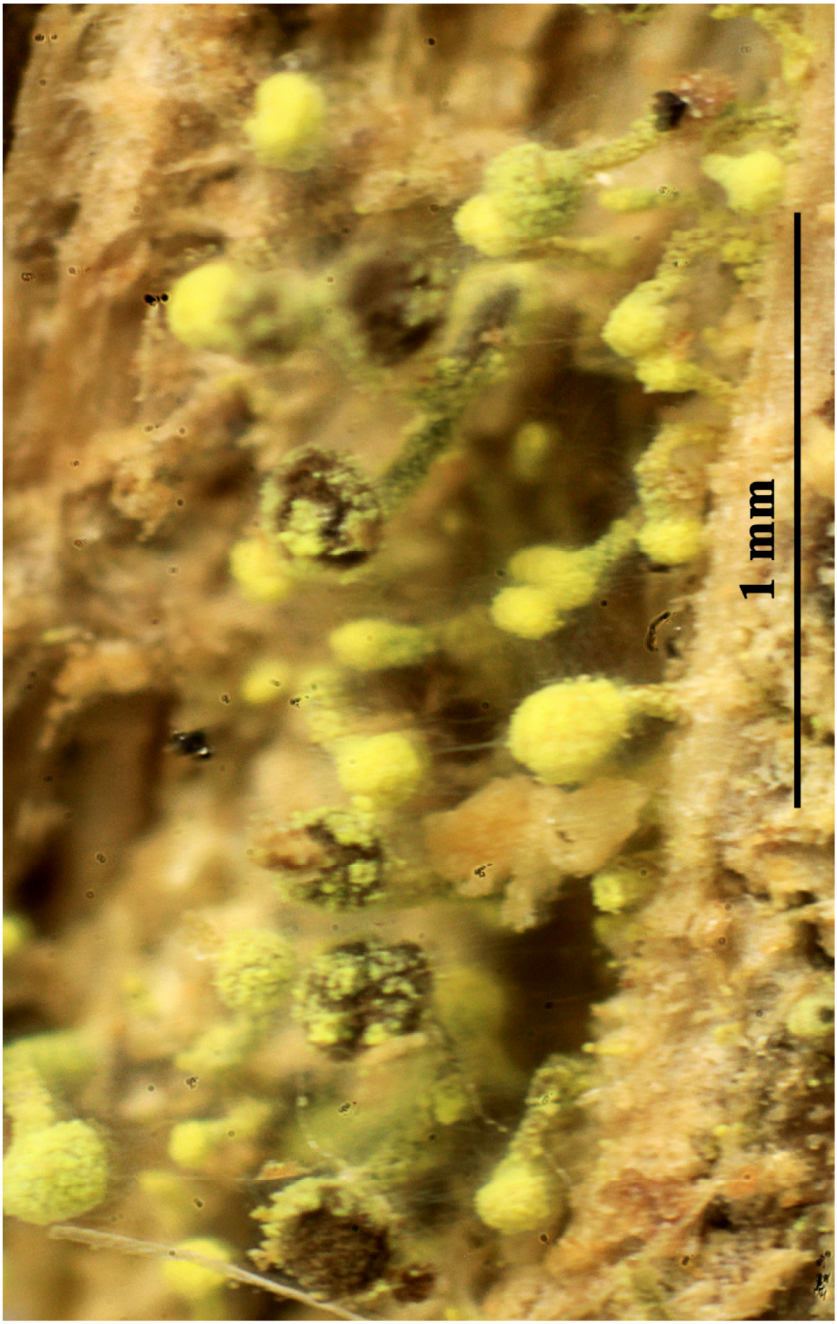
Thallus crustose, endosubstratic and poorly visible. Apothecia stalked, pin-like, the stalk slender, 0.4-1.4 mm high, 0.04-0.08 mm thick, densely yellowish green-pruinose except sometimes in the black lowermost part, the inner part of periclinally arranged, medium brown hyphae, the outer part of dark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



Chaenotheca brachypoda



Chaenotheca brachypoda

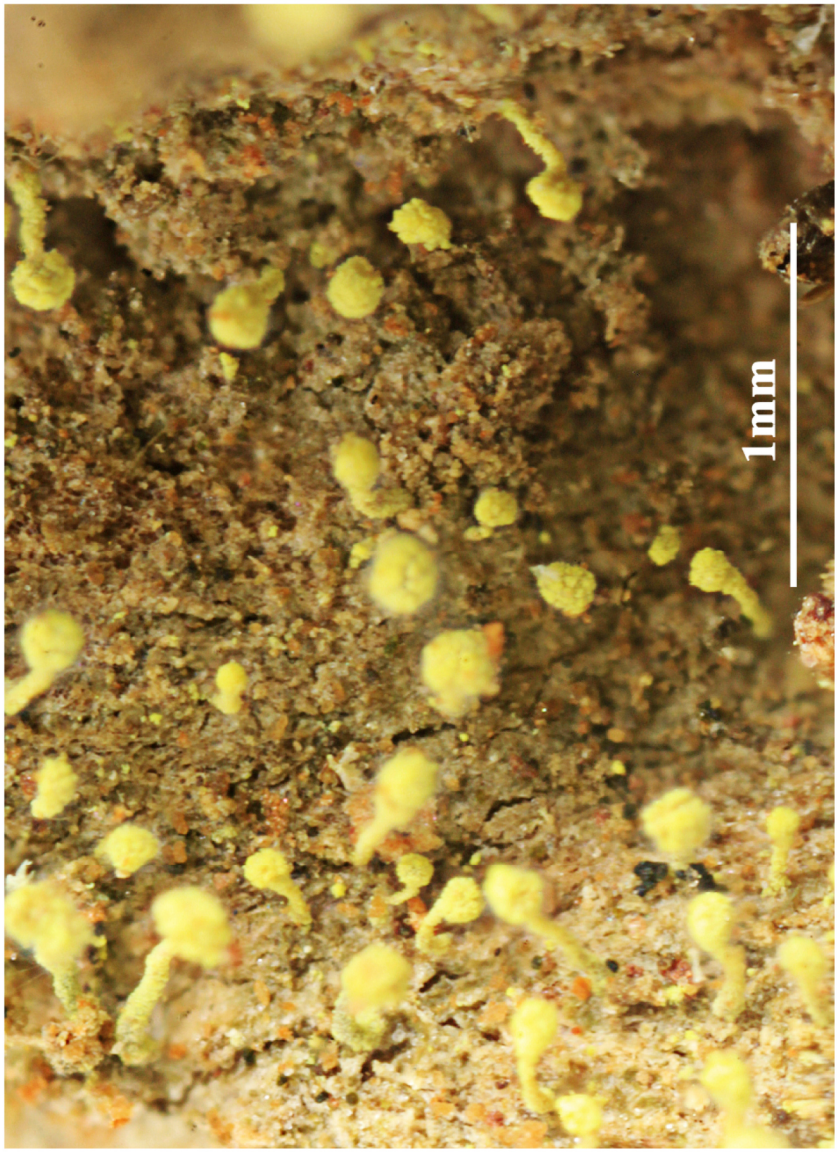


Chaenotheca brachypoda

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

[VZR221], Moravia. Distr. Moravský Krumlov, in valle fluvii Rokytná sub collem Tábor, 280 m. Ad basim trunci arboris (Acer campestre). Leg. G. Bruna, Z. Palice & A. Vězda, 20.05.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 221.

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



Chaenotheca brachypoda



Chaenotheca brachypoda

Chaenotheca brunneola (Ach.) Müll. Arg., Mém. Soc. Phys. Hist. nat. Genève 16(2): 360 (1862)
= *Allodium brunneolum* (Ach.) Kieff., Lich. Envir. Paris 19: 10 (1895)
= *Calicium brunneolum* Ach., K. Vetensk-Acad. Nya Handl. 4: 279 (1816)
= *Calicium melanophaeum* var. *brunneolum* (Ach.) Schaer., Lich. helv. spicil. 4-5: 236 (1833)
= *Calicium trichiale* var. *brunneolum* (Ach.) Nyl., Act. Soc. linn. Bordeaux 21(4): 276 (1857) [1856]
= *Coniocybe brunneola* (Ach.) Samp., Brotéria, sér. bot. 20(3): 153 (1922)
= *Cyphelium brunneolum* (Ach.) De Not., G. bot. ital. 2(1.1): 318 (1846)
= *Cyphelium trichiale* var. *brunneolum* (Ach.) Mudd, Man. Brit. Lich.: 260 (1861)
= *Embolus brunneolus* (Ach.) Wallr., Fl. crypt. Germ. (Norimbergae) 1: 565 (1831)
= *Phacotium brunneolum* (Ach.) Trevis., Flora, Regensburg 45(1): 6 (1862)

[VZR447], Germania, Bavaria, Distr. Freyung-Grafenau, Reservatum nationale "Bayerischer Wald", prope lacum "Verlandeter Kleiner Rachel-See". Ad lignum nudum *Abies albae*, 1650 m. Leg. A. Vězda & Ch. Prinzen, 13.05.1999, det. A. Vězda. Ex A. Vězda: Lichenes Selecti Exsiccati Nr. 447.

Thallus crustose, endosubstratic or rarely thinly episubstratic and then finely granular, ecorticate. Apothecia stalked, pin-like, epruinose, shining black. Stalk slender, 0.5-1.5 mm high, 0.05-0.1 mm thick, sometimes branched and bearing 2-5 capitula, of periclinally arranged, medium brown hyphae. Capitulum globose, with a poorly developed excipulum continuous with the stalk tissue, epruinose but lower side sometimes appearing pruinose from short projecting hyphae. Mazaedium well-developed, brown; hypothecium medium brown, broadly obconical, with a strongly convex upper surface. Asci cylindrical, ellipsoid or irregular, formed in chains, dissolving early, with 1- or 2-seriately arranged ascospores. Ascospores 1-celled, brown to pale brown, globose, 3.5-4.5 µm wide, the wall smooth or with irregular fissures. Photobiont chlorococcoid (Dictyochloropsis, the cells > 10 µm diam). Spot tests: thallus K-, C-, KC-, P- or P+ yellowish red, UV+ white. Chemistry: thallus with baeomycesic and squamatic acids. - Note: on relatively soft-decomposed lignum of old coniferous stumps in humid woodlands, more rarely on wood of deciduous trees or even of Quercus ilex, very rarely corticolous.



Chaenotheca brunneola



Chaenotheca brunneola

Chaenotheca chlorella (Ach.) Müll. Arg., Mém. Soc. Phys. Hist. nat. Genève 16(2): 360 (1862)
= *Calicium carthusiae* Harm., Lich. Fr. 2: 186 (1905)
= *Calicium chlorellum* Ach., Methodus, Sectio prior (Stockholmiæ): 95 (1803)
= *Calicium chlorellum var. orochroum* Wahlenb., Fl. lapp.: 487 (1812)
= *Calicium orochroum* Wahlenb., in Acharius, Methodus, Suppl. (Stockholmiæ): 15 (1803)
= *Calicium phaeocephalum f. chlorellum* (Ach.) Fr., Lich. eur. reform. (Lund): 395 (1831)
= *Calicium phaeocephalum subsp. chlorellum* (Ach.) Nyl., in Norrlin, Meddn Soc. Fauna Flora fenn. 1: 9 (1876)
= *Calicium phaeocephalum var. chlorellum* (Ach.) Fr., Lich. eur. reform. (Lund): 349 (1831)
= *Chaenotheca carthusiae* (Harm.) Lettau, Festschr. 50 Jähr. Best. Preuss. Bot. Vereins 1912: 27 (1912)
= *Chaenotheca phaeocephala var. chlorella* (Ach.) Th. Fr., Nova Acta R. Soc. Scient. upsal., Ser. 3 3: 351 (1861) [1860]
= *Cyphelium chlorellum* (Ach.) A. Massal., Nuovi Ann. Sci. nat. Bologna, Ser. 3 7: 224 (1853)
= *Cyphelium phaeocephalum var. chlorellum* (Ach.) Kremp., Denkschr. Kgl. Bayer. Bot. Ges., Abt. 2 4: 270 (1861)
= *Phacotium chlorellum* (Ach.) Poetsch, in Poetsch & Schiedermann, System. Aufzähl. samenlos. Pflanzen (Krypt.): 176 (1872)
= *Phacotium phaeocephalum var. chlorellum* (Ach.) Trevis., Flora, Regensburg 45(1): 5 (1862)

[VZR196], Bohemia merid., montes Šumava, distr. Klatrovy, Modrava, in monte "Smrkový vrch", 1100 m. Ad corticem arborum (Acer pseudoplatanus). Leg. Z. Palice & A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 196.

Thallus crustose, usually well-developed and episubstratic, ecorticate, verrucose to minutely granular, green to grey-green. Apothecia short-stalked, pin-like, shining black but covered in a bright yellow pruina at least in the upper part of stalk and the lower side of capitulum. Stalk 0.7-1 mm high, 0.05-0.08 mm thick, of periclinally arranged, medium brown hyphae. Capitulum broadly obovoid to lenticular, with a more or less well-developed excipulum of periclinally arranged hyphae, continuous with the stalk tissue. Mazaedium well-developed, brown; hypothecium medium brown, with a strongly convex upper surface. Asci cylindrical, clearly stalked, formed singly, dissolving early, with uniseriately arranged ascospores. Ascospores 1-celled, brown to pale brown,

globose to broadly ellipsoid, 4.5-9 x 3-4 µm, the wall with a rough ornamentation of irregular cracks. Photobiont chlorococcoid, with rectangular cells (Stichococcus) or rarely trebouxioid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus without lichen substances; yellow pruina consisting of vulpinic acid. - Note: optimum on old oaks inside forests, in fissures of the bark, sometimes on decorticated trunks, also of conifers, especially on dry undersides and inside hollow trunks.



Chaenotheca chlorella



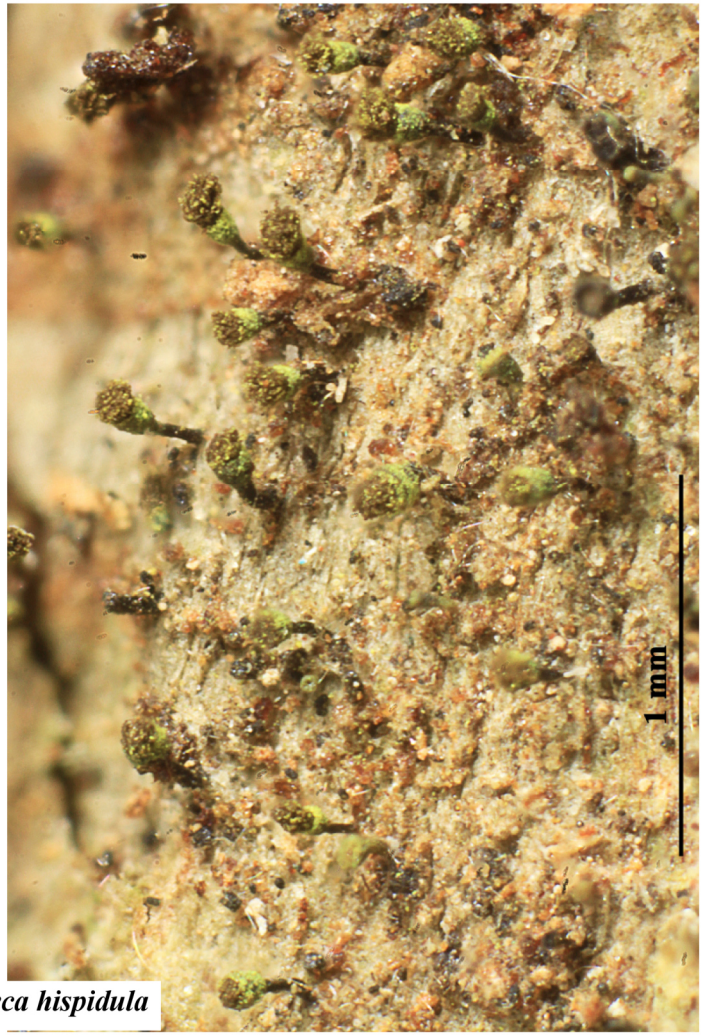
Chaenotheca chlorella

Chaenotheca hispidula (Ach.) Zahlbr., Cat. Lich. Univers. 1: 567 (1922)
= *Calicium aciculare* (Gray) Fr., Summa veg. Scand., Sectio Prior (Stockholm): 119 (1845)
= *Calicium hispidulum* (Ach.) Ach., K. Vetensk-Acad. Nya Handl. 4: 268 (1816)
= *Calicium hyperellum* var. *aciculare* Schaer., Lich. helv. spicil. 4-5: 229 (1833)
= *Calicium phaeocephalum* var. *aciculare* (Schaer.) Nyl., Monogr. Calic.: 11 (1857)
= *Calicium trachelinum* var. *hispidulum* Ach., Lich. Univ.: 237 (1810)
= *Chaenotheca acicularis* (Gray) Zwackh, Flora, Regensburg 45(34): 535 (1862)
= *Chaenotheca chlorella* f. *acicularis* (Gray) Vain., Acta Soc. Fauna Flora fenn. 57(no. 1): 97 (1927)
= *Chaenotheca chlorella* var. *hispidula* (Ach.) Vain., Acta Soc. Fauna Flora fenn. 57(no. 1): 96 (1927)
= *Chaenotheca hispidula* f. *acicularis* Nádv., Stud. Bot. Čechoslov. 5: 26 (1942)
= *Chaenotheca phaeocephala* * *acicularis* (Schaer.) Blomb. & Forssell , Enum. Pl. Scand.: 96 (1880)
= *Cyphelium aciculare* (Gray) Arnold, Flora, Regensburg 68: 55 (1885)
= *Cyphelium phaeocephalum* var. *aciculare* (Schaer.) Stein, in Cohn, Krypt.-Fl. Schlesien (Breslau) 2(2): 307 (1879)
= *Eucyphelis acicularis* (Gray) Clem., Gen. fung. (Minneapolis): 174 (1909)
= *Lichen acicularis* Sm. & Sowerby, Engl. Bot. 34: [2385] (1812)
= *Phacotium aciculare* (Gray) Trevis., Flora, Regensburg 45(1): 5 (1862)
= *Phacotium hispidulum* (Ach.) Trevis., Flora, Regensburg 45(1): 5 (1862)
= *Phacotrum hispidulum* (Ach.) Gray, Nat. Arr. Brit. Pl. (London) 1: 483 (1821)
= *Strongylium aciculare* Gray, Nat. Arr. Brit. Pl. (London) 1: 485 (1821)

[VZR202], Italia. Cosenza, Orsomarso: in valleculo Brancato vallis Fiume Argentino, 400 m. Ad corticem arboris (*Quercus pubescens*). Leg. et det. D. Puntillo, 06.01.1991. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 202.

Thallus crustose, endosubstratic, poorly evident. Apothecia short-stalked, pin-like, 0.5-1 mm high. Stalk 0.05-0.08 mm thick, black in lower part, bright yellow-pruinose in upper part, of periclinally arranged, medium brown hyphae. Capitulum to 0.3 mm across, obconical to obovoid, yellow-pruinose in lower part, the mzaedium well-developed, brown. Exciple well-developed, of periclinally arranged, medium

brown hyphae; hypothecium medium brown, obconical, with a flat upper surface. Asci cylindrical, either estipitate and produced in chains or with a distinct stipe and formed singly, dissolving early, with 1- to 2-seriately arranged ascospores. Ascospores 1-celled, brown, globose, 5-8 µm wide, the wall with irregular, reticulate fissures delimiting polygonal areas. Photobiont trentepohlioid. Spot tests: thallus K-, C-, KC-, P-. Chemistry: thallus without lichen substances; yellow pruina consisting of vulpinic acid. - Note: a cool-temperate, probably holarctic lichen found in dry hollows and undersides, and on the bases of ancient trees, especially oaks, in humid deciduous forests. Widespread throughout Italy, but not common.



Chaenotheca hispidula

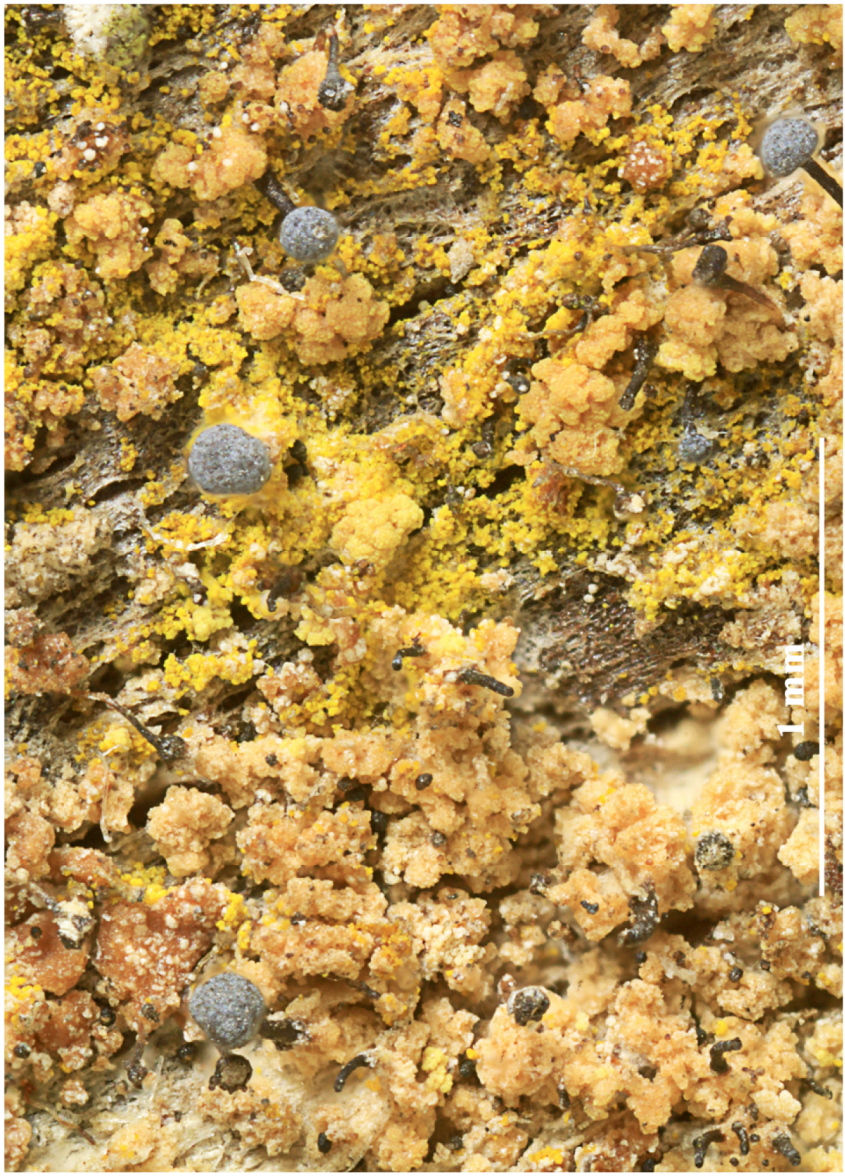
Chaenothecopsis tasmanica Tibell, Publ. Herb. Univ. Uppsala 16: 6 (1985)

[VZR261], Slovacia. Montes Carpati centrales, Tatra Magna, in valle Bielovodská dolina, loco Pod Vysokou dicto, 1280 m. Ad corticem *Piceae excelsae* in ripa torrentis. Leg. A. Vězda, 09.06.1988, det. L. Tibell. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NO. 261.

Apothecia sat brevia, 0.5-0.t mm alta. Capitulum nigrum, lenticulare ad hemisphaericum vel irregulare, 0.18-0.28 mm diametro. Epithecium rufum. Hypothecium pallidum ad brunneum, 85-100 µm altum. Excipulum rufum, 9-13 µm crassum. Stipes 0.04-0.07 mm diametro. Pars centralis stipitis hyalina ex hyphis irregulariter intertextis crassis c. 3 µm diametro constans. Epithecium exipulum et stipes K+ flavidum ad rufum reagentia. Hypothecium K+ luteofuscum. Omnes partes apotheciorum K-. Asci 32-39 x 2-2.5 µm, cylindrici, apice incrassato, canale tenui penetrato. Sporae unifariam et periclinaliter ver parum oblique in ascis dispositae. Sporae fusca, ellipsoideae, uniseptatae, 6-7.5 x 2-2.5 µm, laeves. Septum valde pigmentosum, ut in pariete externo fuscum vel quasi fuscius.



