

Descriptions and references to the lichens of The Netherlands not treated in “The lichens of Great Britain and Ireland” by Smith *et al.* (2009)

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This document provides notes to those species, with emphasis on species which are still occurring in the Netherlands and not treated in another recent flora, like Smith *et al.* (2009), Wirth (1995). It is essentially meant as an addendum to the Flora, providing a short-cut to identification literature. Nomenclature follows Aptroot *et al.* (2004). The order is strictly alphabetical. The letters after the name refer to the status (e.g. Red List) if determined, as explained in e.g. Aptroot & Sparrius (2009). References to illustrations are mostly restricted to readily available books or journals like Buxbaumiella and The Lichenologist. Ecology is included for species still occurring in the country and refers to records in The Netherlands only. The intention is to keep adding to this file, so comments are welcome (andreaptroot@gmail.com).

Absconditella fossarum Vězda & Pisut **O**

Very similar to *Absconditella lignicola* but occurring on bare soil. A doubtful species, just as most other *Absconditella* species, each of which only differ from each other in few details or in substrate preference. Known only from Europe.

Acarospora chrysops (Tuck.) H. Magn. **X**

Similar in structure to *Acarospora fuscata* but thallus bright yellow and with more agglutinated and coalescing squamules. In 2009 recorded in The Netherlands on imported granite rock of a monument. Otherwise known only from America.

Illustration: Buxbaumiella 85: 46.

Acarospora versicolor Bagl. & Carestia **GE**

Thallus densely pruinose, below the white pruina brown, squamulose-areolate, areoles flat to convex, round to angular, 0.5-2.0 mm. Apothecia immersed, concave, dark brown, 0.2-0.5 mm. Paraphyses c. 1.5 µm thick. Ascospores 4-7 x 1.5-2.0 µm. On pebbles and cinder in metal-polluted sites or on iron-rich basalt. Known only from the northern hemisphere.

Treated by Wirth (1995) p.106.

Agonimia vouauxii (Bouly de Lesd.) M.A. Brand & Diederich **TNB**

Thallus granulose to squamulose, greenish to brownish, papillate, with squamules of 60-200 µm in diam., superficial. Perithecia subspherical to slightly obpyriform, blackish, 125-230 µm in diam. Asci 2-spored. Ascospores large, hyaline, muriform (40-)60-72(-87) x 15-24(-31) µm. Mainly on calcareous sand in the coastal dunes, and in limestone areas. Known only from Europe.

Not treated, but mentioned in the discussion of *Agonimia tristicula* in Smith *et al.* (2009) p.138.

Anisomeridium macrocarpum (Körber) V. Wirth **KW**

Not lichenized. Ascomata black, up to 0.5 mm. Asci clavate, 4-8/spored. Paraphyses branched, stiff. Ascospores hyaline, 1-septate (old often 3-septate), 30-47 x 7-10 µm. Mainly on nutrient rich bark (e.g. *Salix*) in clay and river districts. Known only from Europe.

Treated by Wirth (1995) p.140.

