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THE GENUS *STOMIOPELTIS* IN BRITAIN

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Three species of *Stomiopeltis* (two of them new) which occur in Britain are described.

In this paper, the final one in the series 'British *Microthyrium* species and similar fungi' (Ellis, 1977), species of *Stomiopeltis* are described. This genus of the Hemisphaeriales belongs in the family Micropeltidaceae; it differs from the Microthyriaceae in the non-radiate structure of the scutellum, but resembles it in having an ostiole which develops at a very early stage in the growth of the thyriothecium. The genus *Stomiopeltis* was erected by Theissen (1914) with the type species *S. aspersa* which occurs in the tropics. Luttrell (1946) reviewed the genus and emended it to include a species with a polyloculate thyriothecium. He excluded all species previously included in the genus which had any part of the scutellum composed of radiately-arranged cells. Species so far collected in Britain have uniloculate thyriothecia and are saprophytic in habit, occurring on dead and decaying leaves, stems and bark. They appear to be mainly cuticle inhabitants and are often embedded in a waxy layer, either of the host, or produced by the fungus. Internal mycelium occurs, but is confined to areas between the cuticle and cortex of bark, and between the cuticle and epidermal cells of leaves. M. B. Ellis (1951) describes the internal mycelium of *S. pinastri* and shows that it is connected to the superficial mycelial mat by way of the stomata.

The genus has the following characters: The superficial mycelium is abundant, and is composed of pale to dark brown hyphae which are clearly visible with a hand lens. The thyriothecia are shield-shaped, orbicular, with a well-defined ostiole. The scutellum is composed of several layers of pseudoparenchyma in which the cells of the superficial layer are irregularly lobed and often sinuous. The lower wall is very thin and indistinct. The asci are produced with their bases at the rim and their necks pointing towards the ostiole. They are bitunicate, usually cylindrical to obclavate with very thick-walled necks, and lie amongst a mass of finely-branched, septate pseudoparaphyses which later become mucose. The eight ascospores are hyaline and normally have one septum; they occasionally appear to have two or three septa in *S. betulae*. Typically the spores have large guttules which persist.

Key to British *Stomiopeltis* species

Ascospores 6–8 × 1–1·5 μm	*pinastri*
Ascospores 8–10 × 1·5–3 μm	*cupressicola*
Ascospores 16–22 × 3·5–5 μm	*betulae*

Stomiopeltis betulae sp.nov. (Fig. 1)

Mycelium superficiale, abundans, ex hyphis olivaceis vel brunneis, septatis, angularibus, ad 2 μm latis compositum, ad hyphas subcuticulares, septatas, torulosas passim affixum. *Thyriothecia* orbicularia, gregaria scutiformia 180–250 μm diam. *Scutellum* ex stratis pluribus compositum; stratum superficiale ex cellulis brunneis irregulariter lobatis formatum; margine pallidiore fimbriato. *Ostiolum* 16–20 μm diam. *Asci* bitunicati, cylindrici ad obclavati 45–55 × 8–10 μm, octospori, inter pseudoparaphyses angustae, ramosae, septatae, evanidae, dispositi. *Ascosporae* hyalinae, 1-septatae, fusiformes, inaequilaterales, saepe curvatae, ad septum leniter constrictae; cellula supera latior. Guttulae 4–6, magnae, persistentes. Pseudosepta 1–2 interdum visa.

In cortice ramorum ramunculorumque emortuorum *Betulae* et *Sorbi*, Holotypus IMI 25535*b*, S. J. Hughes, Oxshott, Surrey, 7 Mar. 1948.

Mycelium superficial, abundant, composed of olivaceous to brown, septate, angular hyphae up to 2 μm wide, attached at intervals to subcuticular septate torulose hyphae, not apparently penetrating the cortical cells. *Thyriothecia* orbicular, gregarious, scutate, 180–250 μm diam. *Scutellum* composed of several layers of cells, the upper layer of which is made up of brown, irregularly lobed cells meandering at the rim to form a pale brown fringe, with many of these elongated cells extending into the mycelium. Ostiole 16–20 μm diam. Asci bitunicate, cylindrical to obclavate 45–55 × 8–10 μm, 8-spored, lying among a mass of narrow, branched, septate, evanescent pseudoparaphyses. *Ascospores* hyaline, 1-septate, fusiform with unequal sides, often curved, slightly constricted at the septum; the upper cell slightly wider than the lower cell. Guttules 4–6, large, persist for a long time. Sometimes the spores appear to develop a further 1 or 2 septa when the contents have cleared. I have not seen any spores break at these points and think they are probably pseudosepta.

