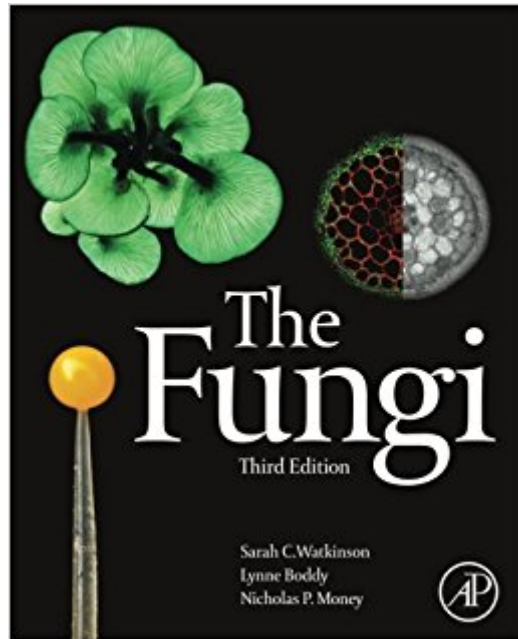




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The Fungi, Third Edition



Synopsis

The Fungi, Third Edition, offers a comprehensive and thoroughly integrated treatment of the biology of the fungi. This modern synthesis highlights the scientific foundations that continue to inform mycologists today, as well as recent breakthroughs and the formidable challenges in current research. The Fungi combines a wide scope with the depth of inquiry and clarity offered by three leading fungal biologists. The book describes the astonishing diversity of the fungi, their complex life cycles, and intriguing mechanisms of spore release. The distinctive cell biology of the fungi is linked to their development as well as their metabolism and physiology. One of the great advances in mycology in recent decades is the recognition of the vital importance of fungi in the natural environment. Plants are supported by mycorrhizal symbioses with fungi, are attacked by other fungi that cause plant diseases, and are the major decomposers of their dead tissues. Fungi also engage in supportive and harmful interactions with animals, including humans. They are major players in global nutrient cycles. This book is written for undergraduates and graduate students, and will also be useful for professional biologists interested in familiarizing themselves with specific topics in fungal biology. Describes the diversity of the fungi, their life cycles, and mechanisms of spore release Highlights the study of fungal genetics and draws upon a wealth of information derived from molecular biological research Explains the cellular and molecular interactions that underlie the key roles of fungi in plant diversity and productivity Elucidates the interactions of fungi with other microbes and animals Highlights fungi in a changing world Details the expanding uses of fungi in biotechnology

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Customer Reviews

The Fungi provides a comprehensive microbiological perspective on the importance of fungi, one of the most diverse groups of living organisms. Their roles in the natural world and in practical applications from the preparation of foods and beverages to drug production, and their relationship with man, animals and plants are clearly described. The recent contributions of molecular biology to mycology and the development of molecular methods for the study of fungal ecology, pathology and population genetics are also covered. This invaluable work has been completely revised and updated. With new material relating to molecular biology, this new and highly successful title continues to be essential reading for students and researchers. New to the second edition* Modern classification* Medical and veterinary mycology section* Organelles and processes involved in hyphal growth* Molecular methods in ecology and pathology * Production of new drugs of fungal origin* Question and answer sections * Colour plate section

Praise for the first edition: "An enjoyable way to survey the subject of modern mycology. We are fortunate to have this excellent textbook."--MYCOLOGIA "The text is beautifully written and an understanding and enthusiasm for this important group of organisms comes through on every page."--TRENDS IN MICROBIOLOGY "This will improve undergraduate learning and promote a more integrated understanding of fungal biology. I will certainly use it in my teaching and am sure many others will do likewise."--NEW PHYTOLOGIST "The coverage is extensive and informative. I am very pleased to recommend this book to those who want to know and understand fungi."--BIODIVERSITY AND CONSERVATION

Praise for the First Edition: "The style of The Fungi shows that the authors are all experienced teachers, with skills of how to present material in a readable and attractive way...In summary, start using this in your courses if you are not already doing so - it is one of the best two tools around at this time" --David L. Hawksworth for Mycological Research, March 2003 "...fills a gap between many textbooks of microbiology, biochemistry, genetics and ecology through covering topics specific to mycology that they often omit." --Meriel Jones for Microbiology Today, May 2002

Occasionally I get the opportunity to teach a class about general mycology and need to select a book for the students and, occasionally, I get asked for a recommendation for a mycology text from someone wishing to learn more about all sorts of fungi, not just the ones that produce mushrooms.

