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Seven helicosporous Hyphomycetes new for Taiwan

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Abstract. Seven helicosporous Hyphomycetes belonging to 3 genera recorded in this paper are new for Taiwan. They are *Helicosporium guianesis, H. nematosporium, H. phragmites, H. serpentinum, Helicomyces ambiguus, Helicoma perelegans,* and *H. muelleri.*

Key words: Helicosporous Hyphomycetes; Taiwan.

The helicosporous Hyphomycetes comprise a relatively small group of fungi, characterized by producing conidia that are coiled to some degree. Taxonomically, this is a heterogeneous groups of fungi, united only by the unusually morphology of conidia. The studies on this group of fungi first mainly came from Northern America, Morgan in 1892 first published his major contribution in these fungi (Morgon, 1898 in Goos, 1987). Linder reported an extensively and thorough study on helicosporous Hyphomycetes in a monograph entitled "A monograph of the helicosporous Imperfecti" which laid a solid foundation for the taxonomical works of these fungi that have followed (Linder, 1929). Moore in 1956 provided a key to all known genera and species, largely update Linder's work (Moore, 1956). Goos recently published a series of papers to review several genera of these fungi (Goos, 1985, 1986, 1987). In addition, helicosporous Hyphomycetes also have been reported from the U.K. and Japan (Webster and Descals, 1981; Tubaki, 1958, 1964). In Taiwan, Matsushima has recorded 8 species of these fungi in 3 genera (Matsushima, 1980, 1983, 1987). The present author recently reported 2 isolates of helicosporous Hyphomycetes closely related to *Helicosporium elinorae* (Chang, 1989a). Herein this same author described and illustrated additional seven helicosporous Hyphomycetes which are new for Taiwan. Unless otherwise stated, the materials and procedures for isolation and growth of these fungi are the same as author's previous report on synnematous Hyphomycetes (Chang, 1989b).

Species Description

Helicosporium guianensis Linder, Ann. Mo. Bot. Gard. 16: 280-281, 1929. (Fig. 1, A, B)

Colonies effuse. Conidiophores erect, not branching above, single or aggregate, up to 390 μm high, 5.0-7.0 μm wide in the basal part, wider in the basal part, tapering upwards to a rounded end, fuscous, multiseptate. Conidiogenous cells at first a small budding, growing into a bladder-like body with one or up to 3 projections to bear conidia at the tips, 5-7 x 2.5-4 μm. Conidia coiled 2.5-3 times, conidial filament 1.5-1.9 μm in diameter, coiled conidia 17.5-24.5 μm.
Habitat: On timber dipped in pound.
Distribution: Lortong, Yilan.

Helicosporium nematosporium Linder, Ann. Mo. Bot. Gard. 16: 288-289, 1929. (Fig. 1, C)

Colonies effuse, dark olivaceous brown, surface thin hairy. Mycelium immersed. Conidiophores arising from thick-walled, septate brown repent hyphae, mostly single, unbranched, straight, golden brown to very light brown at the apex, 130-220 x 6-7 μm.