- Arthonia dispersa (Schrader) Nyl.** **L**
- Thallus thin, white, with trentepohlioid algae. Apothecia elongated, often branched or curved, black, up to 0.2 x 1 mm. Epihymenium olive green to black. Ascospores 1-septate, hyaline, 10-15 x 3-5 µm. Corticolous. Known only from Europe and Asia.
- Treated by Wirth (1995) p.126.
- Aspicilia cupreogrisea (Th. Fr.) Hue** **GE**
- Very similar to *Aspicilia cinerea* and belonging to the same species aggregate, but deviating by a brownish thallus. A doubtfully distinct taxon. On granite boulders. Known only from Europe.
- Aspicilia simoensis Räsänen** **GE**
- Thallus dark grey, not areolate but rimose, K+red, with rounded pale soredia. On granite boulders. Known only from Europe.
- Treated by Wirth (1995) p.147 (as *A. grisea*).
 Note: **Illustration:** Wirth (1995) p.153 refers to *A. grisea*.
- Aspicilia verrucigera Hue** **GE**
- Very similar to *Aspicilia caesiocinerea* and belonging to the same species aggregate, but deviating by a more brownish thallus and a distinct black hypothallus. A doubtfully distinct taxon. On granite boulders. Known only from Europe.
- Bacidia populorum (Massal.) Trevisan** **VN**
- Thallus whitish. Apothecia black, sessile, with thin black margin. Epihymenium olive green to bluish. Hypothecium hyaline to pale brown. Asci 8-16-spored. Ascospores hyaline, curved, ends rounded, 3-5-septate, 10-18 x 4-5 µm. Corticolous. Known only from Europe and Asia.
- Treated by Wirth (1995) p.157 (as *Arthrosporium populorum*).
Illustration: Wirth (1995) p.156 (as *Arthrosporium populorum*).
- Bagliettoa steineri (Kusan) Vězda** **KW**
- Thallus white, smooth, immersed in limestone. Ascomata closed, immersed in the stone, black above and with radiating lines, grey beneath, c. 0.2 mm diam. Ascospores often absent. Known only from Europe.
- Treated by Van Herk & Aptroot (2004) p.80.
Illustration: Van Herk & Aptroot (2004) p.81.
- Caloplaca alstrupii Søchting** **VN**
- Similar to *Caloplaca ulcerosa*, but soredia originating in corticate *Physcia-adscendens*-like soralia. Once found in The Netherlands on *Acer* in a coastal forest. Otherwise only known from Denmark.
- Illustration:** Alstrup (2001) p.46.

Caloplaca brouardii (B. de Lesd.) Zahlbr.

X

Somewhat similar to *Caloplaca granulosa*, but not coastal and lobes more contiguous and flat, and isidia regular and smaller. Once found on an imported granite boulder. Otherwise only known from Central and South America.

Illustration: Buxbaumiella 85: 48.

Catillaria fungoides van den Boom

GE

Similar to *C. nigroclavata*, but hymenium interspersed and thallus with blackish soredioid granules. The Dutch specimens are sterile and their identity is questionable. On buffered bark of e.g. *Fraxinus*. Known only from Europe and Asia.

Illustration: Lichenologist 33: 108–109.

Catillaria nigroisidiata van den Boom

GE

Thallus crustose, effuse, forming scattered, irregular patches up to c. 30 mm wide, consisting of densely scattered to contiguous, discrete areoles, thin, up to (200–)300(–400) μm high; areoles angular, 0.2–1 mm wide, in section without a distinct medulla; cortex not distinct, without an epinecral layer, up to 10 μm thick; upper surface smooth, dark greyish brown, matt to slightly shiny, covered with minute isidia. Isidia numerous, mostly discrete, short cylindrical to (sub)globose or coralloid, but sometimes granule-like, crowded, sometimes \pm confluent, with a dark brown to blackish surface, 40–100 μm diam., almost completely covering the areoles, consisting of algal cells bound by short-celled hyphae with dark olive-brown to blackish caps (cells c. 6–9(–12) \times 2–4 μm) at the upper surface, K–, N+ reddish. Prothallus black, occasionally visible at the edge of the thallus. Photobiont chlorococcoid, cells mostly globose, 7–15 μm diam., present in thallus and isidia.

Apothecia rather common, but inconspicuous, immersed among isidia to adnate or rarely sessile, 0.15–0.35(–0.4) mm diam., lecidine with a smooth, narrow margin; margin up to c. 40 μm wide, sometimes becoming excluded, disc flat to slightly convex, dark brown to black, epruinose. Hymenium c. 35–55 μm tall. Epithymenium dark brown, olivaceous to blue-greenish black, K–, N+ faint reddish brown. Hypothecium moderately red-brown, with small paraplectenchymatous cells, 2–4(–5) μm diam. Excipulum with radiating hyphae which are swollen at the tips [*chalybeia*-type *sensu* Kiliás (1981: 247)], outer edge dark brownish black due to apically capped cells, inner part with olivaceous brown to dark blue-green pigmented hyphae. Paraphyses somewhat conglutinate, simple or sparingly branched, septate, midhymenium cells 1.5–2(–2.5) μm diam., apically occasionally branched; apical cells incrassate, sometimes subglobose, c. 2.5–6 μm wide, mostly with an internal, dark brownish black pigment [*lenticularis*-type *sensu* Kiliás (1981: 261)]. Asci clavate, 12–16-spored, 25–35(–40) \times 10–14 μm , tholus clearly amyloid, *Catillaria*-type. Ascospores 1-septate, hyaline, non-halonate, ellipsoid, fusiform-ellipsoid to ovoid, 7–11 \times 2.5–3.5 μm . Pycnidia rarely found, immersed in the thallus, c. 50–70 μm diam.; wall hyaline to pale brownish below, but dark brownish to black around the ostiole (K–, N+ faint reddish brown), outer cells with dark brown-blackish pigment. Conidia pleurogenous, simple, hyaline, ellipsoid, bacilliform-oblong to ovoid, 2.5–3.5 \times c. 0.8–1.2 μm . Thallus K–, C–, KC–, PD–, UV–; isidial pigment K–, N+ reddish brown.