In both circumstances, I have never been able to make a single selection that I was entirely happy with and, for classes, usually wind up cobbling together a collection of individual book chapters and review papers. Will this recent textbook, designed primarily for undergraduate and graduate university students change things? Let's see. The go-to North American mycology textbook has long been *Introductory Mycology* by C.J. Alexopoulos, originally published in 1952 and most recently (1996) in its 4th edition, produced after his death by two of Alexopoulos's former students, Charles Mims and Meredith Blackwell, highly respected mycologists in their own rights. It is focused heavily on describing the fungi and their life cycles in a taxonomic framework. For example, 26 of the 29 chapter titles are based on names for groups of fungi, such as Phylum Ascomycota, Filamentous Ascomycetes with Apothecia, Discomycetes. As is typical for older texts, all of the illustrations are in black and white and there are none of the learning aids, such as colorful sidebars, that are much a part of the current generation of college texts. If one wants to know what fungi are and gain an appreciation for their different types, this is an excellent place to go. But it is a heavy read, lacks the many interesting findings of the past 20–25 years, and leaves one wanting more if the intent is to understand, and generate excitement for, what fungi are doing in our world. More recent, mostly European, texts have focused more on the functional aspects of fungi, but none has been fully successful in my opinion. The first edition of *The Fungi* (1994) was authored by Michael Carlile and Watkinson, and the second edition (2001) by Carlile, Watkinson, and the late Graham Gooday. The change in authors from edition to edition leads to this one being rather different in many respects from the first two, although the main objective has remained to produce a textbook encompassing the whole of mycology from a microbiological perspective. Thus, the 12 chapters cover: 1. Fungal Diversity (NPM, each chapter was written by a single author); 2. Fungal Cell Biology and Development (NPM); 3. Spore Production, Discharge, and Dispersal (NPM); 4. Genetics – Variation, Sexuality, and Evolution (LB); 5. Physiology and Adaptation (SCW); 6. Molecular Ecology (SCW); 7. Mutualistic Symbiosis between Fungi and Autotrophs (SCW); 8. Pathogens of Autotrophs (LB); 9. Interactions with Humans and other Animals (LB); 10. Interactions between Fungi and other Microbes (LB); 11. Fungi, Ecosystems, and Global Change (LB); 12. Fungi and Biotechnology (NPM). A glossary and index follow the main text. Rather than grouping all the reference citations in one section with the glossary and index, each chapter ends with a list of suggested publications or websites for further reading, most of which (at least in the PDF version I received for review) are hyperlinked to their source (where they might or, more often, might not be freely available). The design and layout are rather simple, with text running margin to margin in a

single wide column, and not wrapping around figures. The figures include both color and black-and-white, and are of varied quality. Most are good but a number are mediocre, usually because they are lacking in sharpness (at least in my PDF version). The images were acquired from many different sources, including previously published journal articles and books, online image compilations, and generous colleagues so, combined with the fact that different chapters were written by different authors, the consistency of style seen in most textbooks is lacking. However, this is mostly an appearance thing and I don't feel it significantly affects the utility of the book. For me, the strength of the book comes in presenting a lot of fascinating, current information that highlights the unique nature of fungi and makes their universal importance clear. Some typical topics include mechanisms of spore discharge, forces generated, and velocities achieved (think about it – how easy is it to measure the speed of a spore?); defining what a fungus individual, population, and species are and why the definitions matter; what high-throughput DNA sequencing of environmental samples is suggesting about the number of fungi on Earth; what to do about describing species that are known only from DNA sequences obtained from a soil or other environmental sample; effects of pollution and global change on fungi; and emerging efforts to conserve fungi, especially those thought to be rare or endangered. All of this comes at the expense of describing the many different sorts of fungi (only a single chapter is devoted to taxonomic mycodiversity) so having access to the Alexopoulos et al. text will be desirable for reference or for those who want to go further in that area. The Fungi contains far too much interesting material to cover in a typical one-term university course, but this would allow for different instructors to customize their courses, emphasizing the aspects they felt were most important. Obviously, however, this would not affect an individual reader. To return to the question posed at the beginning, although I don't think a perfect mycology textbook can be written, I would not hesitate to use this one in a class or to recommend it to interested individuals. It is up-to-date and does a good job of presenting information that is likely to generate an enthusiastic appreciation for the fungi. Inasmuch as it is intended primarily for a university audience, the authors assume a reasonable command of basic biology. However, lack of a recent biology class need not deter one from tackling this book, especially if you are prepared to do a little homework. The price is higher than I would like, but is not out of line in today's textbook market. -Steve Trudell (This review was first published in FUNGI, vol 9 no.4, 2016)

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had an issue and they took care of it right away. Love this. This is my third purchase. Nice thank you gift!! will purchase products from this company again, as needed.

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