

Fungi from palms. XL. *Iodosphaeria*

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A new species of *Iodosphaeria* is described and illustrated from *Archontophoenix alexandrae* collected in Hong Kong. *Iodosphaeria hongkongensis* is compared with other species of *Iodosphaeria* and a key to the genus is provided.

Keywords: palm fungi, tropics, systematics.

Iodosphaeria is a cosmopolitan genus comprising five species. The taxonomy and history of the genus is discussed by Samuels & al. (1987). The type of *Iodosphaeria*, *I. phyllophila* (Mouton) Samuels, E. Müller & O. Petrini is characterized by superficial, black, non-papillate ascomata, with unbranched, brown flexuous hairs radiating from the ascomata, arising from cells at the peridium surface. The peridium is composed of two distinct regions; an outer region of angular, pigmented cells, and an inner region of flattened hyaline cells. Asci are cylindrical to narrowly clavate, with a discoid, apical apparatus staining in iodine, containing eight allantoid to ellipsoidal, unicellular, smooth, hyaline ascospores, which lack a sheath. The paraphyses are branched or unbranched, septate and can be deliquescent (Samuels & al., 1987). This genus is characterised by the synanamorphs *Selenosporella* G. Arnaud and *Ceratosporium* Schwein., which are produced both in culture and on the host material (Samuels & al., 1987).

Samuels & al. (1987) placed *Iodosphaeria* in the Amphisphaeriaceae, however, Amphisphaeriaceae *sensu lato* has recently been re-defined (Kang & al., 1998, 1999) and *Iodosphaeria* can no longer be included. Barr (1990, 1994) suggested that *Iodosphaeria* is better placed in the Lasiosphaeriaceae (Sordariales), but this family is also in need of revision (Samuels & al., 1987).

During current investigations on the fungi occurring on palms in the Australasian and Asian regions, several new species were recorded (e.g. Hyde, 1996; Hyde & al., 1998). This paper reports on the

genus *Iodosphaeria* Samuels, E. Müll. & Petrini, and describes one new species of *Iodosphaeria* from a palm host in Hong Kong. Collections of this fungus do not correspond to any previously described species of *Iodosphaeria*, and therefore a new species, *I. hongkongensis*, is introduced.

Taxonomy

Iodosphaeria hongkongensis J. E. Taylor & K. D. Hyde, sp. nov. – Figs. 1–11.

Ascomata 360–500 µm in diam. 215–360 µm alta, globosa vel subglobosa, superficialia, solitaria vel gregaria, nigra, capillata, apapillata, paraphysata, periphysata. Asci 80–102 × 9–12 µm, 8-spore, cylindrici, breves pedicellati, J-. Ascospores 14–22 × 4–6 µm, uniseriatae, ellipsoideae vel fusiformes, unicellulares, hyalinae.

Etymology. – In reference to the place of collection.

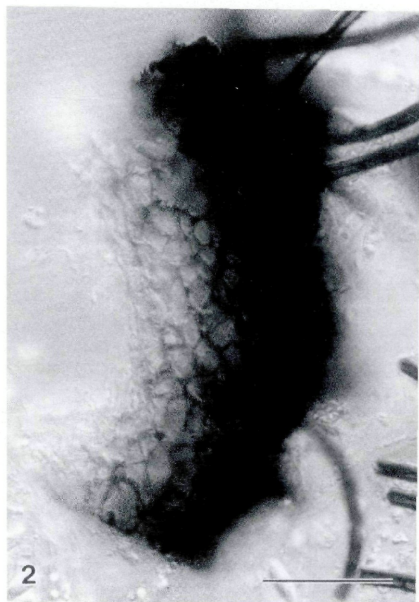
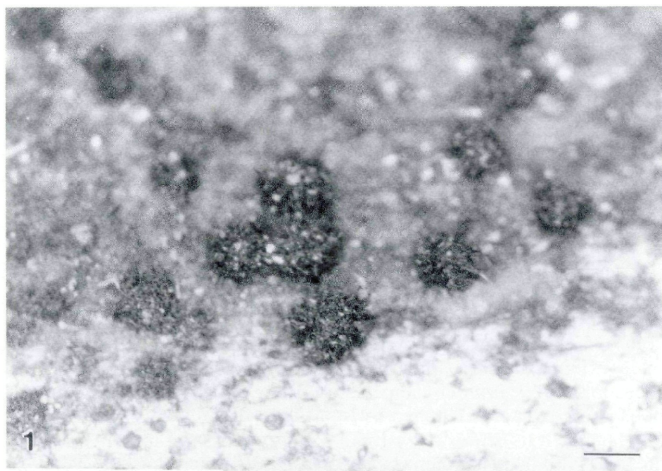
Ascomata 360–500 µm diam × 215–360 µm high, globose to subglobose, superficial, black, solitary to gregarious, with numerous long, flexuous, unbranched brown hairs arising from cells at the perithecial surface (ca. 200 × 5–7 µm), apex flattened, apapillate, ostiole pore-like, periphysate (Figs. 1, 3). – Peridium ca. 80 µm wide, comprising two strata, an outer stratum (ca. 60 µm wide) of angular, dark brown to black thick-walled cells, and an inner stratum (ca. 20 µm wide) of flattened hyaline cells (Fig. 2). – Paraphyses ca. 4 µm wide, hypha-like, septate, tips rounded, not tapering, of the same length as the asci (Fig. 6). – Asci 80–102 × 9–12 µm, 8-spored, cylindrical, short pedicellate, apex rounded, apical apparatus lacking, J- (Figs. 4, 5, 7). – Ascospores 14–22 × 4–6 µm, overlapping uniseriate, ellipsoidal to fusiform, unicellular, hyaline, smooth (Figs. 8–11).

