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**Two new species of *Cribraria* (Liceales) from China**

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**Abstract** Two new species of *Cribraria* from China are described and illustrated. *Cribraria irregularis* is characterized by its flat and irregular shapes in ribs, threads, and nodes. *Cribraria paucidictyon* is characterized by deep and crateriform cups, open and simple nets, and spores with incomplete and faint reticulations combined by long warts.

**Key words** China · *Cribraria irregularis* · *Cribraria paucidictyon* · Liceales

The genus *Cribraria* Pers. (Liceales) was established by Persoon in 1794. About 40 species have been reported in the world (Martin and Alexopoulos 1969; Nannenga-Bremekamp 1971; Flatau and Schirmer 1994). Among these, 23 species have been recorded in China, 2 of which were described as new taxa from China (Zhou and Li 1983; Li and Li 1989, 1995).

To clarify the flora of the Liceales in China, the specimens collected in China and kept in the Herbarium of the Institute of Microbiology, Academia Sinica, China (HMAS) were examined with light and scanning electron microscopy. I propose here two new species from China.

***Cribraria irregularis*** Yu Li, sp. nov. Figs. 1,2

Fructificatio sporangiocarpia; sporangia stipitata, dispersimgregaria, cernua, atro-flava vel fulva, depressoglobosa vel subglobosa, 0.2–0.5 mm diameter; calyculi plerumque destituti, si praesenti nunc vadiosi et parvi, saepe costis paucis irregularibus crassis et oblatiis granis protoplasmaticis solidis completis praediti; reticula peridiorum ca. 1/2 sporangii tenentia, irregularia; nodi complanati, expansi et furcati; stipes exilis, longitudinaliter rugulosus, brunneus vel fulvus, 1.5–2.0 mm, apicem versus

attenuatus; hypothallus parvus, atro-flavus; sporae in massa sporangiis concolorae, luce transmissa dilute fulvae, dense verruculosae, subglobosae, 5–7 µm diameter. Plasmodium ignotum.

Holotypus: In lignis emortuis arborum coniferarum, Shennongjia, Hubei, Sinica, 19 Aug. 1984, H.-Z. Li (HMAS S230).

Etymology: *irregularis* (= irregular), referring to the irregular shape of ribs, threads, and nodes.

Fructification sporangiate; sporangia stalked, dispersively gregarious, nodding, dark yellow to yellow-brown, depressed globose or subglobose, 0.2–0.5 mm in diameter; net about half of the sporangia; net meshes irregular; nodes flat, expanded, and forked; calculus usually absent, supplied by few irregular, thick, and flattened ribs filled with dictydine granules, shallow and small if present; stalk slender, longitudinally furrowed, tapering upward, brown or yellow-brown, 1.5–2.0 mm long; hypothallus small, dark brown; spores concolorous with the sporangia in mass, light yellowish-brown by transmitted light, subglobose, densely warted, 5–7 µm in diameter. Plasmodium is unknown.

Habitat: On dead coniferous woods.

Holotype: HMAS S230 on dead coniferous wood, Shennongjia, Hubei, China, H.-Z. Li, 19 Aug. 1984.

