

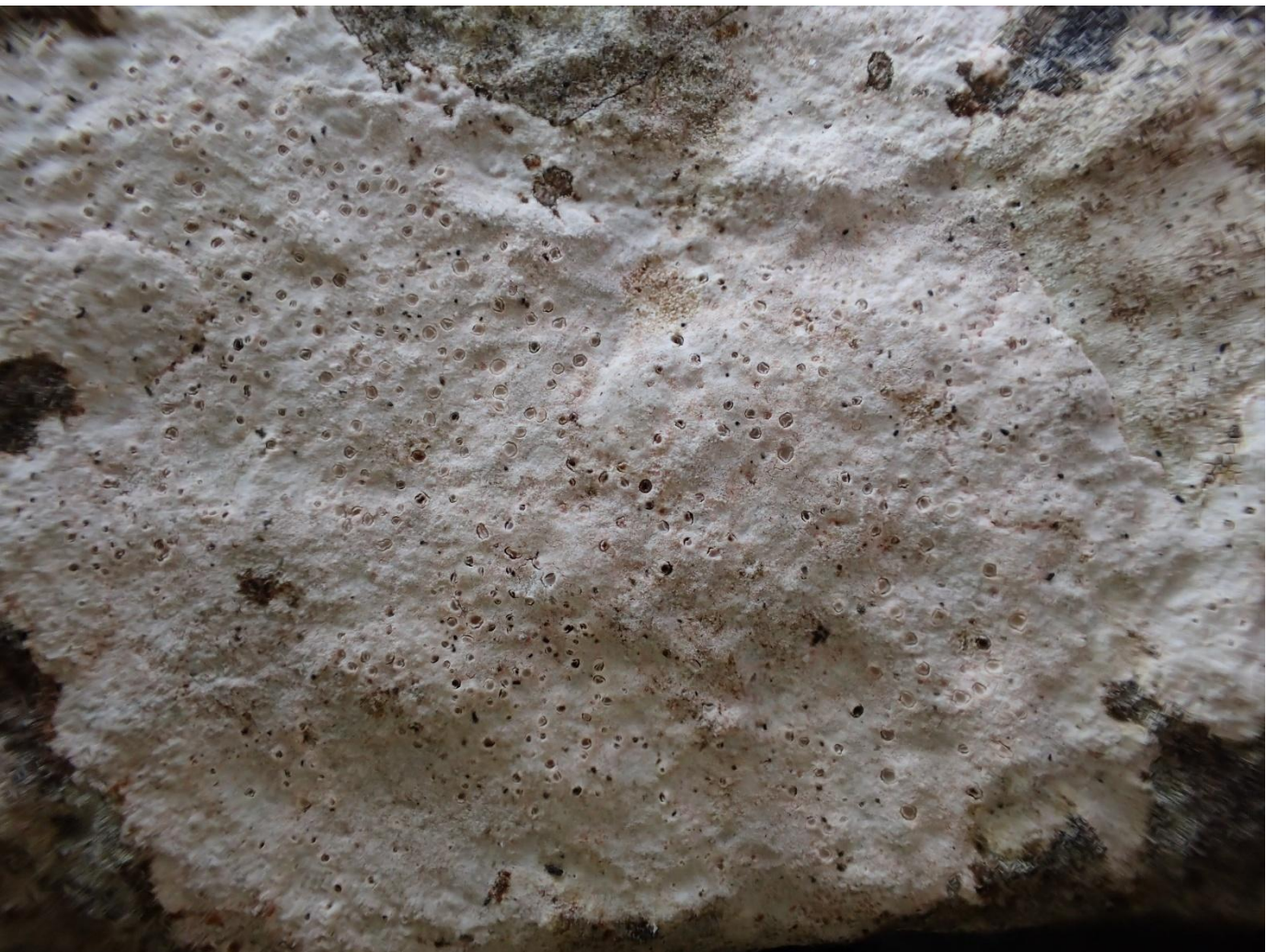
Revisions of British and Irish Lichens



*British
Lichen
Society*

Volume 46

February 2025



Hymeneliales

Cover image: *Hymenelia epulotica* on Carboniferous limestone, Malham Tarn, Yorkshire.

Revisions of British and Irish Lichens is a free-to-access serial publication under the auspices of the British Lichen Society, that charts changes in our understanding of the lichens and lichenicolous fungi of Great Britain and Ireland. Each volume will be devoted to a particular family (or group of families), and will include descriptions, keys, habitat and distribution data for all the species included. The maps are based on information from the BLS Lichen Database, that also includes data from the historical Mapping Scheme and the *Lichen Ireland* database. However, these are not comprehensive and there are many further records that have not yet been digitized. The choice of subject for each volume will depend on the extent of changes in classification for the families concerned, and the number of newly recognized species since previous treatments.