Described from the Netherlands, where it is spreading on coastal granite boulders; probably overlooked elsewhere, as it was found on Saint Helena.

Like *C. chalybeia*, but thallus with black isidia.

Illustrations: Buxbaumiella 83: 4; Lichenologist 34: 322..

Cladonia berghsonii Asperges

TNB

Essentially a chemical race of *Cladonia floerkeana*. The species was originally described from Belgium and the Netherlands, and given the morphological variation within *Cladonia floerkeana* we tend to prefer to keep the UV+ white specimens separate, although we failed to find a clear correlation with morphology. On acid sand in inland dunes. Known only from Europe.

Collemopsidium chlorococcum (Aptroot & van den Boom) Coppins & Aptroot **TNB**

Thallus crustose, completely covering the substratum, which consists of detritus, sandy soils or worked wood (timber), dark green to chocolate brown or mottled with green patches, smooth. not corticate, somewhat gelatinous when wet, covering areas of up to 10 cm diam.. 0.1–0.3 mm thick. Algae abundant, chlorococcoid, cells mostly globular, 6–10 µm diam. Ascomata perithecioid. erumpent to sessile, black, globose to a little flattened above, 100–150 µm diam. when mature. Pseudoperidial wall cellular 10–15 µm thick, around the surface thicker, up to 25 µm, probably due to remnants of pseudostroma or clypeus, black outside, pale inside, outer cells flattened, 4–6 × 2–3 µm, with dark walls; inner cells angular to rounded, c. 2–3 µm diam., with hyaline walls; intermediate cells intergrading, no clearly separated wall layers present. Hamathecium consisting of cellular. branched pseudoparaphyses which are sparingly anastomosing above the asci, filaments c. 1.5–2 µm wide. Asci bitunicate, narrowly clavate, c. 55–75 × 8–12 µm, with a small c. 1 µm wide, ocular chamber. Ascospores (4–)6–8/ascus, irregularly biseriolate, hyaline, obpyriform. 1–septate with a median to slightly submedian euseptum, 16–20(–25) × 5.5–7.5(–9) µm, without gelatinous sheath, without ornamentation, when postmature remaining hyaline and without ornamentation. Conidia not observed.

Still a rarely reported species, known outside the Netherlands only from Belgium. Please note that the nutritional mode has never fully been elucidated: it strongly suggests a lichen, but it could be fungus parasitizing algae (much like *Epigloea* species).

Treated by Van Herk & Aptroot (2004) p.328 (as *Pyrenocollema chlorococcum*).

Illustration: Van Herk & Aptroot (2004) p.329 (as *Pyrenocollema chlorococcum*).

Evernia divaricata (L.) Ach. **VN**

Treated by Wirth (1995) p.390. On branches of coniferous trees. Known only from the northern hemisphere.

Illustration: Wirth (1995) p.391.

Flavopunctelia flaventior (Stirton) Hale **GE**

Thalus foliose, with ascending margins, yellowish green (usnic acid colour). Upper surface with distinct pale punctiform pseudocyphellae. Lower surface brown to black, with rhizinae. Soredia present, yellowish, originating in the centre of the thallus. Reactions: medulla C+red. On neutral bark of wayside trees. Cosmopolitan.

Treated by Wirth (1995) p.644.

Treated by Van Herk & Aptroot (2004) p.182 (as *Parmelia flaventior*).

Illustrations: Van Herk & Aptroot (2004) p.183; Wirth (1995) p.647 (as *Parmelia flaventior*).

