

Six synnematos hyphomycetes new for Taiwan

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Abstract. Six synnematos hyphomycetes, i.e., *Arthrobotryum stilboideum*, *Drumopama girisa*, *Endophragmia atra*, *Kostermansinda minima*, *Phaeoisaria clematidis*, and *Phialosporostilbe turbinata*, all new for Taiwan were described. They are observed on decayed twigs collected at humid areas either submerged in or along the streams.

Key words: Synnematos hyphomycetes; Taiwan.

Introduction

During our survey of helicosporous hyphomycetes, some interesting synnematos hyphomycetes new for Taiwan were also observed. The fungi were isolated and preserved in laboratory formed as part of materials for Taiwan mycoflora. Herein six species were described and illustrated.

Materials and Methods

Partially decayed twigs collected from river beds, streams or humid river bank were rinsed with water after brought back to the laboratory and air dried to get rid of excessive water on surfaces. The twigs were cut into 5 to 6 cm long and then incubated in moist chambers. After a few days to a week incubation at 15 to 20°C, the twigs were examined under a dissecting microscope to scan the fruit-bodies of microfungi which appeared on twigs. The twigs were scanned under dissecting microscope interally thereafter up to a month or longer. The desired microfungi were isolated by picking up the fruit-bodies, mainly the conidia, and transferred to V-8 juice agar plates. For fructification of the fungi, they were grown on autoclaved corn leaf section placing on Sach's medium in 6-cm Petri

dish and incubated at 25°C under 14 h photoperiodic regime to enhance the formation of fruit-bodies. Books by Carmichael *et al.* (1980), Ellis (1971) and Subramanian (1971) were the key references for identification in the present study.

Results. Species Descriptions and Remarks

Arthrobotryum stilboideum Ces., Hedwigia 1. 1854 (Fig. 1.)

Colonies effuse, dark brown. Mycelium mostly immersed; hyphae hayline or brown, 1.5-3 μm thick. Stroma none. Setae and hyphopodia absent. Synnema formed singly or in small groups, erect, straight or slightly curved, subulate or cylindrical, black, up to 400 μm high, 30-40 μm thick, up to 75 μm at the base. Individual thread ca. 3 μm thick, septate, brown, pale brown at upper part where conidiophore threads loosed and branched to become conidiogenous cells, percurrent. Conidia produced in basipetal succession in slime at the tips of the branches, each as a blown-out end, ellipsoid or cylindrical, rounded at the apex, very pale brown, smooth, with 1-3 septa, usually 3, 13-15 x 4.5-5 μm .

This fungus was found on decayed twigs collected at Sun-lin-chi in brook, distributed in Europe and Japan.