To date, accounts of lichens from our region have been published in book form. However, the time taken to compile new printed editions of the entire lichen biota of Britain and Ireland is extensive, and many parts are out-of-date even as they are published. Issuing updates as a serial electronic publication means that important changes in understanding of our lichens can be made available with a shorter delay. The accounts may also be compiled at intervals into complete printed accounts, as new editions of the *Lichens of Great Britain and Ireland*.

Editorial Board

Dr P.F. Cannon (Royal Botanic Gardens, Kew, Surrey TW9 3AB, UK).

Dr A. Aptroot (Laboratório de Botânica/Liquenologia, Instituto de Biociências, Universidade Federal de Mato Grosso do Sul, Avenida Costa e Silva s/n, Bairro Universitário, CEP 79070-900, Campo Grande, MS, Brazil)

Dr B.J. Coppins (Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR, UK)

Dr A.M. Fryday (Department of Plant Biology, Michigan State University, 612 Wilson Rd., East Lansing, MI 48824, USA)

Mr N.A. Sanderson (3 Green Close, Woodlands, Southampton, Hampshire SO40 7HU, UK)

Dr J.M. Simkin (School of Natural and Environmental Science, Newcastle University, Newcastle upon Tyne NE1 7RU, UK)

Dr R. Yahr (Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR, UK)

Downloads can be obtained from the British Lichen Society website at <https://www.britishlichensociety.org.uk/content/lgbi3>

Made available under Creative Commons Licence  CC BY-SA

ISSN 2634-7768

© British Lichen Society, 17 February 2025

Revisions of British and Irish Lichens vol. 46

Hymeneliales

including *Hymenelia* and *Tremolecia* (Hymeneliaceae)

by

Paul Cannon

Royal Botanic Gardens, Kew, Surrey TW9 3AB, UK; email p.cannon@kew.org

Alan Fryday

Department of Plant Biology, Michigan State University, 612 Wilson Rd., East Lansing, MI 48824, USA

Brian Coppins

Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR, UK

André Aptroot

Laboratório de Botânica/Liquenologia, Instituto de Biociências, Universidade Federal de Mato Grosso do Sul, Avenida Costa e Silva s/n, Bairro Universitário, CEP 79070-900, Campo Grande, MS, Brazil

Neil Sanderson

3 Green Close, Woodlands, Southampton, Hampshire, SO40 7HU, UK

Janet Simkin

School of Natural and Environmental Science, Newcastle University, Newcastle upon Tyne NE1 7RU, UK

This publication can be cited as:

Cannon, P., Fryday, A., Coppins, B., Aptroot, A., Sanderson, N. & Simkin, J. (2025). Hymeneliales, including *Hymenelia* and *Tremolecia* (Hymeneliaceae). *Revisions of British and Irish Lichens* **46**: 1–8.

HYMENELIALES S. Stenroos, Miądl. & Lutzoni (2014)

The order as currently circumscribed contains the single family Hymeneliaceae.

HYMENELIACEAE Körb. (1855)

Thallus crustose, immersed or epilithic, smooth or rimose-cracked, sometimes evanescent, the cortex poorly delimited. **Photobiont** green algae, either trentepohlioid or trebouxiod. **Ascomata** apothecia, lecideine, immersed within the thallus, with a poorly to well-developed margin, the disc pale or dark. **Exciple** thin, prominent, without photobiont cells, narrow but often broadening above to form the margin. **Hamathecium** of paraphyses, often branched and moniliform at the apex. **Asci** with an I+ blue outer coat but with the inner walls and apical dome usually K/I-. **Ascospores** large, aseptate, colourless, thin-walled. **Conidiomata** pycnidia, immersed. **Conidiogenous cells** elongate. **Conidia** bacilliform, aseptate, colourless. **Chemistry**: no lichen products detected by TLC. **Ecology**: on calcareous or siliceous rocks, often in moist habitats.

The family contains two genera, *Hymenelia* (including *Ionaspis*) and the monotypic *Tremolecia*. More molecular data are needed, but the family seems to occupy an isolated position within the broader Ostropomycetidae (Miadlikowska *et al.* 2014). The genus *Eiglera* was included within the Hymeneliaceae by Lumbsch (1997) based on similarities in ascoma ontogeny, but this arrangement was rejected by Miadlikowska *et al.* (2014) who indicated a phylogenetic position within the Acarosporales. The genus was assigned to the monotypic family Eigleraceae by Hafellner (1984), and that position is accepted provisionally in this account.

Literature:

Hafellner (1984), Lumbsch (1997), Miadlikowska *et al.* (2014).

