

Abstract

To resolve the polyphyletic nature of *Solenopezaceae* as it was originally circumscribed, we establish a new family *Tricladiaceae* for those genera originally placed in *Solenopezaceae* that have aquatic hyphomycete-like asexual states and/or a sexual state with glabrous apothecia. These include *Geniculospora*, *Graddonia*, *Halenospora*, *Mycofalcella*, *Spirosphaera*, and *Tricladium*. *Solenopezaceae* is confined to the genera *Lasiobelonium*, *Solenopezia*, *Trichopeziza*, and *Trichopezizella*, all of which have a sexual state having apothecia with smooth-walled hairs. This taxonomy is supported by a multi-gene analysis using up to 15 genes, with a few of the taxa placed on the basis of a separate ITS phylogeny. *Tricladiaceae* forms a monophyletic clade with a basal sister relationship to *Pleuroascaceae* plus *Helotiaceae*; *Solenopezaceae* forms a monophyletic clade with a basal sister relationship to *Lachnaceae*.