NOTES ON THREE BRITISH ASCOMYCETES

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ABSTRACT. Two new species are described from Mull, Scotland: *Sclerotinia eleocharidis* Henderson and *Rutstroemia plana* Henderson; a description is given of *Botryotinia calthae* Hennebert & Elliott, not previously recorded from Britain.

During a visit to Mull to collect fungi in collaboration with the British Museum's survey of the vegetation of the island, I collected a sclerotial stage of a *Sclerotinia* in the culms of *Eleocharis palustris* in autumn 1968. On returning in 1969 to this small marsh at Penmore Mill, Mull to search for the apothecial stage of the *Sclerotinia* not only did I find the apothecia in abundance but two other little known sclerotiniaceous fungi, one also on the culms of *Eleocharis*, the other on dead petioles of *Caltha palustris*.

Rutstroemia plana Henderson, **sp. nov.** (Plate 11, C; fig. 1, 3a–c).

Apothecia aggregata vel solitaria, 2–4 mm diam., primo cupulata mox plana hymenio flavido-brunneo, excipulo brunneo glabro; stipes 2–4 mm × 0·5–1 mm, superne glaber brunneus, inferne tomentosus niger. *Asci* octospori 110–150 × 6–8 μm; ascosporae uniseriatae, continuae, hyalinae, ellipsoideae, 14–16 × 4·5–5·5 μm. *Sclerotia* absentia sed apothecia contexto hospitis margine nigro insidientes.

On culms of *Eleocharis palustris*. Scotland, Mull, Penmore Mill, 1 vi 1969, *Henderson* 9409 (holotype E).

Apothecia solitary or in small scattered groups, cupulate at first but soon persistently plane, disc yellowish brown, 2–4 mm in diameter, excipulum smooth, pale reddish-brown; stem 2–4 mm × 0·5–1 mm, glabrous above and concolorous with excipulum, dark below with blackish tomentum arising from faintly bleached parts of host tissue bounded by indistinct black lines.

Hypothecium in section gelatinous, "textura oblita", hyphae 3–5 μm diameter, central third of excipulum of rather irregular, slightly gelatinised hyphae, 4–7 μm diameter, often with large crystals embedded in the tissues, outer third of excipulum often of inflated "textura globulosa", of thin-walled hyphae, cells up to 50 × 20 μm bounded on the outside by one to three layers of gelatinised "textura oblita". Stem in section "textura oblita", hyphal walls not gelatinised but dark-walled in the lower half of the stem, loosely arranged to produce the tomentose base, hyphae 5–8 μm in diameter. Asci cylindrical, slightly tapered at base, 110–150 × 6–8 μm, apex with pore-plug blue in iodine; ascospores hyaline, continuous, biguttulate, ellipsoid, 14–16 × 4·5–5·5 μm. Paraphyses filiform, aseptate, c. 1 μm diameter, slightly swollen (2 μm) at apex.

This fungus is undoubtedly very close to that noted by Dennis (1956) as occurring on *Glyceria maxima* and other marsh plants. Although it belongs to *Rutstroemia* in White's (1941) sense it does emphasise the probable heterogeneity of that genus. Part of the excipulum has the gelatinised "textura oblita" of typical *Rutstroemia* but there is considerable development of large, thin-walled hyphae in the outer layers bounded on the outside by a few layers of gelatinised hyphae.

Sclerotinia eleocharidis Henderson, **sp. nov.** (Plate 11, B; fig. 1, 2a–c).

Apothecia 2–5 mm diam., semiglobosa, cupulata nunquam applanata, stipitata, hymenio pallide fulvo, exciputo glabro brunneo; stipes 3–12 × 1 mm, cylindraceus, subglaber, fulvus, ad basin tomento obscure brunneo praeditus.

Asci cylindracei, 110–130 × 8–10 µm, apice 2 µm crasso; ascosporae uniseriatae, hyalinae, ellipsoideae, 12–15 × 5–7 µm. *Sclerotium* cylindraceum, 5–10 × 1–1·5 mm, extus nigrum, intus albidum.

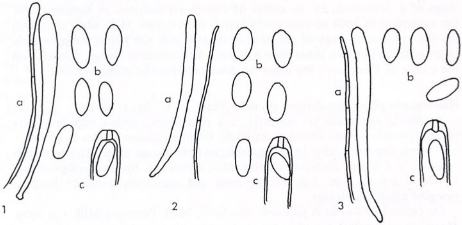

FIG. 1. 1, *Botryotinia calthae*. 2, *Sclerotinia eleocharidis*. 3, *Rutstroemia plana*. a, ascus and paraphysis; b, ascospores; c, ascus apex. All x 660.

Sclerotia on or in dead culms of *Eleocharis palustris*. Scotland: Mull, Penmore Mill, 1 vi 1969, *Henderson* 9408, (holotype E).

The following is a fuller account of this species. Apothecia arising singly from sclerotia embedded in or attached to dead culms of the previous season of *Eleocharis palustris*. Spermodochidia present on the culms, dull black, elongate, 1–3 × 0·5–0·8 mm.