- 1 Thallus and apothecia varied in colour, mostly almost colourless to orange-brown (a few species with blackish apothecia, if thallus is orange to rust-red then apothecia are not black); prothallus not usually delimited; many species in damp habitats.....*Hymenelia*
Apothecia (including the exciple) black with the thallus usually bright orange; prothallus conspicuous, black; usually on exposed and especially on metalliferous rocks*Tremolecia*

HYMENELIA Kremp. (1852)

Thallus crustose, immersed to superficial, then smooth or rimose-cracked, effuse, yellow-white to grey or grey-orange, sometimes with a pink tinge when fresh, sometimes with a pale prothallus. **Cortex** poorly differentiated. **Photobiont** *Trentepohlia* or trebouxiod. **Ascomata** apothecia, immersed within the thallus or substratum; disc concave to flat, pink to yellow-brown or black. **Thalline margin** not differentiated. **Exciple** thin, prominent, without photobiont cells, narrow but often broadening above to form the margin, colourless or green- or brown-pigmented (especially at the upper surface). **Hymenium** colourless, or pale brown to greenish. **Hypothecium** colourless to pale brown. **Hamathecium** of paraphyses, unbranched or branched to anastomosed above, \pm constricted at the septa, the apical cells strongly conglutinate, swollen, without well-defined pigmented hoods or caps. **Epithecium** blue-green, K-, N+ violet, or colourless, K+, N-. **Asci** 8-spored, cylindric-clavate; outer coat I+ blue but inner walls

and tholus K/I–. **Ascospores** globose to ellipsoidal, aseptate, colourless, in some species with a distinct perispore. **Conidiomata** pycnidia, immersed. **Conidiogenous cells** elongate to bottle-shaped. **Conidia** bacilliform, aseptate, colourless. **Chemistry**: no lichen products detected by TLC. **Ecology**: on calcareous or siliceous rocks, often periodically inundated or in moist habitats.

The separation of *Hymenelia* and *Ionaspis* is problematic. They were traditionally separated by their different photobionts (*Trentepohlia* in *Ionaspis* and a green trebouxoid alga in *Hymenelia*). Lutzoni & Brodo (1995) separated the genera using cladistic analysis of morphological-anatomical characters and enzyme data, which led to a different generic circumscription. Both arrangements were considered to be artificial by subsequent authors, and Kantvilas (2014) concluded that the genera should be merged pending detailed phylogenetic study. His views have been accepted by subsequent authors, including Fryday (2019) and Fryday & McCarthy (2018). Iodine reactions of the hymenium used by some authors to separate taxa in these genera seem to be unreliable, as they are dependent on the concentration of iodine used and are often patchy within a single hymenium.

Literature:

Fletcher *et al.* (2009a, b), Fryday (2019), Fryday & McCarthy (2018), Kantvilas (2014), Lutzoni & Brodo (1995), Thüs & Schultz (2008).

1	Photobiont trebouxoid (cells 7–15 µm diam.).....	2
	Photobiont <i>Trentepohlia</i> (cells 20–40 µm diam.)	6
2(1)	Epithecium lacking brown granules; on calcareous rocks	3
	Epithecium and upper hymenium with brown granules (epipsamma), disc rust-red to brown; on siliceous rocks	4
3(2)	Disc pink; epithecium colourless, K–, N–, ascus tip K/I–	<i>prevostii</i>
	Disc black; epithecium blue-green, K–, N+ crimson, ascus tip K/I+ blue.....	<i>Eiglera flavida</i> [Eigleraceae]
4(2)	Disc rust-red; thallus yellow-orange, semi-aquatic	<i>lacustris</i>
	Thallus orange to rust-red; apothecia dark; on dry rocks	5
5(4)	Exciple thick, becoming black, often radially striate, or with a pie-crust margin; disc concave, pale red.....	<i>obtecta</i>
	Exciple and disc matt black.....	<i>Tremolecia atrata</i>
6(1)	On siliceous rocks	7
	On calcareous or ultramafic, base-rich siliceous rocks.....	9
7(6)	Epithecium colourless, K+ purple, N+ yellow-orange	<i>odora</i>
	Epithecium blue-green, K– or green intensifying, N± purple	8
8(7)	Disc blue-black; epithecium N+ purple, K+ green intensifying	<i>cyanocarpa</i>
	Disc pink; epithecium N–, green colour dissolving in K	<i>suaveolens</i>
9(6)	Disc black; epithecium blue-green, N+ purple	10
	Disk pink; epithecium colourless, N–	12
10(9)	On base-enriched (ultramafic or ultrabasic) siliceous rocks by streams.....	<i>cyanocarpa</i>
	On limestone	11
11(10)	Apothecia discoid; ascospores 7–12 × 7–10 µm	<i>heteromorpha</i>
	Apothecia poriform; ascospores 10–17 × 8–11 µm.....	<i>melanocarpa</i>

- 12(9) Thallus endolithic; apothecia 0.3–0.5 mm diam.....*epulotica*
 Thallus epilithic; apothecia 0.4–0.6 mm diam.*rhodopis*

