

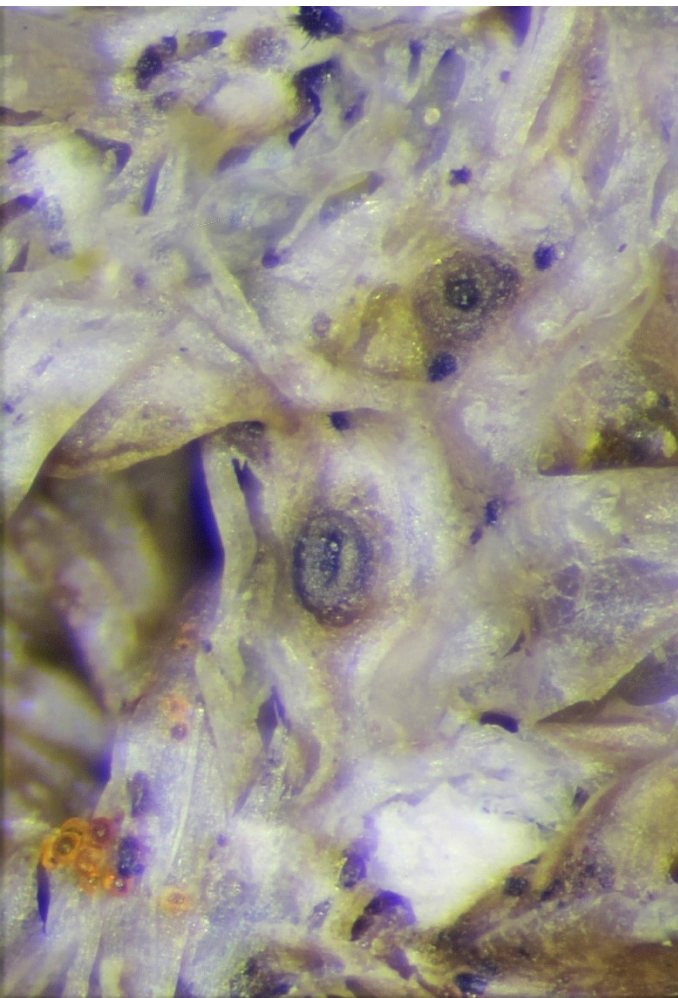


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Revisions of British and Irish Lichens

Volume 8

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Ostropales: Thelenellaceae

Cover image: *Thelenella muscorum*, from dead stems of *Brachythecium* sp., Ardtornish, W Inverness. Left: two perithecia with broad thick-walled ostioles; right: ascospores.

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. 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to compile new printed editions of the entire lichen biota of Britain and Ireland is extensive, and many parts are out-of-date even as they are published.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*.

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Ostropales: Thelenellaceae

including the genus *Thelenella*

by

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THELENELLACEAE O.E. Eriksson ex H. Mayrhofer (1987)

Thallus crustose, effuse, sometimes areolate. **Photobiont** trebouxioid. **Ascomata** perithecial, sessile or ± immersed in thalline warts, thick-walled, smooth, warted or ridged, sometimes with a broad apical shield, pale to dark brown, the ostiole periphysate. **Hamathecium** of narrow branched and anastomosed pseudoparaphyses. **Asci** thick-walled, with separable wall layers, the apex thickened and sometimes with a small ocular chamber, not blueing in iodine. **Ascospores** colourless, thin-walled, transversely septate or muriform, the septa forming in a median position in each cell of the developing spore, sometimes with a gelatinous sheath. **Conidiomata** pycnidia, sessile or ± immersed. **Conidia** cylindrical, aseptate, colourless.

As treated by Lücking *et al.* (2016), the family contains three lichenized genera, *Apidothelium*, *Chromatochlamys* and *Thelenella*, the first of these not occurring in Great Britain and Ireland. Molecular studies by Nelsen *et al.* (2016) confirmed placement of the family within the Ostropales, and advocated separation of *Chromatochlamys* and *Thelenella*. However, their sampling of the two taxa was not extensive and did not include the types of either genus. As there is no convincing morphological distinction between them, *Thelenella* is treated here in a broad sense to include *Chromatochlamys*.

Protothelenella (Protothelenellaceae, q.v.) is similar in most morphological respects to the Thelenellaceae, but differs in ascus structure (see Fig. 1). *Strigula* (Strigulales, Strigulaceae) differs in the trentepohlioid photobiont and the different conidia.

