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A new species of *Pseudohalonectria* from Thailand

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Abstract – *Pseudohalonectria suthepensis* sp. nov. isolated from dead leaves of *Magnolia liliifera* Baill. (Magnoliaceae) collected in Doi Suthep-Pui National Park, Chiang Mai, Thailand, is described and illustrated. The new species, which is compared with other species in the genus, differs in its longer ascospores.

Ascomycetes / biodiversity / new species / saprobic fungi / taxonomy

INTRODUCTION

The genus *Pseudohalonectria* was established by Minoura and Muroi (1978) for *Pseudohalonectria lignicola* Minoura & Muroi, an ascomycete found on balsa wood submerged in a Japanese lake. Five species of *Pseudohalonectria*, *P. adversaria* Shearer, *P. falcata* Shearer, *P. longirostrum* Shearer, *P. lutea* Shearer and *P. phialidica* Shearer were subsequently described and illustrated from submerged wood in freshwater by Shearer (1989). *Pseudohalonectria eubenangeensis* K.D. Hyde, J.E. Taylor & J. Fröhlich and *P. palmicola* K.D. Hyde, J.E. Taylor & J. Fröhlich were described from palms from a rainforest in north Queensland, Australia by Hyde *et al*. (1999). *Pseudohalonectria aomoriensis* Yas. Ono. et Tak. Kobayashi was isolated and described from plant substrata in Japan by Ono & Kobayashi (2001). *Pseudohalonectria fuxianii* L. Cai, C.K.M. Tsui, K. Zhang & K.D. Hyde was described and illustrated from submerged wood in Lake Fuxian, China by Cai *et al*. (2002), bringing the number of species to ten. Characteristics of the genus include coloured perithecia with protruding, cylindrical, periphysate necks; unitunicate, cylindrical to clavate asci with a J- cylindrical apical apparatus; tapering paraphyses; and smooth, hyaline to slightly pale, cylindrical to filiform

ascospores. During our investigation of saprobic fungi on leaves of *Magnolia liifera* in Thailand, we found an undescribed species of *Pseudohalonectria*. It is described and illustrated in the present paper.

MATERIAL AND METHODS

Senescent and fallen brown leaves from *Manglietia garrettii* (montha-doi or montha-dang) were collected from Doi Suthep-Pui National Park, Chiang Mai, Thailand during the rainy season between June and September 2001 (Promputtha *et al*., 2002). Leaves were returned to the laboratory in individual plastic bags and incubated with the addition of tissue paper moistened with sterilized water. Samples were examined periodically for the presence of microfungi for up to 2 weeks. Fungi were mounted in water for examination with differential interference contrast microscopy, and were isolated and cultured from single spores (Choi *et al*., 1999).

