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Myxomycetes of Taiwan (XX): A New Species of *Cribraria*

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ABSTRACT: *Cribraria angulospora* C.H. Liu & J.H. Chang sp. nov. is described and illustrated. It is characterized by crowded, tubular sporangia with conspicuous peridial net, and angular spores marked by warts or spines confined in large reticula. Key to the *Cribraria* species of Taiwan is also provided.

KEYWORDS: ***Cribraria*, Cribrariaceae, Myxomycetes, Taiwan, True slime molds.**

INTRODUCTION

The genus *Cribraria* now includes the species which were previously classified in the genus *Dictydium* (Nannenga-Bremgkamp, 1991). Members in this genus are characterized by dictydine granules, peridium remaining as a net with or without nodes, and sporangiate fruiting bodies consisting of stalked sporangia with or without basal cups. Twenty members of *Cribraria* in Taiwan have been reported previously (Nakazawa, 1929; Wang et al., 1981; Liu, 1983; Chiang and Liu, 1991; Chen et al., 2005; Liu et al., 2006). In this paper a new species, *C. angulospora* is described and illustrated. The voucher specimen is deposited at the herbarium of National Museum of Natural Science, Taichung, Taiwan (TNM). The specimen was collected from fields in 1979. Fruiting bodies and their morphological structures were examined by light and scanning electron microscopy as described previously (Liu et al., 2002).

TAXONIC TREATMENTS

Cribraria angulospora C.H. Liu & J.H. Chang, sp. nov. Fig. 1

Fructificationes sporangiatae, congestae, longiores quam 1 cm in extensione corymbi. Sporangia cylindrical, 0.88-1.28 mm diam., stipitata vel sessile in partim, lucide brunea. Peridium iridescentium, persistente, sed evanescens in apices convexo peridii, reliquo in forma reticuli, nodis angularibus que grundibus, granulis plasmodicis praesentibus in subsuperficiotibus peridic. Stipes brevis cum praesens, 0.16-0.30 mm altus, brunneus. Hypothallus subochraceous, extentus, firmus, crassua. Sporae in cumulo ochraceo-brunneae, pallidae luce transmissa, angulatae in ambitis, minute verruculosae vel spinulosae, costis conspicuis in forma grandis reticuli, 5-6 μm diam. Plasmodium ingotum.

Fructifications sporangiate, crowded, larger than 1 cm in extension of a cluster. (1.2-) 1.5-2.3 mm in total height. Sporangia cylindrical, stipitate or sessile in some, bright brown, 0.88-1.28 mm in diameter. Peridium iridescent, persistent but evanescent at the convex top and remaining as peridial net with large, angular nodes, dictydine granules present on the under surface of peridium. Stalk short when present, 0.16-0.30 mm long, brown. Hypothallus pale ochraceous, extensive, firm and thick. Spores ochraceous brown in mass, pale by transmitted light, angular in profile, minutely warted or spinulate and confined in prominent, large reticula of 3-4 meshes to the hemisphere, 5-6 μm in diameter. Plasmodium not observed.

Etymology: Latin, *angulo* = angular, and *spora* = spore, referring to the angular spore.

Holotype: Taiwan: Kaohsiung County, Liouguei, Maolin, Nanfeng Mt., on dead wood, *CHL M19* (TNM F19855), 1 June 1979.

Distribution: Known only from Taiwan.

The crowded cylindrical sporangia bearing peridial net at the top and the spore surface markings are distinct characters of this species. This species very much resembles *Cribraria cribrariodes* (Emoto) Hatano in habit. However their spore markings are different. The spores of *C. cribrariodes* are rounded, minutely warted or verrucose (Hatano, 1986; Hatano et al., 1996).

