

CHAPTER 46

Phragmosporangium Seymour
Mycotaxon 92:1-10. 2005

Monoecious. Mycelium delicate, extensive. Sporangia filamentous; unbranched or branched. Spores monomorphic; discharge and behavior dictyucoid. Gemmae unknown. Oogonia terminal or lateral; spherical or slightly irregular. Oogonial wall thin or thickened, sometimes irregular on inner surface; unpitted. Oogonial stalks short, unbranched. Oospores subcentric; single. Antheridial branches monoclinal or androgynous. Antheridial cells simple; apically or laterally appressed.

Type species: *Phragmosporangium uniseriatum*.

This is a very distinctive genus, its single known species recognized by the long, filamentous sporangia (Fig. 117 E-I) that release spores in a dictyucoid fashion. The sporangia are unbranched or branched, are sometimes sinuous or loosely coiled, and the apical cell is often strongly curved.

Phragmosporangium uniseriatum differs from representatives of *Dictyuchus* in certain of its sporangial configurations. Isolates of the mating strains of *D. monosporus* may have long, slender, branched sporangia, but these are not the result of the conversion of an entire hypha into a reproductive unit as is often the case in *P. uniseriatum*. Even though specimens of *Dictyuchus* may have some uniseriate sporangia, they are never exclusively of this type in a given individual. Moreover, no representatives of *Dictyuchus* are known to have coiled, twisted sporangia with an elongate, strongly curved apical cell (Fig. 117 E, G, I).

Phragmosporangium uniseriatum Seymour
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(Figure 117)

Monoecious. Hyphae delicate, 7-12 μm in diameter; branched or unbranched. Sporangia filamentous, branched or unbranched, straight, sinuous, or loosely coiled; renewal pattern unknown; variable in length, often being formed by conversion of entire hypha; wall deliquescent or only partly so. Spores monomorphic; discharge and behavior dictyocoid; primary ones cylindrical or ellipsoidal, encysting in a single row in the sporangium, and terminal spore cyst often lunate; cysts 8-18 μm in diameter; secondary spores reniform, cylindrical, or elongate, emerging through a short, flared, discharge papilla, and showing amoeboid motion, the cysts 10-14 μm in diameter. Gemmae unknown. Oogonia terminal or lateral, single or occasionally catenulate; spherical or slightly irregular; (23-) 25-29 (-33) μm in diameter. Oogonial wall thin or noticeably thickened, unpitted; inner surface smooth, roughened, or irregular; outer surface smooth or irregular. Oogonial stalks short, rarely exceeding in length the diameter of the oogonium; straight or slightly curved; unbranched. Oospores subcentric; spherical, and showing a pellucid spot; single, filling the oogonium or not; (19-) 24-28 (-32) μm in diameter; germination unknown. Antheridial branches monoclinal, occasionally androgynous; slender, sometimes branched; persisting. Antheridial cells simple; persisting; apically or laterally appressed; fertilization tubes present but not persisting.

Holotype: Fig. 117; Accession Nr. MS 244, Randall Library Special Collection, Univ. of North Carolina at Wilmington (USA), forest soil near Bassa, Liberia, 30 June 1970. *See* discussion of genus.

In gross culture, *Phragmosporangium uniseriatum* produces limited mycelium consisting of rather delicate hyphae intermingled among those of other water molds. This habit of growth, coupled with the linear spore arrangement may lead to some initial confusion in distinguishing the species from *Brevilegnia linearis* or from various members of *Aphanomyces*, *Geolegnia*, and *Leptolegnia* when sporangia are not evident.

Geographically, *Phragmosporangium uniseriatum* currently is known only from two sites in tropical West Africa. Whether or not the fungus should be regarded as a rare species is debatable. Like species of *Geolegnia*, *P. uniseriatum* does not form an easily recognizable or vigorous colony on hempseed, and thus may be overlooked in a hasty examination of gross cultures. In the decade between the initial recovery of *P. uniseriatum* from Liberian soil and its subsequent isolation from Nigeria, we have not found the fungus in some 10,000 soil samples from various tropical localities throughout the world.

SPECIMENS EXAMINED: -- AFRICA (2), RLS (holotype, and isolate from Nigeria).