

dermatum (Edson) Fitzpatrick⁴ and *P. arrhenomanes* Drechsler.⁵

This group of organisms has been called "Pythium-like" because it possesses, on the one hand, certain likeness to the true *Pythium* organisms, and on the other, certain dissimilarities. Fischer² recognized this fact and created the subgenera *Aphragmium*, *Nematosporangium* and *Sphaerosporangium*, the first two to take care of the "Pythium-like" organisms and the last of the true *Pythium* organisms. Schröter⁶ later divided the genus *Pythium* into the genera *Nematosporangium* and *Pythium*, the former including Fischer's subgenera *Aphragmium* and *Nematosporangium* and the latter only the subgenus *Sphaerosporangium*. The basis of differentiation between the genera *Nematosporangium*, *Pythium* and *Phytophthora* lies in the morphological difference existing in their zoospore-producing organs.

There are three morphologically different organs, the prosporangium, emission collar and zoosporangium. The prosporangium serves as reservoir of the protoplasm intended for the development of zoospores, and the zoosporangium for the full development and discharge of zoospores. The emission collar separates the prosporangium from the zoosporangium and serves for the passage of the protoplasm from the former to the latter organ. The wall of the prosporangium is a continuation of and identical with the exterior wall of the hypha supporting this organ, whereas that of the zoosporangium is not, but constitutes a part of the so-called ectoplast or protoplasmic membrane of the prosporangium. The zoosporangium is of short duration; it emerges from the emission collar almost simultaneously with the flowing protoplasmic contents of the prosporangium and lasts until the zoospores are completely formed and have escaped into the surrounding medium.

The three genera may be differentiated on this basis, as follows:

Nematosporangium: Prosporangia not well defined, nematoid, allantoid or rarely subspherical, intra- and extra-marginal; emission collar very long; zoosporangia spherical, size variable; zoospores few to many.

Pythium: Prosporangia well defined, spherical to ovoid, mostly extra-marginal, rarely intra-marginal; emission collar short; zoosporangia spherical, size variable; zoospores few to many.

⁴ H. M. Fitzpatrick, "Generic Concepts in the Pythiaceae and Blastocladiaceae," *Mycologia*, 15: 166-173, 1923.

⁵ Charles Drechsler, "*Pythium arrhenomanes* n. sp., A Parasite Causing Maize Root Rot," *Phytopath.*, 18: 873-875, 1928.

⁶ J. Schröter, "Pythiaceae," in Engler-Prantl, "Natürliche Pflanzenfamilien," pp. 104-105, 1897.

Phytophthora: Prosporangia well defined, lemon shaped to spherical, mostly extra-marginal of different sizes; zoosporangia developing within the walls of prosporangia; emission collar entirely lacking or rarely slightly developed; zoospores few to many.

Furthermore, species of the genus *Nematosporangium* are differentiated by their rapid or slow production of oospores in culture media and tissues of hosts, by the filling or not filling of the oogonium by the size of oospore, number of antheridia and other characters.

Fitzpatrick⁴ strongly recommended the adoption of the generic name *Nematosporangium* instead of *Pythium* in *Rheosporangium aphanidermatum* Edson, but unfortunately this recommendation has not been adhered to by more recent workers.

The writer, on the basis of extensive studies on all the well-known "Pythium-like" organisms or *Nematosporangium* spp., and, in addition, on eight more new species obtained from diseased pineapple roots, is absolutely convinced that the morphologic differences existing between the *Nematosporangium* organisms, on the one hand, and the *Pythium* ones, on the other, are sufficiently significant to merit generic distinction.

It is proposed, therefore, that those organisms, known heretofore as *Pythium aphanidermatum* (Eds.) Fitz., *P. Butleri* Subramanian and *P. arrhenomanes* Drechsler be renamed as *Nematosporangium aphanidermatum* (Eds.) Fitz. comb. nov., *N. Butleri* (Subram.) comb. nov. and *N. arrhenomanes* (Drechsler) comb. nov.

Such organisms as *Pythium gracile* de Bary, *P. dictyospermum* Roreiborski and *P. monospermum* Pringsheim have been placed already by Schröter in the genus *Nematosporangium*.

The writer is preparing a paper which will soon be published wherein eight new species of this genus are described and the taxonomic features of this genus are thoroughly discussed.

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BOOKS RECEIVED

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