Chaenothecopsis tasmanica

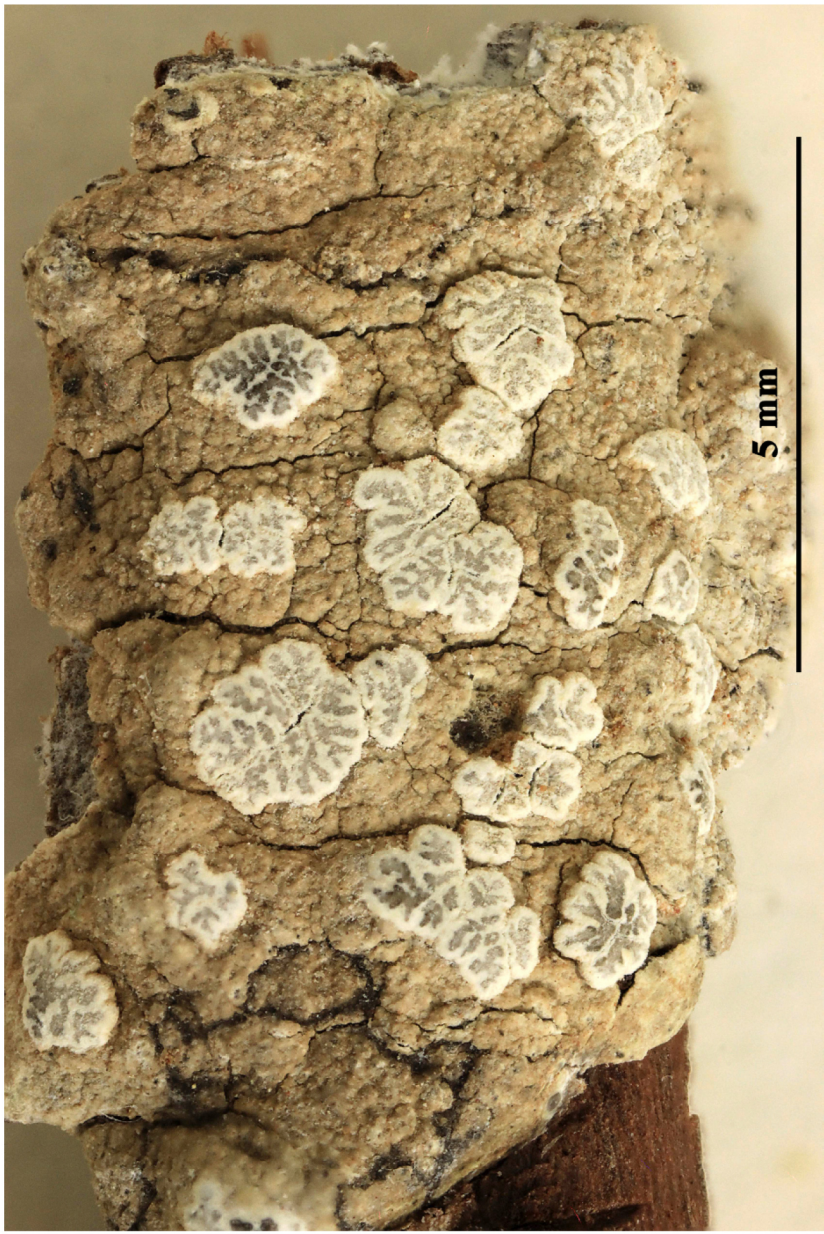


Chaenothecopsis tasmanica

Chiodecton myrticola Fée, Essai Crypt. Exot. (Paris): 63 (1825) [1824]
= *Syncesia myrticola* (Fée) Tehler, Fl. Neotrop., Monogr. 74: 18 (1997)
= *Chiodecton albidum* (Taylor) Leight., Brit. Sp. Ang. Lich.: 25 (1851)
= *Chiodecton myrticola var. albidum* (Taylor) Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 3: 190 (1855)
= *Chiodecton myrticola var. petraeum* (Delise ex Nyl.) Boistel, Nouv. Fl. Lich. (Paris) 2: 257 (1903)
= *Chiodecton myrticola var. sarniense* Salwey ex Mudd [as 'sarniensis'], Man. Brit. Lich.: 245 (1861)
= *Chiodecton myrticola var. syncesia* Schaer., Enum. critic. lich. europ. (Bern): 226 (1850)
= *Chiodecton petraeum* Delise ex Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 4: 104 (1856)
= *Syncesia albida* Taylor, in Mackay, Fl. Hibern. (Dublin) 2: 103 (1836)
= *Syncesia myrticola* (Fée) Tehler, Cryptog. bot. 3(2): 147 (1993)

[VZR11], Italia. Sicilia, insulae Égadi: insula Merettimo, loco Semaforo dicto, 400 m. Ad corticem et lignum fruticum (*Pistacia lentiscus*). Leg. D. Puntillo. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 11.

Thallus crustose, episubstratic, continuous and smooth to folded-nodulose, chalky white to pale grey, water-repellent, usually esorediate, rarely sterile and with orbicular, c. 0.5 mm wide, finally sometimes confluent, grey-white soralia bearing farinose soredia (never observed in Italian material), sometimes delimited by a dark prothallus. Apothecia 0.1-0.2 mm wide, brown to black, but often white-pruinose, punctiform, circular, lirelliform or star-shaped, often confluent, immersed in raised, basally constricted, rounded to oval, 1-4 mm wide stromata with 5-15 apothecia. Exciple level with disc, of richly branched, interwoven, hyaline hyphae, with crystals dissolving in K; epithecium dark brown; hymenium colourless, 70-90 µm high, I+ blue; pseudoparaphyses sparingly branched, coherent in water but easily separable in K; hypothecium carbonaceous, K+ olive-black. Asci 8-spored, clavate, fissitunicate, thickened at apex, with an internal K/I+ blue ring. Ascospores 3-septate, hyaline, narrowly fusiform, straight or curved, 35-44 x 4-5 µm. Pycnidia brown to black. Conidia filiform, straight to curved. Photobiont trentepohlioid. Spot tests: thallus K-, C-, KC-, P+ rust-red, UV+ cream-coloured. Chemistry: protocetraric and roccellic acids. - Note: a humid subtropical to Mediterranean-Atlantic lichen found on bark and base-rich siliceous rocks in the most humid parts of Tyrrhenian Italy, usually in the Mediterranean belt and not far from the sea, sometimes lichenicolous on Dirina-species.



Chiodecton myrticola



Chiodecton myrticola

Chroodiscus lamelliferus Kantvilas & Vězda, Lichenologist 32(4): 336 (2000)

= *Gintarasia lamellifera* (Kantvilas & Vězda) Kraichak, Lücking, Lumbsch, Aust. Syst. Bot. 26(6): 470 (2014) [2013]

= *Chapsa lamellifera* (Kantvilas & Vězda) Mangold, in Mangold, Elix & Lumbsch, in McCarthy (Ed.), Flora of Australia, Vol. 57. Lichens 5 (Melbourne): 653 (2009)

[VZR25], Australia. Tasmania: Elliot Range, 900 m. Ad plantas emortuas in rupibus in regione alpina. Leg. G. Kantvilas & J. Jarman, 18.01.1985. - primum sub nom. *Chroodiscus megalophthalmus* editum. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 25.

Thallus endophloeodal to epiphloeodal, to c. 100 µm thick, greyish green to pale grey, dull to slightly glossy, smooth, continuous, non-rimose. Protocortex discontinuous, to c. 20 µm thick. Algal layer ±continuous, moderately well developed; calcium oxalate crystals small, sparse, scattered. Vegetative propagules not seen. Ascomata conspicuous, to c. 3 mm diam., mostly ±rounded, chroodiscoid at maturity, initially erumpent, later sessile, solitary or fused, becoming ±distinctly emergent, mostly depressed-urceolate. Disc partly to rarely completely visible from above, greyish brown to flesh-coloured, indistinctly pruinose. Proper exciple not visible from above; thalline rim ±regularly radially split, lobed, becoming strongly layered, off-white to pale reddish brown; inner layers mostly incurved, often gradually exfoliating, becoming erect to recurved towards the outer layers. Proper exciple fused, thin to somewhat evanescent, hyaline internally to pale brownish marginally, non-amyloid. Hymenium to c. 180 µm thick, strongly conglutinated; paraphyses straight to slightly bent, parallel, the tips unthickened to slightly thickened; lateral paraphyses mostly inconspicuous, to c. 25 µm long. Epihymenium hyaline, with greyish brown granules. Asci 8-spored; tholus absent. Ascospores muriform, oblong or ellipsoidal to reniform, with rounded to narrowly rounded ends, hyaline or becoming slightly yellowish, non-amyloid, 30–60 × 10–20 µm, with 12–18 × 2–5 locules; locules small, ±rounded to angular, irregular; transverse septa only distinct in immature ascospores, irregular, disappearing with age; ascospore wall thin, thinly halonate. CHEMISTRY: Thallus K+ yellowish, C–, P+ reddish; containing protocetraric acid (major to minor), fumarprotocetraric acid (major to minor), succinprotocetraric acid (minor). Common on tree bark and

dead wood, rarely on soil, plant debris or moss, in moist, cool-temperate rainforest in Tasmania at altitudes to 900 m; also in New Zealand.



Chroodiscus lamelliferus



Chroodiscus lamelliferus

Chroodiscus megalophthalmus (Müll. Arg.) Vězda & Kantvilas, in Vězda, Lichenes Rariores Exsiccati, Fasc. 3 (nos 21-30) (Brno): 2 (1992)

= *Gintarasia megalophthalma* (Müll. Arg.) Kraichak, Lücking & Lumbsch, Aust. Syst. Bot. 26(6): 470 (2014) [2013]

= *Chapsa megalophthalma* (Müll. Arg.) Mangold, in Mangold, Elix & Lumbsch, in McCarthy (Ed.), Flora of Australia, Vol. 57. Lichens 5 (Melbourne): 654 (2009)

= *Thelotrema megalophthalmum* Müll. Arg., Flora, Regensburg 65: 500 (1882)

[VZR181], Nova Zelandia. South Island, Nelson, ad cataracta "Brook whaterfalls" dicta, 41°19.3' austr., 177°17.5' occid., 160 m. Ad saxa silicea. Leg. & comm. W. Malcolm. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 181.

Thallus superficial, to c. 200 µm thick, pale greyish green to pale olive or pale grey, ±glossy, smooth, continuous to moderately verrucose or verruculose, non-rimose. Protocortex discontinuous to continuous, to c. 30 µm thick. Algal layer continuous and well developed; calcium oxalate crystals lacking. Vegetative propagules not seen. Ascomata conspicuous, to c. 3 mm diam., ±rounded to slightly irregular, sometimes appearing sparingly branched in fused ascomata, chroodiscoid, erumpent, solitary to fused, regenerating, immersed. Disc partly to more often completely visible from above, variable, dark greyish brown to brownish to pale or distinctly flesh-coloured, epruinose to slightly pruinose. Proper exciple not visible from above; thalline rim margin variable, split in immature ascomata, ragged or lobed, ±concolorous with the thallus or brighter, becoming erect to recurved, the tissue splitting and opening irregularly, breaking away in large fragments; marginal parts finally forming the new thalline rim, off-white to pale yellowish brown, becoming erect to recurved, layered with age. Proper exciple fused, thin, hyaline internally to pale yellowish or yellowish orange marginally, usually the lower exciple extending into a distinct hyaline moderately to strongly amyloid lateral hypothecium. Hymenium to c. 180 µm thick, moderately conglutinated; paraphyses ±straight, ±parallel, the tips not thickened to slightly thickened; lateral paraphyses inconspicuous, to c. 20 µm long. Epihymenium pale to medium brown, with yellowish brown to brownish granules. Asci 8-spored; tholus thin, not visible at maturity. Ascospores muriform, oblong to ellipsoidal or reniform, with rounded to, rarely, narrowly rounded ends, hyaline,

non-amyloid, 25–45 (–50) × 8–12 µm, with 8–13 (–15) × 1–6 locules; locules large, ±rounded to angular, ±rectangular or irregular; transverse septa thin, regular; ascospore wall thin, non-halonate; endospore thin. CHEMISTRY: Thallus K+ yellowish to brown, C–, P+ orange; containing stictic acid (major), constictic acid (major to minor), a-acetylhypoconstictic acid (trace), cryptostictic acid (trace), a-acetylconstictic acid (trace), hyposalazinic acid (trace), hypostictic acid (trace).- grows on tree bark and rock in shaded habitats in temperate and subtropical rainforest and wet-sclerophyll forest at altitudes of 400–1250 m. Also in New Zealand.



Chroodiscus megalophthalmus



Chroodiscus megalophthalmus

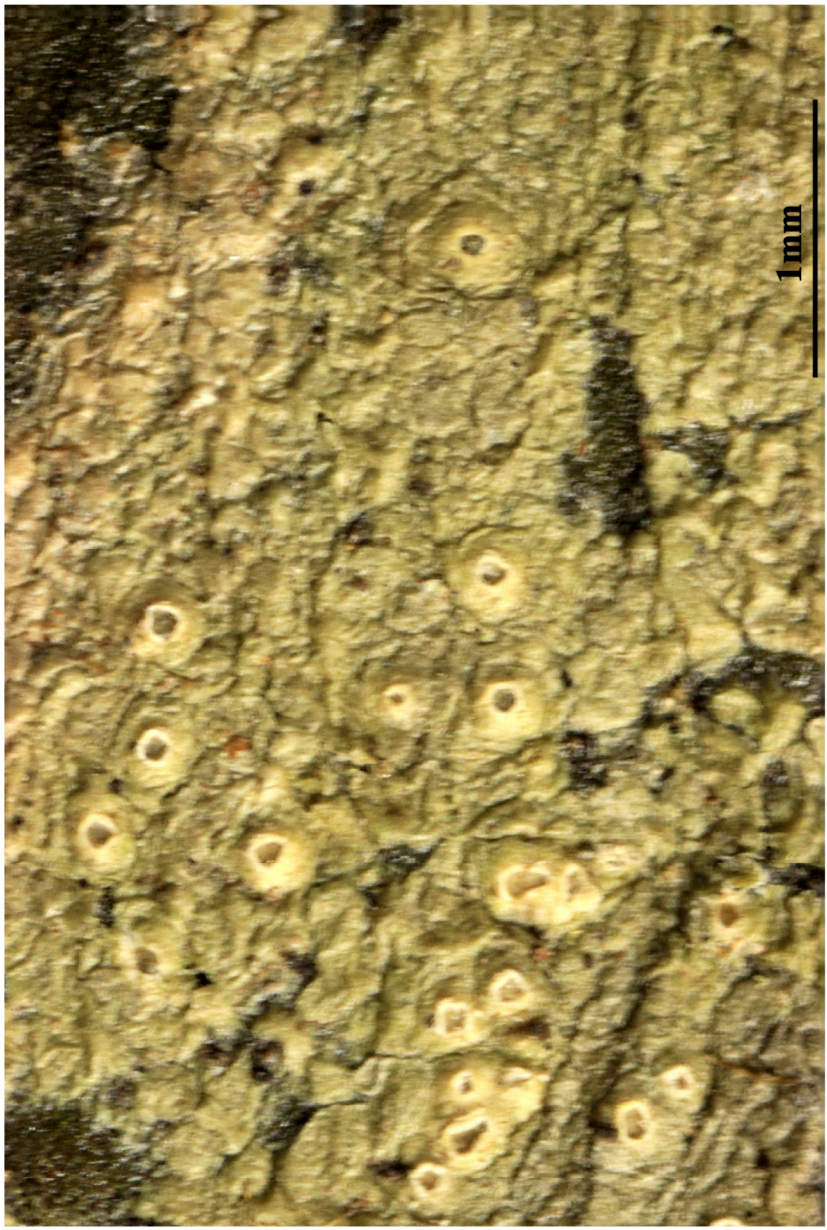
Chroodiscus mirificus (Kremp.) R. Sant., Symb. bot. upsal. 12(no. 1): 311 (1952)
= *Phyllobrassia mirifica* (Kremp.) Vain., Ann. Acad. Sci. fenn., Ser. A 15(no. 6): 174 (1921)
= *Platygrapha mirifica* Kremp., Lich. Foliic. Leg. Beccari: 13 (1874)
= Schismatomma mirificum (Kremp.) Overeem [as 'mirifica'], Bull. Jard. bot. Buitenz, 3 Sér. 4(1): 118 (1922)
= *Thelotrema mirificum* (Kremp.) Müll. Arg., Flora, Regensburg 73: 193 (1890)

[VZR271], Malaysia. Kuala Lumpur, in colle Templer Park, 22 km ad septentr. a Kuala Lumpur, 300 m. Foliicola in hyle virginea. Leg. F. Ceni & A. Vězda, 5.6.1997, det. A. Vezda. Ex A. Vězda: Lichenes Rariores Exsicati Nr. 271.

Thallus continuous, uneven to irregularly verrucose, pale grey; verrucae 0.1–0.2 mm diam., pale grey to white. Photobiont Trentepohlia, cells elongate, 10–15 x 3–4 µm, in widely open, net-like plates. Apothecia immersed-erumpent, rounded, 0.2–0.6 mm diam. and 70–90 µm high; disc plane, pale grey, K– or K + pale yellow; margin pale grey, K– or K+ yellow. Excipulum 3–5 µm broad, colorless. Hypothecium 8–15 µm high, colorless to pale yellowish brown. Epithecium indistinct. Hymenium 45–55 µm high, colorless. Ascospores oblong-ellipsoid, (1–)3-septate, without constrictions at septa, 6–10 x 2–3.5 µm, colorless. Pycnidia not observed. Chemistry: not tested.



Chroodiscus mirificus



Chroodiscus mirificus

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

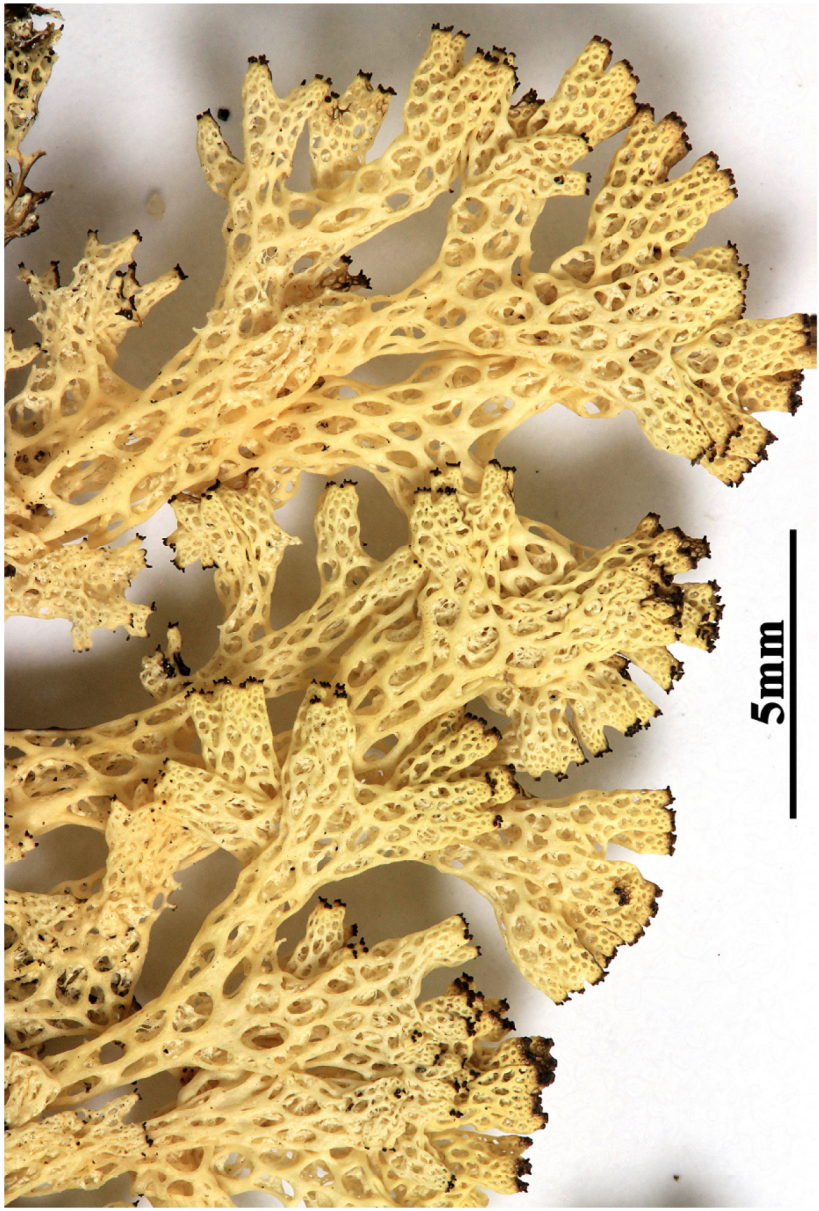
[VZR296], Nova Zelandia. South Island, distr. Nelson, Kahurangi National Park, regio montis Mt. Arthur, secus viam inter stationem "Flora Carpark" et casam alpinam Mt, Arthur dictam, 1100 m, ad terram. Leg. W. Malcolm & A. Vězda, 21.4.1997. Ex A. Vězda: LichenesRariores Exsiccati Nr. 296.

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

Thallus K- or K+ yellow, C-, KC- or KC+ orange, P-. Contains usnic, protolichesterinic, ursolic acids, atranorin, unknown triterpenes and four unidentified substances.



Cladia retipora



Cladia retipora

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

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

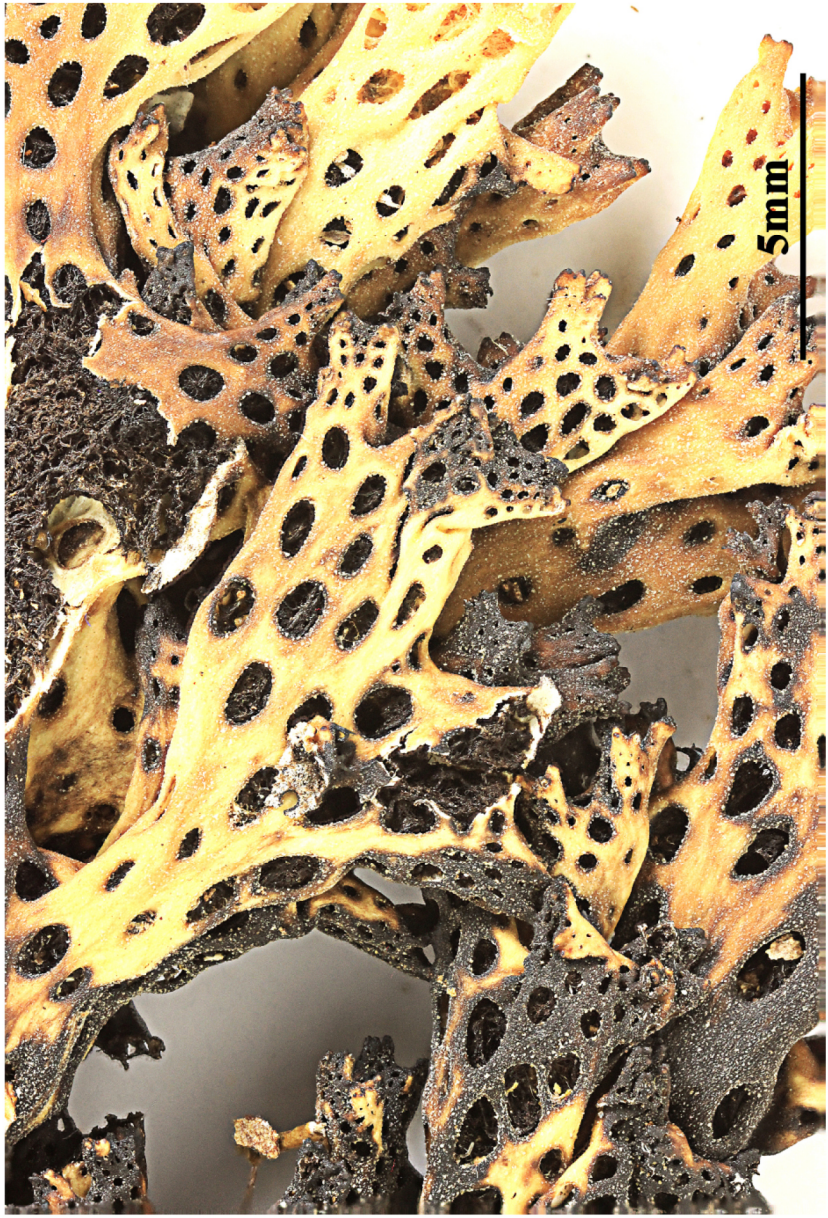
= *Cladonia sullivanii* Müll. Arg. [as 'sullivani'], Flora, Regensburg 65(19): 294 (1882)

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

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

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

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



Cladia sullivanii



Cladia sullivanii

Cladonia borealis S. Stenroos, Ann. bot. fenn. 26(2): 160 (1989)

[VZR478, 19837], Hollandia, Brabantia borealis, loco "Gastelsche Heide" dicto, Callunetum in margine silvae (Pinus), ad terram. Leg. P. v. d. Boom (27948), 22.09.2001, det. P. v. d. Boom. V. VĚZDA: LICHENES RARIORES EXSICCATI NR. 478.

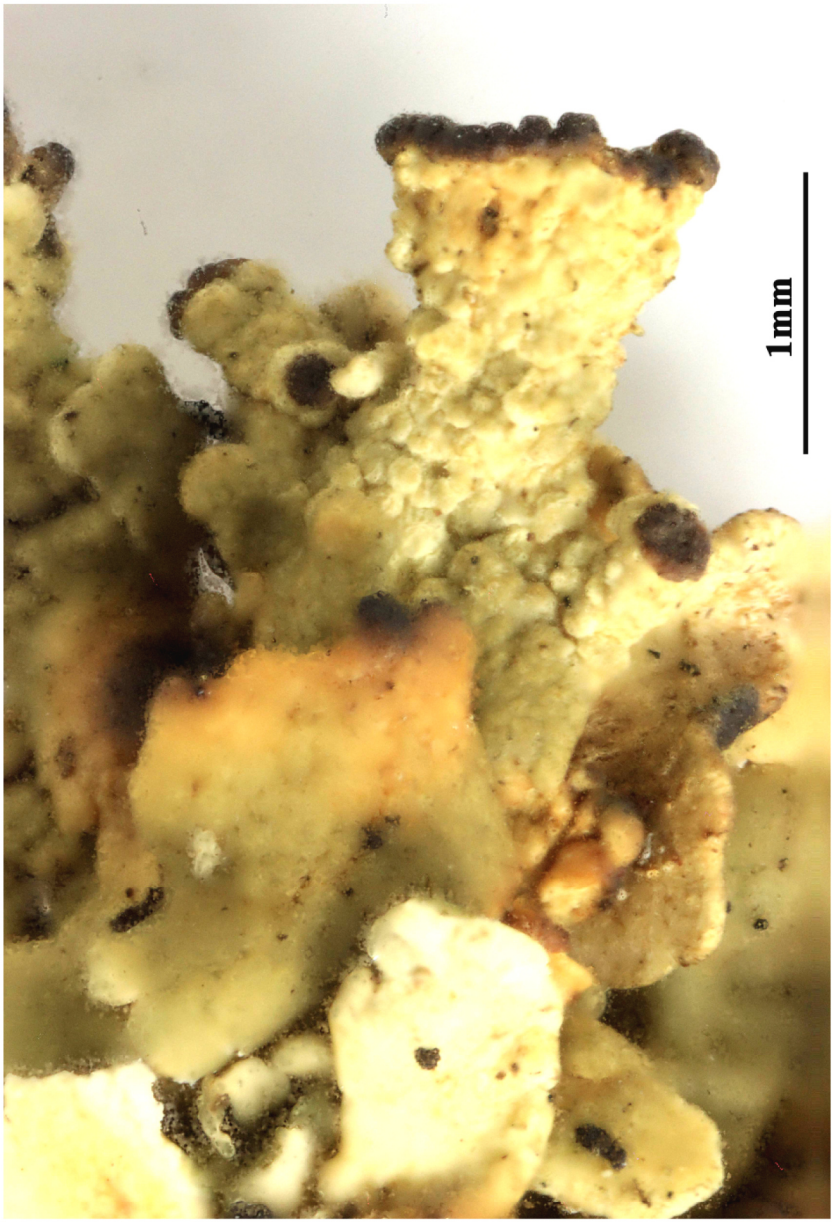
Primary thallus squamulose, the squamules middle-sized, 2-4(-5) mm long, 2-3 mm wide, variable in form, rounded or a little indented, white or often yellowish towards the base beneath. Podetia goblet-shaped, hollow inside, yellowish-green, continuously corticate in lower part, areolate in upper part, esorediate, non- or scarcely squamulose, 1-2(-3) cm tall, bearing 6-12 mm wide, regular cups flaring into a short stalk, the inner part of cups areolate, the areoles forming 0.2-0.8 flattened plates (schizidia). Apothecia frequent, scarlet red, convex, developing along the margins of cups, often coalescent into c. 3 mm wide clusters. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia scarlet red, semi-immersed, pyriform. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K-, C-, KC+ yellow, P-, UV-. Chemistry: usnic, barbatic and 4-O-demethylbarbatic acids; rhodocladonic acid in apothecia and pycnidia. - Note: on acid, mineral siliceous soil in open habitats near or above treeline; related to *C. coccifera* and with a similar ecology, and certainly more widespread in the Alps.



