Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.

Fungi from palms. XL. Iodosphaeria

Joanne E. Taylor¹ & Kevin D. Hyde²

¹Department of Plant Pathology, University of Stellenbosch, Private Bag X1, Stellenbosch 7602, South Africa

²Fungal Diversity Research Project, Department of Ecology and Biodiversity, The University of Hong Kong, Pokfulam Road, Hong Kong

Taylor J. E. & K. D. Hyde (1999). Fungi from palms. XL. Iodosphaeria. – Sydowia 51(1): 127–132.

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–spori, cylindrici, breve pedicellati, J-. Ascosporae 14–22×4–6 µm, uniseriatae, ellipsoideae vel fusiformes, unicellulares, hyalinae.

Etymology. – In reference to the place of collection.

As comata 360–500 μ m diam × 215–360 μ m 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 μ m), apex flattened, apapillate, ostiole pore-like, periphysate (Figs. 1, 3). – Peridium ca. 80 μ m wide, comprising two strata, an outer stratum (ca. 60 μ m wide) of angular, dark brown to black thick-walled cells, and an inner stratum (ca. 20 μ m wide) of flattened hyaline cells (Fig. 2). – Paraphyses ca. 4 μ m wide, hypha-like, septate, tips rounded, not tapering, of the same length as the asci (Fig. 6). – A sci 80–102 × 9–12 μ m, 8-spored, cylindrical, short pedicellate, apex rounded, apical apparatus lacking, J- (Figs. 4, 5, 7). – A scospores 14–22 × 4–6 μ m, 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.

Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.



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 $[(12-)14-20 \times (3-)4-6 \mu m]$, and generally smaller asci $[(70-)14-20 \times (3-)4-6 \mu m]$ 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 $(120-140 \times 6-10 \mu m)$, and the ascospores are wider and vertuculose $(18-20 \times 6-7.5 \ \mu m)$ (Barr, 1993). The asci in I. hongkongensis are much smaller than those of I. ripogoni [(120- $(140-185(-200) \times (9-)11-15 \mu m]$, 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- $26.7(-31) \times (4-)4.2-5.3(-6)$ µm]. The asci of I. phyllophila are also larger $[(90-)105-138(-152) \times (9-)9.8-12.2(-14) \mu m]$, and have a very obvious amyloid apical ring (Samuels & al., 1987). Iodosphaeria hongkongensis also differs from I. polygoni as the asci $(150-180 \times 10-$ 13 μ m) and ascospores (18–23 × 5.5–8 μ m) 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 as cospores $(18-26 \times 7-$ 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 hongkongasis. – 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.

Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.



2.2.	Apical apparatus J+
3. 3.	Asci less than 150 μm in length I. phyllophila Asci larger than 150 μm in length I. polygoni
4.	Asci larger than 120 μm in length, ascospore wall verruculose
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

Acknowledgments

sheath I. hongkongensis

J. E. Taylor thanks The University of Hong Kong for the award of Postgraduate Studentship. Helen Leung is thanked for technical assistance and A. Y. P. Lee is thanked for photographic assistance.

References

- Barr, M. E. (1990). Prodromus to non-lichenized pyrenomycetous members of the class Hymenoascomycetes. – Mycotaxon 39: 43–184.
- (1993). Redisposition of some taxa described by J. B. Ellis. Mycotaxon 46: 45–76.
- (1994). Notes on the Amphisphaeriaceae and related families. Mycotaxon 51: 191–224.
- Candoussau, F., J.-F. Magni, L. E. Petrini, M. E. Barr & O. Petrini (1996). Bambusicolous fungi collected in Southwestern France: an annotated list. – Mycol. Helv. 8: 11–20.
- Hyde, K. D. (1995). Tropical Australian freshwater fungi. VII. New genera and species of ascomycetes. – Nova Hedwigia 61: 119–140.
- (1996). Fungi from palms. XXVII. Capsulospora gen. nov., with three new species. – Sydowia 48: 111–121.
- —, J. E. Taylor & J. Fröhlich (1998). Fungi from palms. XXXIV. The genus *Neolinocarpon* with 5 new species and one new combination. – Fungal Diversity 1: 110–126.
- Hsieh, W. H., C. Y. Chen, & A. Sivanesan (1997). Iodosphaeria polygoni sp. nov., a new pyrenomycete from Taiwan. – Mycol. Res. 101: 841–842.
- Kang, J. C., R. Y. C. Kong & K. D. Hyde (1998). Studies on the Amphisphaeriales 1. Amphisphaeriaceae (sensu stricto) and its phylogenetic relationships inferred from 5.8S rDNA and ITS2 sequences. – Fungal Diversity 1: 147–157.
- —, K. D. Hyde & R. Y. C. Kong (1999). Studies on the Amphisphaeriales 2. The Amphisphaeriaceae (sensu stricto). – Mycol. Res. 103: 53–64.
- Samuels, G. J., E. Müller & O. Petrini (1987). Studies in the Amphisphaeriaceae (sensu lato). 3. New species of Monographella and Pestalosphaeria, and two new genera. – Mycotaxon 28: 473–499.

(Manuscript accepted 9th December 1998)

132

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Sydowia

Jahr/Year: 1999

Band/Volume: 51

Autor(en)/Author(s): Taylor Joanne E., Hyde Kevin D.

Artikel/Article: Fungi from palms. XL. lodosphaeria. 127-132