Hymenelia cyanocarpa (Anzi) Lutzoni (1995)

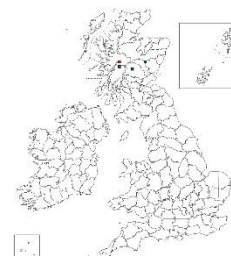
Nb

Ionaspis cyanocarpa (Ach.) Jatta (1910)

Thallus epilithic, thin, smooth or rimose to cracked-areolate, white-grey or pink, areoles angular, flat to slightly concave, prothallus white, delimiting; photobiont *Trentepohlia*. Apothecia 0.2–0.4 mm diam., immersed, neatly circular, 0.3–0.5 mm diam.; disc concave, blue-black; exciple prominent, sometimes raised, concolorous or paler than the disc, disc and margin turning translucent green when wetted; hymenium 85–100 µm tall; epithecium blue-green, K+ intensified green, N+ purple; paraphyses unbranched, not swollen. Ascospores 10–12 (–14) × 5–8.5 µm. Pycnidia 50–80 µm diam., numerous, black, the wall green, N+ crimson. **BLS 1706.**

On base-enriched (ultramafic or ultrabasic) siliceous rocks by streams or on water-flushed cliff faces, over 700 m alt. Scotland (Highlands).

Often confused with *Hymenelia suaveolens*, but differs in the N+ purple epihymenium and usually numerous pycnidia. *H. odora* is easily separated by the pink disc and the K+ violet and N+ yellow reactions of the epithecium.



Hymenelia epulotica (Ach.) Lutzoni (1995)

Nb

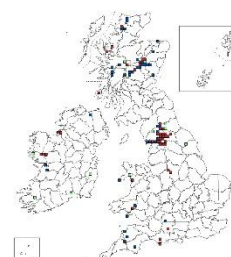
Ionaspis epulotica (Ach.) Arnold (1871)

Thallus immersed to epilithic, thin and finely rimose, not cracked-areolate, yellow to pink-grey; prothallus not evident; photobiont *Trentepohlia*. Apothecia (0.2–) 0.3–0.5 (–0.7) µm diam.; disc concave to flat, pale pink (especially when wet) to pale brown, immersed, occasionally emergent, when dry often separated from the areole by a deep circumferential fissure; exciple white and hardly visible; hymenium 100–120 µm high, colourless; paraphyses unbranched, not swollen; epithecium colourless, K–, N–. Ascospores 13–22 × 5–12 µm. Pycnidia 60–100 µm diam., indistinct, pallid, the wall colourless, N–. **BLS 0585.**

On moist calcareous rocks, more rarely on siliceous rocks subjected to base-rich water flushing. Mainly W. & N. Britain and Ireland.

More or less identical to *H. prevostii* except for the *Trentepohlia* photobiont. The morphs on dry rocks, with a thicker, epilithic thallus are sometimes distinguished as var. *crustosa* Magnusson (1933). See also *H. rhodopis*.

An unidentified *Pleospora*-like lichenicolous fungus has been found on this host; ascospores submuriform with 3–4 transverse septa, 20.5–29.5 × 8.2–11.5 µm.



Hymenelia heteromorpha (Kremp.) Lutzoni (1995)

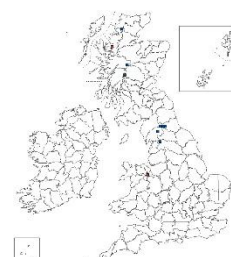
VU

Ionaspis heteromorpha (Kremp.) Arnold (1874)

Thallus thin, filmy, mostly endolithic, white to pale yellow-grey, sometimes green, smooth, sparingly rimose or sparsely cracked-areolate in older parts, the areoles mostly 0.1–0.5 mm diam.; photobiont *Trentepohlia*. Apothecia 0.1–0.25 mm diam., green-black, concave, immersed in pits, often separated from the thallus by a circumferential fissure; exciple thin and slightly raised, more visible when wet; hymenium 60–100 µm tall; epithecium deep blue-green, K–, N+ purple. Ascospores 7–12 × 7–10 µm, globose to broadly ellipsoidal. Pycnidia 80–100 µm diam., the wall green. **BLS 0587.**

On hard limestones, upland, above 300 m alt. N. England (Pennines), Scotland (Perth, northern Highlands), N. Wales.