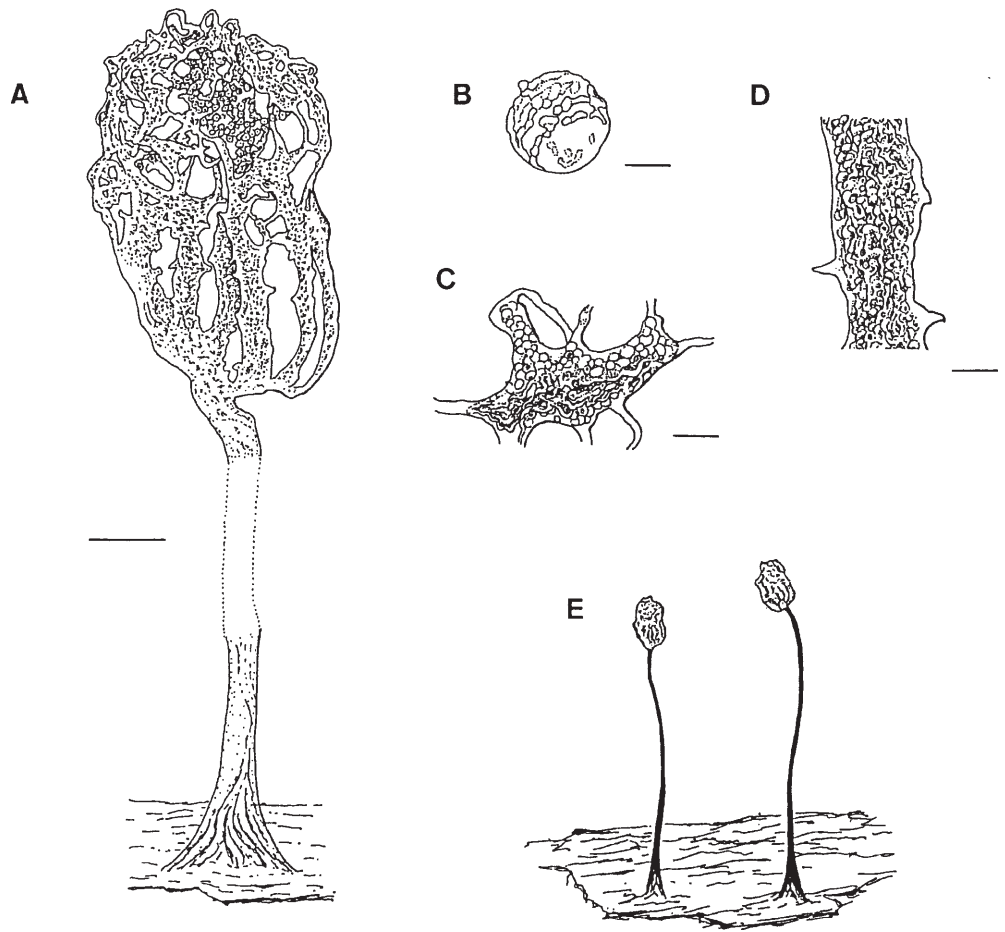
Note: This species is characterized by its flat and irregular shapes in ribs, threads, and nodes. In known *Cribraria* species, of which cups are usually replaced by firm ribs, this new species differs from *C. microcarpa* (Schrad.) Pers., *C. costata* Dhillon & Nann.-Bremek., and *C. martinii* Nann.-Bremek. in its large, flat nodes and few, irregular, flat ribs thickened with dictydine granules, from *C. paucicostata* Nann.-Bremek. in its yellow sporangia, longer stalks, and a few flat and irregular ribs, and from *C. splendens* (Schrad.) Pers. in its yellow sporangia and thick and flat net threads.

***Cribraria paucidictyon*** Yu Li, sp. nov. Figs. 3,4

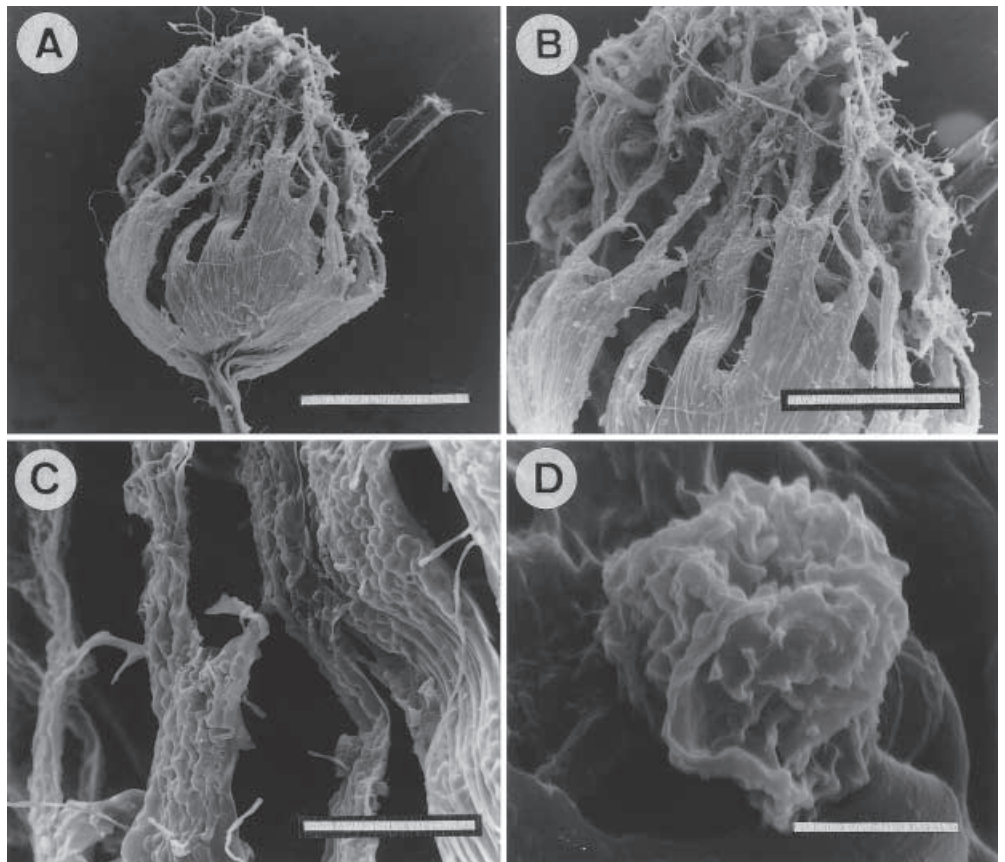
Fructificatio sporangiocarpia; sporangia stipitata, erecta, dispersa, brunnea vel castanea, piriformia vel subglobosa, 0.2–0.4 mm diameter, 0.6–1.2 mm alta; calyculi magni, alte crateriformes, margine obvio, 2/3 vel magis multa bartis sporangii tenentes, basi plani, costis multis et radiatis

