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A Phylogenetic Re-evaluation of Dothideomycetes

A phylogenetic re-evaluation of *Dothideomycetes*. 2009. Conrad L. Schoch, Joseph W. Spatafora, H. Thorsten Lumbsch, Sabine M. Huhndorf, Kevin D. Hyde, Johannes Z. Groenewald, Pedro W. Crous. Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands, <http://www.cbs.knaw.nl/publications/index.htm>. ISBN: 978-90-70351-78-6. Studies in Mycology 64: 1–220. Price: €65.00.

This new volume presents an overview as well as the latest phylogenies for many groups of the loculoascomycetes aka Dothideomycetes. Don't be fooled by the pretty pictures of gorgeous fruiting bodies, incredible micrographs of asci and ascospores, and close-ups of gelatinous sheaths, ornamented ascospore surfaces, and curvaceous conidiophores. This collection of contributed papers is much, much more

than a superficial account—each chapter includes a multi-gene phylogeny plus descriptions and illustrations of new genera and species.

The dedication includes photos and brief accounts of three of the foremost dothideomycetologists—Josef Adolf von Arx, Emil Müller, and Margaret Elizabeth Barr Bigelow. Even now, in that great fungus garden in the sky, they are comparing notes and gently expressing their respective views based on their keen knowledge of these fungi. These mycologists collected and really “knew” these organisms and must surely welcome the results presented here.

The overview of the class Dothideomycetes presents a three-page multigene phylogeny useful in outlining, for ex-

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ample, the nineteen families plus unnamed clades currently recognized in the Pleosporales. Although less thoroughly sampled here, the remaining ten orders are presented in more detail in the following chapters. The type species of the type genus of the class, *Dothidea sambuci*, is included and, in fact, well-illustrated. In the next chapter on the Capnodiales, the plant pathogen-rich Mycosphaerellaceae, Teratosphaeriaceae, and Davidiellaceae including *Cladosporium* are analyzed in detail. Again, two three page trees are presented, one for partial LSU sequences and the other for SSU, 5.8S nr DNA and LSU sequences, that includes more than 100 species, especially in the very large Mycosphaerellaceae with diverse anamorphs such as *Cercospora*, *Passalora*, *Ramularia*, and *Septoria* intermixed with *Mycosphaerella*. Now, how to sort out this hodge-podge of names? Eric Boehm and colleagues have tackled the fungi forming hysterothecia finding them to be quite diverse (what a surprise!) and have sorted them into four different orders. This outstanding chapter includes keys to both genera and species as well as descriptions of many new and existing taxa.

The two following chapters provide details based on families in the Pleosporales. The illustrations in the chapter by George Mugambi and Sabine Huhndorf are particularly stunning and detailed. The chapter on rock-inhabiting fungi is interesting in the diversity found—these seem to be ubiquitous and previously unknown. Oh dear, the next chapter on lichenized fungi in the Dothideomyceta (why not –mycota?)

also presents stunning macroshots of these primarily crustose lichens as well as another multigene phylogeny. Carol Shearer and colleagues' chapter on freshwater Dothideomycetes consists primarily of an extensive phylogeny showing the diversity of these fungi, but that's fine because many of these fungi are described and illustrated on her website. The marine fungi are equally diverse and beautiful—are you sensing a theme here? The final chapter examines the bambusicolous members of the Tetraplosphaeriaceae, a new family in the Pleosporales having *Tetraploa*-like anamorphs. Many of the genera and species are described as new to science while others are transferred from such diverse genera as *Didymella*, *Lophiostoma*, and *Massarina*. Yet, these fungi form a monophyletic family with all occurring on the bamboos.

In summary, despite the multi-authored chapters, this volume is a cohesive unit that provides a treasure trove of phylogenies and descriptions with illustrations about the Dothideomycetes in their diverse habitats. One annoying feature is that the figure legends do not always indicate which genes were analyzed, but that simply requires a glance back at the Materials and methods. This is hardly worth mentioning in comparison to the incredible amount of new data presented here about these fascinating fungi!

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