

MICROFUNGI OCCURRING ON *PROTEACEAE* IN THE FYNBOS

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This book is the culmination of a project that extended over 8 years, forming part of a post-doctoral study period of the first author. The project commenced at the University of Stellenbosch in 2000 and was transferred to the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria in 2004. At FABI, the project was absorbed into the objectives of the newly established Centre of Excellence in Tree Health Biotechnology (CTHB), one of the first of six CoE's established by the Department of Science and Technology (DST) and the National Research Foundation (NRF) in South Africa. The broad objectives and relatively long duration of the project that gave rise to this book has logically meant that many people have been involved, providing financial, technical, intellectual and moral support.

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Summary: The fynbos is a shrubland characterised by a fire-prone ecosystem and Mediterranean climate. Although it is extremely rich in plant species, and has a high degree of floral endemism, very little is known regarding the fungi in this unique and fascinating environment. The present study investigated the saprobic microfungi that colonise and utilise leaf and twig litter and senescent flowerheads of *Proteaceae*. A total of 29 species and sub-species belonging to four genera of *Proteaceae* were sampled from 12 sites in the Western Cape Province of South Africa spanning a period of two years (2000–2001). An attempt was made to culture all fungi encountered, and where successful, the ITS and partial 28S nrDNA, and in some cases the translation elongation factor 1- α or the β -tubulin gene regions were sequenced. A total of 62 bags of litter yielded 316 individuals, consisting of 141 fungal species residing in 103 genera and 43 families. Of these, 59 species, including eight species that had been previously published, represented novel taxa. Thirty-eight species reflected new records for South Africa, and 48 species were new reports on *Proteaceae*. Two new genera and one new combination were also introduced. Seventy-three species were represented by teleomorphs and 68 species by anamorphs, which were made up of 30 hyphomycetes and 38 coelomycetes. Eighty percent of the species occurred on only one type of substrate. The fungal community found on twig litter had the highest species richness, while flowerhead-styles yielded the highest percentage (100 %) of unique species. These results showed that the species richness for the fynbos Mycota was moderately high with 2.2 collections representing a different fungal species. The percentage of new fungal taxa (43 % of the total species) was exceptionally high, and most of these probably host-specific. More than 80 % of the fungi collected in this study had hard and closed fruiting structures, indicating an adaptation to the constraints of the harsh fynbos environment. Other than providing a foundation for further studies, this investigation highlights a disturbing paucity of knowledge regarding the fynbos Mycota in one of the worlds most threatened and unusual floral Kingdoms.

Keywords: xxxxxxxxxxxx

Taxonomic novelties: New combination – *Coniozoma leucospermi* (Crous & Denman) Crous. **New species** – *Amphisphaeria doidgeae* Marinc., M.J. Wingf. & Crous, *Annulohypoxylon leucadendri* Marinc., M.J. Wingf. & Crous, *Blennoria proteae* Crous, Marinc. & M.J. Wingf., *Calosphaeria jonkershoekensis* Marinc. M.J. Wingf. & Crous, *Camarosporium brabeji* Marinc., M.J. Wingf. & Crous, *Camarosporium jonkershoekense* Marinc., M.J. Wingf. & Crous, *Camarosporium kogelbergense* Crous, M.J. Wingf. & Marinc., *Camarosporium leucadendri* Marinc., M.J. Wingf. & Crous, *Capronia brabeji* Marinc., M.J. Wingf. & Crous, *Capronia kleinmondensis* Marinc., M.J. Wingf. & Crous, *Capronia leucadendri* Marinc., M.J. Wingf. & Crous, *Capronia proteae* Marinc., M.J. Wingf. & Crous, *Coccomyces proteae* Marinc., M.J. Wingf. & Crous, *Coniochaeta proteae* Marinc., M.J. Wingf. & Crous, *Crandallia proteae* Marinc., M.J. Wingf. & Crous, *Curreya austroafricana* Marinc., M.J. Wingf. & Crous, *Curreya proteae* Marinc., M.J. Wingf. & Crous, *Cytonaema proteae* Marinc., M.J. Wingf. & Crous, *Davidiella proteae* Crous, M.J. Wingf. & Marinc., *Diaporthe cynaroidis* Marinc., M.J. Wingf. & Crous, *Discosporium minutum* Marinc., M.J. Wingf. & Crous, *Exarmidium kleinmondense* Marinc., M.J. Wingf. & Crous, *Hypoxylon brabeji* Marinc., M.J. Wingf. & Crous, *Jattaea leucospermi* Marinc. M.J. Wingf. & Crous, *Julella fabiana* Marinc., M.J. Wingf. & Crous, *Kirschsteiniothelia proteae* Crous, M.J. Wingf. & Marinc., *Lembosia weskaapensis* Marinc., M.J. Wingf. & Crous, *Lentomitella unipretoriae* M.J. Wingf., Marinc. & Crous, *Leptopeltis leucadendri* Marinc., M.J. Wingf. & Crous, *Leptosphaeria jonkershoekensis* Marinc., M.J. Wingf. & Crous, *Lophiostoma cynaroidis* Marinc., M.J. Wingf. & Crous, *Massarina capensis* Marinc., M.J. Wingf. & Crous, *Massarina leucadendri* Marinc., M.J. Wingf. & Crous, *Melanconis brabeji* Marinc., M.J. Wingf. & Crous, *Microsphaeropsis stellenboschensis* Crous, M.J. Wingf. & Marinc., *Monascostroma fynbosianum* Marinc., M.J. Wingf. & Crous, *Multisporascus proteae* Marinc., M.J. Wingf. & Crous, *Nectria proteae* Marinc., M.J. Wingf. & Crous, *Pestalosphaeria maculiformans* Marinc., M.J. Wingf. & Crous, *Pilidium leucospermi* Marinc., M.J. Wingf. & Crous, *Plagiophiale proteae* Marinc., M.J. Wingf. & Crous, *Pyrenochaeta inflorescentiae* Crous, Marinc. & M.J. Wingf., *Readeriella leucadendri* Crous, Marinc. & M.J. Wingf., *Repetophragma gondwanamycetis* Marinc., M.J. Wingf. & Crous, *Rhizodiscina proteae* Marinc., M.J. Wingf. & Crous, *Seiridium proteae* Marinc., M.J. Wingf. & Crous, *Stanjehughesia ventricosa* Marinc., M.J. Wingf. & Crous, *Stilbospora capensis* Marinc., M.J. Wingf. & Crous, *Sydowiella stellatifolii* Marinc., M.J. Wingf. & Crous, *Tiarosporella proteae* Crous, Marinc. & M.J. Wingf., *Viegasia leucospermi* Marinc., M.J. Wingf. & Crous. **New genera** – *Coniozoma* Crous, *Multisporascus* Marinc., M.J. Wingf. & Crous.

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