TAXONOMY

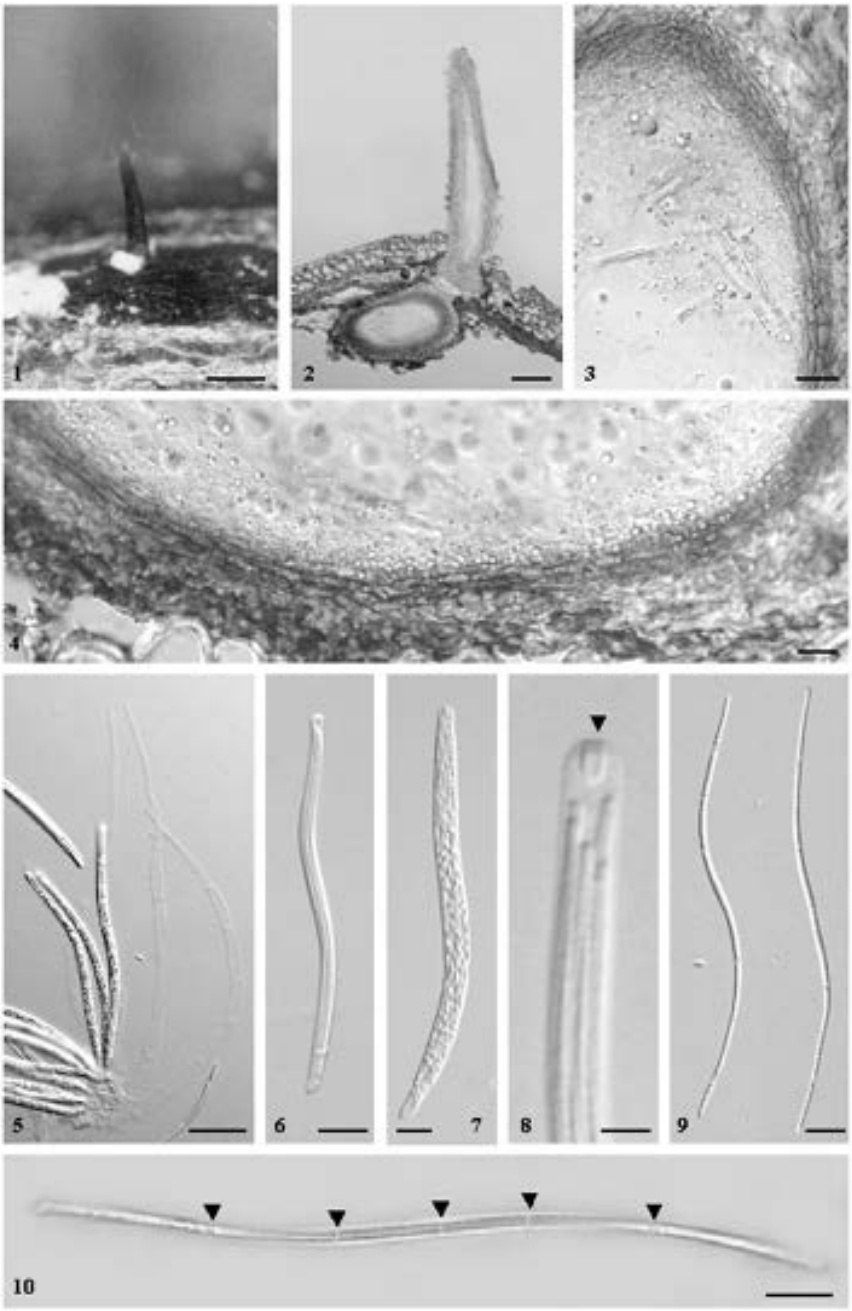
***Pseudohalonectria suthepensis* I. Promputtha, sp. nov. (Figs 1-10)**

Ascomata immersa, globosa vel ellipsoidea, 180-300 µm alta × 300-600 µm in diametro, atro-brunnea, solitaria vel gregaria. Asci 135-170 × 5-8.5 µm, 8-spori, cylindrici, apparatu apicale 2-5 µm alta × 2-3 µm diam praediti. Ascosporae 85-137 × 2.5-3 µm, filiformes, hyalinae, 4-7-septatae.

Etymology: *suthepensis*, refering to the type locality, Doi Suthep-Pui National Park, Thailand.

Ascomata immersed beneath raised surface under several layers of tissue which are not discoloured, 180-300 µm high × 300-600 µm diam, globose to ellipsoidal, dark brown, solitary or in small clusters. Neck comprised of several layers of compressed cells, long cylindrical, 400-800 µm long × 120-180 µm diam, yellow to light orange (Figs 1-2). Peridium pale brown, comprised of 2-3 strata, inner layer comprising of compressed angular cells, outer layer cell less distinct and fusing with host at the outside, 6.9-25.3 × 2.3-5.7 µm (= 14.3 × 4.3 µm, n = 20) (Fig. 3-4). Paraphyses up to 6 µm wide at the base, rounded at the base and acute at the apex, numerous, filamentous, septate, unbranched, hyaline, tapering, longer than asci (Fig. 5). Asci 135-170 × 5-8.5 µm (= 147 × 6.8 µm, n = 30), 8-spored, cylindrical, apedicellate, apex rounded to slightly acute, with a J-, cylindrical apical ring, 2-5 µm high × 2-3 µm diam (Figs 6-8). Ascospores 85-137 × 2.5-3 µm (= 120 × 2.5 µm, n = 30), filiform, 4-7-septate, hyaline (in mass, yellow to light orange), slightly acute at the apex and rounded at base, without sheaths or appendages (Figs 9-10).

Colonies on potato dextrose agar slow growing, reaching 2 cm diam in one week at room temperature (28 ºC), floccose, yellowish-brown, from above and below. Hyphae mostly immersed, pale brown to light yellow. Phialides flask-shaped, pale brown at base and apex hyaline, 10-19 × 3.5-5 µm, collarette 1-2 µm wide. Conidia allantoid, aseptate, hyaline, 10-19 × 1.5-2.5 µm.



Figs 1-10. *Pseudohalonectria suthepensis* (from holotype). 1. Ascoma partially immersed in host substrate. 2. Section of ascoma. 3. Peridium. 4. Three layers of peridium. 5. Paraphyses with septate, tapering. 6-7. Apedicellate asci. 8. Apical ring (arrowhead). 9. Filiform ascospores. 10. Filiform ascospore with septa (arrowhead). Scale bars: 1 = 300 µm; 2 = 100 µm; 3-6 = 20 µm; 7 = 10 µm; 8 = 5 µm; 9-10 = 10 µm.