Cladonia borealis



Cladonia borealis



Cladonia borealis



Cladonia borealis

Cladonia confusa R. Sant., Ark. Bot. 30A(no. 10): 13 (1942)
= *Cladina alpestroides* Abbayes, Rev. Bryol. Lichénol. 16: 79 (1947)
= *Cladina confusa* (R. Sant.) Follmann & Ahti, in Follmann, Philippia 4(4): 321 (1981)
= *Cladina confusa* f. *bicolor* (Müll. Arg.) Ahti, Beih. Nova Hedwigia 79: 34 (1984)
= *Cladina galapagosensis* (Ahti) W.A. Weber, Mycotaxon 13(1): 101 (1981)
= *Cladina leptoclada* (Abbayes) D.J. Galloway, N.Z. Jl Bot. 21(2): 192 (1983)
= *Cladina pohlia* (R. Sant.) W.A. Weber [as 'polia'], Mycotaxon 13(1): 101 (1981)
= *Cladina pycnoclada* subsp. *thyrsifera* Nyl., Lich. Nov. Zeland. (Paris): 20 (1888)
= *Cladina sylvatica* f. *sylvestris* (Oeder) Navás, Brotéria, sér. bot. 11: 24, tab. VI, fig. 1 (1913)
= *Cladinomyces sylvaticae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 288 (1954)
= *Cladonia alpestroides* Abbayes, Rev. Bryol. Lichénol. 16: 79 (1947)
= *Cladonia bicolor* (Müll. Arg.) Ahti, Ann. bot. Soc. Zool.-Bot. fenn.Vanamo 32(no. 1): 45 (1961)
= *Cladonia confusa* f. *bicolor* (Müll. Arg.) Ahti & DePriest, Mycotaxon78: 501 (2001)
= *Cladonia fallax* f. *bicolor* (Müll. Arg.) Abbayes, Bull. Soc. sci. Bretagne 16: 87 (1939)
= *Cladonia fallax* f. *exalbescens* (Vain.) Abbayes, Bull. Soc. sci. Bretagne 16: 87 (1939)
= *Cladonia galapagosensis* Ahti, Ann. bot. Soc. Zool.-Bot. fenn. Vanamo 32(no. 1): 46 (1961)
= *Cladonia impexa* f. *exalbescens* (Vain.) Abbayes, J. Bot., Lond. 74: 347 (1938)
= *Cladonia impexa* f. *thyrsifera* (Nyl.) Abbayes, Bull. Soc. sci. Bretagne 16: 77 (1939)
= *Cladonia leptoclada* Abbayes, Rev. Bryol. Lichénol. 16: 75 (1947)
= *Cladonia leptoclada* f. *thyrsifera* (Nyl.) Abbayes, Rev. Bryol. Lichénol. 16: 75 (1947)
= *Cladonia pohlia* R. Sant., Ark. Bot. 30A(no. 10): 15 (1942)
= *Cladonia pycnoclada* f. *exalbescens* (Vain.) Petr., Annln naturh. Mus. Wien 56: 424 (1948)
= *Cladonia pycnoclada* var. *exalbescens* Vain., Acta Soc. Fauna Flora fenn. 4(no. 1): 39 (1887)
= *Cladonia rangiferina* f. *bicolor*Müll. Arg., Revue mycol., Toulouse 1(4): 164 (1879) 60

= *Cladonia sylvatica* var. *sylvestris* (Oeder) Vain., Acta Soc. Fauna Flora fenn. 4(no. 1): 20 (1887)
= *Lichen rangiferinus* var. *sylvestris* Oeder, Enum. fl. dan.: 28 (1770)

[VZR383], Uruguay. Dept. Maldonado: Sierra de las Canas, 34°32' merid., 54°49' orient., in colle inter rupibus ad terram. Leg. Iuaguirre, Bayhaut & Bonifacino, 13.08.1998, det. H.S. Osorio, confirm. T. Ahti, 1998. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 383

Podetia yellow to yellowish gray, or frequently pale ashy gray in upper part and then yellow coloring best seen in central portions, in extreme shade almost completely gray, extreme tips browned, and patches of brown sometimes also elsewhere, 6-12 cm tall, densely branched, with semiglobose heads 2-5 cm wide; predominant branching type clearly trichotomous isotomy, but dichotomous and tetrachotomous branching also common; no main axes usually distinguishable; axils normally perforated; mature intemodes 2-3 mm long; ultimate branchlets slender, attenuate, often curly, diverging at a wide to rather narrow angle, sometimes bluntish and fairly coarse. Surface layer lax, thin, easily disintegrating, algal glomerules often visible in dry podetia. Podetial wall 140-200 µm; ectal layer medulla 60-140 µm, arachnoid, with 7.5-8.5 µm thick hyphae; stereome 30-80 µm; surface of central canal minutely rugulose. Conidiomata ovoid, containing hyaline slime; conidia 4-6 x 0.5 µm, falciform. Hymenial disks infrequent, 0.2-0.3 µm wide, subglobose, brown; spores 4-7 x 2 µm, ovoid. Chemistry. P-, K-. (-)-Usnic acid (often absent), perlatolic acid (occasionally absent), anziaic acid (traces perhaps usually present), and traces of several unknown substances. Distribution. South America, Central America, southern and East Africa, Australasia, Western Melanesia. Key to Formae of *Cladina confusa* in Ahti Flora neotropica.

Cladonia confusa



Cladonia confusa



Cladonia confusa

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= *Cladina sylvatica* f. *sylvestris* (Oeder) Navás, Brotéria, sér. bot. 11: 24, tab. VI, fig. 1 (1913)
= *Cladinomyces sylvaticae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 288 (1954)
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= *Cladonia sylvatica* var. *sylvestris* (Oeder) Vain., Acta Soc. Fauna Flora fenn. 4(no. 1): 20 (1887)
= *Lichen rangiferinus* var. *sylvestris* Oeder, Enum. fl. dan.: 28 (1770)

[VZR295, 19839], Nova Zelandia, South Island, distr. Nelson, Westport, planities Denniston, 900 m. In rupibus supra terram humosam. Leg. W. Malcolm & A. Vězda, 24.04.1997. A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 295.

Podetia 2–6 cm tall, forming dense mats, greenish yellow to yellow; surface distinctly cobwebby; heads distinct, rounded, greenish yellow to yellow; branching predominantly trichotomous, occasionally tetrachotomous, isotomic or subisotomic, with branches 0.3–1 mm diam., most axils distinctly perforated. Apothecia terminal, 0.2–0.7 mm diam., becoming convex, dark brown. CHEMISTRY: K-, KC- or KC+ yellow, P-. Perlatolic acid (major) and anziaic acid (trace), usnic acid (major). - Common in Tasmania, also in Lord Howe Is. and Norfolk Island. widely distributed in the Southern Hemisphere.

Cladonia confusa



Cladonia confusa



Cladonia confusa



Cladonia confusa

Cladonia hedbergii Ahti, Lichenologist 9(1): 4 (1977)

[VZR2, 19840], Tanzania, Morogoro distr., Lukwangule planities, cataracta fluvii Mgeta, 2300-2400 m, ad saxa gneissiacea. Leg. T. Pócs & E. Knox (88258), 25.10.1988, det. A. Vězda. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 002.

Lit: Ahti, Lichenologist 9: 4 (1977):
Primary thallus not seen but phyllocladia common on young podetia, consisting of very small squamules, *c.* 0-5-1-2(-2) mm long and 0-2-0-7 mm wide, somewhat lobed, corticate, loosely floccose and veined below, often narrowly elongate. They are rarely present on well-developed podetia. Podetia ashy or greenish-grey in shade, pale to strongly dark brown in sun, growing in not very dense cushions, usually 3-12 cm tall. Branching fairly dense, the pattern being somewhat irregular, anisotomic polytomy (trichotomy predominant, tetrachotomy and dichotomy common, 5-6-tomy occasional). The axils are cupless and usually have perforations, but they are not widely gaping. The branches are *c.* 0-5-1-3 mm thick, in part somewhat flattened, generally conspicuously divaricate; the main stems are usually clearly distinguishable. The podetial wall is *c.* 150-200 jxin thick, usually discontinuously areolatecorticate, esorediate, with an arachnoid medulla visible between the smooth areolae. On the youngest tips the surface soon becomes clearly corticate but may be somewhat arachnoid. In dead basal parts the medulla becomes dark brown to black. The cortical layer is thin and poorly developed, 12-25 µm thick. The inner cartilaginous layer is also thin, *c.* 50-60 µm, not sharply delimited from the outer, well-developed interwoven medulla, which contains the scattered algal glomerules. Surface of the central canal matt, minutely papillose and striate, glabrous. Fertile podetia are more robust and sparsely branching than the sterile ones. Apothecia probably fairly common, brown, peltate, 0.2-0.8 mm wide, with long persistent margins. Spores 8-11 x 2-2-5 µm, simple, elliptic fusiform. Pycnidia ovoid to dolioliform, containing red jelly; conidia 5-7 x 0-7 µm falcate. Chemistry: K- or + deep yellow, PD- or + intensely yellow. Contains constantly barbatic acid and often (in *c.* 30% of the specimens tested) also thamnolic acid. The latter is evidently present in small amounts, since it was sometimes not detectable with TLC, but the extreme tips react P + yellow. Traces of additional, unidentified accessory compounds probably also present (TLC). This new species is named in honour of Professor Olof Hedberg

(Uppsala), a distinguished student of the Afroalpine flora, who also collected this species in several places. - The distinctive characters of C. *hedbergii* are the presence of barbatic acid, the more or less dark brown colouring, and the rather distinctly corticate tips of the podetia. It clearly belongs to the group called ser. *Squamosae,* in which barbatic, thamnolic and squamatic acids are typical chemical constituents, although *C. hedbergii* is more branched than most members of *Squamosae*.. - *C. hedbergii* is widespread at high altitudes on the mountains of East Africa. The altitudinal range so far recorded is from 3000 to 4080 m. Collections from Mt. Kilimanjaro and Mt Kenya suggest that it is widespread in the Ericaceous Belt. It grows on soil, stones and stumps in communities like the *Philippia* scrub, *Festuca pilgeri* mire and *Carex runssoroensis* bog. On Mt Kenya *C. hedbergii* also descends down to the upper parts of the Montane Forest. On the other hand, on Mt Elgon and Mt Kenya it has been collected up in the Afroalpine Belt. Thus it may be included in the endemic afromontane element of Hedberg (1965).

Cladonia hedbergii



Cladonia hedbergii



Cladonia hedbergii

Cladonia krempelhuberi (Vain.) Vain., Acta Soc. Fauna Flora fenn. 53(no. 1): 102 (1922)

= *Cladonia verticillata var. krempelhuberi* Vain., Acta Soc. Fauna Flora fenn. 10: 187 (1894)

[VZR26, 19841], Tanzania, Montes Kilimanjaro, via Marangu, supra deversiorum Horombo, 3820-4000 m. Ad terram in regione subalpina. Leg. T. Pócs & S. Orbán (89150), 21.05.1989, dupl. det. H. Krog. EX A. VEZDA: LICHENES RARIORES EXSICCATI NR. 026

Basal squamules up to 5 mm long and 3-4 mm wide, crenate-incised, greyish green above, dirty white below, persistent or disappearing with age. Podetia up to 10 cm high and 2.5 mm wide, grey-green to brownish grey, black discoloured towards the base, forming shallow, gradually widening or abruptly flaring scyphi up to 1 cm diam. but usually less, repeatedly proliferating from the centre in up to 8 tiers, corticate, the cortex mainly discontinuous, forming convex areolae over arachnoid tissue, in younger parts often with isidioid microsquamules. Podetial macrosquamules common, up to 3 mm long, with upturned apices, white below, produced mainly between the scyphi. Soredia absent. Apothecia dark brown, shortly stipitate on the margin of scyphi. Pycnidia brown. CHEMISTRY: Fumarprotocetraric acid, atranorin. P+ orange-red, K+ yellow. ECOLOGY: Among bryophytes on boggy ground in the ericaceous and low alpine zones at 3000 to 3700 m alt., locally common. DISTRIBUTION: Kenia Tanzania, Canary Islands, Japan, New Zealand.



Cladonia krempelhuberi



Cladonia krempelhuberi



Cladonia krempelhuberi

Cladonia lopezii S. Stenroos, Ann. bot. fenn. 26(3): 250 (1989)

[VZR418, 19842], Aequatoria, Prov. Loja, reservatum naturae "Podocarpus", Vilca Bamba, 4 km ad orient. a vico Rushitana, 04°0.9' merid., 79°10' occid., 2900 m. Ad terram humosam. Leg. Z. Palice, 07.08.1999, det. Z. Palice. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 418.

Primary thallus persistent, consisting of squamules 3-5 mm long, 0.5-1.5(-5) mm wide, 0.3-0.7 mm thick, sparsely lobed, often blunt, finger-like and forming thick, densely packed cushions; lower surface white to brownish white or slightly orange; cortex on upper side 100-150 gum, hard cartilaginous, translucent, sometimes coarsely papillose. Podetia primitive in structure, to 3.5 cm tall, marginal on primary squamules, which elongate and roll up to form the podetial tube, often remaining open on the ventral side, brown, abruptly flaring to form conspicuously dor- siventral, flattened, weblike structures, to 3 cm wide. Surface of podetia continuously corticate, rugulose, with occasional short, broad squamules. Podetial wall very thick, 300-1000 gm; cortex 50-250 gm; algal layer 30-100 jum; medulla 100-900 pm; hyphae often loosely filling central cavity; cylindrical stereome ab- sent; supporting tissue represented by internal, longi- tudinal strands. Conidiomata 0.2-0.256 x 0.15-0.2 mm, black to red; marginally on the primary squamules, containing red slime; conidia 6-8 x 1 µm, falciform. Hymenial disks commonly produced, red, forming agglomerations up to 9 mm wide; primordia on primary squamules, often apparently on the basal parts of conidiomata; spores not seen. Chemistry. P-, K- (very rarely K+ yellow), C-, C-. Didymic, condidymic, and subdidymic acids; accessory substances are thamnolic, fumarprotocetraric, and (?) protocetraric acids, atranorin, and unknown substances designated (the presence of more than 10 unknown compounds confirmed with HPLC). Rhodocladonic acid in hymenia and conidiomata. Distribution High Andes, from Venezuela to Bolivia, usually above 2900 m, but ranges from 2300 to 3935 m; also in Minas Gerais, Brazil (1200-1300 m). Normally terricolous or saxicolous, but may grow on rotten wood as well.



Cladonia lopezii



Cladonia lopezii

Cladonia macaronesica Ahti, Ann. bot. Soc. Zool.-Bot. fenn. Vanamo 32(no. 1): 37 (1961)
= *Cladonia portentosa* (Dufour) Coëm. Bull. Acad. R. Belg., sér. 2, 19: 43, 1865.
= *Cenomyce portentosa* Dufour - Ann. Gén. Sc. Phys. Bruxelles, 8: 69, 1821.
= *Cladina impexa* (Harm.) B. de Lesd.
= *Cladina portentosa* (Dufour) Follmann
= *Cladonia impexa* Harm. nom. illegit.
= *Cladonia laxiuscula* auct.
= *Cladonia portentosa var. subimpexa* (P.A. Duvign.) Ahti
= *Cladonia spumosa* (Flörke) Schade
= *Cladonia subimpexa* P.A. Duvign.

[VZR114, 19843]. Insulae Canariensis, Tenerife, Las Montanas de Anaga, in monte Pico del Inglés, 900 m, ad terram in fossis viae silvaticae. Leg. A. Vězda & F. Ceni, 08.03.1994, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 114.

Primary thallus crustose, ephemeral and rarely seen, consisting of subglobular, small warts. Podetia densely branched and shrubby, hollow inside, pale grey, greenish grey or yellowish green, anisotomically (i.e. main branches thicker) (mainly) trichotomously branched, 4-10 cm tall, ecorticate, with an arachnoid-fibrose surface. Main axis usually distinct at least in lower parts, tips of ramifications subulate, often curved, browned or bluish in exposed situations, erect or mostly spreading in all directions, the axils usually open. Apothecia rare, brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed on the tips of podetia, with a colourless slime. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests and chemistry: three chemotypes (all of them K-, C-, KC-, UV+ bluish white): 1) P- (perlatolic and usnic acids), 2) P– (perlatolic acid only), 3) P+ red (fumarprotocetraric, perlatolic and usnic acids). Chemotype 3) is known only from oceanic parts of Atlantic Europe. - Note: a mainly cool-temperate, western species found on acid soil in open situations, such as in Calluna-heaths or *Corynephorus canescens*-grasslands, more rarely on wood, probably more frequent in the past.



Cladonia macaronesica



Cladonia macaronesica

Cladonia mediterranea P.A. Duvign. & Abbayes, Rev. Bryol. Lichénol. 16: 97 (1947)
= *Cladina mediterranea* (P.A. Duvign. & Abbayes) Trass, in Golubkova, Savicz & Trass, Opredelitel' Lishaĭnikov SSSR (Handbook of the Lichens of the USSR), 5, Cladoniaceae-Acarosporaceae (Leningrad): 77 (1978)
= *Cladina mediterranea* (P.A. Duvign. & Abbayes) Follmann & Hern.-Padr.

[VZR12, 19844], Italia, Sicilia, insulae Égadi, insula Marettimo, regio montis Falcone, 500 m, ad terram humosam. Leg. P. L. Nimis et al., 27.03.1991. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 012.

Primary thallus crustose, ephemeral and rarely seen, consisting of subglobular small warts. Podetia shrubby, hollow inside, pale yellowish, loosely attached and dying from the base, without a distinct main axis, mostly isotomically dichotomously branched, 4-8(-10) cm tall, 1-1.8 mm thick, esquamulose, ecorticate, with a finely arachnoid surface, a continuous algal layer and a compact medulla; tips of branchlets mostly spreading in all directions, arranged around a usually close axil. Apothecia rare, brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed, on the tips of podetia, with a colourless jelly. Conidia hyaline, straight or most often curved. Photobiont chlorococcoid. Spot tests: K-, C-, KC+ yellow, P-, UV+ bluish white. Chemistry: perlatolic and usnic acids. - Note: a Mediterranean-Macaronesian lichen found in Mediterranean maquis vegetation amongst pleurocarpous mosses in sheltered situations with plenty of diffuse light; presently restricted to a few very humid sites along the Tyrrhenian coast, and perhaps in danger of extinction.



Cladonia mediterranea



Cladonia mediterranea

Cladonia monomorpha Aptroot, Sipman & Herk, Lichenologist 33(4): 273 (2001)
= *Cladonia pyxidata* (L.) Hoffm. Deutschl. Fl., 2: 121, 1796.
= *Lichen pyxidatus* L. - Sp. Pl., 2: 1151, 1753.
= *Cladonia chlorophaea* auct. p.p.
= *Cladonia neglecta* (Flörke) Spreng.

[VZR464, 19845], Hollandia, Prov. Brabantia Borealis, loco "Strabrechtsche Heide" dicto, ad terram in Corynephoreto. Leg. et det. P. v. d. Boom (23592), 18.09.1999. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 464.

Primary thallus squamulose, persistent, the squamules middle-sized, 2-7 mm long (rarely more) and up to 4 mm wide (usually less), thin (less than 0.4 mm thick), irregularly lobed or incised, the tips rounded, mostly ascending, never forming a subrosulate crust, greenish grey above, white beneath. Podetia goblet-shaped, hollow inside, greenish grey, esquamulose, 0.5-3(-5) cm tall, with broad cups gradually tapering into short stalks, the cups regular or proliferating from margin, with contiguous to scattered, corticate granules or peltate squamules (schizidia), especially inside the cups. Apothecia frequent, brown, convex. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed on the margins of cups, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests and chemistry: four chemotypes are known from Europe (all of them C-, KC-, UV-): K- or K+ yellowish slowly turning brown, P+ red (fumarprotocetraric acid complex, often with additional physodalic acid). 2) K+ yellow, P+ red (atranorin and fumarprotocetraric acid complex). 3) K- or K+ yellowish slowly turning brown, P+ red (fumarprotocetraric acid complex and psoromic acid), 4) K+ yellow, P+ red (atranorin, fumarprotocetraric and psoromic acids). Chemotype 1) is the most frequent. - Note: a widespread, very polymorphic, holarctic species with a wide altitudinal-latitudinal range and a wide ecological amplitude, found both on soil, lignum and bark at the base of trees, which is common throughout in Italy. In its present circumscription, however, the species appears to be heterogeneous. According to Stenroos & al. (2019) molecular data do not support the distinction of *C. monomorpha* (see also Burgaz & al. 2020). The record of *C. borbonica* Nyl. from Calabria by Puntillo (1995, 1996) refers to a form of the *C. pyxidata*-complex (Ahti in litt.).



Cladonia monomorpha



Cladonia monomorpha

Cladonia neozelandica* var *neozelandica Vain., Acta Soc. Fauna Flora fenn. 10: 34 (1894)

[VZR477, 19846], Australia, Tasmania, secus viam Savage River Pipeline Road km 14.5, 41°16' austr., 145°19' orient., 480 m. Ad terram in margine pluviisilvae. Leg. G. Kantvilas (258/93) & J. Elix. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 477.

Characterised by the abundant, robust and strongly persistent basal squamules (up to 3 cm long), that commonly form extensive mats or clumps and only occasionally develop podetia; the clathrate-fissured podetia with entire to perforate axils; and the presence of norstictic acid (K+ red). Chemistry: Cortex K+ deep yellow -> red, C-, KC+ red, P+ orange, containing atranorin, norstictic acid, zeorin and two unidentified compounds.