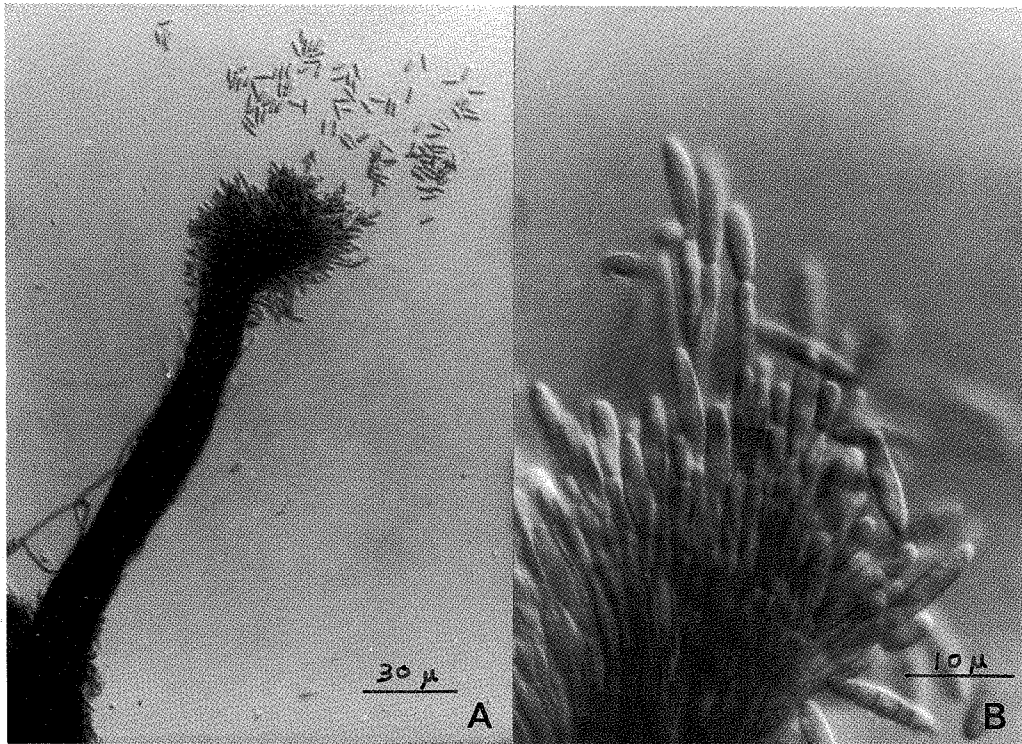


Fig. 1. A and B, *Arthrobotryum stilboideum*.

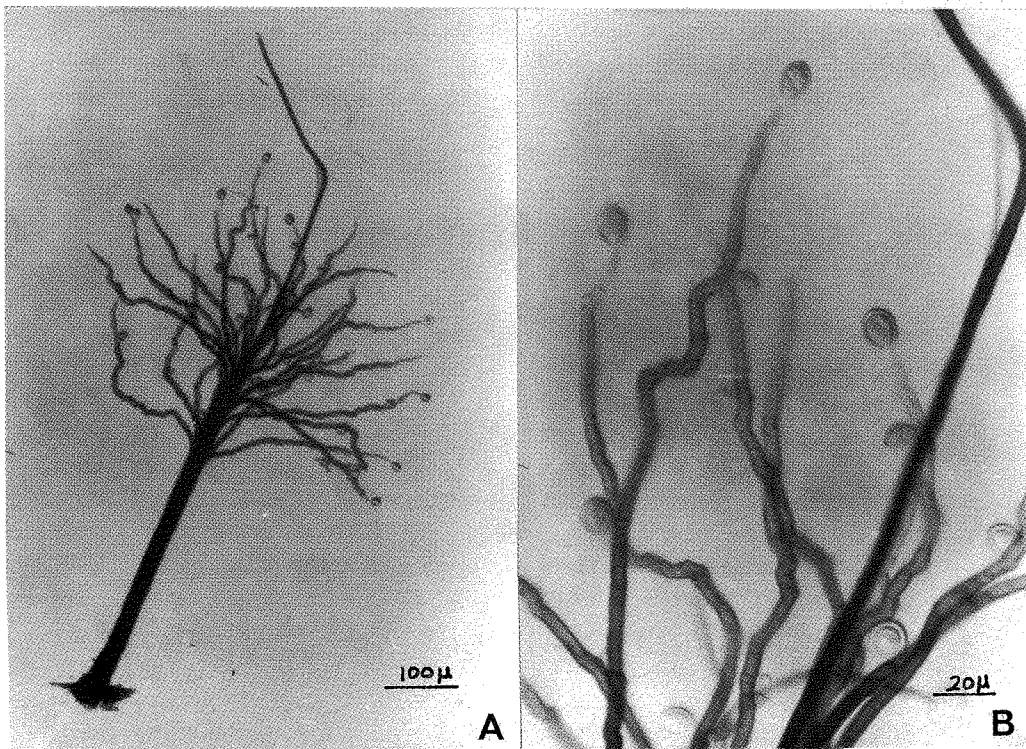


Fig. 2. A and B, *Drumopama girisa*.

Drumopama girisa Subram., Proc. Indian Acad. Sci. B 46: 331-334, 1957 (Fig. 2)

Colonies effuse, greyish brown, mycelium mostly immersed. Synnematos conidiophores up to 900 μ high, ca. 22 μ m thick, dark brown. Individual synnematos hyphae ca. 5 μ m wide, septate; unbranched, spraying out at upper part of synnema. Conidiogenous cells polyblastic, integrated, sympodial, cylindrical, geniculate, denticulate. Conidia produced acrogenously, singly, ovoid to subglobose, hyaline, smooth, 13-15 \times 4.5-5 μ m.

This fungus was found on dead *Miscanthus* sp. from a specimen collected at Chung-pu, Chia-i and on cane leaves.