Geisleria sychnogonoides Nitschke **TNB**

Thallus a bit gelatinous to immersed in the soil, with green coccoid algae. Ascomata closed perithecia, wall nearly colourless, brown from above, immersed to emergent, 0.2–0.3 mm diam. Paraphyses branched, firm. Asci cylindrical. Ascospores 3-septate, hyaline, 16–24 × 5.5–8 µm. On freshly exposed loamy soil. Known only from northwestern Europe.

Please note that relatively simple conidia have recently been reported in this species, showing that it does not belong in *Strigula*, in which it has been classified by some authors.

Treated by Wirth (1995) p.139 (as *Strigula sychnogonoides*).

Treated by Van Herk & Aptroot (2004) p.184.

Illustrations: Van Herk & Aptroot (2004) p.185; Buxbaumiella 84: 18.

Gyalidea psammoica (Nyl.) Vězda

VN

Very similar to *Gyalidea hyalinescens*, but ascospores submuriform and apothecia relatively dark. A doubtful taxon, which in the strict terricolous sense is extinct, and in a wider sense (including saxicolous specimens) may be synonymous with *Gyalidea hyalinescens*. On calcareous sand between bryophytes. Known only from Europe.

Hymenelia ceracea (Arnold) M. Choisy

KW

Thallus yellowish to ochraceous, thin, on dry rock. Apothecia immersed, concave, later flat, pink to brown, up to 0.3 mm diam. Ascospores 10-15 x 6-8 µm. On limestone. Known only from Europe and Asia.

Treated by Wirth (1995) p.148.

Lecanora sinuosa van Herk & Aptroot

TNB

Thallus corticolous, usually 1–3 cm diam., continuous, whitish grey to grey, verrucose, mostly covered with raised warts of 0.1–0.4 mm diam. and 0.1–0.3 mm high, with sinuous outlines and/or cracks, resembling and homologous to the thalline margins of the apothecia, without hypothallus. Apothecia sessile, numerous, disc concave to flat, pale to medium brown, 0.4–1.0 mm diam., margin raised, relatively thick, often incurved, whitish grey to grey, 0.1–0.3 mm wide and high, with sinuous outlines, resembling and homologous to the thallus warts, corticate with a gelatinous c.12–18 µm thick cortex, which is up to 25 µm thick at base [cortex *pulicaris*-type *sensu* Brodo (1984)], with chlorococcoid algae (mostly just below the cortex) and copiously filled with 15–70 µm large, hyaline, angular packets of crystals [amphithecium *pulicaris*-type *sensu* Brodo (1984)], PD–. Hymenium hyaline, medium brown (in section) in the upper 6–9 µm, 60–85 µm high, copiously or sparsely filled with tiny, pale brownish crystals between the paraphyses [epihymenium *pulicaris*-type *sensu* Brodo (1984)]. Hypothecium hyaline, copiously filled with chlorococcoid algae and with 15–70 µm large, hyaline, angular packets of crystals. Ascospores hyaline, ellipsoid to broadly ellipsoid, 13–17 × 7.5–9 µm, average 15.0 × 8.0 µm, wall c. 0.7 µm thick. Pycnidia unknown. Thallus C–, PD–, K+yellow, UV–; atranorin. Mainly on wayside *Quercus* in slightly nutrient-enriched sites.

So far known, this is the only near endemic lichen species. It is rather common in part of the Netherlands, but furthermore only known from Belgium and adjacent Germany.

Treated by Van Herk & Aptroot (2004) p.220.

Illustrations: Van Herk & Aptroot (2004) p.221; *Buxbaumiella* **83**: 4; *Lichenologist* **31**: 549.

Lecanora subcarpineae Szatala

TNB

Thallus white to grey. Apothecia pink to pale brown, often densely white pruinose, often rather dispersed (not crowded), C+yellow, margin P+yellow. Ascospores 10-12.5 x 5.5-8 µm. Mainly on wayside trees, sometimes colonizing young trees. Known only from Europe.

Treated by Wirth (1995) p.462.

Treated by Van Herk & Aptroot (2004) p.222.

Illustrations: Van Herk & Aptroot (2004) p.223; Wirth (1995) p.463.

Lecidea huxariensis (Beckh. ex Lahm) Zahlbr.

VN

Thallus inconspicuous to grey. Apothecia black, flat, sessile but appressed, up to 0.1 mm diam. Epithymenium olive brown. Hypothecium hyaline. Asci 8-12-spored. Ascospores 5-9 x 2.5-4 µm. On wood. Known only from Europe.