Cladonia neozelandica* var *neozelandica



Cladonia neozelandica* var *neozelandica

Cladonia parasitica (Hoffm.) Hoffm., Deutschl. Fl., Zweiter Theil (Erlangen): 127 (1796) [1795]
= *Baeomyces delicatus* Ach., Methodus, Sectio post. (Stockholmiæ): 327 (1803)
= *Capitularia delicata* Mart., Fl. crypt. erlang. (Nürnberg): 273 (1817)
= *Cenomyce delicata* Ach., Lich. Univ.: 569-570 (1810)
= *Cenomyce delicatus* (Ehrh. ex Ach.) Ach., Lich. Univ.: 569 (1810)
= *Cenomyce parasitica* (Hoffm.) Taylor, in Mackay, Fl. Hibern. (Dublin) 2: 80 (1836)
= *Cladonia delicata* Flörke, De Cladoniis, Difficillimo lichenum genere, Commentatio nova (Rostock): 7 (1828)
= *Cladonia squamosa subsp. delicata* Nyl., Syn. meth. lich. (Parisiis) 1(2): 210 (1860)
= *Cladonia squamosa var. delicata* Fr., Summa veg. Scand., Sectio Prior (Stockholm): 111 (1845)
= *Cladonia squamosa var. parasitica* (Hoffm.) Rabenh., Deutschl. Krypt.-Fl. (Leipzig) 2(1): 102 (1845)
= *Cladonia ventricosa var. parasitica* (Hoffm.) Schaer., Lich. helv. spicil. 6: 317 (1833)
= *Helopodium delicatum* DC., in Lamarck & de Candolle, Fl. franç., Edn 3 (Paris) 2: 341 (1805)
= *Lichen delicatus* Ehrh. ex Ach., Lich. suec. prodr. (Linköping): 199 (1799) [1798]
= *Lichen parasiticus* Hoffm., Enum. Lich. Icon. Descirpt. Illustr.: 39 (1784)
= *Scyphophorus delicatus* Mérat [as 'delicatulus'], Nouv. Fl. Environs Paris, Edn 2 1: 209 (1821)
= *Scyphophorus parasiticus* (Hoffm.) Hook., Engl. Fl., Mosses, Hepaticae, Lichens, Characeae and Algae (London) 5(1): 237 (1833)

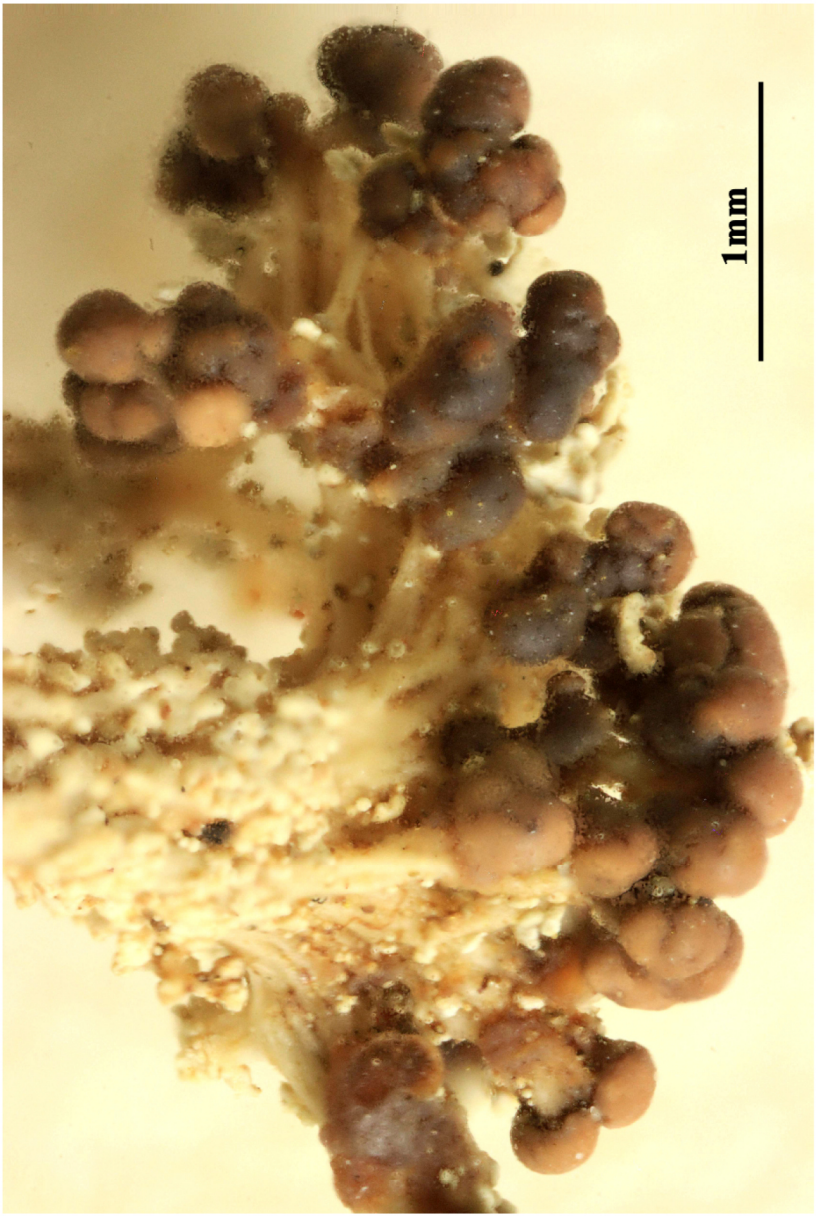
[VZR465], Hispania. Prov. Asturias, Oviedo, reservatum naturae Somiedo, 0.5 km ad meridiem ab Aguasmetas, 1000 m, 6°17.3' orient., 43°09.5' septentr.. Ad truncum putridum *Cataneae sativae*. Leg. et det. P. v. d. Boom (26810), 2.7.2001. Ex A. Vězda: Lichenes Rariore Exsiccati Nr. 465.

Primary thallus squamulose, persistent, the squamules whitish to pale greenish grey, white beneath, 1-3(5) mm long, 0.2-1(-2) mm broad, very finely divided and often with an almost coralloid appearance, granulose along the margins. Podetia rather rare, hollow inside, whitish grey to pale grey-brown, 1-10(-20) mm tall, deformed and very irregularly branched, fissured, with gaping holes, often covered by isidioid granules and partly decorticated, with scattered to usually numerous,

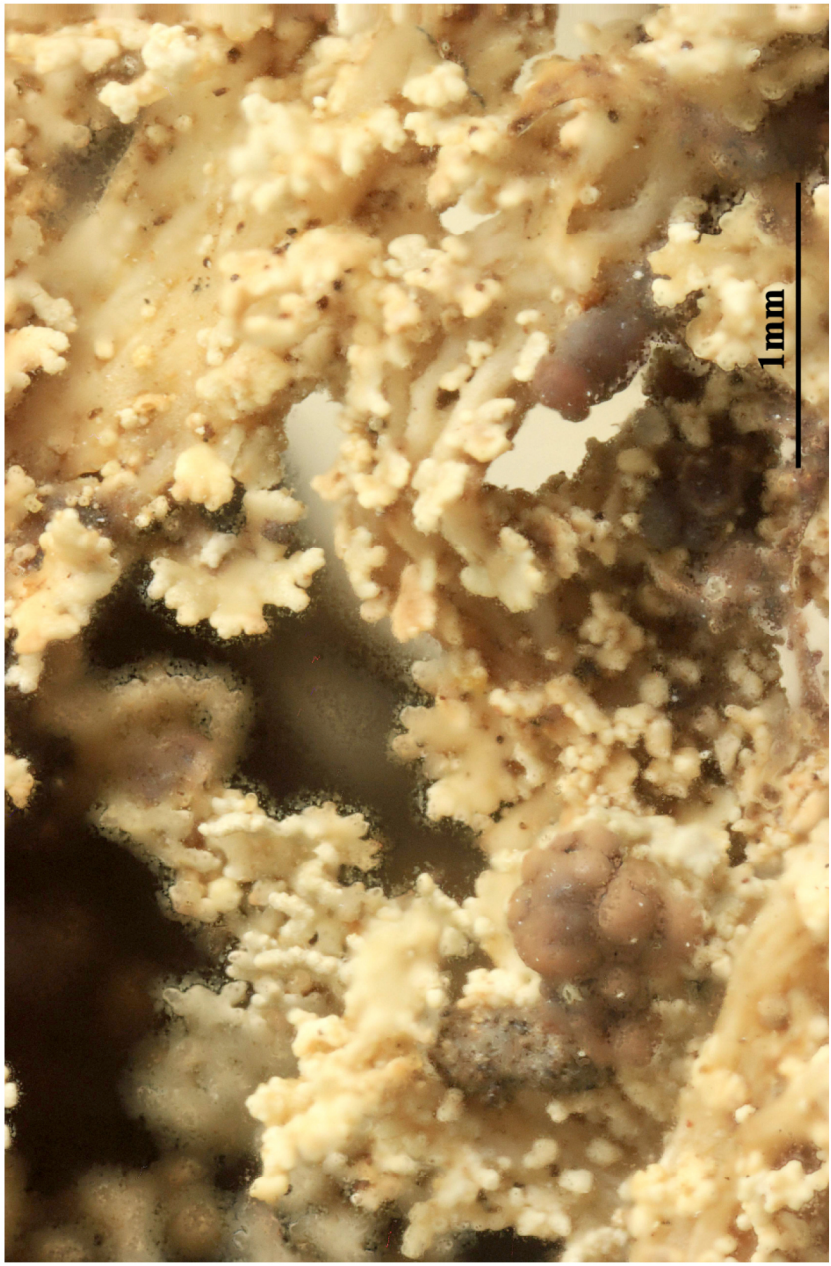
small, dichotomously divided squamules. Apothecia rare, dark brown, convex, often clustered. Asci 8-spored, clavate, thickened at apex, with a K/I+ blue tholus and a K/I+ strongly blue outer gelatinous sheath, Cladonia-type. Ascospores 1-celled, hyaline, ellipsoid. Pycnidia dark, semi-immersed in the upper part of squamules, with a colourless jelly. Conidia hyaline, curved. Photobiont chlorococcoid. Spot tests: K+ yellow, C-, KC-, P+ yellow-orange, UV-. Chemistry: thamnolic acid and variable amounts of barbatic acid, the latter only in the apothecia. - Note: a mainly temperate, probably holarctic species, normally lignicolous, on stumps, sometimes on basal parts of old trunks, with optimum in old Castanea-stands.



Cladonia parasitica



Cladonia parasitica

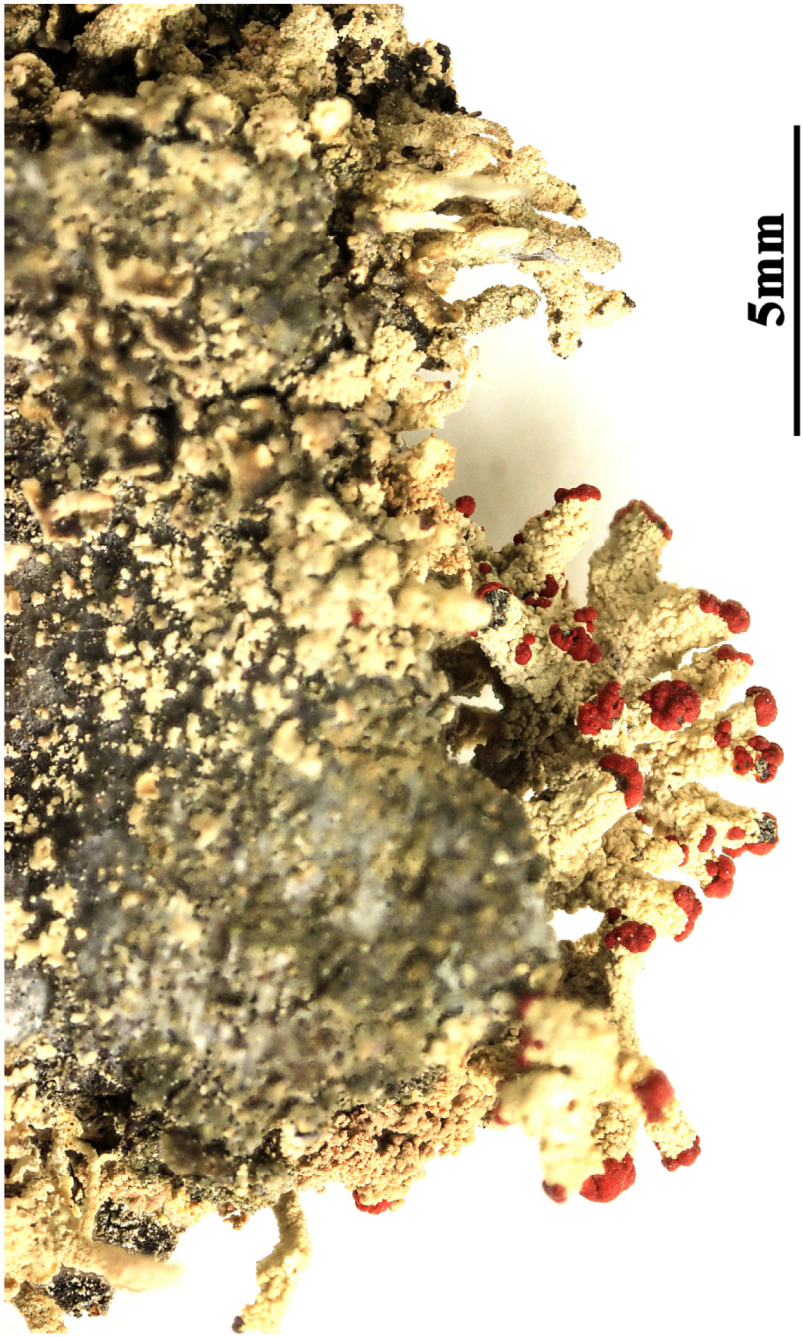


Cladonia parasitica

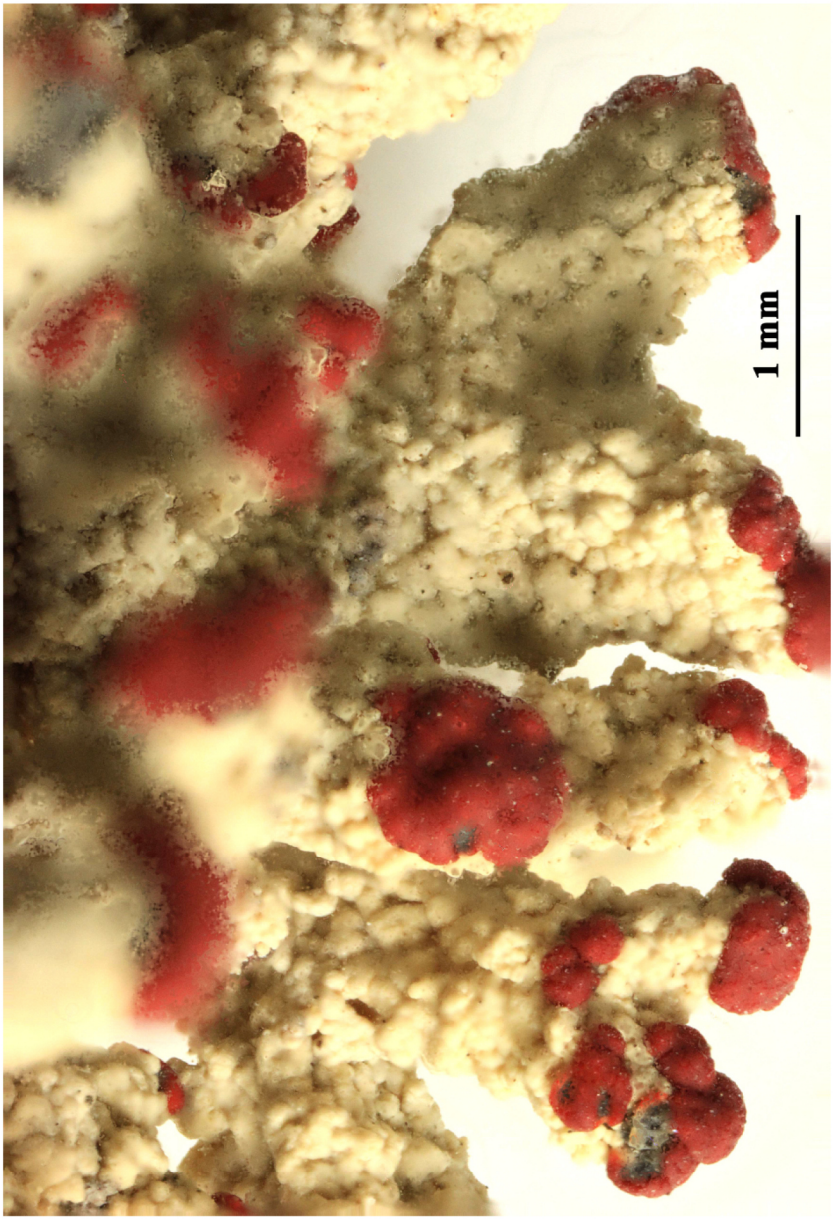
Cladonia ravenelii Tuck., Syn. N. Amer. Lich. (Boston) 1: 254 (1882)

[VZR197], USA., North Carolina. Durham County. Durham, in silva "Duke Forest" dicta, secus viam Erwin Road, 125 m. Ad corticem Pinorum (*Pinus taeda*). Leg. W. L Culberson (no. 22288) & C. F. Culberson, 26.7.1994. - Annot.: Didymic, condidymic, subdidymic, thamnolic, squamatic (trace) and rhodocladonic acids by TLC, anal. J. Johnson & C. F. Culberson. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 197.

Thallus squamulose to subcrustose to dimorphic; primary squamules 2-3 x 0.5 mm, ecorticate, margins erose-lacinulate or more commonly dissolving into granules forming depressed mats. Photobiont Asterochloris alga. Podetia sparse, 5-15 mm tall, unbranched to slightly branched, smooth becoming verrucose to granular, yellowish green or white, expanding slightly; podetial surface corticate, often patchily granular-sorediate. Ascomata uncommon, biatorine apothecia 1-2 mm diam. atop of podetia, red. Pycnidia on squamules, subglobose, black, 200 x 150-200 µm; pycnidial jelly red; conidia 6-8 µm, strongly curved. Chemistry. Spot tests K+ yellow, P+ yellow; major compounds thamnolic acid and didymic acid; minor compounds decarboxythamnolic, subdidymic, and condidymic acids. Substrate and Habitat. On bark and wood, especially on conifers. Distribution. Southeastern North America, Caribbean; in North Carolina throughout.



Cladonia ravenelii



Cladonia ravenelii

Cladonia skottsbergii H. Magn., Ark. Bot. 30B(no. 3): 2 (1942)

[VZR84], USA. Hawaii. Hawaii insula: In reservatio Hawaii Volcanoes National Park. Ad lavam anno 1969 procreantem, in loco aprico. Leg. W. ;. Culberson (22252) et R. Ornduff, 14.8.1992. Annot.: Usnic acid and trace of perlatolic acid by TLC, anal. J. Johnson and C. F. Culberson. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 84

Ex Ahti, T.(1961): Taxonomic Studies on Reindeer Lichens.- Ann. Bot. Soc. "Vanamo", Tom 32 Nr. 1:
Colour pale yellowish to green-yellowq. Apical brown colour usally absent. Lichen substances: usnic acid (sometimes absent: f. fuscescens). Reactions P-,K-, KV+. Branching pattern is anisotomic dichotomy. Trichotomy observed very infrequently. A distinct main stem prsesent. Well-developed podetia 10-15 cm in height having a cur,y appearance in accordance with the rather dense branch-system and curved branchlets. No unilateral deflection is seen. The mature branches are about 0.7-9.9 mm thick. The branching angle is wide, but the axils are usually cloised. The ultimate tips are very thin and slender. The mature internodes are 3-4 mm in length. Outer surface is characteristically scabrose. This is due to the very loose but fairly thin and easily disintegrating outer medulla, thriugh which the alga groups rise as small warts. Most part of the inner medulla is revealed. Pycnidia ovoid, with colourless jelly



Cladonia skottsbergii



Cladonia skottsbergii

Cladonia stereoclada Abbayes, Portug. acta biol., Sér. B 1: 245 (1946)

[VZR115], Insulae Canarienses, Tenerifa. Las Montañas de Anaga, in monte Pico del Inglés, 900 m. Ad terram in nfossis viae silvaticae. Leg. A. Vězda & F. Ceni, 8.3.1994, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 115.

Species very similar to certain forms of *Cladonia furcata* s.l. or *Cladonia rangiformis* s.l., but which differs by its thinner podetia of 0.3-0.6 mm in diameter, more or less erect and flexuous, forked, a cross section shows a non-hollow, "pencil" structure formed of a thick, dense, whitish outer layer and a more or less gelatinous, grayish central axis (sometimes, but rarely, the central axis is hollow but then very narrow). External surface smooth, grayish, greenish-gray, brownish-gray, more or less corticate and marbled in appearance in humid weather. C-, K-, CK-, P+ red, UV-. Macaronesian and oceanic species but recorded (rarely) on the south-west coasts of the British Isles in the mossy cracks of coastal rocks and sometimes in damp coastal heaths.- N.B. To be looked for in France because it is very similar to *Cladonia furcata* s.l. and probably confused with it, if it exists. Two known chemotypes: Chemo I: Fumarprotocetraric acid. Chemo II: Fumarprotocetraric acid and bourgeanic acid.



Cladonia stereoclada



Cladonia stereoclada

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

[VZR408], Bohemia meridionalis. Montes Šumava (Gabreta), Kašperské vrchy, distr. Prachatice, in valle rivi Losenice, in pede montis "Šafářův vrsek", 800 m. Moles saxorum, ad terram humosam. Leg. J. Kocourková & A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 408.

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



Cladonia stygia



Cladonia stygia



Cladonia stygia

Cladonia weymouthii F. Wilson ex A.W. Archer, Muelleria 6(1-2): 94 (1985)

= *Cladonia coccifera f. arrosa* (F. Wilson) Zahlbr., Cat. Lich. Univers. 4: 469 (1926) [1927]

= *Cladonia cornucopioides f. arrosa* F. Wilson, Pap. Proc. R. Soc. Tasm.: 151 (1893) [1892]

[VZR341], Tasmania. Via Scotts Park Road, lat. 43°02' austr., long. 146°18' orient, 320 m. Ad terram argillaceam. Leg. et det. G. Kantvilas, 27.5.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 341.

Basal squamules persistent, inconspicuous, 1–2 mm long, 0.5–1 mm diam., incised, with crenate margins, esorediate. Podetia arising from basal squamules, 1.5–5.0 cm tall, 1–4 mm diam., subcylindrical or tapering to apices, simple or branching somewhat near tips, with closed axils, esquamulose or with squamules on lower part, green to greenish grey; scyphi deformed, not well defined, narrow; cortex extending up to one third of podetia height, and below apothecia, remainder of podetia ecorticate and densely floury-sorediate. Apothecia rare, terminal, 1–3 mm diam., convex, red. CHEMISTRY: K- or K+ yellow, KC-, P- or P+ yellow. Thamnolic (major), barbatic (major) and didymic (major) acids; thamnolic and/or didymic acids may be absent, rarely with thamnolic acid alone. Occurs in Tasmania, also in New Zealand, Papua New Guinea, South America and the Solomon Islands; grows on dead or decayed wood.



Cladonia weymouthii



Cladonia weymouthii

Cliostomum pallens (Kullh.) S. Ekman, Symb. bot. upsal. 32(no. 1): 26 (1997)

= *Biatora pallens* (Kullh.) Printzen, in Printzen & Otte, Graphis Scripta 17(2): 57 (2005)

= *Bacidia pallens* (Kullh.) Zahlbr., Cat. Lich. Univers. 4: 134 (1926) [1927]

= *Bilimbia pallens* Kullh., Not. Sällsk. Fauna et Fl. Fenn. Förh., Ny Ser. 11: 274 (1870) [1871]

= *Coppinsidea pallens* (Kullh.) S.Y. Kondr., Farkas & Lőkös, in Kondratyuk, Lőkös, Farkas, Jang, Liu, Halda, Persson, Hansson, Kärnefelt, Thell & Hur, Acta bot. hung. 61(3-4): 301 (2019)

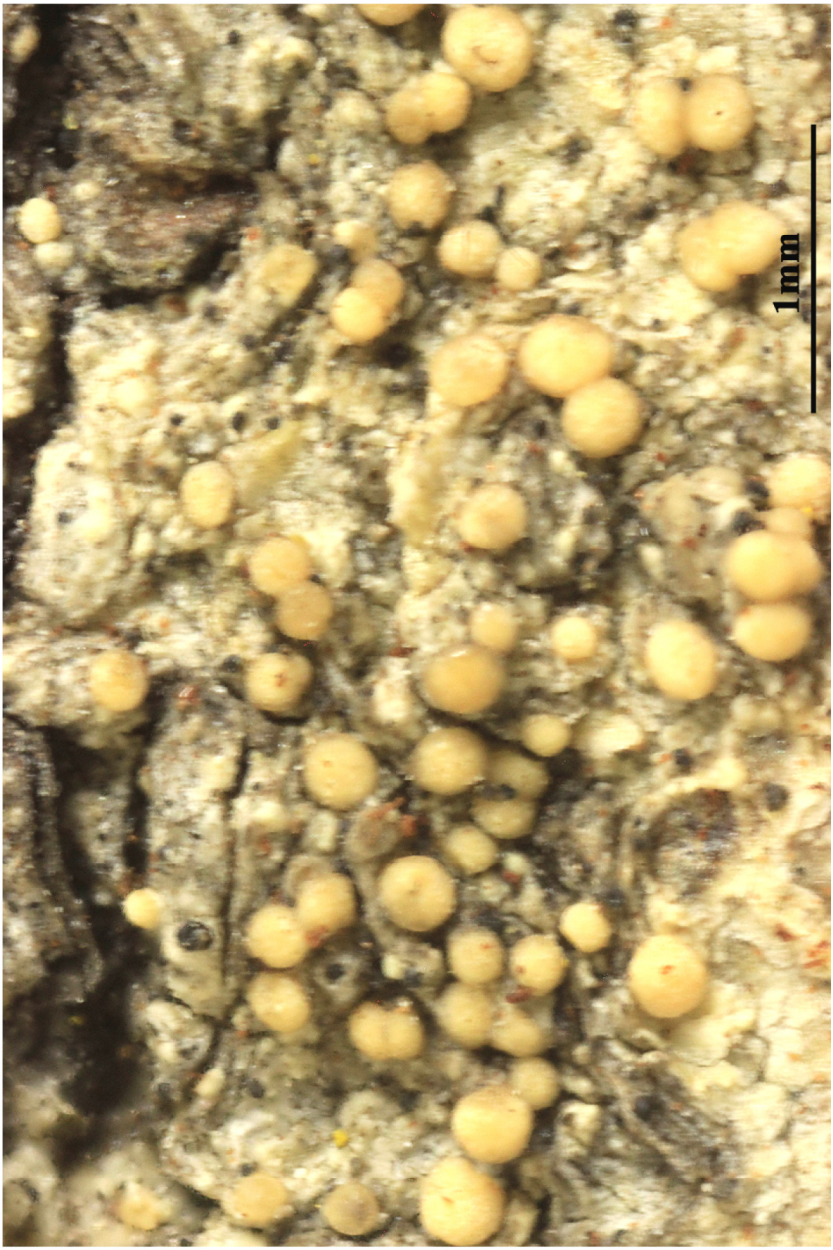
= *Lecidea pallens* (Kullh.) Hedl., Bih. K. svenska VetenskAkad. Handl., Afd. 3 18(no. 3): 59 (1892)

[VZR476], Suecia: Torne Lappmark, Abisko N.P., Abiskojokk, prope Rihtonjira, 380 m, ad corticem arborum (*Salix* sp.). Leg. Z. Palice, 20.7.2002. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 467.

