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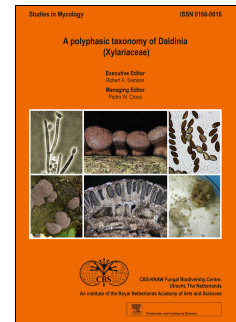
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Mycosphaerellaceae – chaos or clarity?

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Abstract: The *Mycosphaerellaceae* represent thousands of fungal species that are associated with diseases on a wide range of plant hosts. Understanding and stabilising the taxonomy of genera and species of *Mycosphaerellaceae* is therefore of the utmost importance given their impact on agriculture, horticulture and forestry. Based on previous molecular studies, several phylogenetic and morphologically distinct genera within the *Mycosphaerellaceae* have been delimited. In this study a multigene phylogenetic analysis (LSU, ITS and *rpb2*) was performed based on 415 isolates representing 297 taxa and incorporating ex-type strains where available. The main aim of this study was to resolve the phylogenetic relationships among the genera currently recognised within the family, and to clarify the position of the cercosporoid fungi among them. Based on these results many well-known genera are shown to be paraphyletic, with several synapomorphic characters that have evolved more than once within the family. As a consequence, several old generic names including *Cercosporidium*, *Fulvia*, *Mycovellosiella*, *Phaeoramularia* and *Ragnhildiana* are resurrected, and 32 additional genera are described as new. Based on phylogenetic data 120 genera are now accepted within the family, but many currently accepted cercosporoid genera still remain unresolved pending fresh collections and DNA data. The present study provides a phylogenetic framework for future taxonomic work within the *Mycosphaerellaceae*.

Key words: multi-gene phylogeny, *Mycosphaerella*, plant pathogen, taxonomy.