Endophragmia atra (Berk & Br.) M. B. Ellis comb nov., Myco. Pap. 72: 22-24, 1959 (Fig. 3)

Colonies effuse, tufted, creamy yellow to light brown. Mycelium immersed in the medium. Stromata mostly superficial, dark brown. Conidiophores on natural substrate forming a synnema arising from stroma, erect, dark brown, up to 250 μ m high, 40 μ m wide, individual threads ca. 4.4 μ m, subhyaline or pale brown,

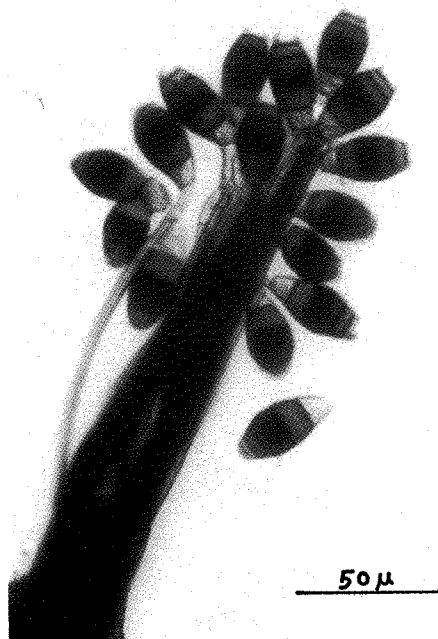


Fig. 3. *Endophragmia atra*.

upper part free; in culture fascicle instead of forming synnemata. primary conidia formed singly at the apex of each conidiophore, oval, round at the apex, truncate at the base, smooth-walled, usually with 3-septate, cells at each end subhyaline or pale brown, central cells brown to dark brown, usually with broad black bands at the septa, 33.5-37 \times 16.5-17.6 μ m. No secondary conidia seen.

This fungus was observed on decayed twig collected from a stream at Wu-lai.

Kostermansinda minima Cabello et Arambarri., Mycotaxon 29: 32, 1987 (Fig. 4)

Colonies effuse, dark pinkish purple, white hairy mycelium on surface. Mycelium immersed. Synnemata solitary, split at the apex, individual conidiophores slightly bent out, golden yellowish brown, 200-250 \times 19-31 μ m. individual threads 2.5-3.5 μ m wide. Conidiogenous cells monoblastic, integrate, determinate. Conidia elliptical, muriform, comprising of a large muriform part and a hyaline vesicle, mostly with 3 transversal septa and longitudinal septa, light golden brown, 28-38 \times 16-18 μ m, muriform part 23-29 \times 16-18 μ m, vesicle part 6-9.5 \times 8-9 μ m, vesicles non-septate.

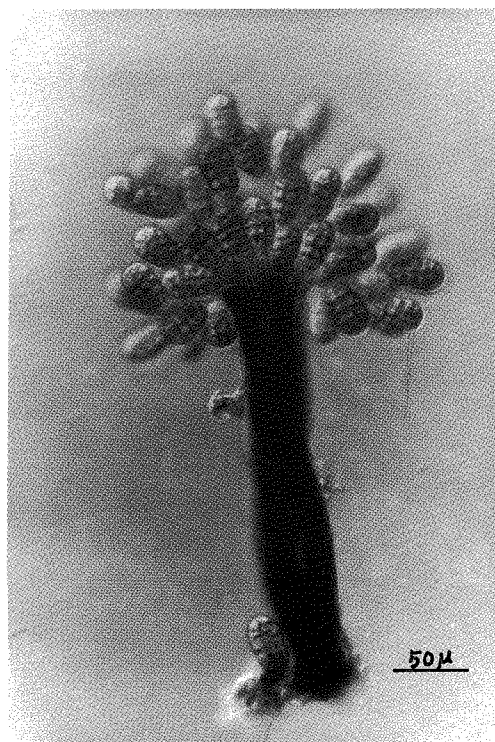


Fig. 4. *Kostermansinda minima*.