Thallus crustose, thinly episubstratic, smooth to winkled, pale grey to green-grey. Apothecia biatorine, <0.4 mm across, pale yellow to rarely almost white, thinly pruinose, with a convex disc and a soon excluded proper margin. Proper exciple thin, of radially arranged hyphae, almost colourless in section, K-, with small crystals soluble in K; epithecium colourless or yellowish, with small crystals soluble in K; hymenium colourless, I+ blue; paraphyses mostly simple, c. 1.3 µm thick at base, the apical cells more or less clavate, 2-3.5 µm wide; hypothecium colourless. Asci 8-spored, clavate, with a K/I+ blue apical dome penetrated by a narrow, K/I– apical cushion surrounded by a narrow, deeply K/I+ blue zone, the wall K/I- but surrounded by an I+ red-brown, K/I+ blue outer layer, the ocular chamber relatively small, Biatora-type. Ascospores 3-septate, hyaline, bacilliform, 9-18 x 2-3 µm. Pycnidia half-immersed in thallus, very pale yellow in upper part, colourless below, the wall inspersed with pale yellow crystals in upper part. Conidia bacilliform, narrowly ellipsoid, or narrowly drop-shaped, 4-7.5 x 1.2-1.5 µm. Photobiont chlorococcoid. Spot tests: thallus K- or rarely K+ very pale yellow, C- or C+ pale yellow, KC-, P-. Chemistry: low amounts of usnic acid and zeorin in thallus, and large amounts of usnic acid in apothecia. - Note: on the acid bark of broad-leaved and especially coniferous trees, widespread in the Holarctic region especially in the boreal zone.



Cliostomum pallens



Cliostomum pallens

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

[VZR73], Insulae Canarienses, Gran Canaria: distr. Arucas, Moya, in valle "Barranco de los Propios", 500 m. Ad saxa muscosa basaltica. Leg. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. n73.

Thallus to 8 cm wide, leaden grey to yellowish grey, rarely bluish black. Lobes 1–7 mm wide, broadly cuneate to flabellate, adjacent or imbricate, rarely somewhat discrete, convex or flat, rarely concave, variously notched or incised, lobulate, not or only sparsely branched; apices round with deflexed margins. Upper surface epruinose, without isidia but often with small, round accessory lobules. Lower surface pale to almost black. Rhizines pale to black, sometimes projecting beyond lobe

margins. Apothecia usually present, to 5 mm wide, pale yellowish to black. Ascospores fusiform to ellipsoidal, 7–14 × 3–5 µm.



Coccocarpia erythroxyli



Coccocarpia erythroxyli



Coccocarpia erythroxyli

Coccocarpia palmicola (Spreng.) Arv. & D.J. Galloway, Bot. Notiser 132(2): 242 (1979)
= *Coccocarpia cronia* (Tuck.) Vain., Ann. Acad. Sci. fenn., Ser. A 6(no. 7): 103 (1915)
= *Coccocarpia cronia* var. *isidiophylla* (Müll. Arg.) Vain., Ann. Acad. Sci. fenn., Ser. A 6(no. 7): 103 (1915)
= *Coccocarpia cronia* var. *isidiosa* (Müll. Arg.) Vain., Ann. Acad. Sci. fenn., Ser. A 6(no. 7): 104 (1915)
= *Coccocarpia molybdaea* f. *cronia* (Tuck.) Nyl., Flora, Regensburg 59(5): 75 (1876)
= *Coccocarpia molybdaea* var. *cronia* (Tuck.) Nyl., Annls Sci. Nat., Bot., sér. 4 19: 312 (1863)
= *Coccocarpia pellita* f. *isidiosa* Müll. Arg., Bot. Jb. 20: 263 (1894)
= *Coccocarpia pellita subvar. isidiophylla* (Müll. Arg.) Vain., Acta Soc. Fauna Flora fenn. 7(no. 1): 210 (1890)
= *Coccocarpia pellita* var. *cronia* (Tuck.) Müll. Arg., Flora, Regensburg 65: 320 (1882)
= *Coccocarpia pellita* var. *isidiophylla* Müll. Arg., Flora, Regensburg 65: 321 (1882)
= *Coccocarpia pellita* var. *isidiosa* (Müll. Arg.) Malme, Ark. Bot. 20A(no. 3): 20 (1925)
= *Lecidea palmicola* Spreng., K. svenska Vetensk-Akad. Handl., ser. 3 41: 46 (1820)
= *Pannaria molybdaea* f. *cronia* (Tuck.) Tuck., Syn. N. Amer. Lich. (Boston) 1: 125 (1882)
= *Pannaria molybdaea* var. *cronia* (Tuck.) C.W. Harris, Bryologist 9(3): 50 (1906)
= *Pannaria parmelioides* f. *cronia* (Tuck.) Hue, Bull. Soc. bot. Fr. 48: LX (1902) [1901]
= *Pannaria parmelioides* f. *isidiophylla* (Müll. Arg.) Hue, Bull. Soc. bot. Fr. 48: LX (1902) [1901]
= *Pannaria parmelioides* var. *cronia* (Tuck.) Hue, Bull. Soc. bot. Fr. 48: LX (1902) [1901]
= *Pannaria parmelioides* var. *isidiophylla* (Müll. Arg.) Hue, Bull. Soc. bot. Fr. 48: LX (1902) [1901]
= *Parmelia cronia* Tuck., Proc. Amer. Acad. Arts & Sci. 1: 228 (1848)
= *Parmeliella cronia* (Tuck.) D.C. Linds., British Antarctic Survey, Scientific Reports 89: 38 (1975)

{VZR234], Dominica (Antilles Minores): Castle Bruce, in litore secus viam prope Morpo, 5-10 m. Ad corticem Palmarum (*Cocos nucifera*). Leg. F. Ceni & A. Vězda., 22.7.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 234.

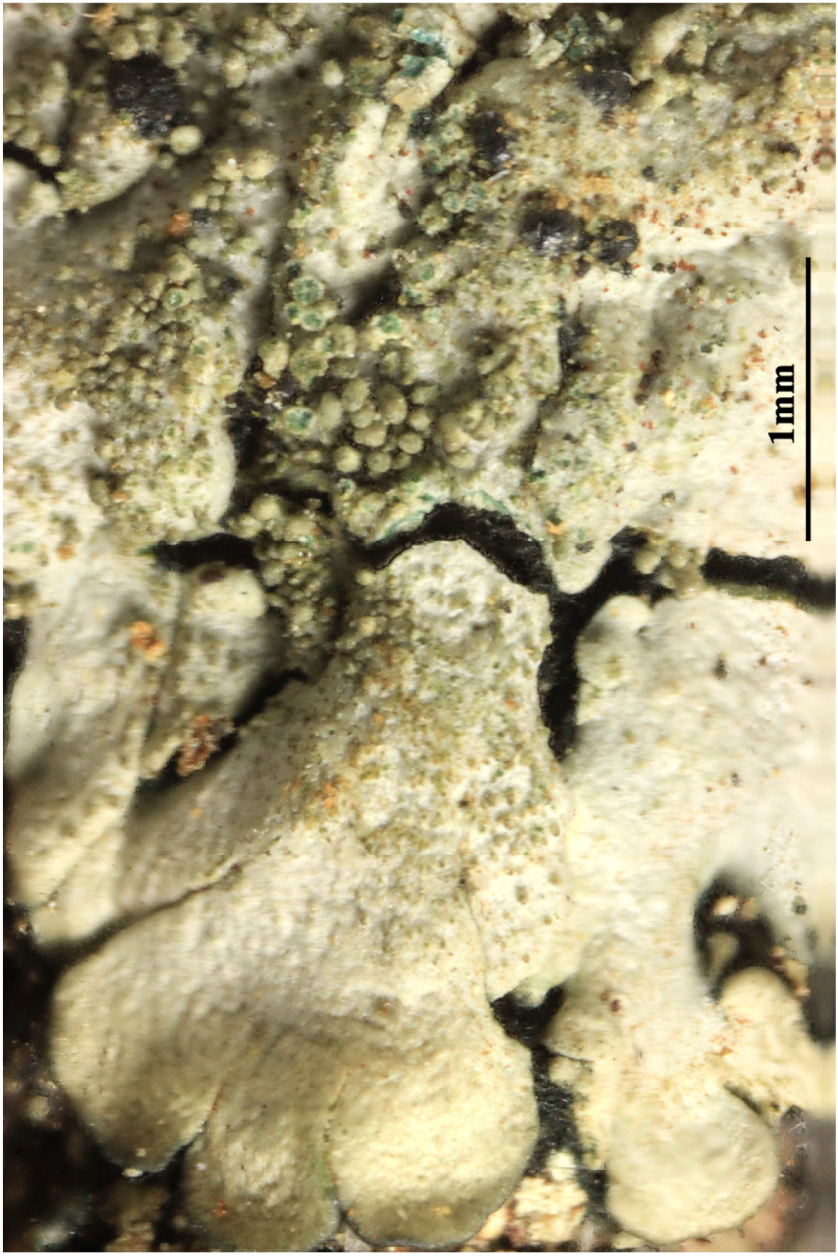
Thallus to 10 cm wide, leaden grey, sometimes yellowish grey to bluish black. Lobes 1–7 mm wide, broadly flabellate or cuneate, adjacent or imbricate, usually sparsely branched, lobulate, flat or slightly convex; apices round with deflexed margins. Upper surface epruinose, isidiate. Isidia mainly laminal, sparse to dense, terete, knob-like when young, often becoming coralloid-branched with age, concolorous with thallus or darker. Lower surface pale to blak. Rhizines pale to black. Apothecia rather rare, to 3 mm wide, pale yellow to black. Ascospores fusiform or ellipsoidal, 7–13 × 3–5 µm. A widely distributed species in tropical and subtropical parts of the world. Grows on bark and wood, rarely on leaves, of various trees in rainforest, mangrove communities and sclerophyllous forest. Also on siliceous rocks and soil.



Coccocarpia palmicola



Coccocarpia palmicola



Coccocarpia palmicola

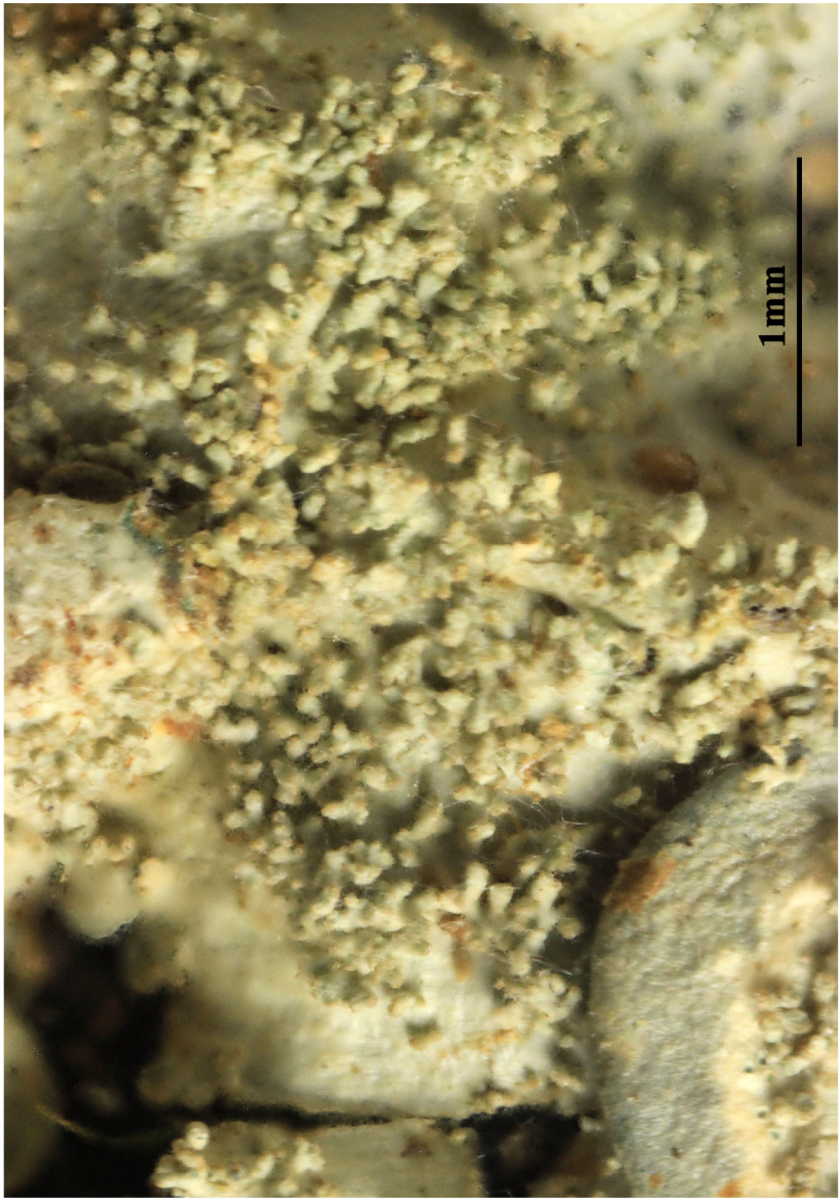
Coccocarpia pellita (Ach.) Müll. Arg., Flora, Regensburg 65: 320 (1882)
= *Coccocarpia molybdaea* f. *pellita* (Ach.) Nyl., Annls Sci. Nat., Bot., sér. 4 19: 312 (1863)
= *Coccocarpia molybdaea* var. *pellita* (Ach.) Nyl., Annls Sci. Nat., Bot., sér. 4 19: 312 (1863)
= *Coccocarpia parmelioides* var. *pellita* (Ach.) Trevis., Lichenoth. Veneta 3-4: no. 98 (1869)
= *Coccocarpia portoricensis* (Spreng.) C.W. Dodge, Ann. Mo. bot. Gdn 20(3): 458 (1933)
= *Lecidea pellita* (Ach.) Spreng., Syst. veg., Edn 16 4(1): 264 (1827)
= *Lecidea portoricensis* Spreng., K. svenska Vetensk-Akad. Handl., ser. 3 41: 48 (1820)
= *Lichen diatrypus* * *pellita* (Ach.) Lam., Encycl. Méth. Bot., Suppl. (Paris) 3(2): 405 (1813)
= *Parmelia pellita* Ach., Lich. Univ.: 468 (1810)
= *Patellaria portoricensis* (Spreng.) Spreng., Syst. veg., Edn 16 4(1): 269 (1827)

[VZR252], Dominica (Antilles Minores) Morne Trois Pitons National Park, secus viam ad latera austro-orient. montis "Morne Macaque", 800 m. Ad truncum Palmae (*Cocos nucifera*). Leg. A. Vězda, 18.07.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 252.

Thallus to 8 cm wide, often thin and fragile, leaden grey, rarely whitish grey, yellowish grey or bluish green. Lobes 1–5 mm wide, broadly flabellate to cuneate, imbricate or adjacent, flat or slightly convex, sparsely branched, often lobulate; apices round with deflexed margins. Upper surface epruinose, isidiate. Isidia sparse or dense, laminal or occasionally marginal, flattened, squamulose, sometimes branched. Lower surface usually pale. Rhizines pale to black. Apothecia very rare, to 3 mm wide, pale red to black. Ascospores fusiform, 7–13 × 3–5 µm. Widely distributed in tropical and subtropical parts of the world. Grows on bark of various trees in rainforest, often in shaded situations. Rarely on mossy rocks.



Coccocarpia pellita



Coccocarpia pellita

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

[VZR470], Germania. Bavaria, Berchtesgadener Land, Königsee, St. Bartholomä, 610 m. Ad corticem arboris (*Tilia* platyphyllos). Leg. & det. R. Türk & H. Wunder, 11.04.1989 - Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 470.

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

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



Collema flaccidum

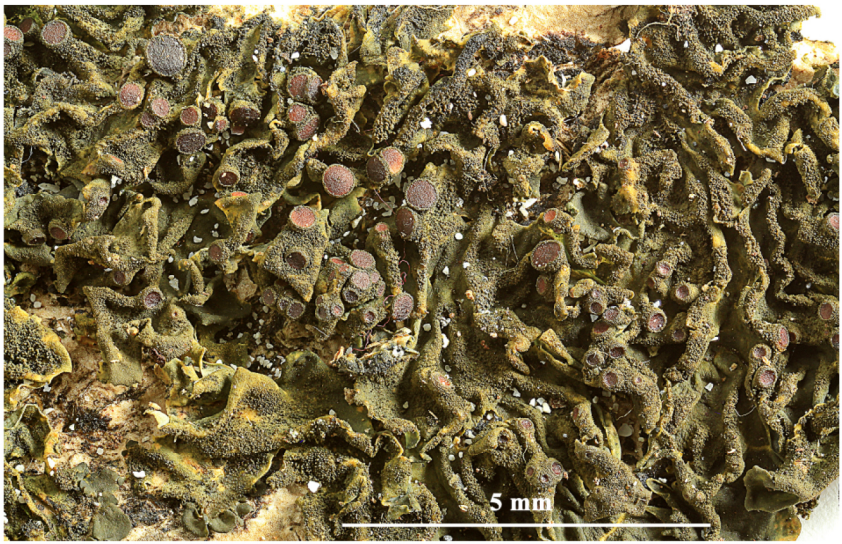


Collema flaccidum

Collema rugosum Kremp., in Fenzl, Reise Österr. Novara Bot. 1: 128 (1870)

[VZR427], Insulae Seychellenses. Insula Mahé, Port Launay in litore maris, ad corticem arborum. Leg. F. Ceni & A. Vězda, 02.06.2000, det. A. Vězda. - Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 427.

Thallus to 6 cm wide, rounded, foliose, adnate, membranous, sometimes radiating, slightly to densely ridged, matt, sometimes slightly glossy, pale to dark olive-green, rarely bluish green; isidia numerous in centre, globose becoming cylindrical, simple or sparsely branched. Lobes few, elongate to rounded, imbricate, to 2 cm wide. Apothecia sparse to numerous, to 1.5 mm wide, sessile with constricted base; disc flat to slightly concave, matt, epruinose, red; thalline exciple thin, entire, smooth or finely rugose, often densely isidiate, not prominent, persistent. Asci 70–90 × 13–20 µm. Ascospores 40–75 × 4–6.5 µm, acicular to fusiform, straight or slightly curved, 4–8-celled, one or both end-cells often longer, not constricted. Pycnidia numerous, to 175 µm wide, laminal to submarginal; pycnidial gel hyaline to pale yellow. Conidia 4.5 × 1–1.5 µm, straight, sometimes slightly swollen at ends. Rarely found outside the tropics.





Collema rugosum



Collema rugosum

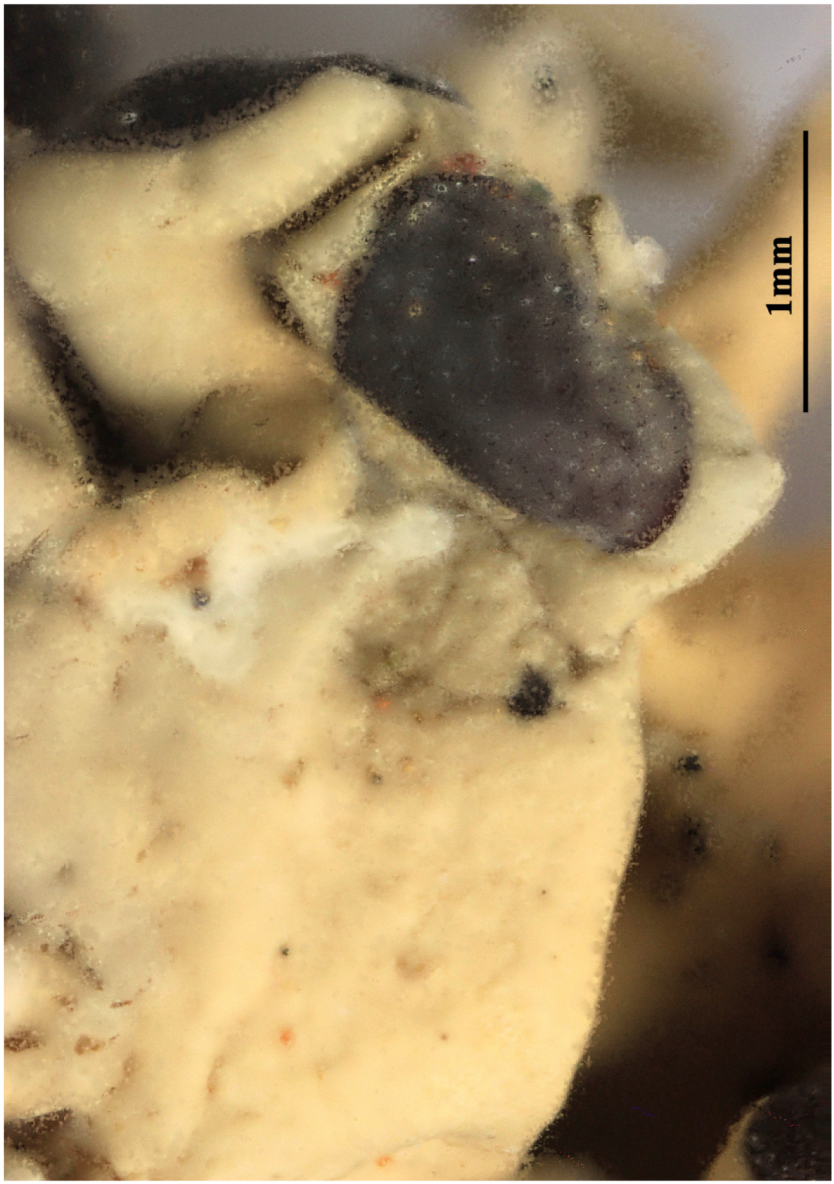
Combea mollusca (Ach.) Nyl., Syn. meth. lich. (Parisiis) 1(2): 257 (1860)
= *Combea pruinosa* De Not., G. bot. ital. 2(1.1): 223 (1846)
= *Dactylina mollusca* (Ach.) Tuck., Gen. lich. (Amherst): 7 (1872)
= *Dufourea mollusca* (Ach.) Ach., Lich. Univ.: 524 (1810)
= *Lichen squarrosus* * *mollusca* (Ach.)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

[VZR412], Namibia, Diamont Area 1, 30 km ad meridiem versus ab urbe Lüderitz, 30 m. In ramulis fruticum. Leg. et det. J. Halda, 25.08.1997. Ex A. Vězda: Lichenes Rariores Exsiccatia Nr. 412.

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



Combea mollusca



Combea mollusca

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

[VZR312], Malaysia, Kuala Lumpur, in colle Templer Park, 22 km ad septentr. a Kuala Lumpur, 300 m. Foliicola (Palmae) in hyle virginea - C+rot. Leg. F. Ceni & A. Vězda, 5.5.1997. det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 312.

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



Cryptothecia candida



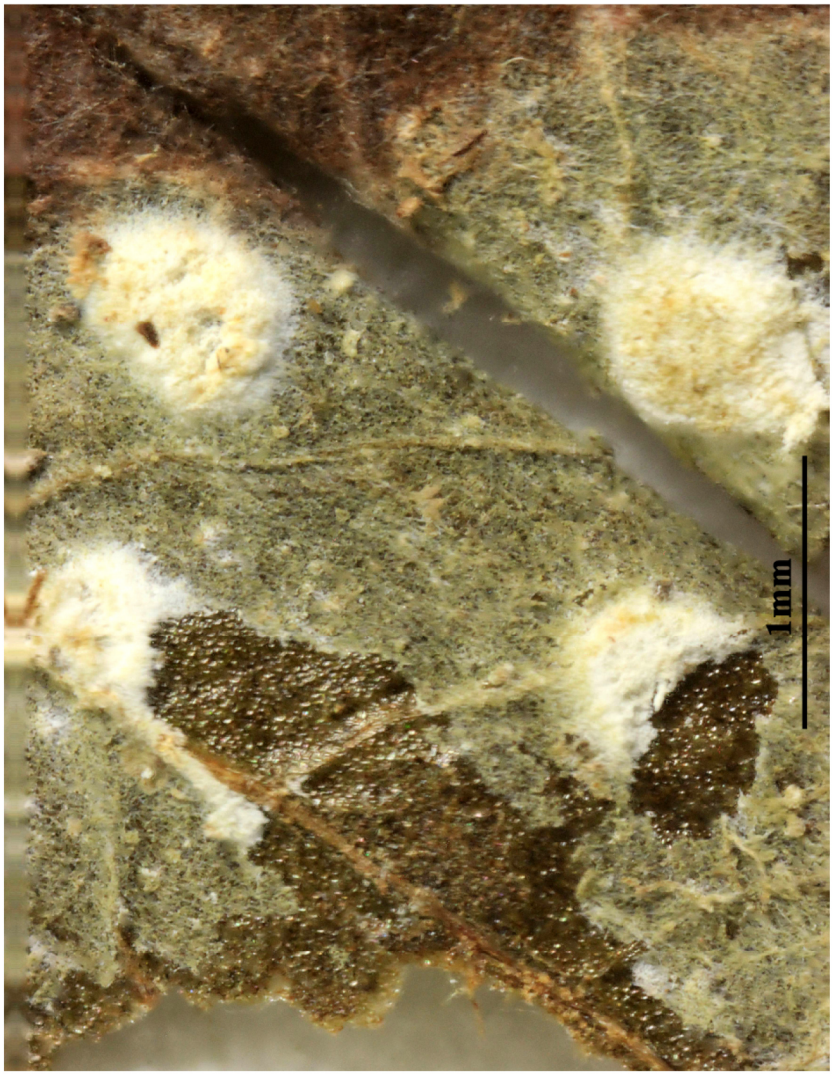
Cryptothecia candida

Cryptothecia filicina (Ellis & Everh.) Lücking & G. Thor, in Lücking, Thor, Aptroot, Kalb & Elix, Lichenologist 38(3): 238 (2006)
= *Myriostigma filicinum* (Ellis & Everh.) Frisch & G. Thor, in Frisch, Thor, Ertz & Grube, Taxon 63(4): 739 (2014)
= *Ascomycetella filicina* Ellis & Everh., Journal of the Inst. Jamaica 1: 247 (1893)

[VZR235], Dominica (Antilles Minores), pars centralis insulae, ad cataracta "Emerald Pool", 350 m. Foliicola (Filices). Leg. A. Vězda, 20.7.1996, det. A. Frisch, 2016 - perlatolic strain!. - distributed first as *Crypotothecia candida* (Krempelh.) R. Sant. . Ex A. Vezda: Lichenes Rariore Exsiccati Nr. 235.