H. heteromorpha differs from *H. melanocarpa* in the smaller ascospores and usually better-developed thallus.



Hymenelia lacustris (With.) M. Choisy (1949)

LC

Ionaspis lacustris (With.) Lutzoni (1995)

Thallus to 0.4 mm thick, smooth, even, continuous to slightly rimose (especially around the apothecia), usually deep orange-brown but becoming white-cream in shade, effuse or mosaic-forming and then delimited by a red-brown prothallus; photobiont *Trebouxia*. Apothecia 0.15–0.4 (–0.6) mm diam., often crowded, immersed or with a slightly raised exciple, rounded and regular, pale orange to rusty red-brown, paler when wet; exciple mostly

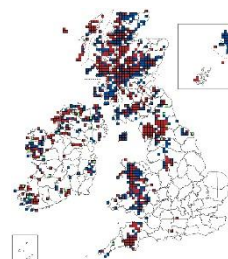
colourless, the uppermost and outer parts pale brown to red-brown, the outer edge granular; epithecium pale orange to dark red-brown, interspersed with minute brown granules not dissolving in K; hymenium 90–105 μm high, K–, N–; paraphyses unbranched, not swollen at the apex. Ascospores 13–20 \times 6–11 μm , broadly ellipsoidal to globose, with a gelatinous perispore. Pycnidia 50–80 μm diam., red-brown; conidia 4.5–6.5 \times ca 1 μm . **BLS 0573**.

On siliceous rocks, by rivers and lakes, often forming an extensive zone of mosaics above or with aquatic *Verrucaria* species, also in freshwater seepage tracks; common in upland areas. Throughout Britain and Ireland, but very rare (or overlooked) in central and S.E. England on flints in seasonally wet pans in heathland.

The presence of the brown epithecial granules and aquatic habitat are distinctive. The closely related but rare *H. obtecta*, with a rust-red thallus, is not aquatic. *H. ceracea* (Arnold) M. Choisy has not been recorded from GBI, but could be present. It is also not aquatic in habit, occurring on dry calcareous rocks. The thallus is thin and yellowish to ochraceous, and apothecia are immersed, concave, later flat, pink to brown, to 0.3 mm diam. Ascospores are 10–15 \times 6–8 μm (Aptroot *in litt.* 2010). Its status needs further investigation, and it seems to have been confused by some authors with *H. lacustris*.

Other aquatic lichens with immersed apothecia that often occur with *H. lacustris* are *Rhizocarpon lavatum* and *R. amphibium* with black apothecia and muriform ascospores. *Aspicilia aquatica* has a white thallus with black apothecial discs and lacks epihymenial brown granules, whereas *A. laevata* has a thallus that is green-black and shiny and K+ red. *Gyalidea hyalinescens* superficially resembles some forms of *H. lacustris* but differs in the well-developed exciple and septate ascospores.

Verrucaria conturmatula (q.v.) is parasitic on *H. lacustris*, probably frequent but overlooked. Further lichenicolous fungi are *Endococcus verrucisporus* Alstrup (1994) and *Opegrapha reactiva* (q.v.), *Sagediopsis lomnitzensis* (Stein) Orange (2002) and *Zwackhiomyces lacustris* (q.v.). See Orange (2002).



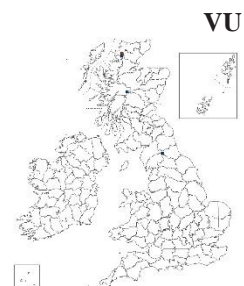
Hymenelia melanocarpa (Kremp.) Arnold (1869)

Ionaspis melanocarpa (Kremp.) Arnold (1887)

Thallus endolithic or thinly farinose, smooth like tufa, never areolate, white- to yellow-grey; photobiont *Trentepohlia*. Apothecia in superficial swollen warts, 0.5–1.0 mm diam.; disc poriform, black; exciple black; hymenium 120–150 μm tall; epithecium blue-green, K–, N+ crimson. Ascospores 10–17 \times 8–11 μm . Pycnidia ca 100 μm diam., the wall green. **BLS 0588**.

On damp calcareous rocks; very rare. Scotland (W. Sutherland, Ben Alder), England (Teesdale).

The swollen, superficial apothecia resemble those of *Petractis clausa*, or even a *Pertusaria*. See also *H. heteromorpha*.



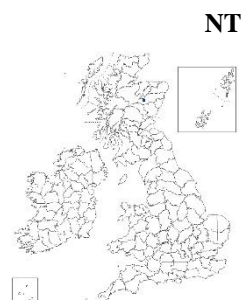
Hymenelia obtecta (Vain.) Poelt & Vězda (1981)

Ionaspis obtecta (Vain.) R. Sant. (2004)

Thallus rimose, becoming cracked-areolate, areole surfaces convex, deep rust-red, matt, prothallus not evident; photobiont *Trentepohlia*. Apothecia abundant, \pm sessile, constricted at the base; exciple thick, becoming black, often radially striate, or with a pie-crust margin; disc concave, pale red; hymenium ca 170 μm high, pale yellow, K+ yellow, N–; epithecium interspersed with brown granules, not dissolving in K. Ascospores 18–26 \times 10–13 μm . **BLS 1987**.

