Outlineoffungi.org - Note 1488 *Polycephalomycetaceae*

Web-links: Index Fungorum, Facesoffungi, MycoBank, GenBank

Polycephalomycetaceae Y.P. Xiao, Y.B. Wang, T.C. Wen, H. Yu & K.D. Hyde

The family *Polycephalomycetaceae* was erected by Xiao et al. (2023) to accommodate *Polycephalomyces* Kobayasi according to morphological traits and phylogenetical analysis using concatenation of LSU, SSU, ITS, TEF-1α, RPB1 and RPB2 sequence data. Members of this family parasitize *Ophiocordyceps* spp., *Elaphomyces* sp., myxomycetes, and insects. While it shares similarities with *Ophiocordycipitaceae* and *Clavicipitaceae*, *Polycephalomycetaceae* is distinct in that its members specifically parasitize *Ophiocordyceps* and *Elaphomyces*. Additionally, they are known for producing either congregated or solitary conidiophores, with one or two types of phialides, along with conidia (Xiao et al. 2023). In the sexual morph, they produce ascomata that are stromatic, cylindrical, pallid to yellowish, and stipitate. The stipes appear cylindrical, either simple or branched, with rhizomorphs that may be present or absent, forming inflated fertile parts. They create fertile parts that are distinct from the stipe, globose to ellipsoid in shape, congregating into ascomata that are capitate, featuring protruding ostiolar papillae. The perithecia embed themselves or position superficially, taking on an ovoid to flask shape. The peridium thickens to consist of three layers. Asci develop as unitunicate, narrowly cylindrical, hyaline structures with an apical cap. Ascospores remain filiform, hyaline, and multiseptate, often disarticulating into secondary spores. Secondary spores manifest as cylindrical to globose, hyaline, and smooth-walled. In the asexual morph, they exhibit hyphomycetous characteristics. Mycelia congregate, forming flat colonies on the surface of the host, or develop synnemata originating from the host. The synnemata appear stipitate, vary from single to numerous, and may be branched or unbranched, displaying colors from white to yellow, with or without an enlarged fertile part at the top or laterally. They enlarge conidial masses, which typically appear globose or clavate, yellowish to yellow, and concentrate conidia at the tips of stipes. Conidiophores contain 1–6 phialides, which congregate and may be branched or unbranched and divergent. Conidiogenous cells remain phialidic and hyaline. Phialides exist in one or two types, appearing congregated or solitary as intercalary and terminal structures. Conidia form in one or two types, being cylindrical, fusoid, or globose, hyaline, smooth-walled, and one-celled, with conidial masses either presented or absent. (Xiao et al. 2023). The family *Polycephalomycetaceae* is classified under *Hypocreales*, *Hypocreomycetidae, Sordariomycetes*, *Pezizomycotina*, and *Ascomycota* (Xiao et al. 2023).

Reference

Xiao YP, Wang YB, Hyde KD, Eleni G, et al. 2023 – *Polycephalomycetaceae,* a new family of clavicipitoid fungi segregates from *Ophiocordycipitaceae*. Fungal Diversity 120(1), 1–76.

Entry by

Maryam Tavakol Noorabadi, Innovative Institute for Plant Health, Zhongkai University of Agriculture and Engineering, Guangzhou 510225, People's Republic of China

(Edited by **Kevin D Hyde**)

Published online 26 Auguest 2024