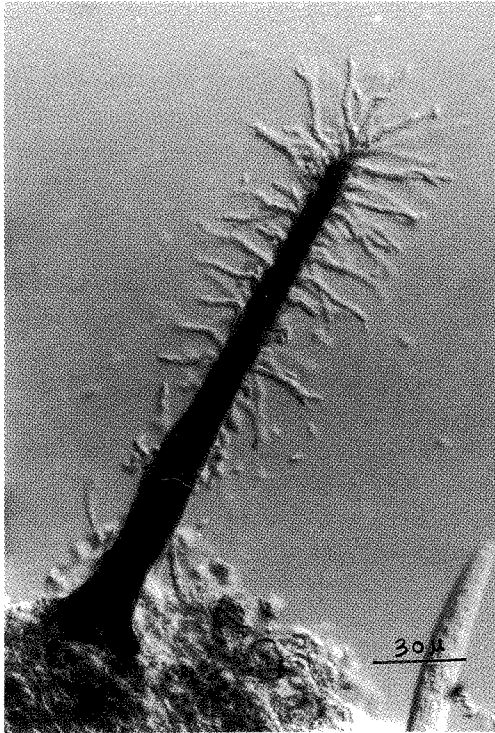


Fig. 5. *Phaeoisaria clematidis*.

This fungus was observed on decayed twig collected on dried river bed at Ku-kuan, Taichung. This fungus was reported only from Argentina by Marta Cabello and Angelica Arambarri in 1987 as a new species.

Phaeoisaria clematidis (Fuckel) Hughes, Can. J. Bot. 36: 795, 1958 (Fig. 5)

Colonies effuse, black, hairy; the upper half or two thirds of each synnema is seen to be covered with white powdery mass of conidia. Mycelium mostly immersed. Stroma usually none. setae and hyphopodia absent. Synnemata 220-900 μm high, 14-37 μ thick at base, 7-11 μm at the apex, subulate, individual threads 2-3 μm thick. Conidiogenous cells cylindrical or clavate, pale brown, usually with numerous cylindrical denticles. Conidia fusiform or narrowly ellipsoidal, 5.5-8 \times 2-3 μm .

This fungus was observed on decayed twigs collected from stream at Sun-lin-chi and Wulai.

Phialosporostilbe turbinata Mercado et Mena, Revista Del Jardin bot. Nacional 6: 57-60, 1985 (Fig. 6)

Colonies effuse, dark brown to black, hairy.

Mycelium immersed. Stromata mostly present, small, dark brown. Synnemata erect or flexuous, cylindrical, brown to dark brown, 300-620 μm high, 13-19 μm thick near the base, loosed up and separated into individual conidiophores, septate. Conidiogenous cells monophialidic, integrate, determinate, subulate, cylindrical, brown to pale brown at the apex. Phialoconidia solitary, single, cuboid, hyaline, thin-walled, smooth, with semispherical base part to sit on the phialidic conidiogenous cells, 11-14 μm length, 10-11.5 μm wide, conidia with 4 fine appendages, one at the apex, two at the side ridge and one at the basal part.

Phialosporostilbe was a newly erected genus typified by a new species, *P. turbinata* from Cuba in 1985 by Mercado and Mena. Morphologically our isolate is very similar to the Cuban isolate in possessing a synnematosous conidiophores with phialidic conidiogenous cells. However, synnematosous conidiophores of our isolate up to 600 μm high compared to 320 μm of those of the Cuban isolate. In addition, conidia of our isolate are more as a cubic with a rounded lower half sitting on phialidic conidiogenous cells instead of having a turbinate conidia. Without comparing our isolate with type culture we felt that it was wise to be reserved to erect our isolate as a new species though our isolate is somewhat different from the Cuban isolate.

This fungus was observed twice, once on *Miscanthus* straw collected at Kuan-hsi and another one on decayed twigs collected at Grass-mountain.

Acknowledgment. I wish to thank Drs. Gen Okada and Keith Seifert for locating and sending me a copy of paper by Mercado and Mena on *Phialosporostilbe turbinata* and to Dr. Okada for very helpful discussion on this fungus.