Treated by Wirth (1995) p.497.

Lecidea variegatula Nyl.**TNB**

Thallus pale yellowish brown, nitid, squamulose-areolate, C-negative, areoles up to 1.3 mm diam. Apothecia black, often pruinose, flat, 0.2-1.3 mm diam. Epihymenium bluegreen. Hypothecium hyaline. Ascospores 5.5-8.5 x 2.5-3.5 µm. On acid rock. Known only from Europe.

Treated by Wirth (1995) p.509.

Treated by Van Herk & Aptroot (2004) p.226.

Illustration: Van Herk & Aptroot (2004) p.227.

Lemmopsis pelodes (Körber ex B. Stein) L.T. Ellis**O**

Thallus gelatinous when wet, diffuse granular, black-brown, without areolation; homiomeric, internal cell structure similar to that of *L. arnoldiana*, with isodiametric cells, anastomosing hyphae present, often rather swollen, most obvious in thalline margin, hyphae or isodiametric cells seldom forming any type of cortex about the thallus. Alga bluegreen, with similar dimensions to that of *L. arnoldiana*, algal gelatin exposed at thalline margin. Apothecia numerous, lecanorine, sessile, small globose to broad discoid, similar to those of *L. arnoldiana*, a little larger when well developed, orange with partial thalline margin. Excipulum prominent, of similar shape and dimensions and internal construction to that of *L. arnoldiana*; hypothecium narrow, pale golden brown; hymenium colourless, I + blue. Paraphyses slender, septate, slightly conglutinate. Asci irregularly clavate, length variable, averaging 70–115 µm, thin-walled, 8-spored. Spores unicellular, 17.5–32.5(–37.5) × 7.5–15 µm, broadly ellipsoid. Pycnidia not seen. Thallus C–, K–, no substances detected with t.l.c. On loamy or calcareous soil. Overlooked. Known only from Europe.

It is similar to *Lemmopsis oblongans*, but with longer and especially broader ascospores and with the apothecium disc opening.

Illustration: *Nordic Lichen Flora* 3: 181.

Micarea confusa Coppins & van den Boom**GE**

Similar to *M. denigrata*, from which it said to differ mainly by the longer mesoconidia (4–8 µm versus 2.5–5 µm in *M. denigrata*) However, the microconidia of *M. denigrata* are exactly that size, and as no microconidia were reported for *M. confusa*, the mesoconidia can be regarded as microconidia, eliminating the only differentiating character. Doubtful taxon. On wood and detritus. Known only from Europe.

Illustration: *Lichenologist* 27: 82.

Micarea subcinerea M.A. Brand & van den Boom**GE**

Similar to *M. cinerea*, but differing by the shorter ascospores (below 18 µm), which however are often badly developed, and the less curved macroconidia. A doubtful taxon. Mainly on hardwood, also on acid granite and brick. Known only from Europe.

Parmelina quercina (Willd.) Hale**(VN)**

Differing from *Parmelina carporrhizans* in the indistinct and irregular rather than distinctly linear maculae. Please note: the presence or absence of rhizines at the margins of the apothecia is not a valid species character. On mature wayside trees. Known only from Europe and Asia.

Treated by Wirth (1995) p.645 (as *Parmelia quercina* with 2 varieties).

Illustration: Dobson (2000) p.271 (as *Parmelia quercina*); *Buxbaumiella* 81 : 30.

Peltigera apthosa (L.) Willd. **L**

Treated by Wirth (1995) p.678.

Illustration: Moberg & Holmasen (1982) p.173.

Peltigera extenuata (Nyl.) Vain. **N**

Differing from *Peltigera didactyla* in the densely rhizinate lower surface. Please note: the chemical difference (C+ pink or negative), often reported as diagnostic, is not a distinct species character as this reaction can sometimes also be observed in the related *P. didactyla*. On slightly enriched sandy soil. Known only from Europe.

Peridiothelia grandiuscula (Anzi) D. Hawksw. **GE**

A non-lichenized fungus, differing from *Peridiothelia fuligincta* by the larger ascospores. Corticolous. Known only from Europe.