On metal-enriched rock, submontane; very rare. Scotland (Braemar).

Resembles *H. lacustris* but the thallus has a deep rust-red cortex and is not aquatic. *H. obtecta* superficially resembles *Tremolecia atrata* or *Haugania oederi*.



Hymenelia odora (Ach. ex Schaer.) Wirth, Hauck & M. Schultz (2013)

Ionaspis odora (Ach. ex Schaer.) Th. Fr. (1871)

Thallus superficial, yellow- to olive-grey, thin and smooth, sometimes thicker and finely cracked-areolate, prothallus not evident; photobiont *Trentepohlia*. Apothecia raised, 0.1–0.4 mm diam., pale pink to brown, with a thick raised margin that is concolorous with the thallus; disc concave, pale brown to fawn; hymenium 50–70 μm tall, epithecium (and adjacent exciple and thallus surface) K+ violet, N+ pale yellow-orange, lacking brown

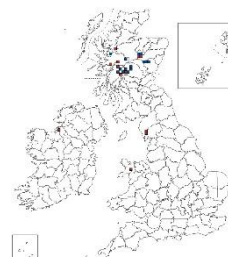
Nb

granules; paraphyses unbranched, not swollen at the apex. Ascospores $9\text{--}12 \times 7\text{--}9.5$ μm . Pycnidia $50\text{--}80$ μm diam., the wall green, K+ violet; conidia $5.7\text{--}7.5 \times 0.6\text{--}0.8$ μm . **BLS 0589**.

On damp siliceous rocks, usually by streams or in seepage zones, mainly above 700 m alt. Scotland (Highlands), England (Cumbria), Wales (Snowdonia), N.W. Ireland.

Easily identified by the K+ violet and N+ yellow reactions of the epithecium; see also under *H. suaveolens* and *H. cyanocarpa*.

Sagediopsis lomnitzensis has been found on this host.



Nb

Hymenelia prevostii (Duby) Kremp. (1852)

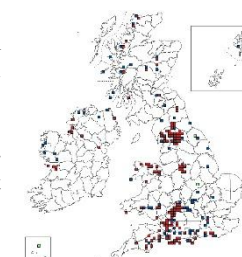
Ionaspis prevostii (Duby) Arnold (1884)

Thallus endolithic or epilithic, then thin and scurfy, to 0.3 mm thick, cracked-areolate, pale creamy-white, fawn or pale brown, effuse; photobiont trebouxoid (cells $7\text{--}15$ μm diam., rarely ellipsoidal to *ca* 20×15 μm). Apothecia $0.1\text{--}0.4$ (-0.5) mm diam., scattered to continuous, immersed in deep pits in the substratum or epilithic thallus, when dry separated from the areole by a circumferential fissure; disc concave, pale pink to deep pink-brown, translucent when wet; exciple colourless; epithecium colourless to pale red-brown; hymenium $100\text{--}110$ μm high, K-, N-; paraphyses unbranched, not swollen at the apices. Ascospores globose to broadly ellipsoidal, $10\text{--}24$ (-26) \times $7\text{--}17$ (-19) μm . Pycnidia not seen. **BLS 0574**.

On hard limestones, especially on horizontal surfaces of cliff ledges and scree, churchyard chest-tombs, etc., often in slightly sheltered or moist situations; local. Throughout Britain and Ireland.

Considered identical with *H. epulotica* by Lutzoni & Brodo (1995), which has a yellow to pink-grey thallus containing *Trentepohlia* (cells $20\text{--}40$ μm diam.). Two distinct taxa may be involved as collections from England and Wales have large, mostly ellipsoidal ascospores $17\text{--}24 \times 12\text{--}17$ μm in size, whereas those from Scotland have smaller, often \pm globose, ascospores $10\text{--}17 \times 7\text{--}12$ μm in size.

It can be host to the lichenicolous fungi *Verrucaria phaeosperma* (q.v.) and *Adelococcus interlatens* (Arnold) Matzer & Hafellner (1990).



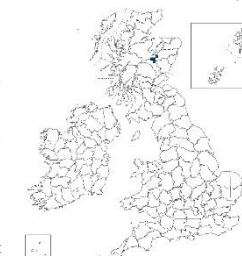
Hymenelia rhodopis (Sommerf.) Lutzoni (1995)

Ionaspis rhodopis (Sommerf.) Blomb. & Forssell (1880)

Thallus epilithic, of concave areoles, finely cracked, pale white-grey, soft and scabrid, pruinose; prothallus black, delimiting; photobiont *Trentepohlia*. Apothecia white to pale pink, in low mounds like perithecia, $0.4\text{--}0.6$ mm diam., exciple pale grey, disc pink, poriform, not deeply sunken, slightly concave, not separated from the thallus by a circumferential crack; hymenium $110\text{--}140$ μm high; epihymenium K-, N-. Ascospores $14\text{--}17 \times 8\text{--}12$ μm . **BLS 0595**.