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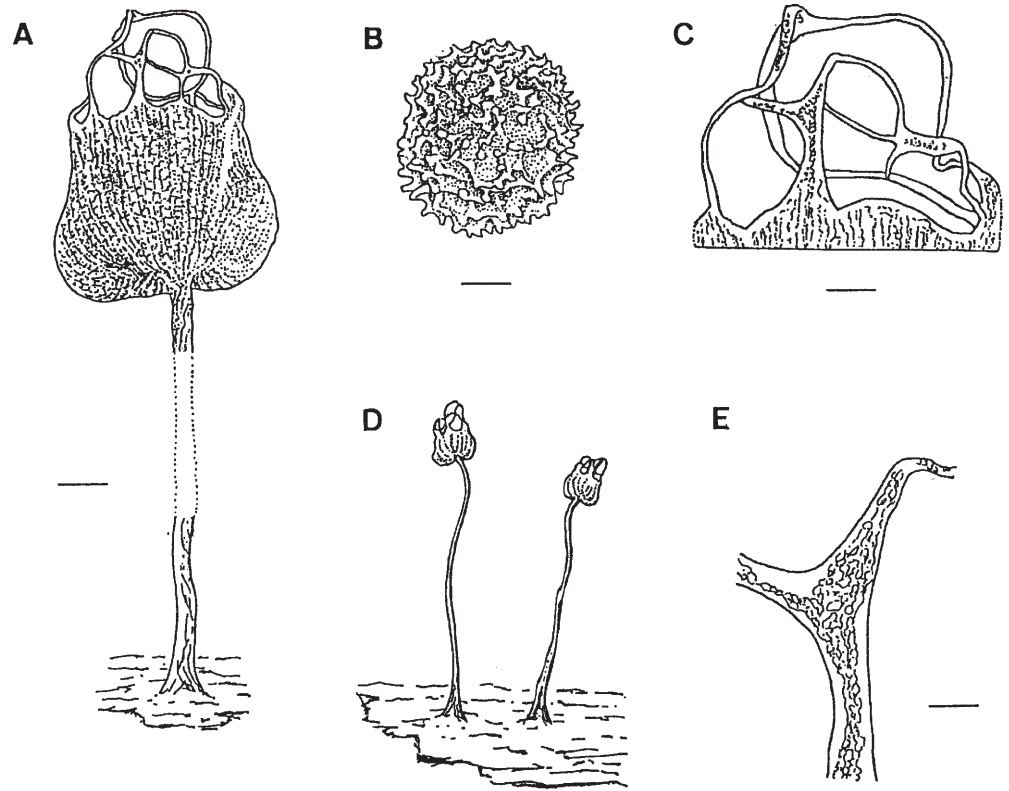
**Fig. 1.** *Cribraria irregularis*. **A** Sporangium. **B** Spore. **C** Nodes. **D** Rib of lower portion. **E** Sporangia. Bars **A** 100  $\mu$ m; **B** 2  $\mu$ m; **C** 5  $\mu$ m; **D** 5  $\mu$ m



**Fig. 2.** *Cribraria irregularis* observed by scanning electron microscopy (SEM) (HMAS S230, holotype). **A** Peridial net and cup with a stalk. **B** Part of the peridial net and cup margins. **C** Peridial net. **D** Spore. Bars **A** 100  $\mu$ m; **B** 60  $\mu$ m; **C** 20  $\mu$ m; **D** 2  $\mu$ m



**Fig. 3.** *Cribraria paucidictyon*.  
**A** Sporangium. **B** Spore. **C** Net.  
**D** Sporangia. **E** Node. Bars  
**A** 50  $\mu\text{m}$ ; **B** 10  $\mu\text{m}$ ; **C** 10  $\mu\text{m}$ ;  
**E** 10  $\mu\text{m}$

