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# Phylogeny and taxonomic revision of the *Planistromellaceae* including its coelomycetous anamorphs: contributions towards a monograph of the genus *Kellermania*

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**Abstract**



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The core species of the family *Planistromellaceae* are included in the teleomorphic genera *Planistroma* and *Planistromella* and the connected anamorphic, coelomycetous genera *Alpakesa*, *Kellermania*, and *Piptarthron*. These genera have been defined primarily on the basis of ascospore septation or number of conidial appendages. Due to a lack of DNA sequence data, phylogenetic placement of these genera within the *Dothideomycetes*, evaluation of monophyly, and questions about generic boundaries could not be adequately addressed in the past. Isolates of nearly all of the known species in these genera were studied genetically and morphologically. DNA sequence data were generated for the nSSU, ITS, nLSU, and RPB1 markers and analysed phylogenetically. These results placed the *Planistromellaceae*, herein recognised as a distinct family, in an unresolved position relative to other genera within the order *Botryosphaeriales*. Species representing the core genera of the *Planistromellaceae* formed a clade and evaluation of its topology revealed that previous morphology-based definitions of genera resulted in an artificial classification system. *Alpakesa*, *Kellermania*, *Piptarthron*, *Planistroma*, and *Planistromella* are herein recognised as belonging to the single genus *Kellermania*. The following new combinations are proposed: *Kellermania crassisporea*, *K. dasylirionis*, *K. macrospora*, *K. plurilocularis*, and *K. unilocularis*. Five new species are described, namely *K. confusa*, *K. dasylirionicola*, *K. micranthae*, *K. ramaleyae*, and *K. rostratae*. Descriptions of species in vitro and a key to species known from culture are provided.

**Keywords:** AGAVACEAE; ASCOMYCOTA; ASPARAGACEAE; BOTRYOSPHAERIACEAE; BOTRYOSPHAERIALES; COELOMYCETES; DOTHIDEOMYCETES; MOLECULAR PHYLOGENY; PLANISTROMELLACEAE; SEPTOPLACA; TAXONOMY

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