Apothecia cupulate not becoming plane, fawn brown, smooth, 2–5 mm in diameter, in section outer third of the apothecium "textura globulosa", cells 10–20 × 5–15 µm in diameter, central portion "textura oblita", cells c. 2–5 µm in diameter, subhymenium "textura intricata", cells 2 µm diameter. Stem 3–12 × 1 mm, more or less smooth, concolorous with the apothecium but covered at base with dark brown tomentum, in section "textura oblita", hyphae 2–3 µm in diameter. Asci cylindrical except at tapering base, 110–130 × 8–10 µm, apex up to 2µm thick with a conspicuous intruding pore-plug blue in iodine, ascospores uniseriate, hyaline, aseptate, ellipsoid 12–15 × 5–7 µm, paraphyses cylindrical, slightly expanded at apex, 2–2·5 µm diameter, hyaline, with one or two scattered transverse septa. Sclerotia cylindrical, 5–10 × 1–1·5 mm, rind black, interior white in section, rind 8–20 µm thick, with an underlying layer of "textura oblita" 20 µm thick, cortex of loose "textura intricata", hyphae 3–4 µm diameter.

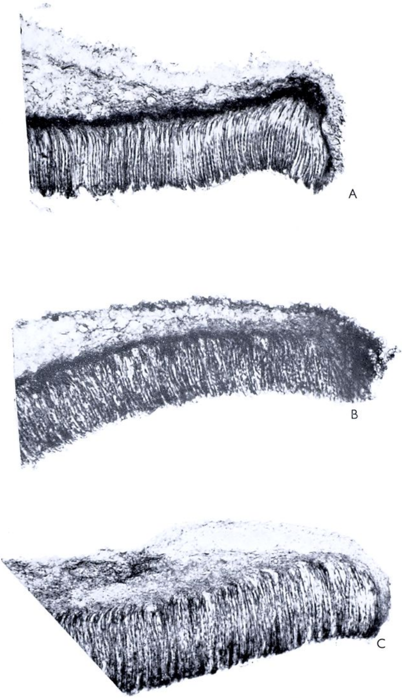

PLATE 11. Vertical sections of apothecia: A, *Botryotinia calthae*; B, *Sclerotinia eleocharidis*; C, *Rutstroemia plana*. All x 300.

This species is probably very close to *Sclerotinia sulcata* and *S. duriaeana* which occur on a wide range of species of *Carex* but neither has been recorded on *Eleocharis*. J. T. Palmer (1968) recorded a collection of sclerotia on *Eleocharis palustris* but did not describe an apothecial state. His account of *Sclerotium eleocharidis* Thuem. seems to dispose of that name as belonging to the sclerotial state of *Claviceps nigricans*. In the elongate form of the spermodochidia, the new species lies closest to *Sclerotinia sulcata*.

Botryotinia calthae Hennebert & Elliott in Canad. Journ. Bot. 41: 343 (1963). (Plate 11, A; fig. 1, 1a–c).
Scotland: Mull, Penmore Mill, on decayed petioles of *Caltha palustris* half immersed in water, 1 vi 1969, *Henderson* 9407.

Apothecium cupulate then plane, 2–4 mm diameter, smooth, pale brown. Stipe up to 10 × 1 mm, dark at tomentose base, arising from irregular planoconvex sclerotium on decayed host stems.

Outer excipulum 40–50 μm thick, "textura globosa", cells mostly 15–20 μm diameter, inner excipulum, "textura oblita", hyphae 4–6 μm diameter, subhymenium of "textura intricata". The outermost cells of the excipulum smaller and bearing short, irregular hairs. Stipe "textura oblita", cells 4–6 μm diameter, outer layers dark and bearing irregular dark hyphae.

Asci cylindrical, 130–150 × 5–10 μm, apex rounded-truncate up to 2 μm thick with a conspicuous intruding pore-plug which blues peripherally in iodine, ascospores eight, uniseriate, ellipsoid, hyaline, aseptate, 13–15 × 5–6 μm, paraphyses filiform, 2–3 μm diameter, with a few transverse septa.

Sclerotium in culture of the plano-convexoid type, conidial apparatus of the *Botrytis cinerea* type, conidia ellipsoidal, 8–11 × 5–7 μm.

This species was first known in North America by Whetzel and then was found in Belgium and Denmark. The fungus causes a rot of the leaves and petioles of *Caltha* and the disease is well described in the original paper by Hennebert and Groves (loc. cit.). There is a single collection in Kew herbarium "nr. Capsthorne, Cheshire, 3 vi 1963," which probably belongs to *B. calthae*.

REFERENCES

DENNIS, R. W. D. (1956). A revision of the British Helotiaceae etc. *Mycological Papers. CMI.* 62. 216 pp.

PALMER, J. T. (1968). Sweet Chestnut Rutstroemias on acorn and oak cupules and Sclerotinia gregoriana n. sp. on Deer-grass. *Acta Mycologica* 4: 225–239.

WHITE, W. L. (1941). A monograph of the genus Rutstroemia. *Lloydia* 4: 153–240.