

3-O13-4

Reclassification of the genus *Polycephalomyces*; phylogenetic position of the type species *P. formosus*

Sayaka Ban¹⁾, Kohei Yamamoto²⁾, Takashi Yaguchi¹⁾, Akira Nakagiri³⁾

¹⁾Medical Mycology Research Center, Chiba University, Japan

²⁾Tochigi Prefectural Museum, Japan

³⁾Fungus/Mushroom Resource and Research Center, Faculty of Agriculture, Tottori University, Japan

Purpose: The genus *Polycephalomyces* Kobayasi (Hypocreales; Sordariomycetes; Ascomycota) comprises parasitic species on hypogeal larvae of insects and/or other entomopathogenic *Cordyceps* sensu lato. The species produce white to cream synnemata, whose tips are swollen and globose with aggregated phialides and conidia. Conidia are non-septate, phialidic, produced numerously at the tip of synnema with mucilage, but several species also produce them along the side of the synnema. The shape of conidiogenous cells and conidia at the tip of synnema (acremonium-like; α -type) differs from those at the sides of synnema (hirsutella-like; β -type). Our recent phylogenetic study revealed that eight teleomorphic species of *Ophiocordyceps* have close affinity with *Polycephalomyces*. More recently seven new species were added to the genus, but, some of them seemed conspecific with formerly described and not re-collected species. Thus, we aimed to re-classify such classical species described during 1940s-70s from Japan by re-sampling and multigene phylogenetic analyses.

Results and Discussion: The type species *P. formosus* Kobayasi was found distinguishable from *P. ramosus* (Peck) Mains in absence or presence of β -type conidia, though sometime ambiguous. Nine isolates identified as *P. formosus* from Japan were phylogenetically apart from *P. formosus* (ARSEF 1424) which has been recognized as the authentic specimen, but close to *Cordyceps pleuricapitata* Kobayasi & Shimizu. Anamorphic morphology of *C. pleuricapitata* is similar to *Polycephalomyces* except β -type conidia formation, and we concluded that ARSEF 1424 was *P. ramosus*. Phylogenetic trees showed the two separate clades of *Polycephalomyces* intermingled with *Perennicordyceps*. Thus, the reclassification of the genus *Polycephalomyces* is needed.