Running head: *Mycosphaerellaceae*

Taxonomic novelties: New genera: *Australosphaerella* Videira & Crous, *Brunswicksiella* Videira & Crous, *Catenulocercospora* C. Nakash., Videira & Crous, *Cercoramularia* Videira, H.D. Shin, C. Nakash. & Crous, *Chuppomyces* Videira & Crous, *Clarohilum* Videira & Crous, *Collarispora* Videira & Crous, *Coremiopassalora* U. Braun, C. Nakash., Videira & Crous, *Deightonomyces* Videira & Crous, *Devonomyces* Videira & Crous, *Distocercosporaster* Videira, H.D. Shin, C. Nakash. & Crous, *Distomycovellosiella* U. Braun, C. Nakash., Videira & Crous, *Exopassalora* Videira & Crous, *Exutisphaerella* Videira & Crous, *Graminopassalora* U. Braun, C. Nakash., Videira & Crous, *Hyalocercosporidium* Videira & Crous, *Hyalozasmidium* U. Braun, C. Nakash., Videira & Crous, *Madagascarymyces* U. Braun, C. Nakash., Videira & Crous, *Micronematomyces* U. Braun, C. Nakash., Videira & Crous, *Neocercosporidium* Videira & Crous, *Neophloeospora* Videira & Crous, *Nothopassalora* U. Braun, C. Nakash., Videira & Crous, *Nothopericoniella* Videira & Crous, *Nothophaeocryptopus* Videira, C. Nakash., U. Braun, Crous, *Pachyramichloridium* Videira & Crous, *Paracercosporidium* Videira & Crous, *Paramycovellosiella* Videira, H.D. Shin & Crous, *Parapallidocercospora* Videira, Crous, U. Braun, C. Nakash., *Pleopassalora* Videira & Crous, *Pleuropassalora* U. Braun, C. Nakash., Videira & Crous, *Pluripassalora* Videira & Crous, *Pseudopericoniella* Videira & Crous, *Pseudophaeophloeospora* U. Braun, C. Nakash., Videira & Crous, *Pseudozasmidium* Videira & Crous, *Rhachisphaerella* Videira & Crous, *Rosisphaerella* Videira & Crous, *Sultanimyces* Videira & Crous, *Virosphaerella* Videira & Crous, *Xenosonderhenioides* Videira & Crous. **New species:** *Cercoramularia koreana* Videira, H.D. Shin, C. Nakash. & Crous, *Hyalocercosporidium desmodii* Videira & Crous, *Hyalozasmidium sideroxyli* U. Braun, C. Nakash., Videira & Crous, *Neoceratosperma legnephoricola* U. Braun, C. Nakash., Videira & Crous, *Neoceratosperma haldinae* U. Braun, C. Nakash., Videira & Crous, *Ramulispora sorghiphila* U. Braun, C. Nakash., Videira & Crous, *Zasmidium elaeocarp* U. Braun, C. Nakash., Videira & Crous, *Zasmidium grevilleae* U. Braun, C. Nakash., Videira & Crous, *Zasmidium hakeae* U. Braun, C. Nakash., Videira & Crous, *Zasmidium eucalypticola* U. Braun, C. Nakash., Videira & Crous, *Zasmidium schini* U. Braun, C. Nakash., Videira & Crous, *Xenosonderhenioides indonesianum* C. Nakash., Videira & Crous. **New combinations:** *Amycosphaerella keniensis* (Crous & T.A. Cout.) Videira & Crous, *Australosphaerella nootherensis* (Carnegie) Videira & Crous, *Brunswicksiella parsoniae* (Crous & Summerell) Videira & Crous, *Chuppomyces handelii* (Bubák) U. Braun, C. Nakash., Videira & Crous, *Catenulocercospora fusimaculans* (G.F. Atk.) C. Nakash., Videira & Crous, *Cercosporidium californicum* (S.T. Koike & Crous) Videira & Crous, *Clarohilum henningsii* (Allesch.) Videira & Crous, *Clypeosphaerella calotropidis* (Ellis & Everh.) Videira & Crous, *Coremiopassalora eucalypti* (Crous & Alfenas) U. Braun, C. Nakash., Videira & Crous, *Coremiopassalora leptophlebae* (Crous et al.) U. Braun, C. Nakash., Videira & Crous, *Collarispora valgourgensis* (Crous) Videira & Crous, *Deightonomyces daleae* (Ellis & Kellerm.) Videira & Crous, *Devonomyces endophyticus* (Crous & H. Sm. Ter) Videira & Crous, *Distocercosporaster dioscoreae* (Ellis & G. Martin) Videira, H.D. Shin, C. Nakash. & Crous, *Distomycovellosiella brachycarpa* (Syd.) U. Braun, C. Nakash., Videira & Crous, *Exopassalora zambiae* (Crous & T.A. Cout.) Videira & Crous, *Exutisphaerella larinica* (R. Hartig) Videira & Crous, *Fusoidiella anethi* (Pers.) Videira & Crous, *Graminopassalora graminis* (Fuckel) U. Braun, C. Nakash., Videira & Crous, *Hyalozasmidium aerohyalinosporum* (Crous & Summerell) Videira & Crous, *Madagascarymyces intermedius* (Crous & M.J. Wingf.) Videira & Crous, *Micronematomyces caribensis* (Crous & Den Breeÿen) U. Braun, C. Nakash., Videira & Crous, *Micronematomyces chromolaenae* (Crous & Den Breeÿen) U. Braun, C. Nakash., Videira & Crous, *Neocercosporidium smilacis* (Thüm.) U. Braun, C. Nakash., Videira & Crous, *Neophloeospora maculans* (Bérengrer) Videira & Crous, *Nothopassalora personata* (Berk. & M.A. Curtis) U. Braun, C. Nakash., Videira & Crous, *Nothopericoniella perseae-macranthae* (Hosag. & U. Braun) Videira & Crous, *Nothophaeocryptopus gaeumannii* (T. Rohde) Videira, C. Nakash., U. Braun, Crous, *Pachyramichloridium pini* (de Hoog & Rahman) U. Braun, C. Nakash., Videira & Crous, *Paracercosporidium microsorum* (Sacc.) U. Braun, C. Nakash., Videira & Crous, *Paracercosporidium tiliae* (Peck) U. Braun, C. Nakash., Videira & Crous, *Paramycosphaerella wachendorffiae* (Crous) Videira & Crous, *Paramycovellosiella passaloroides* (G. Winter) Videira, H.D. Shin & Crous, *Parapallidocercospora colombiensis* (Crous et al.) Videira & Crous, *Parapallidocercospora thailandica* (Crous et al.) Videira & Crous, *Phaeocercospora juniperina* (Georgescu & Badea) U. Braun, C. Nakash., Videira & Crous, *Pleopassalora perplexa* (Beilharz et al.) Videira & Crous, *Pleuropassalora armatae* (Crous & A.R. Wood) U. Braun, C. Nakash., Videira & Crous, *Pluripassalora bougainvilleae* (Munt.-Cvetk.) U. Braun, C. Nakash., Videira & Crous, *Pseudocercospora convoluta* (Crous & Den Breeÿen) U. Braun, C. Nakash., Videira & Crous, *Pseudocercospora nodosa* (Constant.) U. Braun, C. Nakash., Videira & Crous, *Pseudocercospora zambiensis* (Deighton) Crous & U.

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