

*parodiella* is placed as a member of the family Venturiaceae along with *Acantharia*, *Gibbera*, *Venturia* Sacc. and other genera.

I wish to thank the Keeper of herb. K for the loan of the type specimen of *Pseudoparodiella vernoniae* and Miss Georgina Godwin for the photographs.

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A NEW SPECIES OF *MORENOINA* FROM PAKISTAN

BY P. F. CANNON

*Commonwealth Mycological Institute, Ferry Lane, Kew, Surrey TW9 3AF*

*Morenoina parvula* sp. nov. is recorded from Pakistan on dead leaves of *Hedera nepalensis*. The anamorphic and teleomorphic stages are described.

While examining an isotype specimen of *Lophodermium hedericola* S. Ahmad, an ascomycete inhabiting dead leaves of *Hedera nepalensis* K. Koch, a smaller fungus was observed which proved to belong to an undescribed species of *Morenoina* Theiss. The fungus is accordingly described and illustrated.

*Morenoina* is one of a large group of superficially similar minute leaf-inhabiting ascomycetes, and is characterized principally by its superficial elongated flattened ascomata which do not have well-developed basal layers, and by the absence of hyphopodia. Recent authors place *Morenoina* in the Dothideales: Asterinaceae (Ellis, 1980; Hawksworth, Sutton & Ainsworth, 1983; Eriksson, 1984, with reservations) or the Leptopeltidaceae (von Arx & Müller, 1975).

***Morenoina parvula* sp. nov.** (Figs 1–2)

(*Etym*: the epithet 'parvula' is the Latin adjective meaning 'very small')

Mycelium sparsum. Hyphae 1.5–2 µm diam, brunneae, cum parietibus crassis. Hyphopodia absentia. Conidiomata pycnothyria, plusminusve circularia, 25–38 µm diam. Cellulae conidiogenae ca 2 µm diam, hyalinae. Conidia hyalina, ellipsoidea vel obovoidea. Ascomata thyrithocia, superficialia, 160–350 × 40–90 µm, plusminusve oblonga, cum ambitu aliquantam irregulari. Scutellum texturae porrectae radiantis compositum, brunneum in parte media, pallens versus margines. Asci 12–16 (–18) × (5–) 6–8 µm, clavati vel ellipsoidei, brevipedicellati, bitunicati, toto pariete caerulescenti in soluto iodi, octospori. Ascosporae 5–6 (–6.5) × 2.5–3 µm, obovoideae-ellipsoideae, uniseptatae, valde constrictae ad septum, dilutae olivaceae, cum parietibus laevibus.

Mycelium sparse, occasional brown thick-walled hyphae 1.5–2 µm diam present running along the leaf surface into stomatal cavities, and connecting conidiomata with ascomata. *Hyphopodia* absent.

*Conidiomata* pycnothyria, circular or nearly so in outline, 25–38 µm diam, very strongly flattened. Outer wall consisting of a central portion ca 10–15 µm diam of pale brown thick-walled *textura angularis* merging into an outer portion of radially arranged *textura porrecta*. Central cell ? with a pore 1–1.5 µm diam through which the conidia are liberated. *In section*: conidiomata consist of a dark brown thickened upper wall (ca 2 µm thick), divided beneath into a series of open-ended locules each occupied by a hyaline ± globose conidiogenous cell ca 2 µm diam, ? proliferating enteroblastically. *Conidia* 1–1.5 × ca 0.5 µm, ellipsoidal to obovoid, aseptate, hyaline, possibly spermatial in function.

*Ascomata* thyrithocia, 160–350 × 40–90 µm, roughly oblong, sometimes sharply curved or Y-shaped, usually slightly tapered towards the ends and with a rather irregular outline. *Scutellum* (upper wall) composed of radially-arranged *textura porrecta* with cells 3–5 × ca 2 µm, dark brown in the central region, becoming paler towards the edge of the ascoma, rather thick-walled. Edge of scutellum formed from flattened hyphal elements similar to those at the centre, frequently bifurcating towards the tips and with the terminal cells rounded. Scutellum splitting open longitudinally at maturity to reveal the hymenium. Basal plate roughly similar in extent to the scutellum, consisting of pale brown cells arranged in a similar manner. *Asci* arising directly from the basal plate, 12–16