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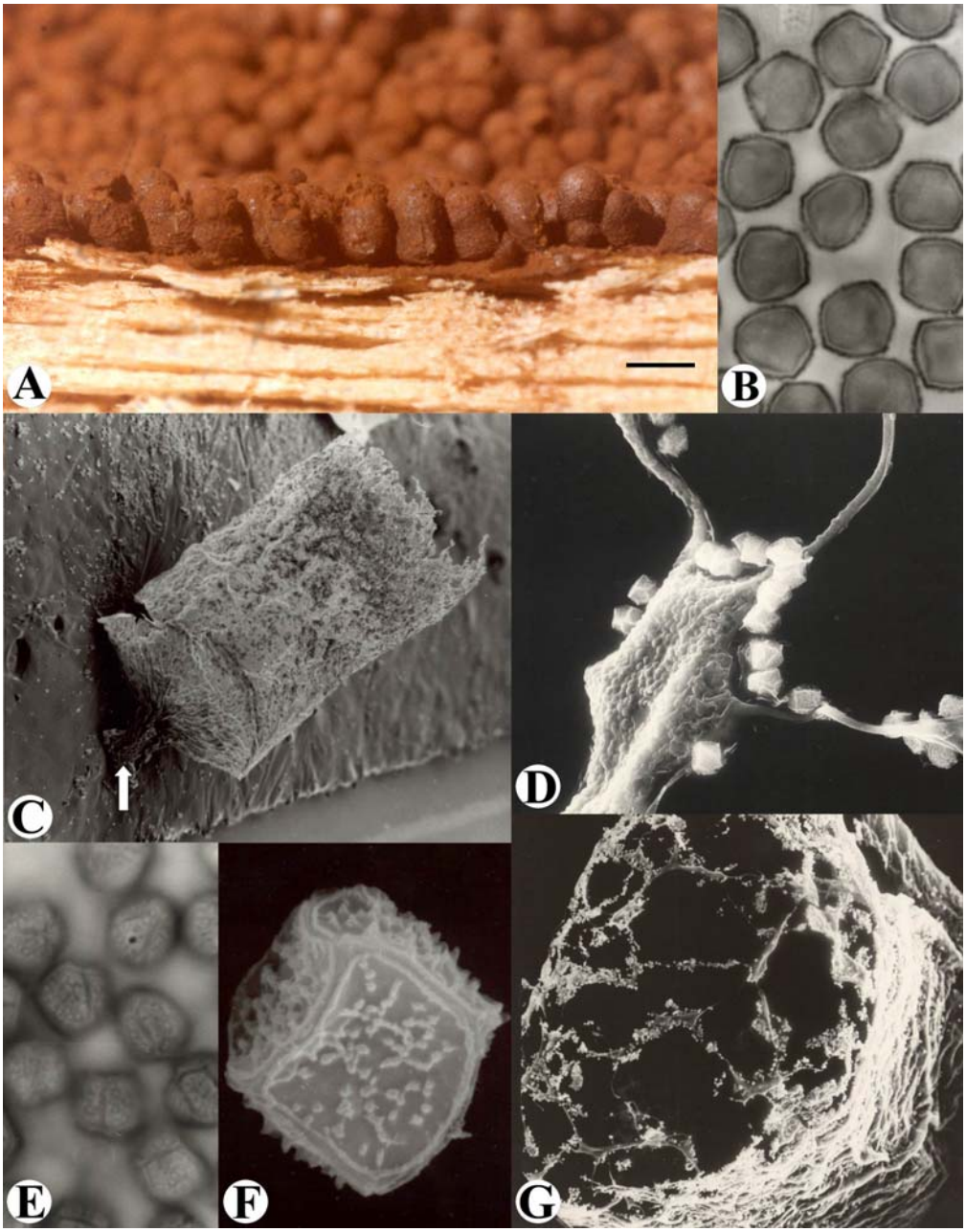


Fig. 1. *Cribraria angulospora*. A: Fruiting bodies. B: Spores, marginal view. C: One fruiting body, showing the stalk (arrow), by SEM. D: Peridial node and spores, by SEM. E: Spores, surface view. F: Spore surface markings, by SEM. G: Top view of sporangium, showing the peridial net, by SEM. Scale bar: A = 2 mm, B & E = 5 μm, C = 300 μm, D = 10 μm, F = 1.5 μm, G = 120 μm.

Key to species of *Cribraria* from Taiwan

1. Fructification intense violet, small, usually on bark …..... ..... *C. violacea* Rex
1. Fructification shades of yellow, orange, red or brown, not violet 2
2. Peridial net composed of long and subparallel ribs, connected by very delicate transverse threads, peridial nodes lacking 3
2. Peridial net composed of short, branching and anastomosing threads, peridial nodes usually present .....……. 5
3. Peridial net with 20-30 subparallel ribs which merging to form a coarse net at the apex of sporangium, sporangium erect, more or less rounded and not umbillicate above …..... ..... *C. mirabilis* (Rostaf.) Massee
3. Peridial net with 40-50 subparallel ribs which extending to the apex of sporangium, sporangium nodding, depressed globose, usually umbillicate above …..... 4
4. Peridium without basal calyculus ……..…..... ..... *C. cancellata* (Batsch) Nann.-Bremek.
4. Peridium with basal calyculus …..... .....*C. cancellata* var. *fusca* (Lister) Nann.-Bremek.

