
A new species and new records of *Hypoxylon* from Acheron Gap, Victoria, Australia

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Smith, G.J.D., Hyde, K.D. and Whalley, A.J.S. (1999). A new species and new records of *Hypoxylon* from Acheron Gap, Victoria, Australia. *Fungal Diversity* 3: 147-152.

Hypoxylon fuhreri sp. nov., is described based on a collection from wood, made in a cool-temperate rainforest, at Acheron Gap, Victoria, Australia. Comparison is made between the new species and other morphologically similar species of *Hypoxylon*. The new species is illustrated with light micrographs. *Hypoxylon aucklandiae*, *H. chathamense* and *H. nothofagi*, which have previously only been recorded from New Zealand, are new records for Australia.

Key words: taxonomy, *Xylariaceae*

Introduction

There have been few studies on the larger Xylariaceous taxa in Australia. McAlpine (1895) listed 1 species of *Anthostomella*, 2 species of *Daldinia*, 23 species of *Hypoxylon*, 2 species of *Kretzschmaria*, 7 species of *Nummularia*, 3 species of *Poronia*, 2 species of *Rosellinia*, 1 species of *Sarcoxylo*, 1 species of *Ustulina*, and 35 species of *Xylaria*. McAlpine (1895) based his taxonomy on Saccardo (1882, 1883) and Cooke (1892). Much of the material listed by McAlpine (1895) has not been re-examined and the taxonomy is questionable due to subsequent changes in generic concepts within the *Xylariaceae*. Since this publication, however, there have been very few publications on the Australian *Xylariaceae*, apart from a checklist of the *Xylariaceae* in Victoria (Beaton and Weste, 1980) and occasional new records or descriptions of new taxa (e.g. Whalley and Watling, 1988; Cribb, 1990; Rodrigues and Samuels, 1990; Whalley *et al.*, 1990; Hyde, 1996; Hyde *et al.*, 1998).

An effort has commenced to monograph the *Xylariaceae* of Australia. In this paper we report on collections made from Acheron Gap, Victoria, Australia. The collections contained two specimens of a new species of *Hypoxylon*, described here, that could not be identified using Ju and Rogers

(1996) revision of the genus, and three species of *Hypoxylon* previously only recorded from New Zealand. It should be noted that the holotype of the new species described within was collected from a recently killed tree and it is possible that the taxon is pathogenic.

Materials and methods

Specimens were collected in Victoria, Australia in May 1989 and then air dried in the laboratory. Acheron Gap incorporates cool-temperate rainforest that is floristically dominated by *Nothofagus cunninghamii* and *Atherosperma moschatum*, with *Eucalyptus regnans* emergent through the canopy (Cameron, 1992; Busby and Brown, 1994). All measurements were made in water except those for the apical ring apparatus. Material that was assessed for the J+/J- reaction were rehydrated in water and 10% KOH and mounted directly in Melzer's Iodine Reagent. Colours given in the species description are after Rayner (1970) and are designated by bracketed numbers following the colour name. Type material is deposited in MEL. Herbarium AJSW refers to the private herbarium of A.J.S. Whalley at Liverpool John Moores University, Liverpool, United Kingdom.