On bark of dead branches and twigs of *Betula*

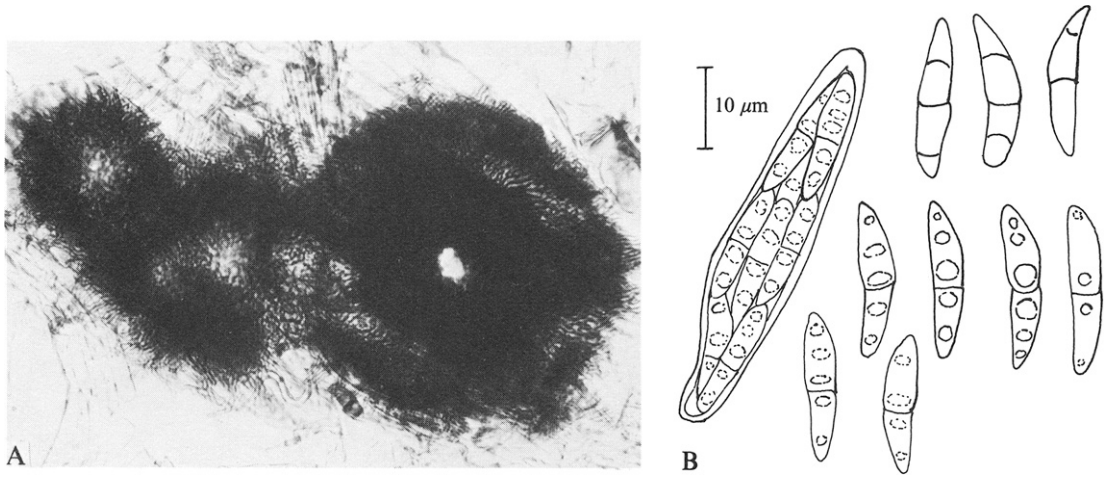

Fig. 1. *Stomiopeltis betulae.* A, thyriothecia (×250); B, ascus and ascospores.

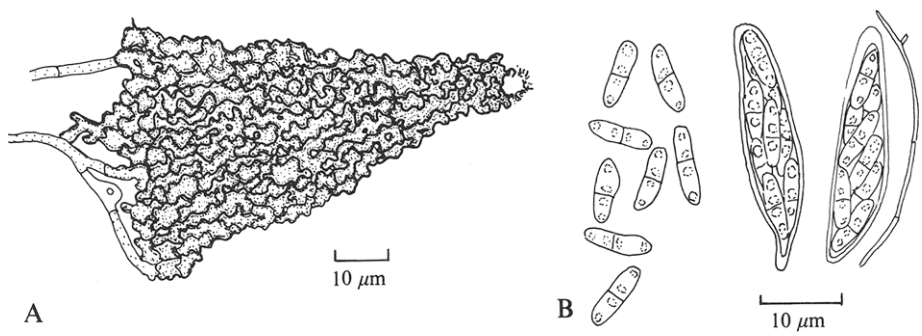

Fig. 2. *S. cupressicola.* A, part of thyriothecium; B, asci, ascospores and a pseudoparaphysis.

and *Sorbus*. 26 collections examined from Cambs, Dyfed, Somerset, Surrey, Sussex, Worcs. and Yorks.

Stomiopeltis cupressicola sp.nov. (Fig. 2)

Mycelium superficiale, abundans, ex hyphis olivaceis vel brunneis, ramosis, septatis, 1–2 μm latis compositum; cellulis tumidis (3 μm latis) numerosis, haustoriis parvis subcuticularibus affixis. *Thyriothecia* orbicularia, discreta, dispersa, 120–220 μm diam; margine irregulari non fimbriato. *Scutellum* ex cellulis brunneis, sinuosis, irregulariter lobatis compositum. Ostiolum 5–6 um diam. *Asci* bitunicati, cylindrici ad obclavati, 26–32 × 5–7 μm, octospori, inter pseudoparaphyses angustae, septatae, ramosae, evanidae dispositi. *Ascosporae* 1-septatae, hyalinae, plerumque ellipsoidales interdum calceiformes, 8·5–9·5 × 1·5–3 μm, guttulis parvis 4 saepe persistentibus praeditae.