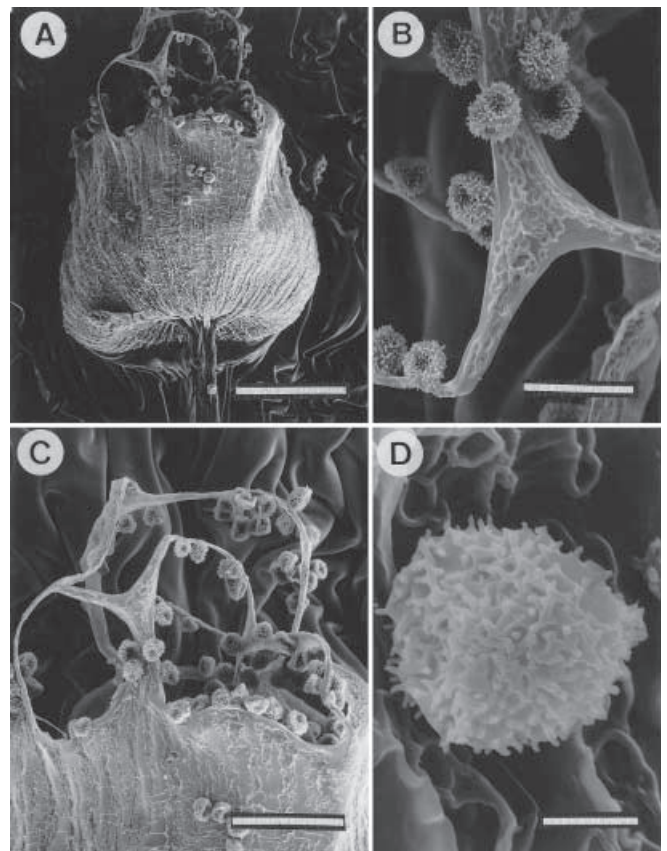


vel ruptis; reticula concentrica, granis protoplasmaticis solidis; reticula peridiorum late diffusa, simplicissima, maculis parvis et magnis; nodi plani, irregulares, expansi, striis fasciatis; stipites graciles, corrugati, subuliformes, brunnei, 0.5–1.0 mm longi; hypothalli obscuri; sporae in massa brunneae, luce transmissa dilute fulvae, verrucis densis longis cum reticulis gracilibus, imperfectis conjugatis obtegentes, globosae, 6.3–7.5  $\mu\text{m}$  diameter. Plasmodium ignotum.

Holotypus: In corticibus emortuis, Mt. Xishan., Beijing, Sinica, 21 July 1958, Teng (HMAS 29317).

Etymology: *paucidictyon* (*pauci* = few, *dictyon* = net), referring to the opening and simple net.

Fructification sporangiata; sporangia stalked, erect, scattered, brown to chestnut-brown, piriform or subglobose, 0.2–0.4 mm in diameter, 0.6–1.2 mm tall; net open and simple; net meshes few and large; connecting threads flattened, lacking free ends; nodes flat, angular, expanded; calculus deep, very well defined, occupying two-thirds or more of the sporangia, with flat base, with many radiating plicates and broken, concentric corrugations filled with dictydine granules; stalk slender, furrowed, subulate,



**Fig. 4.** *Cribraria paucidictyon* observed by SEM (HMAS 29317, holotype). **A** Peridial net and cup with a stalk. **B** Node and threads. **C** Part of the peridial net and cup margins. **D** Spore. Bars **A** 200  $\mu\text{m}$ ; **B** 15  $\mu\text{m}$ ; **C** 35  $\mu\text{m}$ ; **D** 2  $\mu\text{m}$

brown, 0.5–1.0 mm long; hypothallus obscure; spores brown in mass, pale yellowish-brown by transmitted light, globose, minutely and densely covered with long warts, with incomplete and faint reticulation combined by long warts, 6.3–7.5 µm in diameter. Plasmodium is unknown.

Habitat: On dead bark.

Holotype: HMAS 29317 on dead bark, West Mt., Beijing, China, S. C. Teng, 21 July 1958.

Note: This species is difficult to recognize with the naked eye because its sporangia are small and scattered, and it is characterized by deep crateriform cups and open simple nets with flat and nonprominent nodes. This species is similar to *C. violacea* Rex and *C. minutissima* Schwein. in morphology of cups occupying 1/2 to 2/3 of the sporangia and open nets. However, the new species is different from *C. violacea* in color of sporangia and size of nodes. The sporangia of the new species are brown, not violet, and its nodes are small and nonprominent, not large and expanded. The new species differs from *C. minutissima* in shape of cups. *Cribraria paucidictyon* has crateriform cups with broken, concentric corrugations, whereas *C. minutissima* has a jar-shaped cup and expanded nodes. Furthermore, spores of the latter two species do not have the faint and incomplete reticulations observed on the spores of *C. paucidictyon*.

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