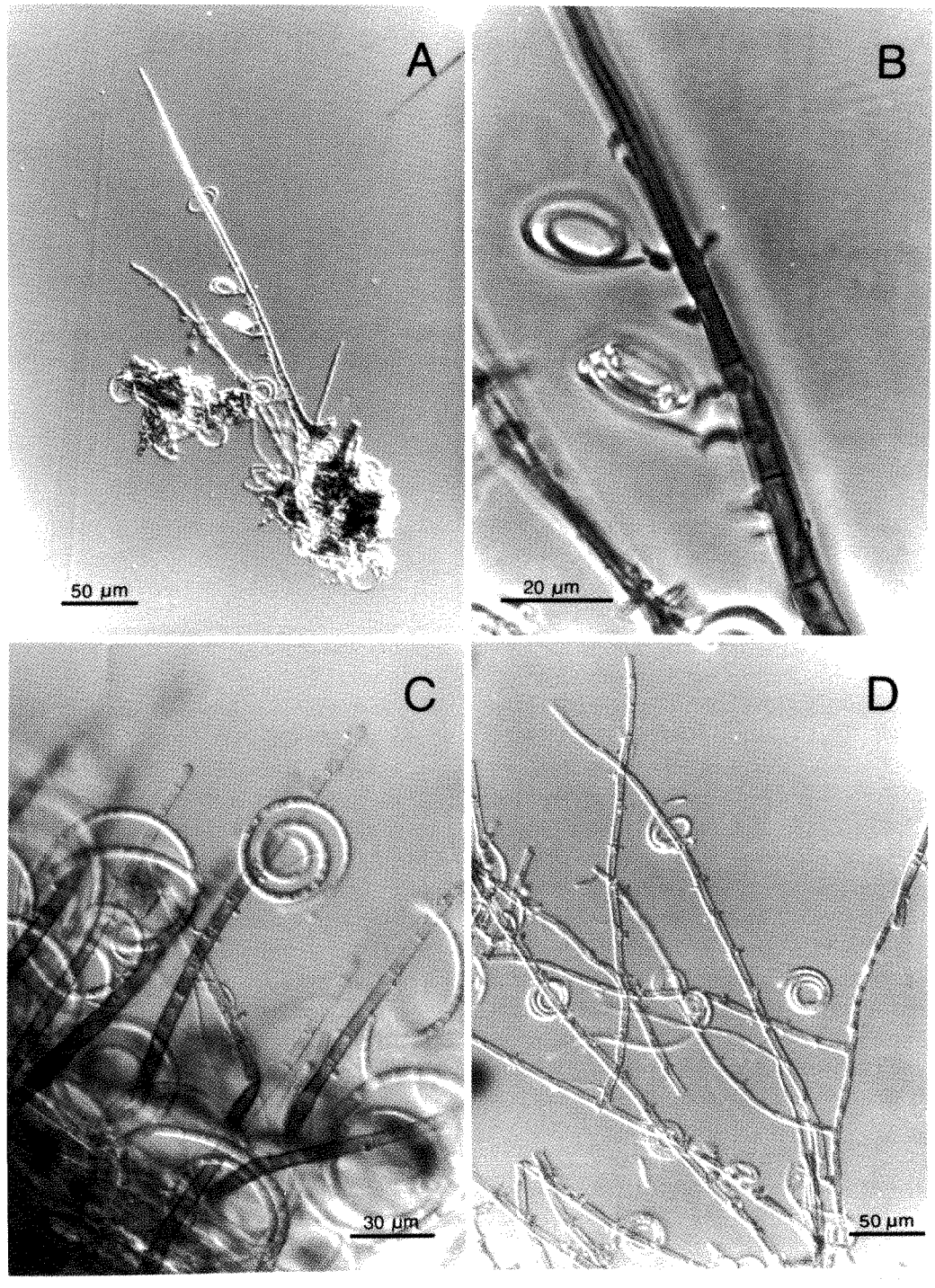

Fig. 1. A and B, *Helicosporium guianensis*; C, *H. nematosporium*; D, *H. phragmites*.

Conidiogenous cells monoblastic, teeth-like protrusion, 3.00-4.00 x 2.50 μm. Conidia coiled mostly 2.5 time, multi-septate, light brown, conidial filaments 4-7 μm. (mostly 5-6 μm) with slightly swollen rounded basal end.

Habitat: On decayed wood.

Distribution: Wulai. Taipei.

Helicosporium phragmites Hohnel, Ann. Myc. 3: 338, 1905. (Fig. 1, D)

Colonies effuse, olivaceous brown, tinged pink by conidia. Mycelium immersed. Conidiophores if branched in lower part, simple above, very light fuscous below, almost hyaline above, up to 290 μm and 2.5-3.2 μm in wide. Conidiogenous cells monoblastic, teeth -like. Conidia hyaline, multi-septate, light pink in mass, coiled conidia 16-18 μm in diameter, conidial filament 1.5-2.3 μm in thickness.

Habitat: On decayed wood.

Distribution: Alisan (Chia-I County), Chitou (Nantou County), Nankang (Taipei) and Kukuan (Taichung County).

Helicosporium serpentinum Linder, Ann. Mo. Bot. Gard. 16: 288, 1929. (Fig. 2, A)

Colonies effuse, olivaceous to brown, thin hairy. Mycelium immersed. Conidiophores arising from wide, light brown repent hyphae, straight, brown at base, gradually tapering to the apex end, brown and becoming very light brown on the upper portion, 65-115 x 6-7. 5 μm. Conidiogenous cells monoblastic, teeth-like. Conidia multi-septate, constricted at septa, broad in the middle, tapering to the rounded distal end, light brown, 7-10.5 μm at the widest part, mostly stretched out after mounted on lactophenol, coiled conidia 30-40 μm.