Placopsis fuscidula I.M.Lamb ex Räsänen **X**

Similar to *Placopsis gelida*, but thallus dingy brown and lobes more convex. On granite of an imported boulder. Otherwise known only from South America.

Illustration: *Buxbaumiella* **85**: 48.

Porocyphus byssoides Hepp **GE**

Similar to *Porocyphus leptogiella*, but apothecia dark. A doubtful taxon. On wet rock along rivers. Known only from Europe.

Protoparmelia hypotremella van Herk, Spier & V. Wirth **KW**

Thallus corticolous, indeterminate, covering areas of up to several square decimetres, grey to pale olivaceous to buff, paler along the margins of the granules, dull to slightly glossy, consisting of squamulose granules, corticate, without prothallus, without discernible thallus below or around the granules. Granules partly isidia-like, convex, rounded to elongate or globose, c. 0.1 mm high, c. 0.2 mm wide, partly microsquamulose and crenate to lobate, convex to flat or slightly concave, gnarled, up to 0.3 mm high, up to 0.6 mm wide. Microsquamules sometimes bearing isidia-like granules, which are relatively dark-tipped, but furthermore identical to the regular isidia-like granules. Margins of the granules often eroding and less corticate, often whitish, always paler than the surface. The squamulose granules randomly occur amongst the isidia-like granules, not predominantly along the margins of the thallus. Internal structure: Epicortex 5-10 µm thick, hyaline; cortex 15-25 µm thick, pale brownish due to pigments, paraplectenchymatous, with lumina c. 6-9 µm wide; medulla 60-150 µm thick, rather loose, hyphal, with filaments c. 3-5 µm wide, walls partly incrustated with crystals (lobaric acid?); upper layer of the medulla filled with chlorococcoid algae of c. 6-12 µm diam. Ascomata and conidiomata unknown. Chemistry: Lobaric acid ± unknowns ; spot reactions in medulla and cortex C-negative or faintly yellow, K-negative, KC-negative or +pink, Pd-negative, UV+white. On mature wayside trees (mainly *Quercus*), in Sweden also found on church walls. Known only from western Europe.

Treated by Van Herk & Aptroot (2004) p.320.

Not treated, but mentioned in the discussion of *Protoparmelia oleagina* in Smith *et al.* (2009) p.755.

Illustration: Van Herk & Aptroot (2004) p.321.

Punctelia stictica (Delise ex Duby) Krog X

Most similar to *Punctelia borreri*, but thallus clearly brown, lobes remaining smaller, and usually saxicolous. On an imported granite boulder. Cosmopolitan.

Illustration: *Buxbaumiella* 85: 48.

Pyrenocollema tichothecioides Reinke GE

These are colonies of free-living *Nostoc commune* parasitized or weakly lichenized by a pyrenocarp showing black dots with internally hyaline, one-septate ascospores and filamentous paraphysoids. On soil in a salt marsh. Known only from Europe.

Pyrenopsis conferta (Bornet) Nyl. L

Like *Pyrenopsis subareolata*, but thinner. A doubtful taxon.

Ramalina baltica Lettau EB

Corticolous. Known only from northwestern Europe.

Treated by Wirth (1995) p.798.

Scoliciosporum corticola (Anzi) Arnold VN

Very similar to *Scoliciosporum umbrinum*, but strictly corticolous and thallus thinner. A doubtful taxon. The somewhat similar *S. gallurae* differs by the less curved and less septate ascospores. The similar *S. sarothamni* differs by the soredioid thallus parts that react fleetingly C⁺ pink. The latter two species are currently still occurring in the Netherlands. Corticolous. Known only from Europe.

Stereocaulon paschale (L.) Hoffm. L

Treated by Wirth (1995) p.877.

Illustration: Moberg & Holmasen (1982) p.151.

Strigula affinis (A. Massal.) R.C. Harris KW

The main difference with *S. jamesii* are the larger ascomata (over 0.3 mm versus under 0.2 mm in *S. jamesii*) and larger pycnidia (over 1.5 mm versus under 1.0 mm). It remains to be seen whether this constitutes a relevant set of species characters, as a somewhat similar variation is accepted in other species of the genus. Corticolous. Known only from Europe.

Treated by Wirth (1995) p.140.