Known distribution. – Hong Kong.

Host. – *Archontophoenix alexandrae*.

Material examined. – HONG KONG: Hong Kong Island, Hong Kong University, University Drive, on dead petiole of *Archontophoenix alexandrae*, 5 Sep. 1995, J. E. Taylor, JP2174 (HKU(M) 3683, holotype); *ibid*, on dead rachid (HKU(M) 3686); *ibid*, (HKU(M) 3692); *ibid*, (HKU(M) 3701).

Figs. 1–3. *Iodosphaeria hongkongensis* (from holotype). – 1. Ascomata on host surface. – 2. Peridium. – 3. Unbranched hairs arising from peridium.



Discussion

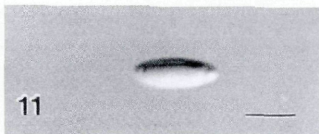
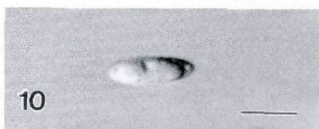
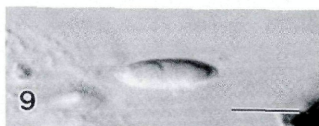
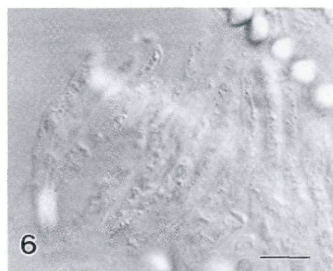
There are presently five species of *Iodosphaeria* (*I. arundinariae* (Ellis & Everh.) M. E. Barr (1993); *I. phyllophila* (Mouton) Samuels & al. (1987); *I. polygoni* W. H. Hsieh & al. (1997), *I. ripogoni* Samuels & al. (1987) and *I. tarda* (Fuckel) M. E. Barr (1996)). *Iodosphaeria tarda* is probably most similar to *I. hongkongensis* as it has similar sized ascospores [(12–)14–20 × (3–)4–6 µm], and generally smaller asci [(70–85(–110) µm] (Candoussau & al., 1996). However, the asci of *I. tarda* possess a J- apical ring, which is an important character in this genus to separate species. The asci of *I. arundinariae* also possess a J- apical ring, but are larger (120–140 × 6–10 µm), and the ascospores are wider and verruculose (18–20 × 6–7.5 µm) (Barr, 1993). The asci in *I. hongkongensis* are much smaller than those of *I. ripogoni* [(120–)140–185(–200) × (9–)11–15 µm], although their morphology is similar in lacking a distinct apical apparatus (Samuels & al., 1987). The ascospores of *I. hongkongensis* also differ as they lack a mucilaginous sheath. The ascospores of *I. phyllophila* are similar to *I. hongkongensis*, but differ slightly in shape, and are larger [(16–)21–26.7(–31) × (4–)4.2–5.3(–6) µm]. The asci of *I. phyllophila* are also larger [(90–)105–138(–152) × (9–)9.8–12.2(–14) µm], and have a very obvious amyloid apical ring (Samuels & al., 1987). *Iodosphaeria hongkongensis* also differs from *I. polygoni* as the asci (150–180 × 10–13 µm) and ascospores (18–23 × 5.5–8 µm) of *I. polygoni* are larger, and the ascus has a distinct J+ apical apparatus (W. H. Hsieh & al., 1997). An unnamed species of *Iodosphaeria* was reported in Hawaii, on mistletoe parasitising *Metrosideros* which, in addition to some morphological differences, also has wider ascospores (18–26 × 7–10 µm) and longer asci (154–273 µm) (Samuels & al., 1987). Single spore isolations of *I. hongkongensis* were unsuccessful and no anamorph was observed on the host material.

Iodosphaeria aquatica K. D. Hyde was described from wood submerged in freshwater (Hyde, 1995). This species has glabrous, pyriform, erumpent ascomata, and is unlikely to be a species of *Iodosphaeria*. Its taxonomic placement, however, is not clear, as the asci have a J+ apical apparatus, and ascospores are unicellular.

Key to accepted species of *Iodosphaeria*

- | | |
|---|---|
| 1. Asci possessing apical apparatus | 2 |
| 1. Asci lacking apical apparatus | 5 |

Figs. 4–11. *Iodosphaeria hongkongensis*. – 4, 5. Asci. – 6. Paraphyses. – 7. Apex of ascus, which is non amyloid and lacks an apical apparatus. – 8–11. Ascospores. – Scale bars: 1 = 300 µm; 2, 3 = 50 µm; 4–11 = 10 µm.



2. Apical apparatus J+ 3
2. Apical apparatus J- 4
3. Asci less than 150 μm in length *I. phyllophila*
3. Asci larger than 150 μm in length *I. polygoni*
4. Asci larger than 120 μm in length, ascospore wall verruculose *I. arundinariae*
4. Asci less than 120 μm in length, ascospore wall smooth . *I. tarda*
5. Asci greater than 120 μm in length, ascospores with a mucilaginous sheath..... *I. ripogoni*
5. Asci less than 120 μm in length, ascospores lacking a sheath *I. hongkongensis*

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