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5. Peridial net without obvious nodes ……...…… 6
5. Peridial net with widened or thickened nodes …….…….. 7
6. Fructifications densely clustered; sporangia 0.5-1.0 mm in diameter; calyculus with an irregular upper margin ….....…. ..... *C. argillacea* (Pers. ex J.F. Gmel.) Pers.
6. Fructifications scattered; sporangia less than 0.3 mm in diameter; calyculus with smooth margin ……..… *C. minutissima* Schwein.
7. Calyculus lacking or minute ….....…… 8
7. Calyculus well developed …….....…… 13
8. Spore mass dull orange-red; stalk long, slender, usually more than 6/7 total height …….....……..... 9
8. Spore mass ochraceous; stalk never reaching 6/7 total height ... 10
9. Nodes hemispherical, dark, strongly concave on inner side; dictydine granules dark .....…… *C. microcarpa* (Schrad.) Pers.
9. Nodes pulvinate, pallid, slightly concave on inner side; dictydine granules pale …….…..…….....
... *C. microcarpa* var. *pachydictyon* (Nann.-Bremek.) Y. Yamam.
10. Sporangia 0.07-0.25 mm in diameter; peridial nodes slightly widened and flatten; calyculus reduced to a small disk of 30-75 μm in diameter…….….. *C. confusa* Nann.-Bremek. & Y. Yamam.
10. Sporangia usually more than 0.3 mm in diameter; peridial nodes thickened 11
11. Peridial nodes in lower part of sporangium elongated, rib-like .....…..... *C. intricata* var. *dictydioides* (Cooke & Balf.) Lister
11. Peridial nodes in lower part of sporangium not forming ribs …. 12
12. Sporangia 0.5-0.7 mm in diameter; nodes pulvinate but expanded and angular; net with numerous free ends ..... *C. intricata* Schrad.
12. Sporangia 0.3-0.5 mm in diameter; nodes compact, rounded; net with few free ends ….....…….. *C. tenella* Schrad.
13. Peridial nodes of net flat …….....…….. 14
13. Peridial nodes distinctly thickened …….....……...…… 18
14. Calyculus perforated above, strongly ribbed, gradually merging into the net, deep as 1/2 of sporangium height .... *C. macrocarpa* Schrad.
14. Calyculus not perforated, sharply distinguished from net ...….. 15
15. Spores rounded, nearly smooth ..…. *C. splendens* (Schrad.) Pers.
15. Spores angular, with large reticulation …….....…….. 16
16. Stalk short, 0.2-0.3 mm long; fruiting bodies sporangiate, crowded; sporangia cylindrical …….....…… ..... *C. angulospora* C.H. Liu & J.H. Chang
16. Stalk more than 1.0 mm height ……. 17
17. Sporangia orange-borwn; spores 6.0-9.0 μm in diameter ..... *C. vulgaris* var. *oregana* (H.C. Gilbert) Nann.-Bremek. & Lado
17. Sporangia purplish-brown; spores 5.0-6.0 μm in diameter ....*C. vulgaris* Schrad.
18. Stalk long, up to 10 times the diameter of sporangium .... *C. languescens* Rex
18. Stalk shorter, less than 10 times the diameter of sporangium 19
19. Stalk 1-2 times height of sporangium; peridial net notably large-meshed …….....……..… *C.* cf. *laxa* Hagelst.
19. Stalk usually longer; meshes of net not notably large ….……... 20
20. Sporangia pyriform; stalk expanded at apex ……....…... ..... *C. piriformis* Schrad.
20. Sporangia globose; stalk cylindrical, not expanded at apex ....…..... *C. aurantiaca* Schrad.

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臺灣黏菌 (二十)：一種篩黏菌屬世界新種

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摘　　要

本篇報導一世界新種：角孢篩黏菌 (*Cribraria angulospora* C.H. Liu & J.H. Chang)，它的主要特徵為子實體成群、密集，孢子囊呈管狀，並有周膜網目。孢子呈角形，孢子的表面具大網格，其內有小刺狀凸起。內文並提供臺灣所紀錄的篩黏菌屬物種之檢索表。

關鍵詞：篩黏菌屬、篩黏菌科、黏菌綱、臺灣、真黏菌。

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