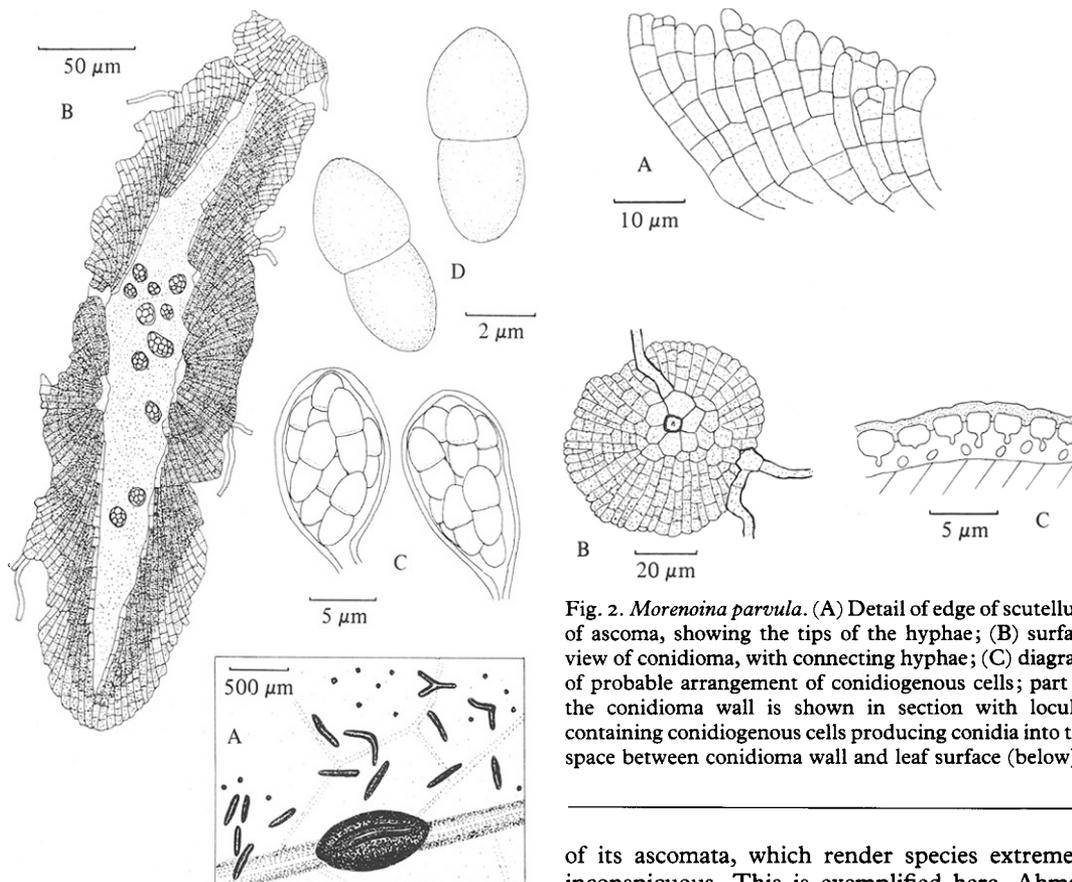


Fig. 1. *Morenoina parvula*. (A) Habit sketch, showing elongated black ascomata and small round conidiomata, with an ascoma of *Lophodermium hedericola* (the large ellipsoidal fruit body); (B) surface view of ascoma, with hymenium exposed; (C) asci; (D) ascospores.

(-18) × (5-) 6-8 µm, clavate to ellipsoidal, the longer asci tending to be thinner, short-stalked, bitunicate, relatively thin-walled except near the apex, where there is a rather indistinct wide subapical thickening; the whole wall becoming pale blue in iodine solution; 8-spored. *Ascospores* irregularly arranged, 5.5-6 (-6.5) × 2.5-3 µm, obovoid-ellipsoidal, 1-septate, strongly constricted at the septum, the upper cell slightly wider and more ovoid than the lower one, pale olivaceous brown, smooth-walled.

*Specimen examined*: Pakistan: Ghora Gali, on dead leaves of *Hedera nepalensis*, 14 April 1962, S. Ahmad 15536 (IMI 292063, = IMI 93331), holotype.

*Morenoina* is not a particularly well-known genus, probably due largely to the very small size

Fig. 2. *Morenoina parvula*. (A) Detail of edge of scutellum of ascoma, showing the tips of the hyphae; (B) surface view of conidioma, with connecting hyphae; (C) diagram of probable arrangement of conidiogenous cells; part of the conidioma wall is shown in section with locules containing conidiogenous cells producing conidia into the space between conidioma wall and leaf surface (below).

of its ascomata, which render species extremely inconspicuous. This is exemplified here, Ahmad (1971) describing a new species of *Lophodermium* Chev. from this collection apparently without noticing the other fungus present. The very small size of the conidiomata means also that certain details of their structure could not be unequivocally demonstrated, despite the use of such techniques as wax-embedding and sectioning. These include the mode of opening (if indeed it does open) of the pycnothyrium to release the conidia, and the method of proliferation of the conidiogenous loci (assuming that each conidiogenous cell produces more than one conidium).