Thallus foliicolous or corticolous on smooth bark or bamboo, epiphyllous or often hypophyllous, continuous but marginally often effuse, smooth to indistinctly farinose-byssoid, 10–50 mm across and 15–35 µm thick, ecorticate, pale greyish green, matt, with colourless, hydrophobic crystals dissolving in K. Photobiont a species of Trentepohlia, cells rounded to oblong, 8–15 x 4–6 µm in irregular plates or short threads leaving large interspaces. Ascomata (ascigerous areas) erumpent, slightly raised above thallus level, rounded to somewhat irregular in outline, 0.8–3(–5) mm diam. and 100–140 µm high, white to pale greenish white and usually with darker dots indicating individual asci. Ascigerous layer covered by 15–25 µm high, algiferous thallus layer. Ascigerous layer 70–110 µm high, dark grey due to inspersion of paraphyses with numerous small crystals (dissolving in K), I+ bluish, KI+ blue then greenish. Asci obovate to globose, shortly stalked, 60–90 x 50–70 µm. Ascospores (6–)8 per ascus, oblong-ellipsoid, muriform, with very slight constrictions at septa, 40–80 x 15–25 µm, 2.5–3.5 times as long as broad, colourless. Pycnidia not observed. Chemistry. Perlatolic acid (thallus and ascomata C-). Distribution. Neotropical. Specimens have been reported from Mexico, Costa Rica, Panama, Cuba, Guadeloupe, Trinidad and Tobago, Colombia, Venezuela, Guyana, French Guiana, Ecuador, Peru, and Brazil. For an extensive list of specimens revised, see Lücking (2006). - Notes. Cryptothecia filicina is distinguished from C. candida s. str. by its C- thallus and ascomata, which are also more regularly rounded and more prominent. Both taxa also have non-overlapping distribution patterns, C. filicina being widely distributed in the Neotropics but absent from the Paleotropics. - Cryptothecia filicina is among the most common lichen species in

neotropical lowland and lower montane rainforests. It is particularly abundant on leaves of Araceae (Anthurium, Monstera, Philodendron), palms and epiphytic Cactaceae; well-developed specimens can also be commonly found on the rachis of palm leaves, on bamboo culms, and on thin, smooth twigs.



Cryptothecia filicina



Cryptothecia filicina

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

[VZR328], Italia. Calabria. Consenza in Sila Grande, in loco Vallone Fossiata dicto, 1280 m. Ad corticem arboris (*Abies alba*). Leg. D. Puntillo, 23.04.1989. Ex A. Vězda: Lichenes Rariorum Exsiccati No. 328

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

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



Cyphelium inquinans



Cyphelium inquinans

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

[VZR2162], Italia. Toscana, Prov. Arezzo, Radicofani, 760 m. Ad saxa basaltica, in thallo *Pertusariae* sp. vigens. Leg. et det. M. Tretiach, 06.03.1997, conf. D. Puntillo. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 262.

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





Cyphelium marcianum

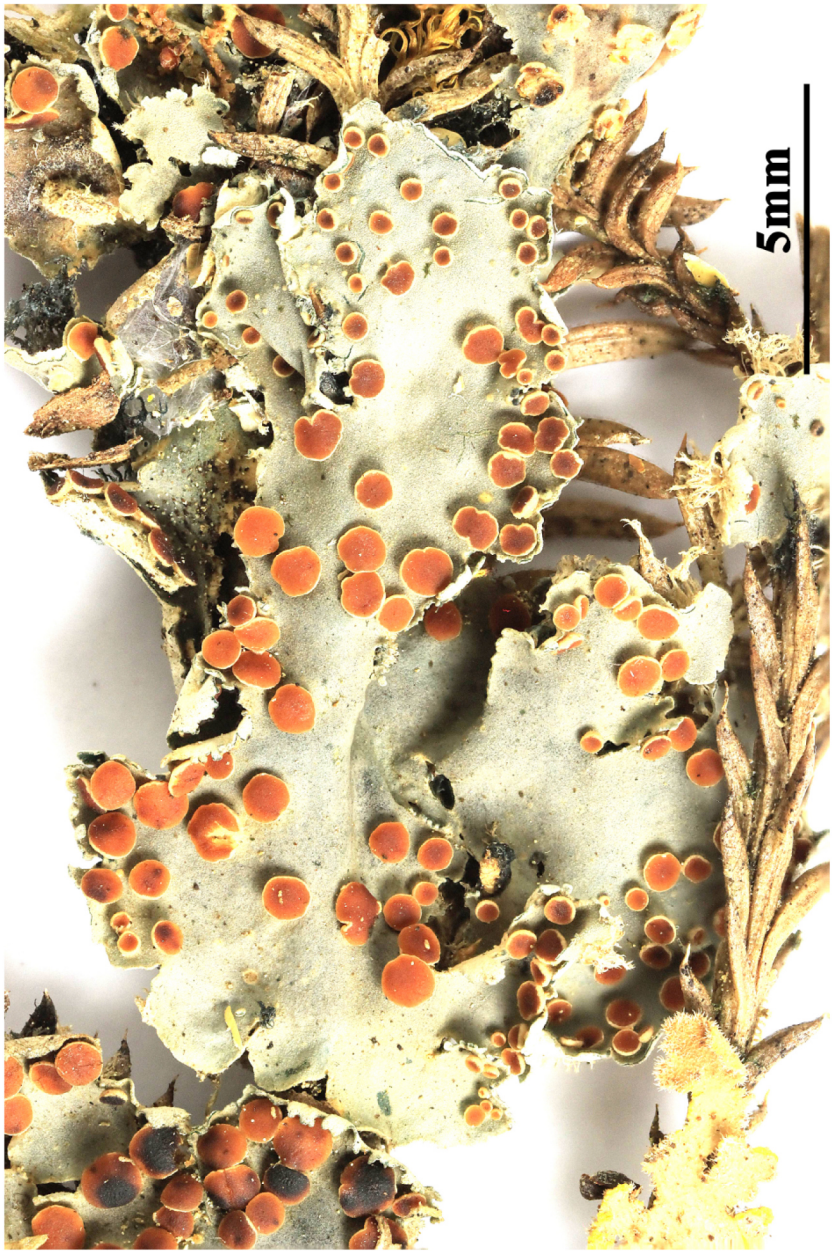


Cyphelium marcianum

Degelia gayana (Mont.) Arv. & D.J. Galloway, Lichenologist 13(1): 44 (1981)
= *Coccocarpia gayana* (Mont.) Nyl., Syn. meth. lich. (Parisiis) 2: 41 (1869)
= *Pannaria gayana* (Mont.) A. Massal., Geneac. lich. (Verona): 19 (1854)
= *Parmelia gayana* Mont., Annls Sci. Nat., Bot., sér. 3 11: 58 (1849)
= *Parmeliella gayana* (Mont.) Müll. Arg., Flora, Regensburg 69(18): 286 (1886)
= *Trachyderma gayanum* (Mont.) Trevis., Lichenoth. Veneta 3-4: no. 98 (1869)

[VZR222], Nova Zelandia. South Island, Nelson, prope confluentem fluminum Hackett & Miner Rivers, 170 m, 41°24.6' austr., 173°14' orient. In ramulis (*Dacryocarpus dacrydioides*). Leg. et det. A. Malcolm. Ex A:VěZDA. Lichenes Rariores Exsiccati Nr. 222.

Thallus ±placodioid, ±orbicular, loosely attached, to 6 cm wide, whitish grey-blue. Lobes 0.3–0.8 cm wide, adjacent, broadly cuneate to flabellate, very often with shallow transverse concentric ridges; margins entire to minutely notched, ±conspicuously deflexed. Upper surface ±smooth, somewhat coriaceous, matt. Lower surface pale, corticate, with numerous white or more rarely blue-black rhizohyphae. Apothecia frequent, to 1.5 mm wide; disc concave at first becoming flat or convex, usually pale reddish brown with prominent paler proper exciple; hymenium I+ blue. Ascospores 11–16 × 5–7 µm. - Occurs in Australia, Tasmania, on bark, primarily an epiphyte of twigs and small branches; an occasional species of cool humid lowland habitats in moderate to deep shade. Also in New Zealand, South America and Tristan da Cunha.



Degelia gayana



Degelia gayana

Dendriscocaulon intricatulum (Nyl.) Henssen, in Brown et al. (Eds), Lichenology: Progress & Problems: 31 (1976)
= *Leptogidium intricatulum* (Nyl.) Nyl., in Hue, Nouv. Arch. Mus. Hist. Nat., Paris, 3 sér. 2: 237 (1890)
= *Leptogium intricatulum* Nyl., Syn. meth. lich. (Parisiis) 1(1): 135 (1858)
= *Polychidium intricatulum* (Nyl.) Henssen, Symb. bot. upsal. 18(no. 1): 106 (1963)

[VZR43], USA., Alaska. Litus oceani pacifici: Junean, secus viam sub marginem austro-occidentalem glaciei concretae "Mendenhall Glacier" (58°25'septentr., 134°32' occid.) Supra ramum horizontalem muscosam *Alni sinuatae* in silva (*Alnus*, *Picea*, *Salix*). Leg. I. M. Brodo (26000), F. Brodo & R. O´Clair. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 43.

aus Hennsen (1963):
Thallus kleinstrauchig dichotom verzweigt, violettbraun. Äste 70-100 µm dick, knotig. Rinde einzellig, mit rundzelligen und verzweigten Haaren, Zellen in der Aufsicht ungleich groß, 3.5-22 x 3.5-12.5 µm. Wände gerade, glatt, dünn. Markhyphen in ± dichtem Gewebe mit kürzeren oder längeren Zellen. Apothecien und Pycniden unbekannt. Phycobiont: *Nostoc* sp. (Zellen 3.5-6 µm groß, violett, gleichmäßig über das Mark verteilt).



Dendriscocaulon intricatulum



Dendriscocaulon intricatulum

Dibaeis absoluta (Tuck.) Kalb & Gierl, in Gierl & Kalb, Herzogia 9(3-4): 613 (1993)
= *Baeomyces absolutus* Tuck., Amer. J. Sci. Arts 28: 201 (1859)
= *Tubercularia absoluta* (Tuck.) Kuntze, Revis. gen. pl. (Leipzig) 2: 877 (1891)

[VZR334], Nova Zelandia. South Island, distr. Nelson, Kahurangi National Park, regio montis Mt. Arthur, secus viam inter stationem "Flora Carpark" et casam alpinam Mt. Arthur dictam, 1100 m. Ad terram in fossis viae. Leg. W. Malcolm & A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 334.

Primary thallus crustose to minutely squamulose, thin and smooth to verrucolose and scurfy, pruinose or not, continuous to areolate, dirty white to buff to green to pale yellow-green or yellowish buff with age. Apothecia solitary to clustered, sessile when young, becoming very shortly stipitate; stipe 0.3–0.5 mm tall, ±corticate, granular to ±smooth, ±pruinose, patchily lichenised basally, cream to buff to pale flesh-pink; disc flesh- to rose-pink or white with pruina, concave to plane to weakly convex or undulate as it proliferates with age; margin very pale pink to almost buff to white, thick, smooth and inrolled initially, becoming contorted and cracked to undulate and crenulate with age, usually paler than disc and visible as a distinct border on upper surface; underside of apothecia ridged and furrowed with age. Ascospores ellipsoidal to narrowly ovoid, simple or rarely 1-septate, (11–) 12–15 (–15.5) × (4–) 4.5–6.5 (–8) µm (Australian specimens). Pycnidia not seen. CHEMISTRY: Primary thallus K– or K+ pale yellow, UV+ white; apothecia (disc and stipe) K+ yellow, P+ yellow-orange; containing baeomycesic acid (major), squamatic acid (±trace), consquamatic acid (±trace, rare), barbatic acid (minor/trace, in apothecia) and ursolic acid (±trace). - Occurs in coastal ranges of eastern Australia grows on rock or soil, rarely over bryophytes, often near waterfalls. Widespread but rare in tropical to cool-temperate rainforest. Also known from North, Central and South America, Japan, Philippines, Sabah, New Guinea and the South Island, New Zealand.



Dibaeis absoluta



Dibaeis absoluta

Dibaeis arcuata (Stirt.) Kalb & Gierl, in Gierl & Kalb, Herzogia 9(3-4): 617 (1993)
= *Baeomyces arcuatus* Stirt., J. Linn. Soc., Bot. 14(no. 78): 460 (1875)
= Baeomyces fungoides (Sw.) Ach., Methodus, Sectio post. (Stockholmiæ): 320 (1803)
= *Baeomyces ramalinellus* Nyl., Annls Sci. Nat., Bot., sér. 4 3: 146 (1855)
= Baeomyces roseus f. fungoides (Sw.) Tuck., Syn. N. Amer. Lich. (Boston) 2: 7 (1888)
= *Baeomyces roseus var. fungoides* (Sw.) Tuck., Syn. N. Amer. Lich. (Boston) 2: 7 (1888)
= *Dibaeis fungoides* (Sw.) Kalb & Gierl, in Gierl & Kalb, Herzogia 9(3-4): 622 (1993)
= *Lichen fungoides* Sw., Prodr.: 146 (1788)
= *Tubercularia fungoides* (Sw.) Kuntze, Revis. gen. pl. (Leipzig) 2: 877 (1891)

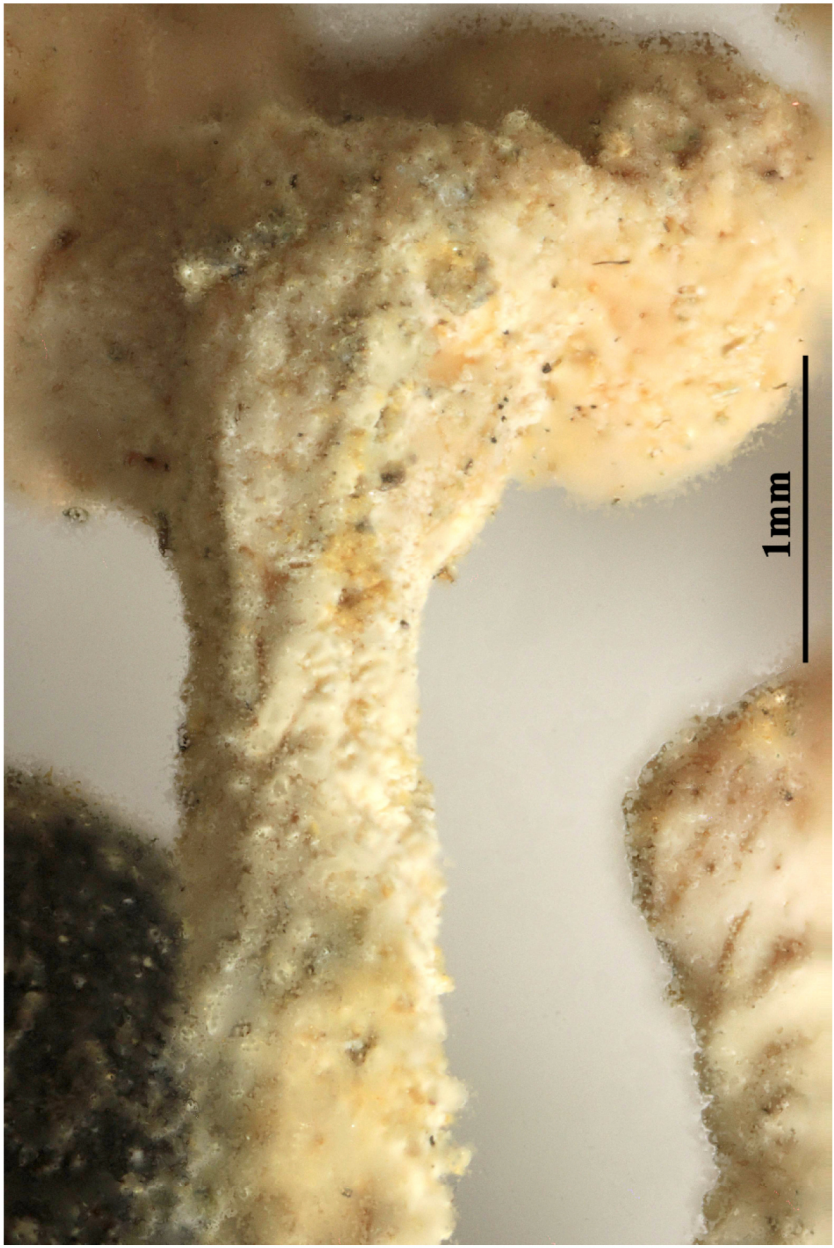
[VZR281], Nova Zelandia. South Island, distr. Westland, inter Haast et transitum Haast, 300 m. Ad terram in fossis viae. Leg. W. Malcolm & A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 281.

Primary thallus variable, thin and smooth to thick and minutely warty, to 0.3 (–0.5) mm thick above substratum, ±glossy to dull and scurfy, rimose to areolate with white hyphae visible between areoles, white to pale ash grey to very pale green to buff to pale ochre or soil-coloured (due to soil leachates) to green-grey, rarely lead-grey in deep shade, spuriously maculate if thallus between warts is discoloured by leachates, in deep shade almost as a thin hyphal 'wash' over the photobiont, ±densely pruinose. Soredia initially in small round soralia, coalescing into larger irregular patches to 11 × 9 mm, farinose to granular, chalky white (especially in Tasmanian material) to pale grey-green or discoloured by lichenicolous fungi. Apothecia stipitate, solitary to clustered, solitary on each stipe or very rarely bifurcate with 2 discs; stipe to 6–12 (–14) mm tall and 0.5–1.5 mm wide, round in cross-section when young, often irregularly laterally compressed with age, rarely fissured or splitting, sometimes fusing with adjoining stipe, variably lichenised, often strongly sorediate in basal half and densely pruinose adjacent to disc to wholly white-pruinose and scurfy; older stipes often eroding to expose white to rose-pink internal tissue; disc to 5 mm diam., pale to bright rose-pink to pinkish orange to flesh-pink, always darker than stipe, often densely pruinose, smooth to scabrid to lightly fissured or warted, plane when young and narrower than stipe diameter, soon convex and ±club-shaped or hemispherical to distorted-

hemispherical with 'sunken' patches, always immarginate, sometimes fusing with disc of adjacent apothecium. Ascospores fusiform, simple or rarely 1-septate, straight or rarely weakly curved, (14–) 17–23 (–26.5) × (2–) 2.5–3 (–4) µm (Australian specimens). Pycnidia not seen. CHEMISTRY: Primary thallus and soralia K– or K+ pale yellow, UV+ white; apothecia (disc and stipe) K+ yellow, P+ yellow-orange; containing baeomycesic acid (major), squamatic acid (±trace), consquamatic acid (±trace), barbatic acid (±faint trace) and ursolic acid (±trace). - Occurs in Australia, also throughout New Zealand.



Dibaeis arcuata



Dibaeis arcuata

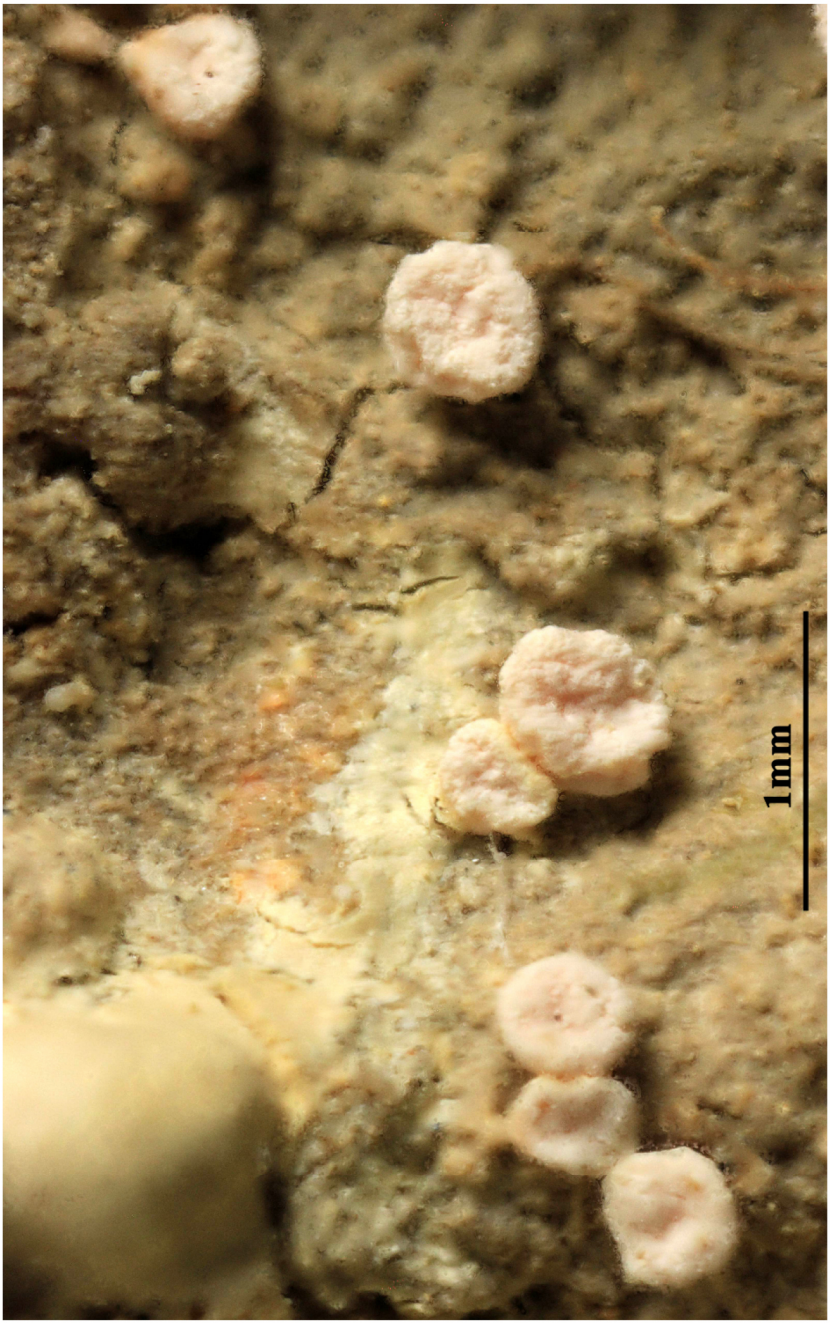
Dibaeis sorediata Kalb & Gierl, in Gierl & Kalb, Herzogia 9(3-4): 615 (1993)

[VZR105], Australia. Queensland. In monte Glorious, Brisbane State Forest, 40 km ad septentriones et occidentem a Brisbane, 27°20' austr., 152°44' orient. In pluviisilva super rupibus basalticis, 550 m. Leg. A. & K. Kalb, det. K. Kalb. - TLC: Baeomycessäure, Squamatsäure, Barbatsäure (trave), anal. K. Kalb. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 105.

Primary thallus thin and ±smooth over rock or fine soils to verruculose over bryophytes, paler than underlying substratum, pale ochre to dull green (bright lettuce-green when wet) with white hyphae visible between lichenised patches (clusters of photobiont cells visible at ×20 when wet), sorediate. Soralia initially small, orbicular and verruciform to capitate, eventually to 0.5–1 (–1.5) mm tall, coalescing into patches 2–4 mm wide, pale greenish white, paler than primary thallus, farinose to granular, rich in photobiont cells thus giving upper layer a distinct green tinge, with or without abundant colourless crystals. Secondary thallus absent to abundant. Apothecia subsessile and adnate to shortly stipitate, to 0.3 (–0.5) mm diam.; stipe robust, short, non-lichenised, thick, smooth to scurfy or farinose, concolorous with primary thallus to buff to dirty white to pale rose-pink where internal tissue is exposed, relatively regular in cross-section, neither strongly furrowed nor markedly tapered; disc pale flesh-pink to rose-pink, darker than margin, usually densely pruinose, smooth to scabrid, shallowly concave to ±plane to slightly convex and undulate-distorted to ±cracked and fissured with age; margin usually concolorous with stipe, ±pruinose, smooth when young to undulate and cracked with age, sometimes fusing with margin of adjacent apothecia. Ascospores ellipsoidal to narrowly ovoid, 0 (–1)-septate, (9.5–) 10.5–12 (–15.5) × (3–) 3.5–4.5 (–5.5) µm (Australian specimens). Pycnidia not seen. CHEMISTRY: Primary thallus and soralia K– or K+ pale yellow, UV+ white; apothecia (disc and stipe) K+ yellow, P+ yellow-orange; containing baeomycesic acid (major), squamatic acid (±trace), consquamatic acid (±trace), barbatic acid (±faint trace) and ursolic acid (±trace). - Occurs in Australia in wet-tropical and subtropical rainforest of coastal and adjacent ranges, grows on moist soils of roadsides, creek banks and old termite nests or on rocks in shaded, sheltered sites. Also known from Réunion and Nepal.



Dibaeis sorediata



Dibaeis sorediata



Dibaeis sorediata

Dictyonema pavonium (Weber & D. Mohr) Parmasto, Nova Hedwigia 29(1-2): 103 (1977)
= *Cora pavonia* (Weber & D. Mohr) Mont., Annls Sci. Nat., Bot., sér. 2 4: 94 (1835)
= *Byssomerulius pavonius* (Weber & D. Mohr) Zmitr. & Malysheva, in Zmitrovich, Malysheva & Spirin, Mycena 6: 31 (2006)
= *Cora montana* Sant., Symb. bot. upsal. 12(no. 1): 12 (1952)
= *Cora pavonia* (Weber & D. Mohr) Fr., Syst. orb. veg. (Lundae): 300 (1825)
= *Coraemyces pavoniae* Cif. & Tomas., Atti Ist. bot. Univ. Lab. crittog. Pavia, sér. 5 10(2): 293 (1954)
= *Dictyonema montanum* Parmasto ex Follmann & Redón, Willdenowia 6(3): 456 (1972)
= *Thelephora pavonia* Weber & D. Mohr, Beitr. Naturk. 1: 326 (1805)
= *Ulva montana* Sw., Prodr.: 148 (1788)

[VZR253], Dominica (Antilles Minores). Morne Trois Pitons National Park, secus viam ad latera austro-orient. montis "Morne Macaque", 800 m. Ad truncum arboris (*Citrus* sp.). Leg. A. Vězda, 18.07.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 253.

