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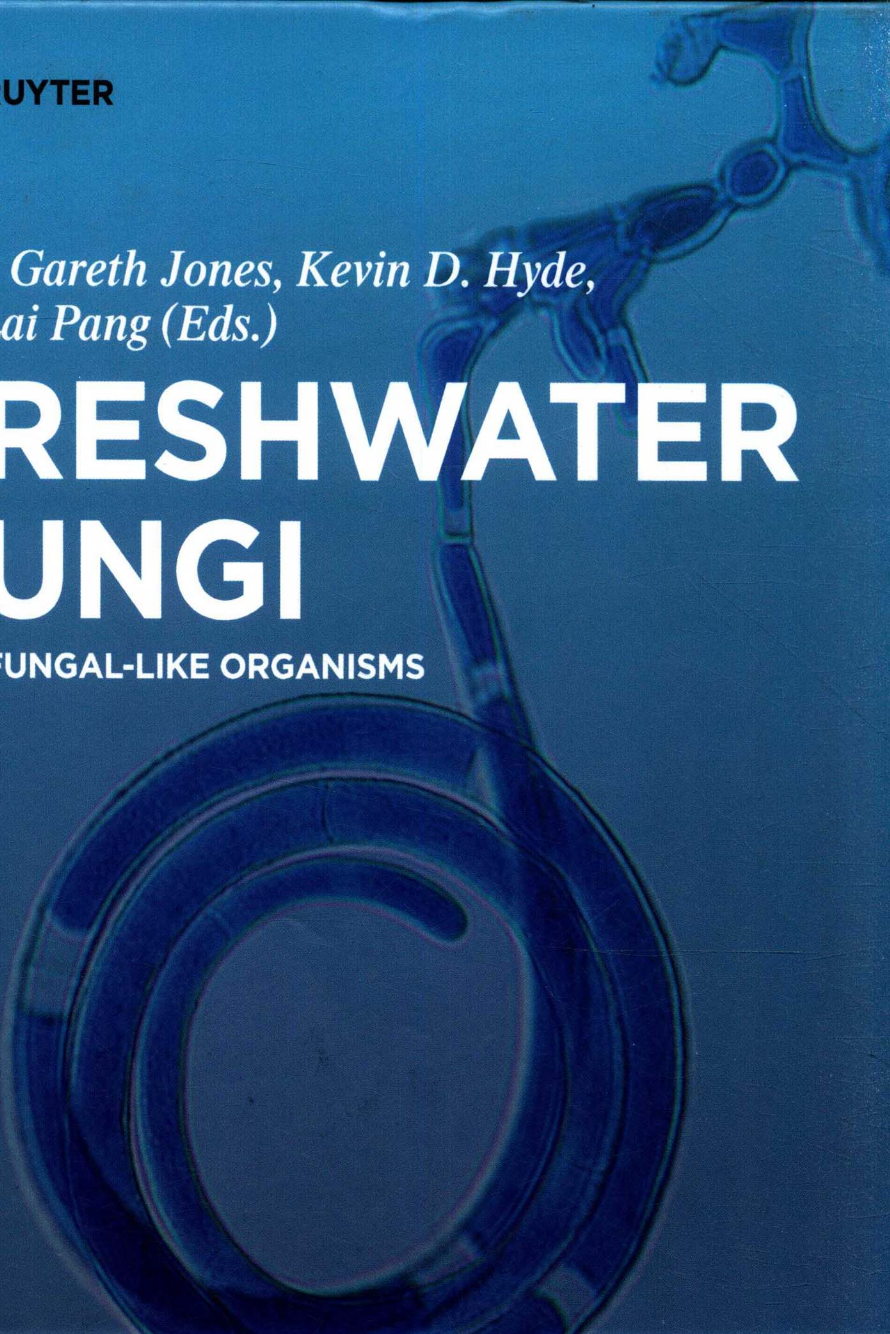
*E. B. Gareth Jones, Kevin D. Hyde, Ka-Lai Pang (Eds.)*

# FRESHWATER FUNGI

## AND FUNGAL-LIKE ORGANISMS



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Edited by
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# Preface

This book *Freshwater fungi and Fungal-like Organisms* is the outcome of recent research of the leading world mycologists on selected topics on fungi in streams, rivers, lakes and meltwater. The aim of the book is to bring together the present state of knowledge concerning freshwater fungi, especially topics often neglected in other treatise, to highlight their importance to science and the challenges facing freshwater mycology, as well as to consider future research. The book brings together many subjects not covered in other monographic volumes, such as freshwater yeasts, lichens, freshwater basidiomycetes, fungal-like organisms, their potential industrial application, and their role in the decomposition of complex organic matter in rivers and lakes. We particularly focus on their role as pathogens of commercially important freshwater animals, such as fish, crustaceans and molluscs, the diseases of mammals, including humans, the catastrophic devastation caused by chytrids parasitic on frogs and other reptiles.

Texts in freshwater biology rarely include fungi and fungal-like organisms in their volumes and thus ignore their important contributions and roles in freshwater ecosystems, in particular, their role in the breakdown and sequestration of pollutants in freshwater habitats. Fungi play a major role in the decomposition of complex organic compounds yielding nutrients for other aquatic organisms in the web of life in freshwater ecosystems.

The opening section of the book documents the current knowledge on the phylogeny of obligate freshwater fungi: Ascomycota (Dothideomycetes, Sordariomycetes, and other classes); Basidiomycota; asexual fungi; yeasts; Chytridiomycota and Blastocladiomycota. The second section is devoted to the phylogeny of fungal-like organisms: Microsporidia; Pythiales and Peronosporales. The biodiversity of fungi in selected habitats is reviewed in the third section: economic importance of zoosporic Mesomycetozoean pathogenic in fish; oomycetes and zoosporic organisms of amphibians, fish and freshwater invertebrates; and pythiosis of mammals, including man. The concluding section considers the ecology of lichens, aquatic trichomycetes, fungi found on decaying fronds of palms in a peat swamp, the role of fungi in leaf decomposition and breakdown of wood in tropical streams, yeasts in extreme aquatic environments and the role of fungi in polluted waters. The epilogue considers the importance of fungi and fungal-like organisms, and the direction of future research.

It is expected that this book will be essential reading for mycologists, microbiologists, freshwater biologists and limnologists interested in freshwater fungi and will serve as a useful reference work on their occurrence and role in freshwater ecosystems.

We thank all the authors for agreeing to write for this volume and for delivering their chapters on time. We are much indebted to Frank Gleason for suggestions during the preparation of this volume, especially the section on fungal-like organisms. Our thanks also go to all the staff at De Gruyter for conceiving this volume and for their support in its publication (Simone Witzel, Nicole Karbe, and Hannes Kaden).

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