Habitat: On decayed wood.

Distribution: Lortung, Yilan County.

Helicomyces ambiguus (Morgan) Linder, Ann. Mo. Bot. Gard. 16: 273-274, 1929. (Fig. 2, B)

Colonies effuse, forming a thin flocculose, rose -colored layer. Mycelium immersed, sterilized mycelium hyaline, creeping, septate and branched. Conidiophores hyaline, erect or bent, simple, septate, 10 -37.5 x 3-4 μm. Conidiogenous cells monoblastic. Conidia acrogenous, hyaline, multi-septate, 27.5-47.2 μm for coiled conidia in diameter, conidial filaments 5.

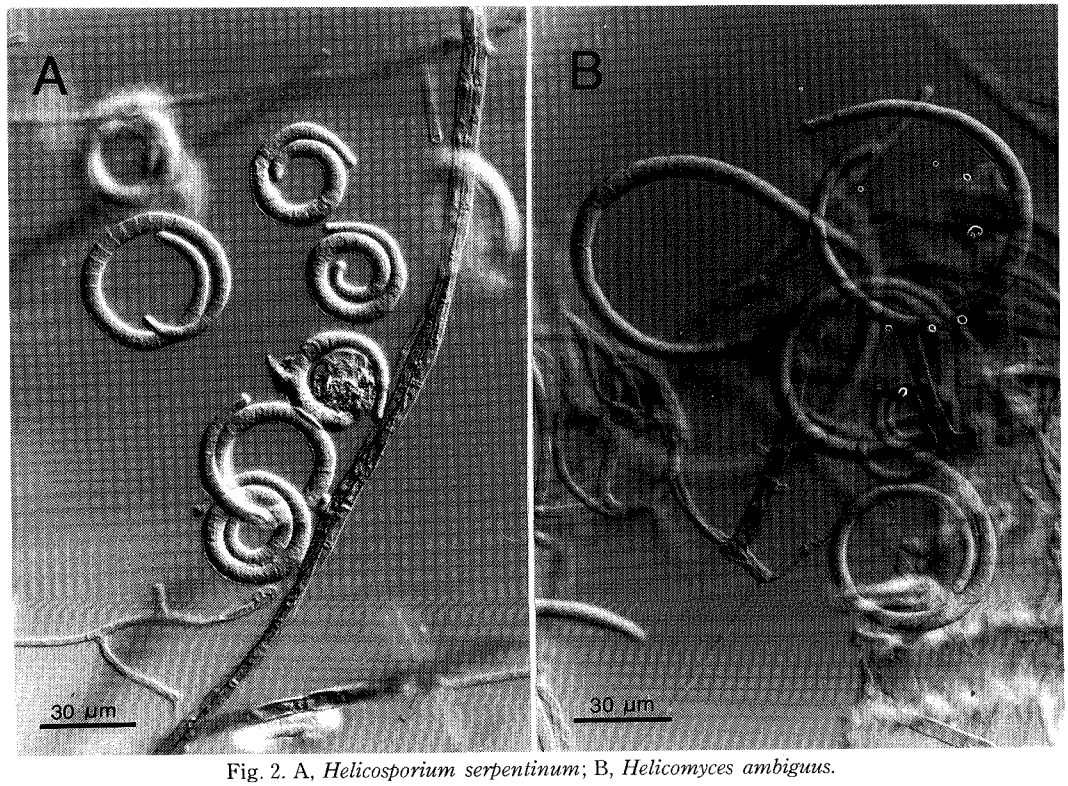

Fig. 2. A, *Helicosporium serpentinum*; B, *Helicomyces ambiguus*.