On limestone rock, submontane; rare. Scotland (Cairngorms and E. Perthshire).

It resembles a *Pertusaria* on limestone. Closely resembles *H. epulotica* which is \pm endolithic, with usually smaller apothecia.



Nb

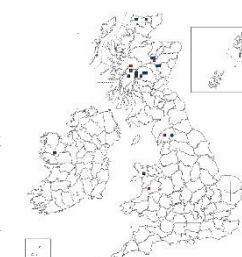
Hymenelia suaveolens (Fr.) P.F. Cannon & Fryday (2025)

Ionaspis suaveolens (Fr.) Th. Fr. ex Stein (1879)

Thallus finely rimose-cracked, areoles $0.2\text{--}0.4$ mm diam., fawn to yellow-grey, turning green around apothecia, rarely thin and almost smooth, prothallus black; photobiont *Trentepohlia*. Apothecia $0.2\text{--}0.4$ mm diam., the margin raised; disc concave, black, turning green when wet; hymenium $60\text{--}75$ μm tall, epithecium blue-green, dissolving to pale yellow in K, N-, brown granules absent; paraphyses unbranched, not swollen at the apex. Ascospores $8\text{--}10$ (-11) \times *ca* 7 μm , globose to broadly ellipsoidal. Pycnidia unknown. **BLS 0590**.

On siliceous rocks in the splash zone of streams, often base-rich; rare. Upland Britain and W. Ireland.

The British distribution is uncertain owing to earlier confusion with *Hymenelia cyanocarpa* and *H. odora*; these three species are best separated by testing their epithecium with K and N (see key).



Nb

TREMOLECIA M. Choisy (1953)

As this is a monotypic genus the description below (*T. atrata*) constitutes the generic description.

Tremolecia was placed in its own family by Hafellner (1984), apparently based on rather subtle differences in ascus iodine reaction between that genus and *Hymenelia* (see also Kantvilas 2014), but broader sampling indicates that the distinction is not reliable.

Species formerly placed in *Tremolecia* have been transferred to *Farnoldia* or the non-British *Melanolecia* Hertel (1981). These two genera have ascospores with a distinct perispore. *Farnoldia* is also distinguished by the sessile apothecia and the distinctly K/I+ blue tholus with a densely staining apical tube (*Porpidia*-type). *Melanolecia* has asci with a weakly K/I+ blue tholus and much longer conidia. The rust-red thallus distinguishes it from *Schaereria* and *Aspicilia* species.

Literature:

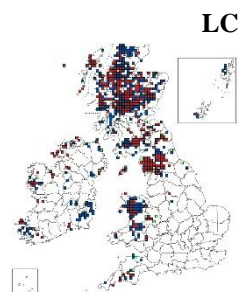
Hafellner (1984), Hertel (1977, 1981), Kantvilas (2014).

Tremolecia atrata (Ach.) Hertel (1977)

Thallus crustose, rust-coloured, rarely grey-black or ochre-coloured in exposed situations, notably areolate, I-; prothallus conspicuous, dark grey-black; photobiont trebouxioid. Apothecia 0.1–0.5 (–0.7) mm diam., numerous, neatly rounded between areoles, concave, with a raised exciple, composed of radially arranged, thick or dark brown hyphae, ± black and friable, becoming angular when contiguous, shining; hymenium 65–80 µm tall, colourless or green; exciple and hypothecium K+ diffusing purple. Asci clavate, with a thin I+ blue outer gelatinous coat, the tholus well-developed, K/I- or weakly blue, without a distinct ocular chamber, 8-spored. Ascospores ellipsoidal, aseptate, colourless, thin-walled, smooth, 10–15 (–17) × 6–9 (–10) µm. Conidiomata pycnidia, immersed in the areoles; conidia bacilliform, 3–6 × 1–1.5 µm. Thallus and medulla C-, K-, KC-, Pd-, UV- (unidentified rust-coloured pigment in the cortex). **BLS 1438.**

On exposed hard siliceous rocks, mainly in upland areas, especially those that are iron-rich, also mine-spoil tips, forming small but distinctive patches; occasionally on ironwork; locally common. N. and W. Britain, throughout Ireland.

Occasionally, in very exposed situations, *T. atrata* has much reduced rust-coloured areoles and the thallus is a ± shining black due to the predominating, well-developed prothallus. *Haugania oederi*, which occurs in similar habitats and also has rust-coloured, areolate thalli with immersed apothecia, has apothecia with a more erumpent exciple which becomes folded giving the apothecia a roughened, gyrose appearance, an I+ blue medulla and 3-septate to submuriform, often pale brown, ascospores. *Hymenelia obtecta* superficially resembles *T. atrata*, but has larger ascospores and a granular epithecium. *Miriquidica atrofulva* (Lecanoraceae) is easily separated from *T. atrata* by its distinctive yellow thallus colour and presence of soredia.