Literature

Fryday & Coppins (2004), Lücking *et al.* (2016), Mayrhofer (1987), Nelsen *et al.* (2016).

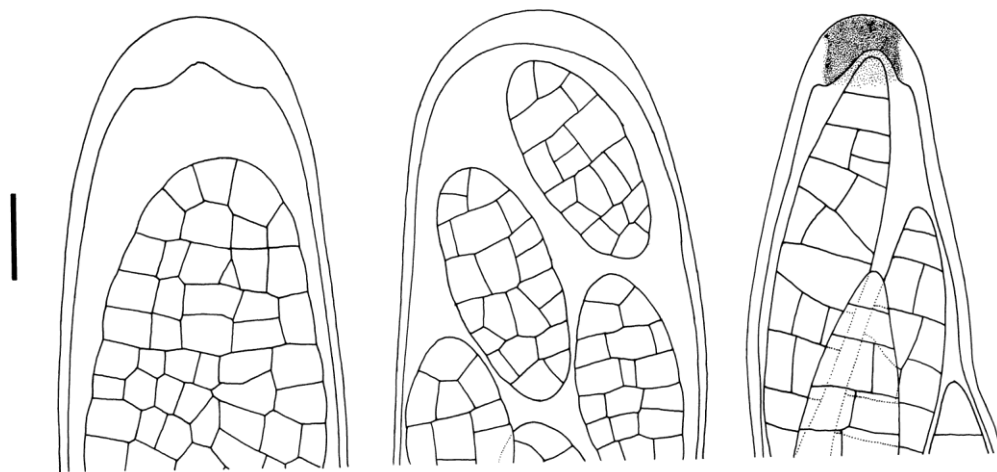


Fig. 1. Ascus apices of *Thelenella* (*Chromatochlamys*) *muscorum* (left), *T. modesta* (centre) and *Protothelenella sphinctrinoides* (right). Scale bar = 10 µm.

THELENELLA Nyl. (1855)

Thallus crustose, membranous to verrucose or cracked, dirty whitish to pale grey or pale brown. **Photobiont** trebouxioid. **Ascomata** perithecia, thick-walled. **Exciple** of slender cells (*textura*

porrecta to *textura intricata*), pigment homogeneous, lining the outer surface of the cells or present throughout a gel matrix, not appearing granular under high power. **Involucrellum** rarely present. **Hymenial gel** I-, K/I-. **Hamathecium** of paraphysoids which are delicate, branched and/or anastomosing, especially towards the base and apices; paraphysoids lining the ostiole or absent. **Asci** 2- to 8-spored, fissitunicate, with two functional wall layers, the inner wall thin and the outer thick, with or without ocular chamber, K/I- (Fig. 1). **Ascospores** sub- to strongly muriform, the outer wall scarcely thicker than the septa, colourless to brownish. **Conidiomata** pycnidia of *Roccella*-type; conidia aseptate, colourless, filiform. **Chemistry**: lichen substances not detected by TLC. **Ecology**: on bark, leaves, bryophytes on leaves, rock and mossy soil.

Literature

Morse (2016), Orange *et al.* (2009).

- | | | |
|------|--|---------------------------------------|
| 1 | Ascospores 25–42 µm long; growing directly on bark | <i>modesta</i> |
| | Ascospores >44 µm long, on rock or overgrowing bryophytes | 2 |
| 2(1) | Perithecia 0.15–0.2 mm diam.; growing directly on damp siliceous rock | <i>larbalestieri</i> |
| | Perithecia 0.2–0.6 mm diam.; growing on bryophytes over trees, rocks or soil | 3 |
| 3(2) | Asci 2- to 4-spored, ascospores 60–110 µm long..... | <i>muscorum</i> var. <i>muscorum</i> |
| | Asci 8-spored, ascospores (50–) 55–65 µm long | <i>muscorum</i> var. <i>octospora</i> |

***Thelenella larbalestieri* (A.L. Sm.) Coppins & Fryday (2004) VU (D2) IR**

Thallus thin to thickish, continuous or rimose, white to brown, sometimes growing epiphytically on other lichens. Perithecia black, three-quarters immersed, 0.15–0.2 mm diam., flattened vertically, lacking an involucrellum. Exciple pale brown, usually pigmented only in the upper one-third or less. Asci 8-spored. Ascospores with 11–14 transverse and 0–2 vertical septa, colourless (possibly brown when over-mature), 44–69 × 13–15 µm. **BLS 0899**.