Taxonomy

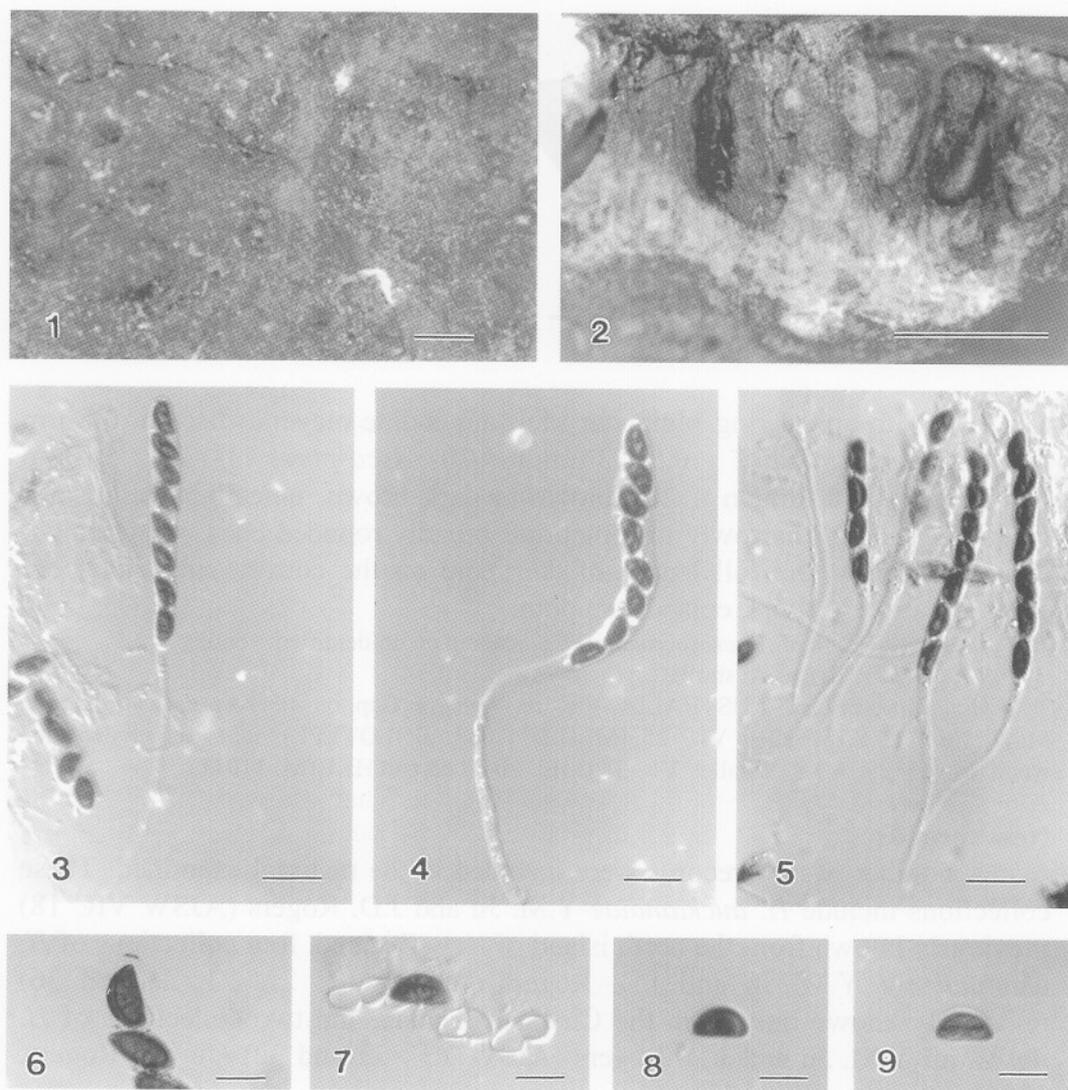
Hypoxylon fuhreri G.J.D. Smith, K.D. Hyde and Whalley, **sp. nov.** (Figs. 1-10)

Etymology: In recognition of Australian mycologist and wildlife photographer Bruce Fuhrer.

Stromata effuso-pulvinata, tumulis perithecorum inconspicuis vel conspicuis, usque ad 2.5-13.5 cm longa, usque ad 2-5.5 cm lata, 2 mm crassa; externe isabellina vel olivacea, sub superficialibus et inter perithecia granulis aurantiacis vel coccineis conspersa, granulis leniter umbrinis, vel leniter fulvis, umbrinis, vel sepiaceis in KOH dissolutis; textura sub peritheciis fusca, usque ad 0.5 mm crassa. *Perithecia* globosa vel obvoidea 0.3-0.7 mm diam., 0.6-1 mm alta. *Ostiola* minute conica. *Asci* 168-252 μ m longitudine tota, 9-12.5 μ m crassi, partibus sporiferis 75-87 μ m longitudine, stipitibus 92-168 μ m longitudine, annulo apicali in liquore iodato Melzeri cyanescente, discoideo, 0.5 μ m alto, 2.5-4 μ m lato. *Ascospores* 11-13.5 \times 5-7 μ m, brunneae vel fuscae, unicellulares, ellipsoideo-inequilaterales cum apicibus angustis vel latis, rima germinativa longitudine minus quam spora integra; perisporium in KOH dehiscens; episporium leve.

Holotype: MEL 2047062.

Stromata effused-pulvinate, with inconspicuous to conspicuous perithecial mounds, with large straight cracks across the surface of the entire stroma, 2.5-13.5 cm long, 2-5.5 cm broad and up to 2 mm thick; surface isabelline (65) to olivaceous (48) becoming black with age; orange to red granules immediately beneath the surface and between perithecia wall, with KOH-extractable



Figs. 1-9. *Hypoxylon fuhreri* (from holotype). **1.** Stroma surface. **2.** Vertical section through the stroma showing perithecia. **3-5.** Asci. **6.** Ascus tip illustrating discoide amyloid subapical apparatus. **7.** Ascospore with dehiscent perispores. **8-9.** Ascospores. Bars: 1, 2 = 1 mm, 3-5 = 20 μ m, 6-9 = 10 μ m.

pigments pale umber (9), pale fulvous (43), or umber (9) to sepia (63); tissue beneath the perithecial layer dark brown and up to 0.5 mm thick. *Perithecia* globose to ovoid, 0.3-0.7 mm diam., 0.6-1 mm high. *Ostioles* finely papillate. *Asci* 168-252 \times 9-12.5 μ m (\bar{x} = 215 \times 10 μ m; n = 10), the spore bearing parts 75-87 μ m long (\bar{x} = 82 μ m, n = 10), the stipes 92-168 μ m long (\bar{x} = 133 μ m,