Ex Parmasto, E. (1977): The Genus Dictyonema.- Nova Hedwigia 29: Basidiocarps up to 8 cm in diam.; upper surface distinctly concentrically sulcate, variously coloured but usualy pale, more or less grayish. Upper stratum usually well developed.



Dictyonema pavonium



Dictyonema pavonium



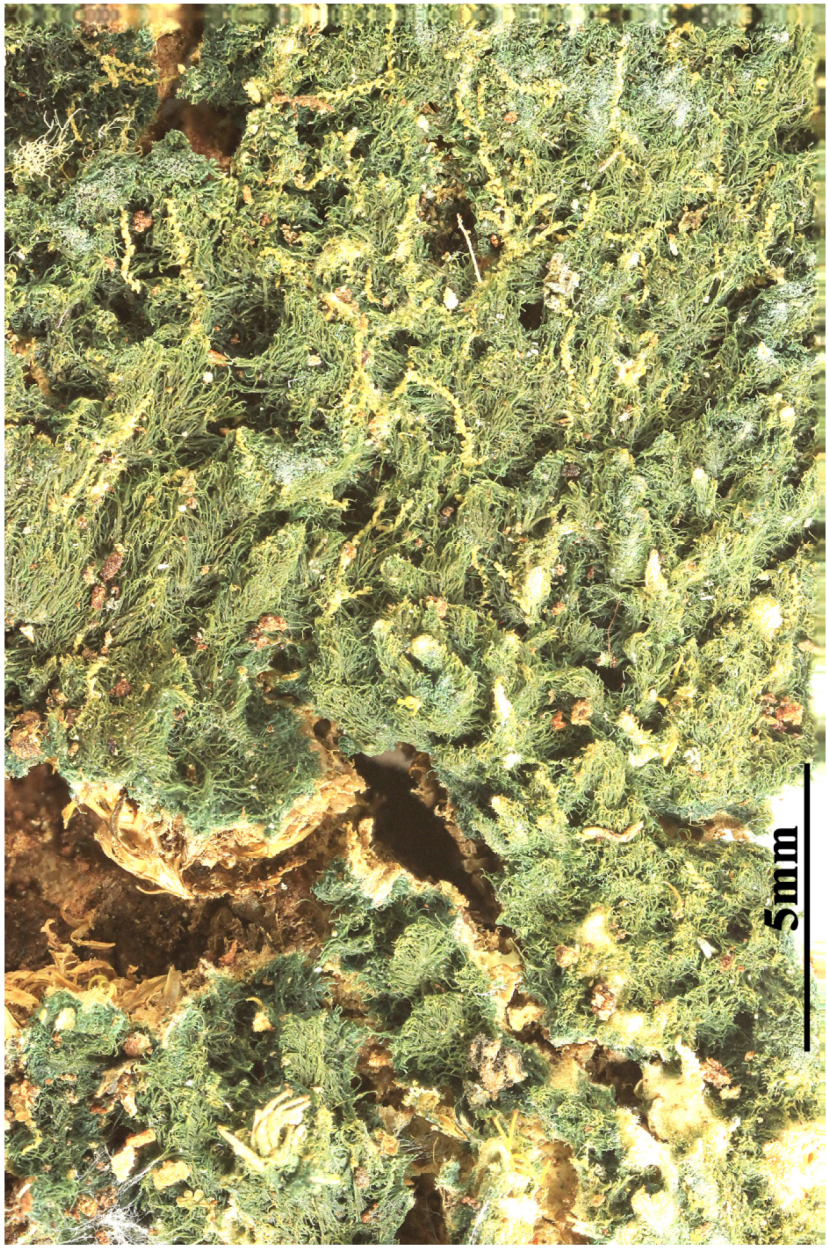
Dictyonema pavonium

Dictyonema sericeum (Sw.) Berk., London J. Bot. 2: 639 (1843)
= *Dictyonema thelephora* (Spreng.) Zahlbr., Cat. Lich. Univers. 7: 748 (1931)
= *Cora aeruginosa* (Blume & T. Nees) Sacc., Syll. fung. (Abellini) 6: 686 (1888)
= *Cora neesiana* Lév., Annls Sci. Nat., Bot., sér. 3 5: 154 (1846)
= *Cora sericea* (Sw.) Fr., K. svenska Vetensk-Akad. Handl., ser. 3: 144 (1849) [1848]
= *Dematium thelephora* Spreng., K. svenska Vetensk-Akad. Handl., ser. 3 41: 53 (1820)
= *Dichaena sericeum* (Sw.) Overeem, Bull. Jard. bot. Buitenz, 3 Sér. 4: 129 (1922)
= *Dichonema aeruginosum* Blume & T. Nees [as 'Dichonemia'], Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 13: 12 (1826)
= *Dichonema diducens* Nyl., Flora, Regensburg 68(24): 449 (1885)
= *Dichonema sericeum* (Sw.) Mont., Voy. Indes Or., Bot. 2(Cryptog.): 155 (1834)
= *Dictyonema aeruginosum* (Blume & T. Nees) Berk., J. Linn. Soc., Bot. 13: 169 (1872) [1873]
= *Dictyonema excentricum* C. Agardh, in Kunth, Syn. pl. (Paris) 1: 1 (1822)
= *Dictyonema schenckianum* (Müll. Arg.) Zahlbr., Cat. Lich. Univers. 7: 748 (1931)
= *Dictyonema sericeum* f. *laminosum* Har., Bull. Soc. mycol. Fr. 7: 41 (1891)
= *Dictyonema sericeum* f. *membranaceum* P. Metzner, Ber. dt. bot. Ges. 52: 238 (1934)
= *Dictyonema sericeum* f. *schenckianum* (Müll. Arg.) Parmasto, Nova Hedwigia 29(1-2): 112 (1977)
= *Dictyonema sericeum* f. *thelephora* (Spreng.) Parmasto, Nova Hedwigia 29: 111 (1977) [1978]
= *Dictyonema sericeum* f. *typica* P. Metzner, Ber. dt. bot. Ges. 52: 238 (1934)
= *Dictyonema sericeum* var. *aeruginosum* (Blume & T. Nees) Vain., J. Bot., Lond. 34: 297 (1896)
= *Hydnum sericeum* Sw., Prodr.: 149 (1788)
= *Laudatea schenckiana* Müll. Arg., Hedwigia 30(4): 234 (1891)
= *Rhipidonema excentricum* (C. Agardh) Sacc., Syll. fung. (Abellini) 6: 689 (1888)
= *Rhipidonema schenckianum* (Müll. Arg.) Tomas., Arch. Bot. (Forli) 25(3-4): 261 (1949)
= *Rhipidonema sericeum* (Sw.) Mattir., Nuovo G. bot. ital. 13(4): 265 (1881)
= *Rhipidonema thelephora* (Spreng.) Tomas., Arch. Bot. (Forli), II 25: 262 (1949)
= *Thelephora sericea* (Sw.) Sw., Fl. Ind. Occid. 3: 1928 (1806)

[VZR242], Dominica (Antilles Minores), Central Forest Reserve, secus viam inter Bells et Morpo, 600 m. Ad corticem Palmae (*Cocos nucifera*). Leg. et det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 242.

Basidiocarps sessile, usually imbricate and united in rosettes up to 25 cm and over in diam.. Pilei semicircular or reniform, 0.5-6(-9) x 1-8(-11) cm, rather thick 0.5-3(-4) mm, soft, membraneous-spongy, when dry somewhat brittle and very light. Upper surface indistinctly zonate or azonate, radially fibrillose or spongiose, uneven, ochraceous buff, dull green, dark green, grayish green, pale malachite green, malachite green or up to dark bluish green, sometimes ochraceous green. Fibrills of the surface appressed or ascendent, 0.5-3(-5) mm long and 0.15-0.3 mm in diam., penicillate, tips of fibrills often without greenish tint (concolorous with the margin of the surface). Margin rounded, loosely radially fibrillose, (1-)-2-7(-10) mm wide, dark cream, ochraceous cream or up to pale ochraceous. Context loose, fibrillose, sometimes sparse reticulate. Lower surface sparsely radially reticulate; hymenophore develops at the tips of fibrils in the form of scattered cupules 0.3-1 mm in diam., which soon unite to form scattered spots up to 1 cm in diam., or more frequently to form a more or less continuous slightly waxy hymenium. Hymenium at first whitish, then dark cream colour, in old specimenss up to buff, irregularly or polygonally split into small patches falling afterwards away. Context of the basiocarp stratose. The maintissue consists of algal trichomata enveloped in hyphal shells, and of sparsela interwoven hyphae; subhmenium and hymenium without any algal component (*Scytonema*). Basidia clavate cylindrical, not constricted, 15-23 x (6-)7-8 µm with 4 slightly curved sterigmata 5-6 µm long. Spores naviculate-obovoid or elliptic-ovoid, with lateral apiculus, with a homogenous content without guttulae, 6.5-7.5(-8) x 3.5-4.5 µm.

Dictyonema sericeum



Dictyonema sericeum

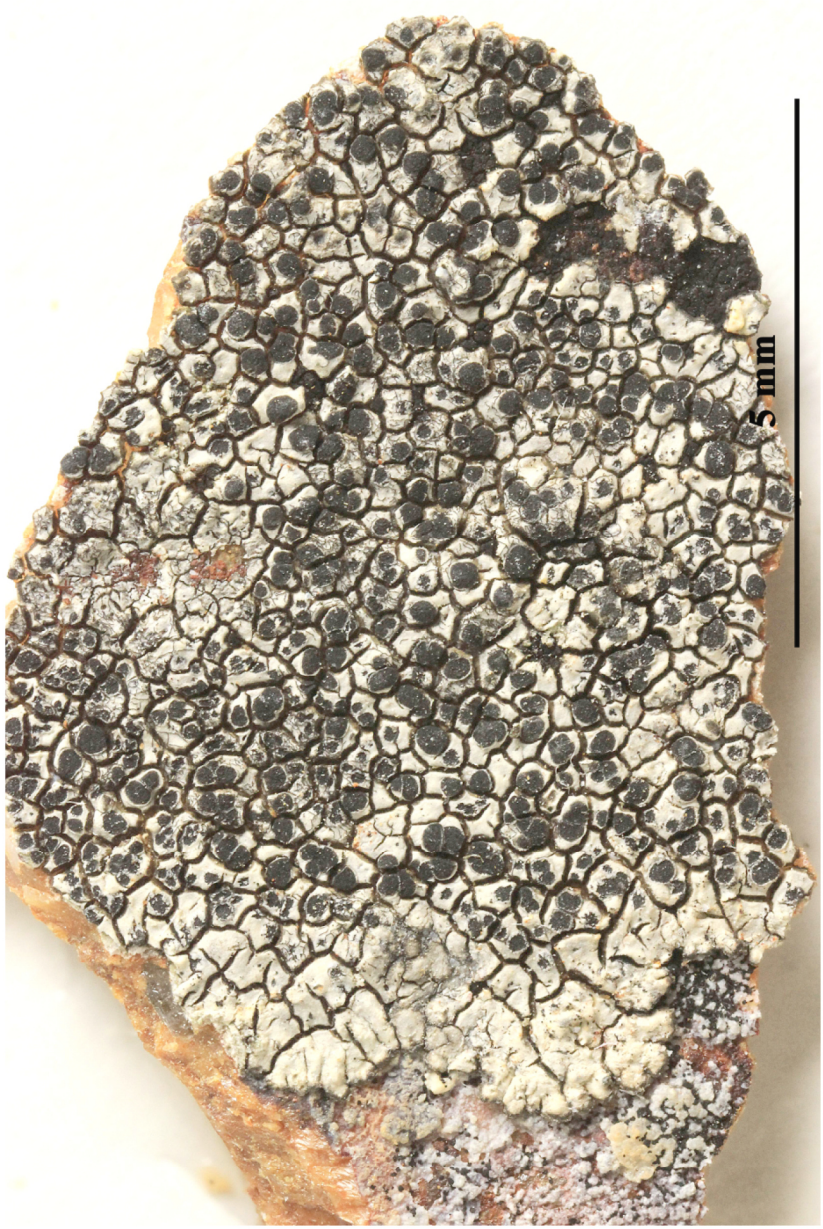


Dictyonema sericeum

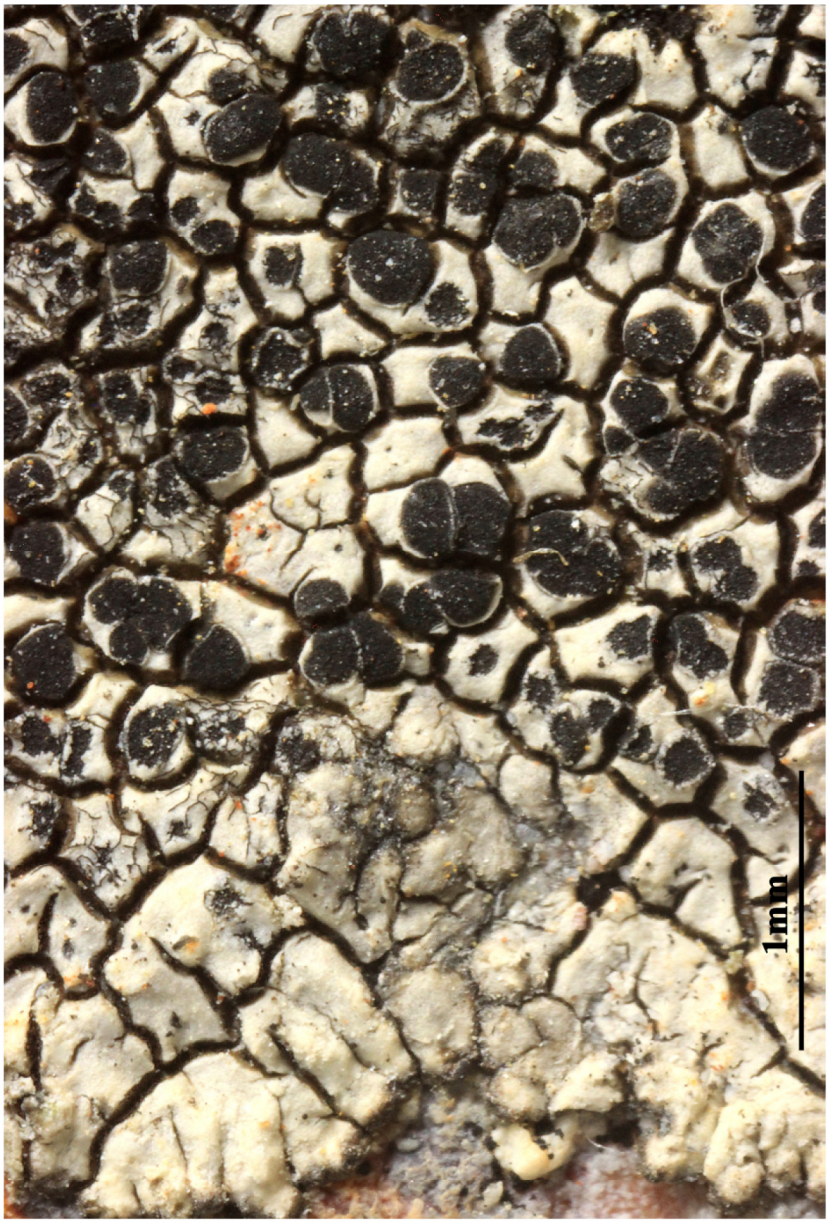
Dimelaena australiensis H. Mayrhofer & Sheard, in Sheard & Mayrhofer, Bryologist 87(3): 247 (1984)

[VZR], Australia. New South Wales: Shire of Guyra, montes Parlour, 37 km ad septentriones et occidentem ab Armidale, 900 m. Ad saxa granitica. Leg. A. Wippel & J. Williams, 18.9.1992, det. H. Mayrhofer. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 131.

Thallus thin, white, light grey to grey or light grey-brown, rimoseareolate, margin of radiating lobes limited by a narrow, dark prothallus. Apothecia to 0.3 mm diam., innate at first, becoming adnate (cryptolecanorine). Disc black, plane to convex, thalline margin concolorous with thallus, poorly developed and 0.05 mm wide, often incomplete and frequently disappearing. Hymenium 40 - 70 µm high, paraphyses 1.5 - 2 µm wide, apices to 4 um thick, pigmented brown and immersed in dispersed pigment forming a dark brown aeruginose epihymenium, reacting K-, N+ red. Hypothecium hyaline to pale brown, to 125 µm deep. Ascospores broadly ellipsoid, 7 - 10 x 5 - 7 µm, with many non septate Ascospores present. Spermogonia relatively rare, completely immersed in the thallus, globose Spermatia bacillform, 4 - 6 µm. Chemistry: Sulphurellin (LEUCKERT & MAYRHOFER 1985). Spot tests: K-, C+ red, Distribution Dimelaena australiensis occurs in temperate regions of the southern hemisphere. It is reported here from South America, South Africa, Western Australia, southernmost Queensland and Tasmania. Ecology: In Australia *D. australiensis* grows on dry, mainly east-facing overhanging surfaces of hard siliceous rocks (e.g. granite, quarzite) in open, dry sclerophyll forests or pastures. Discussion: *D. australiensis* resembles a diminutive *D. tenuis* and both species exhibit similar apothecial structures. The former species is distinguished by the short and broadly-elipsoid ascospores, shorter spermatia, aeruginose epihymenium pigmentation, the presence of sulfurellin different ecology and different distribution patterns. Additional specimens examined: AFRICA: Republic of South Africa: Cape Province.



Dimelaena australiensis

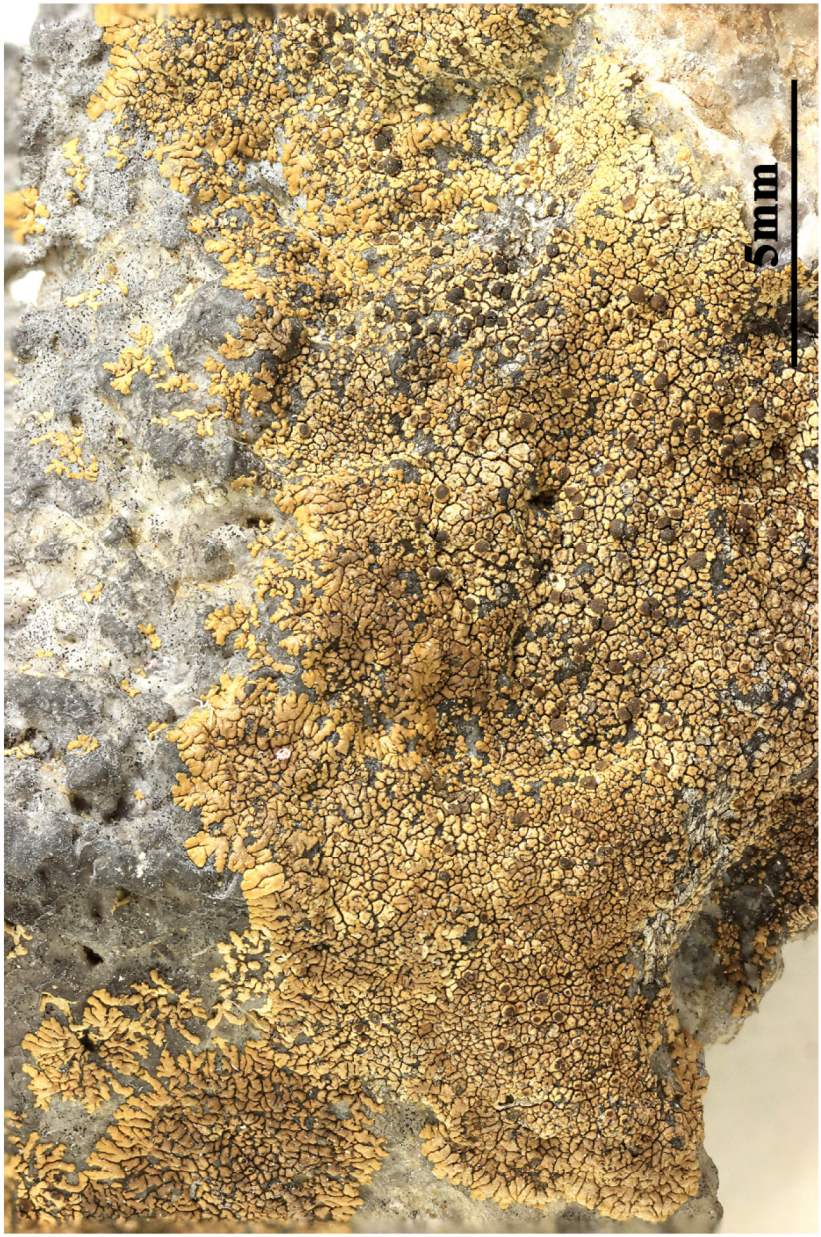


Dimelaena australiensis

Dimelaena tenuis (Müll. Arg.) H. Mayrhofer & Wippel, in Mayrhofer, Matzer, Wippel & Elix, Mycotaxon 58: 304 (1996)
= *Catolechia tenuis* Müll. Arg., Flora, Regensburg 64(32): 510 (1881)
= *Dimelaena diffractella* (Müll. Arg.) Sheard, Bryologist 77: 139 (1974)
= *Rinodina diffractella* Müll. Arg., Bull. Herb. Boissier 3: 634 (1895)

[VZR393], Argentina. Estato Amazonas: Alto Orinoco, La Esmeralda, in collibus in vivinitate Estation Humboldt, 185 m., 3°10'20" sepuentr., 65°32'10" occid., in rupibus arenaceis quarziticis. Leg. J, Hafellner & H. Komposch, 14.2.1998, det. H. Hafellner. EX A. VĚZDA: LICHENES RARIORES EXSICCATI NR. 392.

Thallus thin, light o dark brown, smooth and glossy, areolate and radiate plicate at margin with rather long lobes. Apothecia 0.1 - 0.4 mm diam., adnate, frequent, lecanorine at first, becoming biatorine to lecideine. Disc black, plane to slightly convex. Hymenium 50 - 80 µm tall. Paraphyses 1.5 - 2.0 µm wide, apices expanded to 3.5 - 4.5 µm, pigmented brown and forming a dark brown epihymenium. Hypothecium to 100 µm deep, hyaline to light brown. Ascospores 14 x 4.5 - 8 µm, nonseptate ascospores rarely presenl Spermogonia immersed, globose. Spermatia bacilliform, 5 - 8 x 1 µm. Chemistry: Gyrophoric acid (major), 5-O-metylthiascic acid (major); lecanoric acid (minor), ovoic acid (minor). Spot tests: Medulla: K-, G+ rose, P-. Distribution:Dimelaena tenuis is apparently restricted to subtropical and tropical regions. It was known previously from only one collection from Australia (MULLER ARGOVIENSIS 1895), as Rinodina diffractella. *D. tenuis* occurs on more or less horizontal to slightly inclined surfaces of massive boulders in savannahs or open dry sclerophyl forests.



Dimelaena tenuis



Dimelaena tenuis

Dimerella dilucida (Kremp.) R. Sant., Symb. bot. upsal. 12(no. 1): 394 (1952)
= *Coenogonium dilucidum* (Kremp.) Kalb & Lücking, in Lücking & Kalb, Bot. Jb. 122(1): 32 (2000)
= *Lecidea dilucida* Kremp., J. Mus. Godeffroy 1(4. Heft): 103 (1874) [1873]
= *Microphiale dilucida* (Kremp.) Zahlbr., in Rechinger, Denkschr. Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 81: 247 (1907)

[VZR428], Insulae Seychellenses. Insula Praslin, Grand Anse, in silva secundaria ad austro-occid., spectanti secus viam ad Praslin Beach ducentem, 200 m. Foliicolia (*Cinnamomum* sp. et al.). Leg. F. Ceni & A. Vězda, 26.5.2000, det. A. Vězda. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 428.

Thallus continuous, thin, smooth, green. Photobiont cells angular-rounded, in irregular plates or short threads. Apothecia sessile, rounded, 0.1-0.3 mm diam. and 70-100 µm high; disc plane, pale waxcolored; margin slightly prominent, smooth, of same color as disc. Excipulum 30-40 µm broad, colorless. Hypothecium 5-10 µm high, colorless. Hymenium 45-65 µm high, colorless. Asci 40-60 x 4-6 µm. Ascospores irregularly uniseriate, ellipsoid, 1-septate, 6-10 x 2.5-3.5 µm, 2.5-3 times as long as broad. Pycnidia wart-shaped, 0.1-0.15 mm diam., pale green. Conidia bacillar, 1-septate, 14-18 x 2-2.5 µm. Chemistry: no substances detected by TLC. - Distribution and Ecology. Pantropical. Typically foliicolous, but well-developed specimens have been found on bark as well (e.g., a collection from Japan. Next to *Coenogonium subluteum*, the most frequent, foliicolous, crustose representative of the genus, with ecological preferences similar to those of *C. lisowskii*. Both taxa are very closely related, as confirmed by their compraratively large, 1-septate conidia. Well-developed individuals of *C. subluteum* differ by their larger, more brightly colored apothecia and usually abundant pycnidia, which give the thallus a verrucose appearance.



Dimerella dilucida



Dimerella dilucida

Dimerella hypophylla Vězda, Folia geobot. phytotax. 10(4): 406 (1975)
= *Coenogonium hypophyllum* (Vězda) Kalb & Lücking, in Lücking & Kalb, Bot. Jb. 122(1): 32 (2000)

[VZR236], Dominica (Antilles Minores): Northern Forest Reserve, ad latera occid. montis "Marne Diablatin", 600 m. In pluviisilva, foliicola. Leg. A Vězda, 21.7.1996. Ex A. Vězda: Lichenes Rariores Exsiccati Nr. 236.