On damp siliceous rocks in woodland or beside streams; rare. W. Scotland, W. Ireland. ?Endemic.



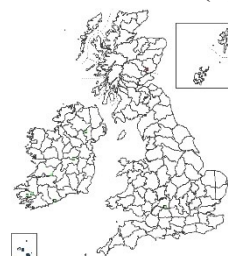
***Thelenella modesta* (Nyl.) Nyl. (1855)**

Thallus superficial, thin and membranous to thick and cracked or uneven-warted, yellow-grey to pink- or red-brown, fading to pale grey or grey in dried collections. Perithecia 0.3–0.5 mm diam., rounded, discrete or ± aggregated, three-quarters- to fully immersed in the thallus but forming prominent warts, lacking an involucrellum; exciple brownish above, pale or colourless below; ostiole dark brown. Asci 4- to 8-spored (Fig. 1). Ascospores ellipsoidal to elongate-ellipsoidal, with 7–9 transverse and 2–3 longitudinal septa, (20–) 25–42 × (9–) 11–17 µm. Conidia 11–14 µm long. **BLS 0900**.

On ± rough bark of wayside or parkland *Fraxinus* (Scotland) and on twigs of *Crataegus* (Sark); very rare, also in 19th century in S.W. England (Gloucester, Barnsley Park) and possibly Ireland.

Faded specimens in dried collections superficially resemble *Pertusaria leioplaca* and *P. pertusa*.

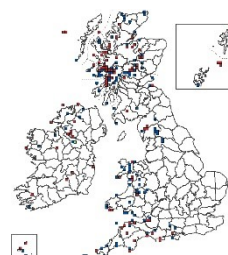
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***Thelenella muscorum* (Fr.) Vain. (1899)**

Thallus thin and membranous, or with convex to flat areoles 0.14–0.4 mm diam., often coalescing, whitish or pale brown; areoles with a colourless compact epinecral layer to 25 µm thick; fungal cells of photobiont layer I+ blue after treatment with K. Perithecia 0.3–0.6 mm diam., rounded or broadly pyriform, mostly immersed in the substrate with only the brown apex or the pale to brown ostiole evident; exciple 50–70 µm thick,

LC



pigmented above, brown, K–, pale or colourless below. Paraphyses 0.5–1.5 µm diam. Asci 2- to 4-spored, cylindrical, wall 3–6 µm thick (Fig. 1). Ascospores elongate-ellipsoidal or subcylindrical, colourless, becoming straw-coloured or brownish when old, strongly muriform, 60–110 × 20–27 µm. **BLS 0901.**

Encrusting pleurocarpous mosses on basic-barked trees (especially *Ulmus*, *Fraxinus*, *Corylus* and *Acer*) in open situations, also on more or less calcareous dunes or overgrowing mosses on limestones, serpentines, mica-schist and epidiorite; frequent in exposed situations. W. & N. Britain and Ireland, widespread.

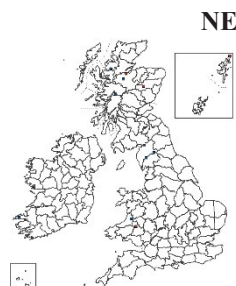
A distinctive species with large, muriform ascospores and branched paraphysoids; often apparent only as a thin, skin-like membrane with deeply immersed, rather pale perithecia. The I+ blue reaction of the thallus (using 0.5% K/I) would assist in the identification of sterile material, but should not be confused with the I+ violet reaction of the photobiont cell walls.

***Thelenella muscorum* var. *octospora* (Nyl.) Coppins & Fryday (2004)**

Similar to *T. muscorum* var. *muscorum*, with a very thin, white, membranous thallus. Perithecia pale brown to dark brown, three-quarters to completely immersed, 0.2–0.3 mm diam., rounded to broadly pyriform; exciple pale brown above, colourless below. Asci 8-spored. Ascospores (50–) 55–65 × 14.5–19 µm.

Found over bryophytes, usually on trees, rarely on base-rich rocks or soil. Wales, N. England, Scotland.

Differs from *T. muscorum* var. *muscorum* only in the 8-spored asci with smaller ascospores. *T. muscorum* var. *octospora* has been confused with *Strigula confusa*, which has a trentepohlioid photobiont, rounded to angular or elongate cells of the exciple and a granular, rather than homogeneous, exciple pigment.



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