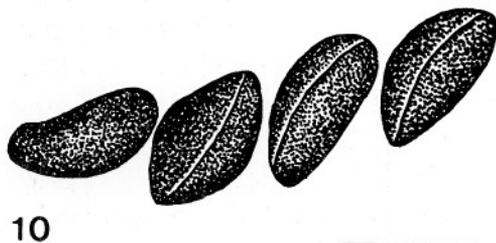


Fig. 10. Ascospores of *Hypoxylon fuhreri* illustrating the straight germ slit, which is almost the full length of the ascospore and occurs on the convex side. Bar = 10 μ m.

n = 10), with apical ring bluing in Melzer's iodine reagent, discoid, 0.5 μ m high, 2.5-4 μ m broad (\bar{x} = 0.5 \times 3 μ m; n = 10). Ascospores 11-13.5 \times 5-7 μ m (\bar{x} = 12.5 \times 5.5 μ m; n = 20), brown to dark brown, unicellular, ellipsoid-inequilateral, with narrowly to sometimes broadly rounded ends, with straight germ slit almost the full length of the spore on the convex side; perispore dehiscent in 10% KOH; episore smooth.

Substrate: Wood of *Atherosperma moschatum* and on unidentified wood.

Known distribution: Australia.

Material examined: AUSTRALIA, Victoria, Acheron Gap, on *Atherosperma moschatum* May 1989, A.J.S. Whalley VIC 25 (MEL 2047062, HOLOTYPE); *ibid.*, on unidentified wood, May 1989, A.J.S. Whalley VIC 34 (MEL 2047063 and HKU(M) 11011).

New records

A number of new records were included in the material examined. These collections include *H. aucklandiae* Y.M. Ju and J.D. Rogers (AJSW VIC 18) previously known from the north island of New Zealand, four collections of *H. chathamense* Y.M. Ju and J.D. Rogers (AJSW VIC 22, 23, 26 and 36) previously known only from the Chatham Islands, and two collections of *H. nothofagi* Y.M. Ju and J.D. Rogers (AJSW VIC 27 and 32) (Ju and Rogers, 1996).

Discussion

Hypoxylon fuhreri belongs in *Hypoxylon* sect. *Hypoxylon* Y.M. Ju and J.D. Rogers as it lacks a discrete carbonaceous tissue layer around the perithecia (Ju and Rogers, 1996). The lack of an annulate ring surrounding the ostiole and of a thickening on the perispore, further place this taxon in sect. *Hypoxylon* (Ju and Rogers, 1996). There are six taxa in sect. *Hypoxylon* that exhibit close similarity with the new species, due to the olivaceous (48) or isabelline (65) colour of the stroma (Ju and Rogers, 1996).

Using the key provided in Ju and Rogers (1996), *H. fuhreri* is most similar

to *H. olivicolor* Y.M. Ju and J.D. Rogers, with both species possessing olivaceous coloured stromata with orange red granules and dehiscent perispores. *Hypoxylon olivicolor* differs from *H. fuhreri* in having smaller ascospores ($9.5-11 \times 4-5 \mu\text{m}$) and orange (7) KOH-extractable (Ju and Rogers, 1996). *Hypoxylon dingleyae* Y.M. Ju and J.D. Rogers differs from *H. fuhreri* in having luteous (12) KOH-extractable pigments, larger ascospores, and a germ slit that is much less than spore length (Ju and Rogers, 1996). *Hypoxylon papillatum* Ellis and Everh., differs from the current taxon in having larger spores ($12-18.5 \times 6.5-9 \mu\text{m}$), stromata with blackish granules and a perispore that is indehiscent in 10% KOH (Ju and Rogers, 1996). *Hypoxylon flavoargillaceum* J.H. Miller has yellowish brown stromatal granules and yellow (14) or amber (47) KOH-extractable pigments (Ju and Rogers, 1996). *Hypoxylon shearii* Y.M. Ju and J.D. Rogers differs from *H. fuhreri* in having buff (45) or fawn (87) stromata, yellow or yellowish orange stromatal pigments, luteous (12) KOH-extractable pigments, strongly curved spores, and a highly reduced or lacking ascus apical ring (Ju and Rogers, 1996). *Hypoxylon musceum* J.D. Rogers resembles *H. fuhreri* only in the colour of the stroma. All other characters diverge greatly and will not be discussed further (Ju and Rogers, 1996).

Acknowledgements

We would like to thank the Australian Biological Resources Study for providing funding towards this research. Gavin Smith is grateful to The University of Hong Kong for the award of a post-graduate studentship. T.K. Goh is thanked for his help with the Latin description.

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