Table I. A comparision of *Pseudohalonectria suthepensis* with *P. adversaria, P. falcata, P. lignicola*, *P. longirostrum, P. lutea P. phialidica* (measurements from Shearer, 1989), *P. aomoriensis* (measurements from Ono & Kobayashi, 2001), *P. eubenangeensis*, *P. palmicola* (measurements from Hyde *et al.*, 1999) and *P. fuxianii* (measurements from Cai *et al*., 2002).

Taxa	*Ascomata colour when young*	*Ascomata neck (m)*	*Asci (m)*	*Apical ring (high × diam m)*	*Ascospores (m)*
P. adversaria	Orange	79-248 × 109-158	120-150 × 13-20	2.5-5 × 2.5-3	33.5-49 × 4.5-7
P. aomoriensis	Yellow to yellowish-brown	900-1400 × 160-180	112-145 × 8-11	not given	49-57 × 3-4.5
P. eubenangeesis	Yellow	135-175 × 90-125	80-120 × 8-11.5	2-2.5 × 1.5-2	70-98 × 2.5-3.5
P. falcata	Light yellow or light brown	81-162 × 81-108	106-244 × 14.4-21.6	not given	97-166 × 4.2-7.2
P. fuxianii	Orange-brown	430-570 × 70-110	90-187.5 × 17.5-30	2-2.5 × 2.5-3	30-52.5 × 7.5-12.5
P. lignicola	Pale yellow	170-621	90-132 × 11-17.5	not given	38.4-74.8 × 3.5-6.5
P. longirostrum	Bright yellow	1683-3712 × 118-168	94-130 × 8.5-12	3-5 × 2	84-105.5 × 3.8-4.0
P. lutea	Yellowish brown	300-600 × 160-200	122-192 × 14.4-18	not given	99-168 × 4.8-8.4
P. palmicola	Dark brown	1600 × 132-152	120-156 × 13-15	3.5-4 × 2.5-4	74-83 × 4-4.5
P. phialidica	Yellow	614-1940 × 89-129	82-99 × 5-7.9	3.2-5 × 2-3.5	64.5-79 × 2
P. suthepensis	Dark brown	400-800 × 120-180	135-170 × 5-8.5	2-5 × 2-3	85-137 × 2.5

Holotype: Thailand, Doi Suthep-Pui National Park, Chiang Mai, on dead leaves of *Magnolia liifera,* 31 July 2001, I. Promputtha, PDD76762, isotype living culture in BIOTECH BCC.

Other material examined: Thailand, Doi Suthep-Pui National Park, Chiang Mai, on dead leaves of *Manglietia garrettii,* 4 August 2001, I. Promputtha, HKUM 16498; *ibid*., 16 August 2001, I. Promputtha, CMUMS075; *ibid*., 23 August 2001, I. Promputtha, CMUMS075.

Notes: The genara *Ophioceras* and *Pseudohalonectria* are similar in morphological characteristics, having long beaks, septate paraphyses, a thimble-shaped ascus apical apparatus and hyaline, usually transeptate, elongate to scolecosporous ascospores, olthough *Ophioceras* generally has longer ascospores. *Ophioceras* species are different from *Pseudohalonectria* species in spore mass color and ascomata color. Spores masses in *Pseudohalonectria* are usually pink or brown, while those in *Ophioceras* species are colourless. Ascomata in *Pseudohalonectria* are bright yellow to brown, while in *Ophioceras* they are dark brown to black (Hyde *et al*., 1999; Shearer *et al*., 1999). In *Pseudohalonectria suthepensis* the spores are long, in mass they are yellow to light orange, and the ascomata are dark brown when old. The pale brown pigment associated with the peridial cells of *P. suthepensis* is characteristic of *Pseudohalonectria*. Although the spores are unusually long for a *Pseudohalonectria* species, we feel that the other characters warrant that the species should be included in *Pseudohalonectria* rather than *Ophioceras*.

Pseudohalonectria suthepensis is compared with other *Pseudohalonectria* species in Table I. The ascospores and asci of *P. suthepensis* are longer than those

of most *Pseudohalonectria* species with the exception of *P. falcata* and *P. lutea*. However, the ascospores of *P. suthepensis* are thinner than those of *P. falcata* and *P. lutea* and the new taxon also differs in ascospore septation.

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