The only recent work of substance on *Morenoina* is the treatment of the British species by Ellis (1980). The fact that nine of the eleven species she described were previously unknown emphasizes the limited state of our knowledge of the genus, and few other species are known. The closest species morphologically seems to be *M. epilobii* (Lib.) v. Arx, which has similarly sized ascospores, but in this species the upper cell is distinctly larger than the lower one. In addition, the asci are shorter than in *M. epilobii*, and that species is not known to have conidiomata. According to Ellis (in litt.) most

species are host-specific, so this lends further support to the erection of this new taxon.

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## SPHAEROTHECA XANTHII ON CHAMOMILLA SUAVEOLENS IN BRITAIN

BY DEREK A. REID

*Herbarium, Royal Botanic Gardens, Kew*

*Sphaerotheca xanthii* is redescribed and distinguished from *S. erigeronis-canadensis* by cleistothecial size.

During a fungus foray to Ranmore, Surrey, mildewed plants of pineapple weed *Chamomilla suaveolens* (Pursh.) Rydb. (syn. *Matricaria matricarioides* (Lees.) Porter) were found with cleistothecia. These were subsequently shown to represent a species of *Sphaerotheca*, since each cleistothecium contained but a single ascus. However, reference to the literature showed no previous record of any such fungus on this host in Britain. Indeed the only reports of a *Sphaerotheca* on this plant would seem to be those of Hirata (1966) who listed '*S. fuliginea*' on both '*Matricaria matricarioides* (Less.) Porter (= *Chamomilla suaveolens*)' from 'Alaska, USA' and on '*Matricaria suaveolens* (Pursh.) Buchen (= *Matricaria chamomilla*)' from Canada, and of Braun (1982) who published details of a European gathering he made, under the name *S. xanthii* (Cast.) Junell, from Mansfeld, DDR, in September 1979.

A description of the Ranmore collection follows:

*Cleistothecia* on leaves and stems, either scattered or in small groups, black, globular, 80–100  $\mu\text{m}$  diam, comprising irregularly shaped cells of very variable shape and size, measuring 20–37  $\mu\text{m}$  in their longest dimension, and bearing brown appendages, 6.6  $\mu\text{m}$  wide, which exceed the diameter of the cleistothecia by a factor of 1–3. *Asci* one per cleistothecium, ovoid, mostly 72.0–82.5  $\times$  43.0–50.0  $\mu\text{m}$ , with a thickened wall up to 3.3  $\mu\text{m}$  wide, but thinning at the apex, and with (6) 8 ascospores. *Ascospores* immature. *Conidia* hyaline, thin-walled, 23–25  $\times$  13–15  $\mu\text{m}$  (length/width ratio 1.6–1.7).

*Specimen examined*: On *Chamomilla suaveolens*, Ranmore, Surrey, at edge of car park, D. A. Reid and Audrey Thomas, 22 Sept. 1984.

In addition to the above collection there is in Herb. IMI another British gathering on the same host: Southwold Harbour, Suffolk, M. B. & J. P. Ellis, 1 Aug. 1978. This material, which seems to represent the first European occurrence of the fungus, is an almost exact match of the Ranmore gathering: cleistothecia 82–100  $\mu\text{m}$  diam, comprising cells 20–40  $\mu\text{m}$ ; asci 66–82  $\times$  42–46  $\mu\text{m}$ , mostly containing 8 ascospores and with wall 3.3–5.0  $\mu\text{m}$  wide; conidia 26.4  $\times$  15.0  $\mu\text{m}$ .

Also preserved in IMI on the same host is a collection of *Sphaerotheca* determined as *S. humuli* var. *fuliginea* from Canada, Ste.-Anne-de-la-Pocatière, P.Q., A. Payette 46–93, 15 Aout 1946, Det. I. L. Connors (Mycological Herbarium, Science Service, Department of Agriculture, Ottawa, Canada, DAOM 19031). This matches the British collections in most features: Cleistothecia up to 100  $\mu\text{m}$  diam, with cells 13–40  $\mu\text{m}$ ; but asci are slightly larger reaching 82–89  $\times$  50–57  $\mu\text{m}$ . A collection in IMI on *Matricaria chamomilla*, from Egypt, by A. M. El Zarka, 9 Dec. 1966, lacks mature cleistothecia.

As regards the name for this fungus on *Chamomilla suaveolens*, early workers mostly used the epithet *S. fuliginea* (Schlecht.: Fr.) Poll. or *S. humuli* var. *fuliginea* (Schlecht.: Fr.) Salm., but in her revision of *Sphaerotheca fuliginea* sensu lato Junell (1966) recognized *S. fusca* (Fr.) Blumer with a restricted host range covering species of *Doronicum*, and *S. erigeronis-canadensis* (Lév.) Junell and *S. xanthii* (Cast.) Junell both with a much wider host range, involving infection of a broad spectrum of genera in the Compositae. The other species dealt with by Junell occur on plants belonging to different families.