Strigula brevis Bricaud & Cl. Roux VN

Similar to *S. taylorii*, and only said to differ in the short macroconidia (7.5–14.5 µm versus 12.5–20 µm in *S. taylorii*). A doubtful taxon. Most specimens seen in the Netherlands contain only ascospores and are called *S. taylorii*. Corticolous. Known only from Europe.

Thelidium dionantense Zahlbr.

GE

Thallus epilithic, brown, nitid. Ascomata immersed in thallus warts, carbonized only above, 0.5-0.6 mm diam., clypear region visible from above up to 0.3 mm diam. Ascospores (0-)1-septate, 24-32 x 13-15 µm. On limestone. Known only from Europe.

Treated by Wirth (1995) p.896.

Thelidium minimum (A. Massal. ex Körber) Arnold

TNB

Thallus endolithic, whitish. Ascomata carbonized only above, 0.1 mm diam., clypear region visible from above up to 0.1 mm diam. Ascospores (0-)1-septate, 10-15 x 3-6 µm. Mainly on basalt and brick along rivers or lakes. Known only from Europe.

Similar to *Thelidium minutulum*, but with even smaller ascospores, the smallest in the genus.

Thelocarpon citrum (Wallr.) Rossman

O

On acid soil. Known only from Europe.

Not treated, but mentioned in the discussion of *Thelocarpon superellum* in Smith *et al.* (2009) p.888.

Thelocarpon coccosporum Lettau

O

On calcareous soil. Known only from Europe.

Treated by Wirth (1995) p.900.

Thelocarpon imperceptum (Nyl.) Mig.

O

Similar to *T. opertum*, but ascospores ellipsoid and longer, 7–14 µm. In heathland on soil and litter. Known only from Europe.

Illustration: *Lichenologist* 3: 185.

Verrucaria erichsenii Zschacke

KW

Thallus nitid, dark green or brown to black. Ascomata closed, sessile, black, 0.2-0.4 mm diam. Ascospores often curved, 8-12 x 5.5-7 µm. Mainly on granite and basalt in the littoral marine zone. Known only from northwestern Europe.

Treated by Van Herk & Aptroot (2004) p.378.

Illustration: Van Herk & Aptroot (2004) p.379.

Verrucaria foveolata (Flörke) A. Massal.

GE

Thallus pale brown to reddish, seemingly endolithic but with binocular rather distinct. Ascomata at least half immersed but with black clypeus, up to 0.5 mm diam. Ascospores 21-36 x 12-20 µm. On hard limestone. Known only from Europe.

Treated by Wirth (1995) p.959.

Verrucaria paulula Zschacke

GE

Thallus nitid, dark green or brown to black. Ascomata closed, sessile, black, 0.2-0.3 mm diam. Ascospores 9-11 x 7-8.5 µm. In the littoral marine zone. Known only from northwestern Europe.

Similar to *Verrucaria sandstedei*, but with relatively broader ascospores.

Verrucaria virens Nyl.

KW

Thallus areolate, greyish green, dull, up to 0.2 mm diam. Ascomata closed, immersed in the thallus, c. 0.2 mm diam, wall hyaline. Ascospores 12-22 x 7-9 µm. On gravestones. Known only from Europe.

Similar to *Verrucaria caerulea*, but without the bluish colour. A doubtful taxon.

Verruculopsis lecideoides (A. Massal.) Gueidan & Cl. Roux

GE

Thallus white, thick, rimose, rough, dull. Ascomata closed, black, at the margins of the areoles, 0.2-0.3 mm diam. Ascospores 14-20 x 5-9 µm. Once found on brick walls of a church. Known only from Europe.

Treated by Wirth (1995) p.956.

Illustration: Wirth (1995) p.957 (as *Verrucaria lecideoides*).

Xanthoparmelia microspora (Müll. Arg.) Hale

X

This species combines the thallus structure and lobe configuration of *X. conspersa* with the fine soredia of *X. mougeotii*. In 2009 recorded in The Netherlands on imported granite rock of a monument. Otherwise known only from South America.

Illustration: *Buxbaumiella* **85**: 48.

Xanthoparmelia stenophylla (Ach.) Ahti & D. Hawksw.

L

Treated by Wirth (1995) p.644 (as *Parmelia somloensis*).

Illustration: Wirth (1995) p.669 (as *Parmelia somloensis*).

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