Thallus hypophyllous, continuous, very thin, smooth, pale greenish grey with slight blue tinge. Photobiont cells angular-rounded, in irregular plates or short threads. Apothecia hypophyllous, sessile, rounded, 0.3–0.8 mm diam. and 100-150 µm high; disc plane, pale yellow; margin thin, not prominent, smooth to minutely dentate, wax-colored. Excipulum 30-40 µm broad, colorless. Hypothecium 10-15 µm high, colorless to pale yellow. Hymenium 50-65 µm high, colorless. Asci 45-60 x 6-8 µm. Ascospores irregularly biseriate, fusiform, 1-septate, 13-20 x 2-3 µm, 6-7 times as long as broad. Pycnidia wartshaped, 0.2-0.3 mm diam., pale yellow. Conidia ellipsoid, non-septate, 4-6 x 2-2.5 mm. Chemistry: no substances detected by TLC. **Distribution and Ecology.** Pantropical. One of the few foliicolous lichens that regularly grow hypophyllous, often together with *Strigula janeirensis* and the superficially similar *Bacidina hypophylla* and *B. apiahica*.



Dimerella hypophylla



Dimerella hypophylla

A
Acolium inquinans (Sm.) A. Massal. 158
Acolium marcianum (B. de Lesd.) M. Prieto & Wedin. 161
Acolium tympanellum (Ach.) Gray. 158
Acolium tympanellum var. inquinans (Sm.) Körb. 158
Allodium brunneolum (Ach.) Kieff. 43
Arctocetraria andrejevii (Oxner) Kärnefelt & A. Thell. 24
Arthonia candida (Kremp.) Vain. 152
Arthothelium candidum (Kremp.) Müll. Arg. 152
Ascomycetella filicina Ellis & Everh. 155
B
Bacidia pallens (Kullh.) Zahlbr. 129
Baeomyces absolutus Tuck. 170
Baeomyces arcuatus Stirt. 173
Baeomyces delicatus Ach. 109
Baeomyces ramalinellus Nyl. 173
Baeomyces retiporus Labill. 66
Baeomyces roseus var. fungoides (Sw.) Tuck. 173
Biatora bouteillei (Desm.) A. Massal. 17
Biatora pallens (Kullh.) Printzen. 129
Biatora veteranorum Coppins & Sérus. 14
Biatorina bouteillei (Desm.) Bausch. 17
Biatorina lenticularis var. nigroclavata (Nyl.) Flagey. 21
Biatorina littorella (Nyl.) A.L. Sm. 17
Biatorina nigroclavata (Nyl.) Arnold. 21
Bilimbia bouteillei (Desm.) Hulting. 17
Bilimbia pallens Kullh. 129
Byssomerulius pavonius (Weber & D. Mohr) Zmitr. & Malysheva 180
C
Calicium aciculare (Gray) Fr. 49
Calicium brunneolum Ach. 43
Calicium carthusiae Harm. 46
Calicium chlorellum Ach. 46
Calicium chlorellum var. orochroum Wahlenb. 46
Calicium furfuraceum var. sulphurellum Link. 36, 40
Calicium hispidulum (Ach.) Ach. 49
Calicium hyperellum var. aciculare Schaer. 49
Calicium inquinans (Sm.) Schaer. 158
Calicium melanophaeum var. brunneolum (Ach.) Schaer. 43
Calicium orochroum Wahlenb. 46

Calicium phaeocephalum f. chlorellum (Ach.) Fr. ... 46
Calicium phaeocephalum subsp. chlorellum (Ach.) Nyl. ... 46
Calicium phaeocephalum var. aciculare (Schaer.) Nyl. ... 49
Calicium phaeocephalum var. chlorellum (Ach.) Fr. ... 46
Calicium trachelinum var. hispidulum Ach. ... 49
Calicium trichiale var. brunneolum (Ach.) Nyl. ... 43
Calicium tympanellum Ach. ... 158
Caloplaca thamnoblasta Nimis & Poelt ... 2
Caloplaca wetmorei Nimis, Poelt & Tretiach ... 7
Capitularia delicata Mart. ... 109
Catapyrenium tenellum Breuss ... 11
Catillaria alba Coppins & Vězda ... 14
Catillaria bouteillei (Desm.) Zahlbr. ... 17
Catillaria lenticularis f. nigroclavata (Nyl.) Boistel ... 21
Catillaria littorella (Nyl.) Zahlbr. ... 17
Catillaria nigroclavata (Nyl.) J. Steiner ... 21
Catolechia tenuis Müll. Arg. ... 191
Cenomyce delicata Ach. ... 109
Cenomyce delicatus (Ehrh. ex Ach.) Ach. ... 109
Cenomyce gonorega f. scabrosa Ach. ... 122
Cenomyce parasitica (Hoffm.) Taylor ... 109
Cenomyce portentosa Dufour ... 97
Cenomyce rangiferina var. curta Ach. ... 122
Cenomyce retipora (Labill.) Ach. ... 66
Cenomyce squamosa var. scabrosa (Ach.) Delise ... 122
Cetraria andrejevii Oxner ... 24
Cetraria californica var. tuckermanii R. Howe ... 28
Cetraria merrillii Du Rietz ... 28
Cetrariastrum ecuadorense (R. Sant.) Sipman ... 33
Chaenotheca acicularis (Gray) Zwackh ... 49
Chaenotheca brachypoda (Ach.) Tibell ... 36, 40
Chaenotheca brunneola (Ach.) Müll. Arg. ... 43
Chaenotheca carthusiae (Harm.) Lettau ... 46
Chaenotheca chlorella (Ach.) Müll. Arg. ... 46
Chaenotheca chlorella f. acicularis (Gray) Vain. ... 49
Chaenotheca chlorella var. hispidula (Ach.) Vain. ... 49
Chaenotheca hispidula (Ach.) Zahlbr. ... 49
Chaenotheca hispidula f. acicularis Nádv. ... 49
Chaenotheca phaeocephala * acicularis (Schaer.) Blomb. & Forssell 49
Chaenotheca phaeocephala var. chlorella (Ach.) Th. Fr. ... 46

Chaenothecopsis tasmanica Tibell..... 51
Chapsa lamellifera (Kantvilas & Vězda) Mangold, in Mangold, Elix & Lumbsch..... 57
Chapsa megalophthalma (Müll. Arg.) Mangold..... 60
Chiodecton albidum (Taylor) Leight..... 54
Chiodecton myrticola Fée..... 54
Chiodecton myrticola var. albidum (Taylor) Nyl..... 54
Chiodecton myrticola var. petraeum (Delise ex Nyl.) Boistel..... 54
Chiodecton myrticola var. sarniense Salwey ex Mudd..... 54
Chiodecton myrticola var. syncesia Schaer..... 54
Chiodecton petraeum Delise ex Nyl..... 54
Chroodiscus lamelliferus Kantvilas & Vězda..... 57
Chroodiscus megalophthalmus (Müll. Arg.) Vězda & Kantvilas..... 60
Chroodiscus mirificus (Kremp.) R. Sant..... 63
Circinaria erythroxyli (Spreng.) Fée..... 132
Cladia retipora (Labill.) Nyl..... 66
Cladia sullivanii (Müll. Arg.) W. Martin..... 69
Cladina alpestroides Abbayes..... 77, 81
Cladina confusa (R. Sant.) Follmann & Ahti..... 77, 81
Cladina confusa f. bicolor (Müll. Arg.) Ahti..... 77, 81
Cladina galapagosensis (Ahti) W.A. Weber..... 77, 81
Cladina impexa (Harm.) B. de Lesd..... 97
Cladina leptoclada (Abbayes) D.J. Galloway..... 77, 81
Cladina mediterranea (P.A. Duvign. & Abbayes) Follmann & Hern.-Padr..... 100
Cladina mediterranea (P.A. Duvign. & Abbayes) Trass..... 100
Cladina pohlia (R. Sant.) W.A. Weber..... 77, 81
Cladina portentosa (Dufour) Follmann..... 97
Cladina pycnoclada subsp. thyrsifera Nyl..... 77, 81
Cladina rangiferina f. stygia (Fr.) H. Olivier..... 122
Cladina retipora (Labill.) Nyl..... 66
Cladina stygia (Fr.) Ahti..... 122
Cladina sylvatica f. sylvestris (Oeder) Navás..... 77, 81
Cladinomyces sylvaticae Cif. & Tomas..... 81
Cladinomyces sylvaticae Cif. & Tomas..... 77
Cladonia alpestroides Abbayes..... 77, 81
Cladonia bicolor (Müll. Arg.) Ahti..... 77, 81
Cladonia borealis S. Stenroos..... 72
Cladonia chlorophaea auct. p.p..... 103
Cladonia coccifera f. arrosa (F. Wilson) Zahlbr..... 126
Cladonia confusa f. bicolor (Müll. Arg.) Ahti & DePriest..... 77, 81

Cladonia confusa R. Sant..... 77, 81
Cladonia cornucopioides f. arrosa F. Wilson..... 126
Cladonia degenerans f. scabrosa (Ach.) Flörke..... 122
Cladonia delicata Flörke..... 109
Cladonia fallax f. bicolor (Müll. Arg.) Abbayes..... 77, 81
Cladonia fallax f. exalbescens (Vain.) Abbayes..... 77, 81
Cladonia galapagosensis Ahti..... 77, 81
Cladonia hedbergii Ahti..... 86
Cladonia impexa f. exalbescens (Vain.) Abbayes..... 77, 81
Cladonia impexa f. thyrsifera (Nyl.) Abbayes..... 77, 81
Cladonia impexa Harm..... 97
Cladonia krempelhuberi (Vain.) Vain..... 90
Cladonia laxiuscula auct..... 97
Cladonia leptoclada Abbayes..... 77, 81
Cladonia leptoclada f. thyrsifera (Nyl.) Abbayes..... 77, 81
Cladonia lopezii S. Stenroos..... 94
Cladonia macaronesica Ahti..... 97
Cladonia mediterranea P.A. Duvign. & Abbayes..... 100
Cladonia monomorpha Aptroot, Sipman & Herk..... 103
Cladonia neglecta (Flörke) Spreng..... 103
Cladonia neozelandica var. neozelandica Vain..... 106
Cladonia parasitica (Hoffm.) Hoffm..... 109
Cladonia pohlia R. Sant..... 77, 81
Cladonia portentosa (Dufour) Coëm..... 97
Cladonia portentosa var. subimpexa (P.A. Duvign.) Ahti..... 97
Cladonia pycnoclada f. exalbescens (Vain.) Petr..... 77, 81
Cladonia pycnoclada var. exalbescens Vain..... 77, 81
Cladonia pyxidata (L.) Hoffm..... 103
Cladonia rangiferina f. bicolor Müll. Arg..... 82
Cladonia rangiferina f. bicolorMüll. Arg..... 77
Cladonia rangiferina f. curta (Ach.) Britzelm..... 122
Cladonia rangiferina f. stygia Fr..... 122
Cladonia ravenelii Tuck..... 113
Cladonia retipora (Labill.) Fr..... 66
Cladonia spumosa (Flörke) Schade..... 97
Cladonia squamosa subsp. delicata Nyl..... 109
Cladonia squamosa var. delicata Fr..... 109
Cladonia squamosa var. parasitica (Hoffm.) Rabenh..... 109
Cladonia squamosa var. scabrosa (Ach.) Grognot,..... 122
Cladonia stereoclada Abbayes..... 119
Cladonia stygia (Fr.) Ruoss..... 122

Cladonia subimpexa P.A. Duvign..... 97
Cladonia sullivanii Müll. Arg..... 69
Cladonia sylvatica var. sylvestris (Oeder) Vain..... 78, 82
Cladonia ventricosa var. parasitica (Hoffm.) Schaer..... 109
Cladonia verticillata var. krempelhuberi Vain..... 90
Cladonia weymouthii F. Wilson ex A.W. Archer..... 126
Clathrina retipora (Labill.) Müll. Arg..... 66
Clathrina sullivanii (Müll. Arg.) Müll. Arg..... 69
Cliostomum pallens (Kullh.) S. Ekman..... 129
Coccocarpia aurantiaca (Hook. f. & Taylor) Mont. & Bosch..... 132
Coccocarpia ciliolata Mont..... 132
Coccocarpia cronia (Tuck.) Vain..... 136
Coccocarpia cronia var. aurantiaca (Hook. f. & Taylor) Vain..... 132
Coccocarpia cronia var. isidiophylla (Müll. Arg.) Vain..... 136
Coccocarpia cronia var. isidiosa (Müll. Arg.) Vain..... 136
Coccocarpia erythroxyli (Spreng.) Swinscow & Krog..... 132
Coccocarpia gayana (Mont.) Nyl..... 164
Coccocarpia leucorrhiza Hampe..... 132
Coccocarpia molybdaea f. cronia (Tuck.) Nyl..... 136
Coccocarpia molybdaea f. pellita (Ach.) Nyl..... 140
Coccocarpia molybdaea var. aurantiaca (Hook. f. & Taylor) Nyl.... 132
Coccocarpia molybdaea var. cronia (Tuck.) Nyl..... 136
Coccocarpia molybdaea var. pellita (Ach.) Nyl..... 140
Coccocarpia palmicola (Spreng.) Arv. & D.J. Galloway..... 136
Coccocarpia parmelioides (Hook.) Trevis..... 132
Coccocarpia parmelioides var. pellita (Ach.) Trevis..... 140
Coccocarpia pellita (Ach.) Müll. Arg..... 140
Coccocarpia pellita f. isidiosa Müll. Arg..... 136
Coccocarpia pellita subvar. isidiophylla (Müll. Arg.) Vain..... 136
Coccocarpia pellita var. cronia (Tuck.) Müll. Arg..... 136
Coccocarpia pellita var. isidiophylla Müll. Arg..... 136
Coccocarpia pellita var. isidiosa (Müll. Arg.) Malme..... 136
Coccocarpia pellita var. mesomorpha Müll. Arg..... 132
Coccocarpia pellita var. parmelioides (Hook.) Müll. Arg..... 132
Coccocarpia pellita var. semiincisa Müll. Arg..... 132
Coccocarpia portoricensis (Spreng.) C.W. Dodge..... 140
Coenogonium dilucidum (Kremp.) Kalb & Lücking..... 194
Coenogonium hypophyllum (Vězda) Kalb & Lücking..... 197
Collema atroplumbeum Hue..... 143
Collema flaccidum (Ach.) Ach..... 143
Collema furvum var. flaccidum (Ach.) Spreng..... 143

Collema rugosum Kremp. 146
Collema rupestre var. flaccidum (Ach.) Rabenh. 143
Collemodiopsis flaccidum (Ach.) Hav. 143
Combea mollusca (Ach.) Nyl. 149
Combea pruinosa De Not. 149
Coniocybe brachypoda Ach. 36, 40
Coniocybe brunneola (Ach.) Samp. 43
Coniocybe furfuracea subsp. brachypoda (Ach.) Arnold. 36, 40
Coniocybe sulphurea (Retz.) Nyl. ex Cromb. 36, 40
Coppinsidea alba (Coppins & Vězda) S.Y. Kondr., Farkas & Lőkös 14
Coppinsidea pallens (Kullh.) S.Y. Kondr., Farkas & Lőkös. 129
Cora aeruginosa (Blume & T. Nees) Sacc. 184
Cora montana Sant. 180
Cora neesiana Lév. 184
Cora pavonia (Weber & D. Mohr) Fr. 180
Cora pavonia (Weber & D. Mohr) Mont. 180
Cora sericea (Sw.) Fr. 184
Coraemyces pavoniae Cif. & Tomas. 180
Cornicularia californica f. tuckermanii (R. Howe) Zahlbr. 28
Cryptothecia candida (Kremp.) R. Sant. 152
Cryptothecia filicina (Ellis & Everh.) Lücking & G. Thor. 155
Cyphelium aciculare (Gray) Arnold. 49
Cyphelium brunneolum (Ach.) De Not. 43
Cyphelium chlorellum (Ach.) A. Massal. 46
Cyphelium inquinans (Sm.) Trevis. 158
Cyphelium inquinans f. tympanellum (Ach.) Vain. 158
Cyphelium marcianum B. de Lesd. 161
Cyphelium phaeocephalum var. aciculare (Schaer.) Stein. 49
Cyphelium phaeocephalum var. chlorellum (Ach.) Kremp. 46
Cyphelium trichiale var. brunneolum (Ach.) Mudd. 43
Cyphelium tympanellum (Ach.) Ach. 158
Cyphelium tympanellum var. inquinans (Sm.) Ach. 158
D
Dactylina mollusca (Ach.) Tuck. 149
Degelia gayana (Mont.) Arv. & D.J. Galloway. 164
Dematium thelephora Spreng. 184
Dendriscocaulon intricatulum (Nyl.) Henssen. 167
Dibaeis absoluta (Tuck.) Kalb & Gierl. 170
Dibaeis arcuata (Stirt.) Kalb & Gierl. 173
Dibaeis fungoides (Sw.) Kalb & Gierl, in Gierl & Kalb. 173
Dibaeis sorediata Kalb & Gierl. 176

Dichaena sericeum (Sw.) Overeem..... 184
Dichonema aeruginosum Blume & T. Nees..... 184
Dichonema diducens Nyl..... 184
Dichonema sericeum (Sw.) Mont..... 184
Dictyonema aeruginosum (Blume & T. Nees) Berk..... 184
Dictyonema excentricum C. Agardh..... 184
Dictyonema montanum Parmasto ex Follmann & Redón..... 180
Dictyonema pavonium (Weber & D. Mohr) Parmasto..... 180
Dictyonema schenckianum (Müll. Arg.) Zahlbr..... 184
Dictyonema sericeum (Sw.) Berk..... 184
Dictyonema sericeum f. laminosum Har..... 184
Dictyonema sericeum f. membranaceum P. Metzner..... 184
Dictyonema sericeum f. schenckianum (Müll. Arg.) Parmasto..... 184
Dictyonema sericeum f. thelephora (Spreng.) Parmasto..... 184
Dictyonema sericeum f. typica P. Metzner..... 184
Dictyonema sericeum var. aeruginosum (Blume & T. Nees) Vain... 184
Dictyonema thelephora (Spreng.) Zahlbr..... 184
Dimelaena australiensis H. Mayrhofer & Sheard..... 188
Dimelaena diffractella (Müll. Arg.) Sheard..... 191
Dimelaena tenuis (Müll. Arg.) H. Mayrhofer & Wippel..... 191
Dimerella dilucida (Kremp.) R. Sant..... 194
Dimerella hypophylla Vězda..... 197
Dufourea mollusca (Ach.) Ach..... 149
E
Embolus brunneolus (Ach.) Wallr..... 43
Eucollema flaccidum (Ach.) Horw..... 143
Eucyphelis acicularis (Gray) Clem..... 49
Everniastrum ecuadorense (R. Sant.) Hale..... 33
F
Fellhanera bouteillei (Desm.) Vězda..... 17
G
Gintarasia lamellifera (Kantvilas & Vězda) Kraichak, Lücking, Lumbsch..... 57
Gintarasia megalophthalma (Müll. Arg.) Kraichak..... 60
H
Helopodium delicatum DC..... 109
Hydnum sericeum Sw..... 184
Hypotrachyna ecuadorensis (R. Sant.) Divakar, A. Crespo, Sipman, Elix & Lumbsch..... 33
K
Kaernefeltia merrillii (Du Rietz) A. Thell & Goward..... 28

L
Lathagrium flaccidum (Ach.) Gray..... 143
Lathagrium rupestre (Sw.) A. Massal..... 143
Laudatea schenckiana Müll. Arg..... 184
Lecanora bouteillei (Desm.) Harm..... 17
Lecanora conizaea f. bouteillei (Desm.) H. Olivier..... 17
Lecanora nigroclavata (Nyl.) Nyl..... 21
Lecanora symmicta f. bouteillei (Desm.) Boistel..... 17
Lecanora symmicta var. bouteillei (Desm.) H. Olivier..... 17
Lecanora varia var. bouteillei (Desm.) Schaer..... 17
Lecidea bouteillei (Desm.) Nyl..... 17
Lecidea dilucida Kremp..... 194
Lecidea erythroxyli Spreng..... 132
Lecidea lenticularis var. nigroclavata (Nyl.) Nyl..... 21
Lecidea littorella Nyl..... 17
Lecidea luteola var. bouteillei (Desm.) Malbr..... 17
Lecidea nigroclavata Nyl..... 21
Lecidea pallens (Kullh.) Hedl..... 129
Lecidea palmicola Spreng..... 136
Lecidea parmelioides Hook..... 132
Lecidea pellita (Ach.) Spreng..... 140
Lecidea portoricensis Spreng..... 140
Lecidea tympanella (Ach.) Link..... 158
Leptogidium intricatulum (Nyl.) Nyl..... 167
Leptogium intricatulum Nyl..... 167
Lichen acicularis Sm. & Sowerby,..... 49
Lichen delicatus Ehrh. ex Ach..... 109
Lichen diatrypus * pellita (Ach.) Lam..... 140
Lichen flaccidus Ach..... 143
Lichen fungoides Sw..... 173
Lichen inquinans Sm..... 158
Lichen parasiticus Hoffm..... 109
Lichen pyxidatus L..... 103
Lichen rangiferinus var. sylvestris Oeder..... 78, 82
Lichen retiporus (Labill.) DC..... 66
Lichen rupestris Sw..... 143
Lichen squarrosus * mollusca (Ach.) Lam..... 149
Lichen sulphureus Retz..... 36, 40
M
Microlecia nigroclavata (Nyl.) M. Choisy..... 21
Microphiale dilucida (Kremp.) Zahlbr..... 194

Myriostigma candidum Kremp..... 152
Myriostigma filicinum (Ellis & Everh.) Frisch & G. Thor..... 155
N
Nephromopsis andrejevii (Oxner) Divakar, A. Crespo & Lumbsch.. 24
Nephromopsis merrillii (Du Rietz) Divakar, A. Crespo & Lumbsch. 28
P
Pannaria aurantiaca (Hook. f. & Taylor) Schwend..... 132
Pannaria ciliolata (Mont.) Hue..... 132
Pannaria gayana (Mont.) A. Massal..... 164
Pannaria molybdaea f. cronia (Tuck.) Tuck..... 136
Pannaria molybdaea var. cronia (Tuck.) C.W. Harris..... 136
Pannaria parmelioides (Hook.) Colmeiro..... 132
Pannaria parmelioides f. cronia (Tuck.) Hue..... 136
Pannaria parmelioides f. isidiophylla (Müll. Arg.) Hue..... 136
Pannaria parmelioides var. cronia (Tuck.) Hue..... 136
Pannaria parmelioides var. isidiophylla (Müll. Arg.) Hue..... 136
Parmelia bouteillei Desm..... 17
Parmelia cronia Tuck..... 136
Parmelia ecuadorensis R. Sant..... 33
Parmelia flaccida (Ach.) Ach..... 143
Parmelia gayana Mont..... 164
Parmelia mollusca Ach..... 149
Parmelia pellita Ach..... 140
Parmelia rupestris F. Desp..... 143
Parmelia rupestris var. flaccida (Ach.) Schaer..... 143
Parmeliella cronia (Tuck.) D.C. Linds..... 136
Parmeliella gayana (Mont.) Müll. Arg..... 164
Patellaria portoricensis (Spreng.) Spreng..... 140
Phacotium aciculare (Gray) Trevis..... 49
Phacotium brunneolum (Ach.) Trevis..... 43
Phacotium chlorellum (Ach.) Poetsch..... 46
Phacotium hispidulum (Ach.) Trevis..... 49
Phacotium phaeocephalum var. chlorellum (Ach.) Trevis..... 46
Phacotrum hispidulum (Ach.) Gray..... 49
Phyllobrassia mirifica (Kremp.) Vain..... 63
Placidium tenellum (Breuss) Breuss..... 11
Platygrapha mirifica Kremp..... 63
Polychidium intricatulum (Nyl.) Henssen..... 167
Pulchrocladia retipora (Labill.) S. Stenroos, Pino-Bodas & Ahti..... 66
Pycnothelia retipora (Labill.) Fée..... 66
R

Rexia sullivanii (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti..... 69
Rexiella sullivanii (Müll. Arg.) S. Stenroos, Pino-Bodas & Ahti..... 69
Rhipidonema excentricum (C. Agardh) Sacc..... 184
Rhipidonema schenckianum (Müll. Arg.) Tomas..... 184
Rhipidonema sericeum (Sw.) Mattir..... 184
Rhipidonema thelephora (Spreng.) Tomas..... 184
Rinodina diffractella Müll. Arg..... 191
Roccella mollusca (Ach.) Nyl..... 149
S
Scyphophorus delicatus Mérat..... 109
Scyphophorus parasiticus (Hoffm.) Hook..... 109
Solorina aurantiaca Hook. f. & Taylor..... 132
Strongylium aciculare Gray..... 49
Syncesia albida Taylor..... 54
Syncesia myrticola (Fée) Tehler..... 54
Synechoblastus flaccidus (Ach.) Körb..... 143
Synechoblastus rupestris (F. Desp.) Trevis..... 143
T
Tassiloa wetmorei (Nimis, Poelt & Tretiach) S.Y. Kondr., Kärnefelt, A. Thell, Elix, Jung Kim, A.S. Kondr. & Hur..... 7
Thelephora pavonia Weber & D. Mohr..... 180
Thelephora sericea (Sw.) Sw..... 184
Thelotrema megalophthalmum Müll. Arg..... 60
Thelotrema mirificum (Kremp.) Müll. Arg..... 63
Trachyderma gayanum (Mont.) Trevis..... 164
Trachylia inquinans (Sm.) Rabenh..... 158
Trachylia tympanella (Ach.) Fr..... 158
Tubercularia absoluta (Tuck.) Kuntze..... 170
Tubercularia fungoides (Sw.) Kuntze..... 173
Tuckermannopsis merrillii (Du Rietz) Hale..... 28
U
Ulva montana Sw..... 180