Nomenclature

Hymenelia suaveolens (Fr.) P.F. Cannon & Fryday, **comb. nov.**

IF 903427

Basionym: *Gyalecta suaveolens* Fr., *Syst. orb. veg.* (Lundae): 285 (1825).

Typification: “*Aspicilia chrysohana*”, Sudeten, *Körber 12* ex Typenherb. Körber (L) (typ. cons.)

Literature

- Fletcher, A. & Hawksworth, D.L.** (2009). *Tremolecia*. In *Lichens of Great Britain and Ireland* (Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. eds): 910–911. London: British Lichen Society.
- Fletcher, A., Coppins, B.J. & Dobson, F.S.** (2009a). *Ionaspis*. In *Lichens of Great Britain and Ireland* (Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. eds): 445–446. London: British Lichen Society.
- Fletcher, A., Coppins, B.J. & Purvis, O.W.** (2009b). *Hymenelia*. In *Lichens of Great Britain and Ireland* (Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. eds): 445–446. London: British Lichen Society.
- Fryday, A.M.** (2019). Eleven new species of crustose lichenized fungi from the Falkland Islands (Islas Malvinas). *Lichenologist* **51**: 235–267.
- Fryday, A.M. & McCarthy, J.W.** (2018). *Hymenelia parva* (Hymeneliaceae, Ostropomycetidae): a new species from Newfoundland, Canada. *Graphis Scripta* **30**: 44–50.
- Hafellner, J.** (1984). Studien in Richtung einer natürlicheren Gleiderung der Sammelfamilien Lecanoraceae und Lecideaceae. *Beihefte zur Nova Hedwigia* **79**: 241–371.
- Hertel, H.** (1977). Gesteinsbewohnende Arten der Sammelgattung *Lecidea* (Lichenes) aus Zentral-, Ost-, und Südasien. *Khumbu Himal: Ergebnisse des Forschungsunternehmens Nepal Himalaya* **6**: 145–378.
- Hertel, H.** (1981). Beiträge zur Kenntnis der Flechtenfamilie Lecideaceae VIII. *Herzogia* **5**: 449–463.
- Kantvilas, G.** (2014). The lichen family Hymeneliaceae in Tasmania, with the description of a new species. *Kanunnah* **7**: 127–140.
- Lumbsch, H.T.** (1997). Systematic studies in the suborder Agyriineae (Lecanorales). *Journal of the Hattori Botanical Laboratory* **83**: 1–73.
- Lutzoni, F.M. & Brodo, L.M.** (1995). A generic redelimitation of the *Ionaspis-Hymenelia* complex (lichenized Ascomycotina). *Systematic Botany* **20**: 224–258.
- Miądlikowska, J.** and 31 co-authors (2014). A multigene phylogenetic synthesis for the class Lecanoromycetes (Ascomycota): 1307 fungi representing 1139 infrageneric taxa, 317 genera and 66 families. *Molecular Phylogenetics & Evolution* **79**: 132–168.
- Orange, O.** (2002). Lichenicolous fungi on *Ionaspis lacustris*. *Mycotaxon* **81**: 265–279.
- Thüs, H. & Schultz, M.** (2008). *Süßwasserflora von Mitteleuropa [Freshwater Flora of Central Europe]* vol. **21**: Fungi, 1st Part.: Lichens. Heidelberg: Spektrum Akademischer Verlag.

Index

- | | |
|------------------------------------|----------------------------------|
| <i>Gyalecta suaveolens</i> , 7 | HYMENELIACEAE , 2 |
| HYMENELIA , 2 | <i>Ionaspis cyanocarpa</i> , 4 |
| Hymenelia cyanocarpa , 4 | <i>Ionaspis epulotica</i> , 4 |
| Hymenelia epulotica , 4 | <i>Ionaspis heteromorpha</i> , 4 |
| Hymenelia heteromorpha , 4 | <i>Ionaspis lacustris</i> , 4 |
| Hymenelia lacustris , 4 | <i>Ionaspis melanocarpa</i> , 5 |
| Hymenelia melanocarpa , 5 | <i>Ionaspis obtecta</i> , 5 |
| Hymenelia obtecta , 5 | <i>Ionaspis odora</i> , 5 |
| Hymenelia odora , 5 | <i>Ionaspis prevostii</i> , 6 |
| Hymenelia prevostii , 6 | <i>Ionaspis suaveolens</i> , 6 |
| Hymenelia rhodopis , 6 | TREMOLECIA , 7 |
| Hymenelia suaveolens , 6, 7 | Tremolecia atrata , 7 |