In foliis emortuis *Cupressi*, *Chamaecypari* spp. et *Sequoiae wellingtoniae*, Holotypus IMI 168866, J. P. Ellis, Arlington Court, N. Devon, 20 May 1972.

Mycelium superficial, abundant, composed of olivaceous to brown, branched, septate hyphae 1–2 μm wide, with many swollen cells up to 3 μm wide, darker brown, with a translucent area to which a small haustorium is attached. There is no evidence of the subcuticular mycelium penetrating the epidermal cells. *Thyriothecia* orbicular, discrete, scattered, 120–220 μm diam, margin irregular but not fimbriate. Scutellum composed of brown, sinuous, irregularly lobed cells. *Ostiole* 5–6 μm diam. *Asci* bitunicate, cylindrical to obclavate 26–32 × 5–7 μm, 8-spored, lying among a mass of narrow, septate, branched, evanescent pseudoparaphyses. *Ascospores* hyaline, 1-septate

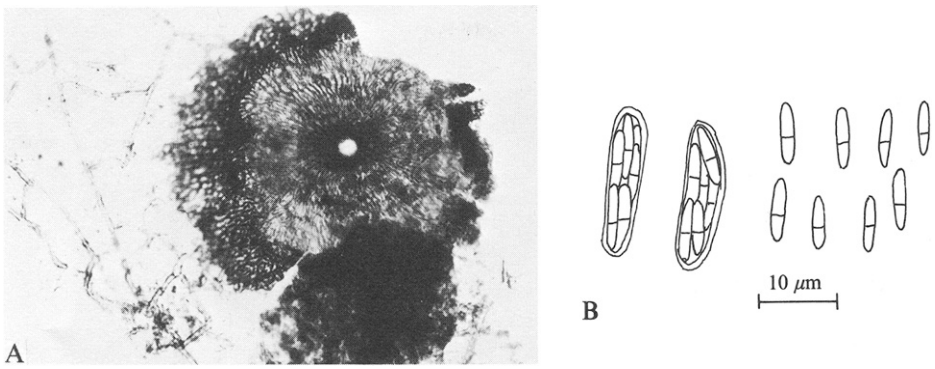

Fig. 3. *S. pinastri.* A, thyriothecium (×250); B, asci and ascospores.

usually ellipsoidal but sometimes slipper-shaped 8·5–9·5 × 1·5–3 μm, with 4 small guttules which often persist.

On dead leaves of *Cupressus*, *Chamaecyparis* spp. and *Sequoia wellingtonia*. Five collections examined from Devon, Gwynedd and Powys.

STOMIOPELTIS PINASTRI (Fckl) von Arx, *Beitr. Kryptogamenfl. Schweiz* **11**: 545 (1962). (Fig. 3.)

Calothyrium pinastri (Fckl) Theiss., *Öst. Bot. Zeitschr.* **62**: 219 (1912).

Microthyrium pinastri Fckl, *Symb. Myc.*, App. 3, 29 (1887).

Mycelium, abundant, superficial, reticulate, composed of brown, septate, hyphae 2–3 μm wide. Hyphae paler and slightly swollen in the stomatal cavities, hyaline and thinner in the leaf tissue of the host. *Thyriothecia* orbicular, discrete, scattered, 130–170 μm diam; margin irregular but not fimbriate. *Scutellum* composed of irregularly arranged, branched and lobed, elongated cells, but smaller and darker around the ostiole which is 5–8 μm diam. *Asci* bitunicate, cylindrical to obclavate, 16–26 × 4–6 μm, 8-spored, spores usually biseriate. Pseudoparaphyses occur in young thyriothecia but soon disappear. *Ascospores* hyaline, 1-septate, narrowly ellipsoidal with the septum slightly below the middle of the spore, 6–8 × 1–1·5 μm. No guttules seen. *Pycnidia* similar to, but larger than the thyriothecia, up to 400 μm diam. Pycnidiospores 4·5–7 × 1–1·5 μm, hyaline, non-septate.

On dead needles of *Pinus* spp. and occasionally on *Picea*. Seven British collections examined from Aberdeenshire, Argyllshire, Invernessshire, Morayshire, Somerset and Surrey. In several collections the pycnidial state (*Sirothyriella* Höhn.) occurs.

The synonymy of this fungus is discussed by M. B. Ellis (1951) under *Calothyrium pinastri*. It has been transferred to *Stomiopeltis* by von Arx because of the structure of the thyriothecium.

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