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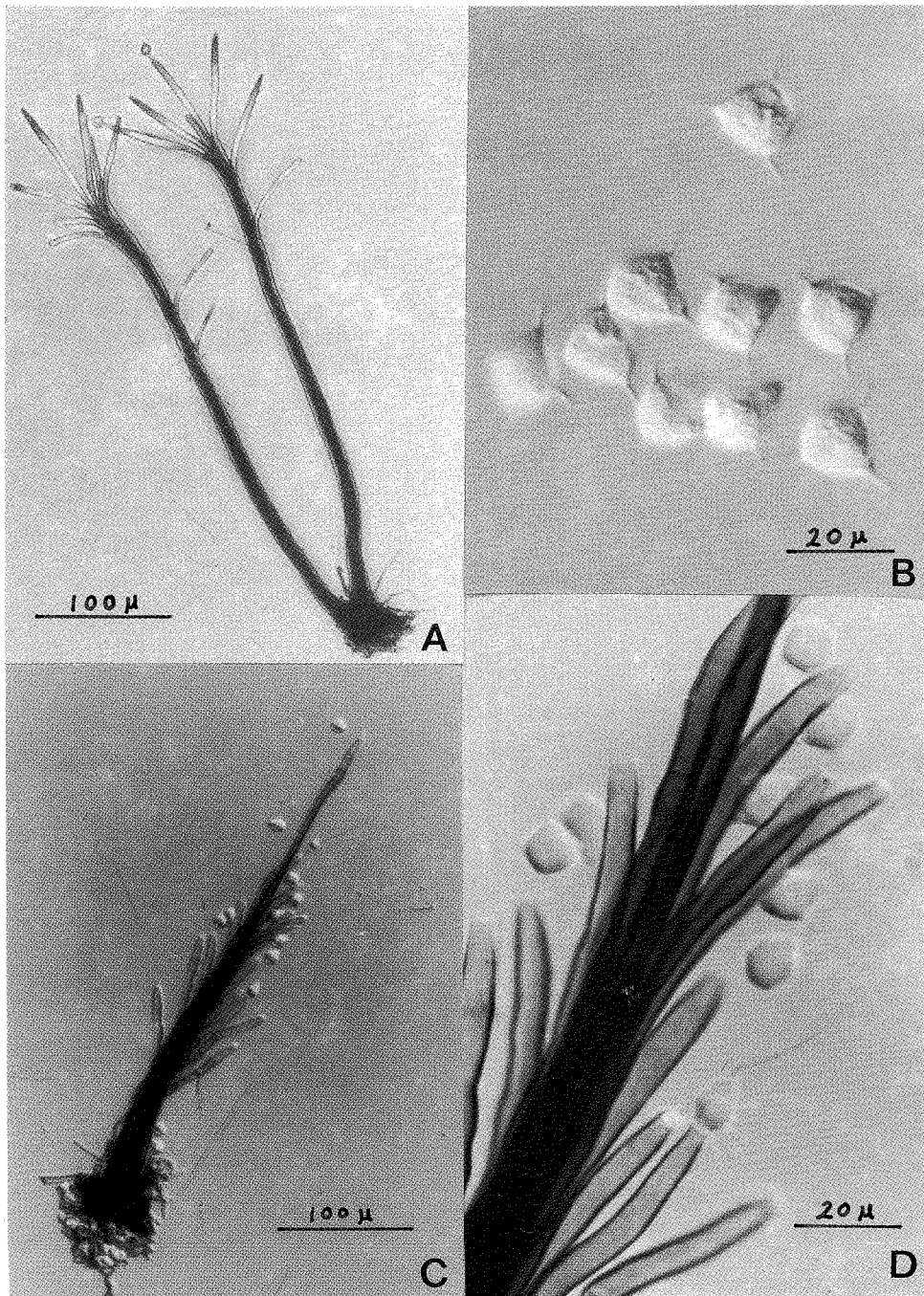


Fig. 6. *Phialosporostilbe turbinata*, A and B, Grass-mountain isolate on natural substrate, C and D, Kuan-hsi isolate formed on corn leaf section placing on Sach's medium.

六種台灣新記錄之分生子柄束菌

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本文記載六種台灣新記錄之分生子柄束菌：*Arthrobotryum stilboideum*, *Drumpama girisa*, *Endophragmia atra*, *Kostermansinda minima*, *Phaeoisaria clematidis*, 和 *Phialosporostilbe turbinata*, 所有上述六種分生子柄束菌都是生長在溪流水中浸泡過或極為潮濕之樹木斷枝幹上。這些斷枝幹或已呈腐朽或半腐朽。上述菌均經分離培養並形成子實體。