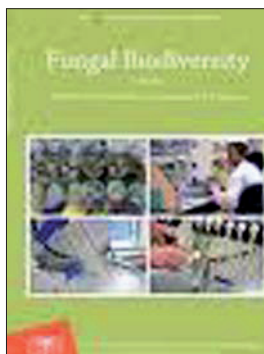


Newsletter of the Mycological Society of America

CBS Laboratory Manual Series 1: Fungal Biodiversity

CBS Laboratory Manual Series 1: Fungal Biodiversity. 2009. P.W. Crous, G.J.M. Verkley, J.Z. Groenewald, R.A. Samson (eds.). Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands, www.cbs.knaw.nl/publications/index.htm. ISBN: 978-90-70351-77-9. 269 pp. Price: €50.00.



This manual is the first in the new “CBS Laboratory Manual Series” published by CBS-KNAW Fungal Biodiversity Centre (Centraalbureau voor Schimmelcultures). Although P.W. Crous, G.J.M. Verkley, J.Z. Groenewald, and R.A. Samson edited this book, there are 12 other scientists who contributed to the different sections. This manual covers the fundamentals of systematic mycology with emphasis on culturing techniques for the different groups of fungi (Ascomycota, Basidiomycota, Chytridiomycota, and Zygomycota) and fungal-like organisms (Hyphochytriomycota and Oomycota). As mentioned in the Abstract, the book was created as a general text based on a mycology course imparted at CBS-

KNAW every year. The book first gives a short (1/2 page) introduction to “What are Fungi?” followed by another short section on “How to study Fungi.”

The introduction in the second chapter (The Fungal System, 4 pp.) mainly covers species concepts in fungi and a list of general mycology literature and journals. The second chapter also includes information along with laboratory and culturing techniques for Chromista (Hyphochytriomycota, ca. ¼ page; and Oomycota, ca. 10 pp.), Chytridiomycota (4 pp.), Zygomycota (10 pp.), Ascomycota (96 pp.), and Basidiomycota (14 pp.). Each of the sections for each taxonomic group is beautifully illustrated with color photographs and line drawings. The line drawings and photographs illustrate life cycles and anatomical features of the major taxonomic group and representative species. Some photographs show the appearance of the colony, especially for members of the Ascomycota. In each of the species pages, there is information on morphological characteristics of anamorphs and teleomorphs, culturing techniques, illustrations as both photographs and line drawings, and references.

The third chapter, General Methods (11 pp.), gives information on working aseptically, safety issues, culturing techniques including single-spore isolations, preparation of

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media, microscopic examination, electron microscopy, growth studies, preservation of living cultures and herbarium specimens, and public culture collections. The photographs illustrating the techniques and steps for microscopic examination are excellent. Chapter IV, Molecular and Phylogenetic Methods (20 pp.), describes and illustrates in good detail the methods that will ultimately produce a phylogenetic tree. These methods include genomic DNA extraction, polymerase chain reaction (PCR), gel electrophoresis, automated sequencing, nucleotide BLAST search, and phylogenetic analyses including alignment, tree reconstruction, and interpretation of results. This chapter also mentions CBS’s DNA Bank, which stores genomic DNA of ex-type strains and other important reference strains, and DNA barcoding.

The last chapters of the manual deal with nomenclature (Chapter V, 3 pp.), definitions and methods for studying different “ecological groups of fungi” (Chapter VI, 11 pp.), methods in applied mycology (Chapter VII, 9 pp.), a glossary

(Chapter VIII), 63 recipes for mycological media (Chapter IX), a list of references used in the book (Chapter X), arrangement or classification of the major fungal taxa (Chapter XI), and an Index (Chapter XII).

Although this manual may be slightly advanced for complete beginners or for an introductory mycology course, it is a very complete laboratory manual for those interested in fungal systematics. The section on Ascomycota is especially extensive and detailed. It is beautifully illustrated and the methods are described thoroughly. The inclusion of a chapter on Molecular and Phylogenetic Methods (Chapter IV) is particularly compelling and innovative for a laboratory manual. I am sure the mycological community will be anxiously awaiting the next in this series of laboratory manuals from CBS.

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