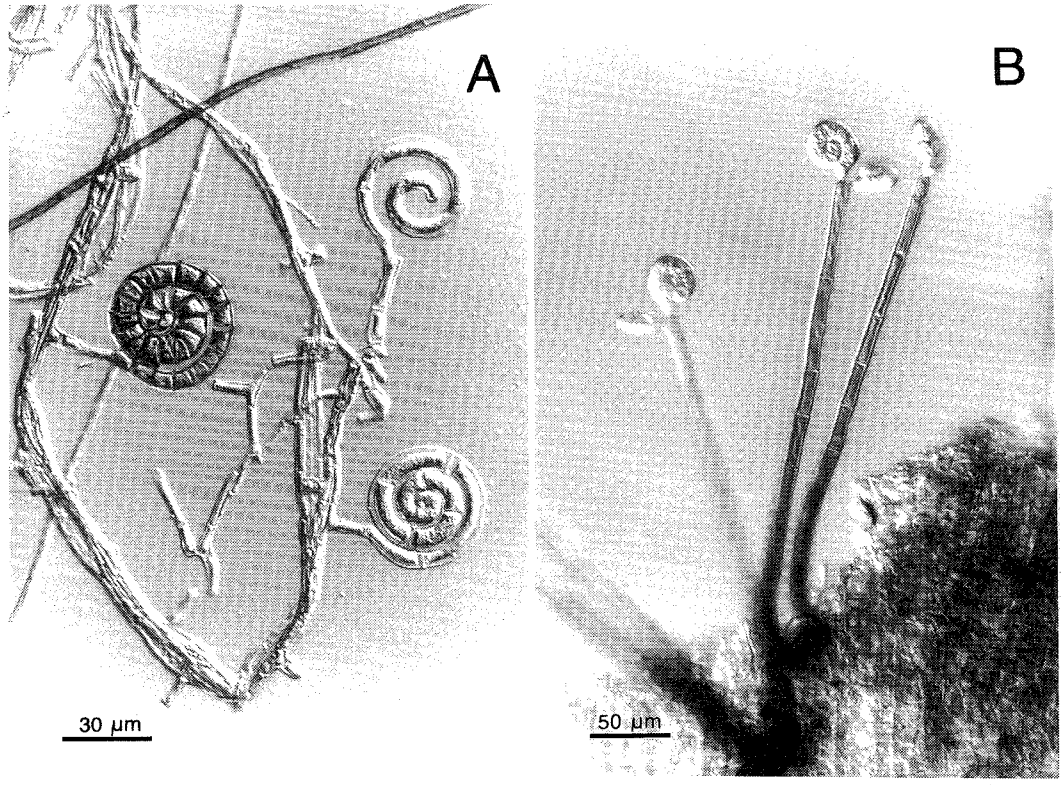

Fig. 3. A, *Helicoma perelegans*; B, *H. muelleri.*

3-7.5 μm. tapering towards the rounded distal end and towards the truncate basal end; coiled 1.3 to 2.5 times.
Habitat: On decayed wood.
Distribution: Grass Mountain (Yangmingshan), Taipei and Puli, Nantou County.

Helicome perelegans Thaxter ex Linder. Ann Mo. Bot. Gard. 16: 303, 1929. (Fig. 3, A)

Colonies effuse, dark olivaceous. Mycelium immersed, surface thin hairy. Conidiophores short, arising from repent hyphae on nature substrate, a decayed twig, one septum on basal part, light brown, 12.5-25 x 3.7-5.3 μm. Conidiogenous cells mono- or polyblastic, integrate, denticulate, usual terminal; conidial filament tightly coiled 2 to 3 times, with multi-septate, dark brown, tapering gradually towards truncate basal cell, coiled conidia 35-45 μm. Conidial filaments 3.8-4.4 μm at thinnest portion and 7.4-9.4 μm at thickest portion.
Habitat: On decayed twig.
Distribution: Sun-lin-chi, Nantou.

Helicoma muelleri Corda Icones Fungorum 1: 15, 1937. (Fig. 3, B)

Colonies effuse, olivaceous brown to dark red brown, surface hairy. Mycelium immersed. Conidiophores arising from dark brown, thick walled hyphae, singly, straight or slightly flexous, brown to light brown at apical part, 90-170 x 4-6.5 μm. Conidiogenous cells mono- or polyblastic, denticulate. Conidia coiled 1.5-1.75 times, conidial filaments 6.5-7.7 μm. Coiled conidia 17.5-19 μm, round at apex and tapering to truncate base, light olivaceous brown, smooth, 6-8 septate.
Habitat: On decayed wood.
Distribution: Wulai, Taipei.

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台灣七種新記錄之螺旋型孢絲狀不完全菌類

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本文記載七種台灣新記錄之螺旋型孢絲狀不完全菌類，七種菌是 *Helicosporium guianensis, H. nematosporium, H. phragmites, H. serpentinum, Helicomyces ambiguus, Helicoma perelegans* 及 *H. muelleri*，這七種菌都是生長在溪流水中浸泡過的樹木斷枝幹上，七種菌均經分離、培養，且均產螺旋型分生孢子。