

Inoculum

March 2024



It's a fungus eats fungus world! Syzygites megalocarpus chowing down on a bolete (sensu lato) in Canandaigua, NY on 5 August 2023.

Submitted by: Dan Meyers

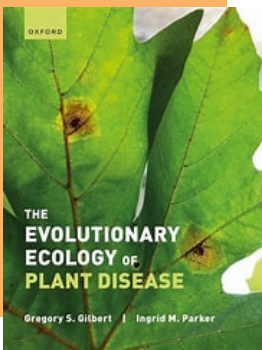
Thanks Dan, for your submission!

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Discomycetes are the cups, sponges, brains, clubs, and other unusual shaped fungi including morels and truffles. The layout of this book is enhanced by a colorful display of pictures, graphics, line drawings, and microscope images. The information in this book will appeal to the professional whose work involves taxonomy, but it is also for citizen scientists. The purpose of this book is to share knowledge and to stimulate research in the class of macrofungi known as Discomycetes.

To order this book and to learn more please visit: <https://ascomycete.org>.

Submitted by: Neil Dollinger



The Evolutionary Ecology of Plant Disease

Gregory S. Gilbert and Ingrid M. Parker, Oxford University Press,
Online ISBN: 9780191839191, Print ISBN: 9780198797876.

This is an easy-to-read book that merges current knowledge of plant pathology and evolutionary ecology, while describing basic concepts in simple terms. It provides foundational knowledge for exploring the principles of evolutionary ecology within the realm of plant pathogens while addressing the often-neglected perspective of plant disease ecology outside agroecosystems.

The authors attempt to show that plant pathogens are not villains, as many people tend to see them, but key members of communities in natural and managed ecosystems.

Fungi, being one of the most common and important plant pathogens, are continuously used as examples to explain diverse terminology throughout the book. The book would be particularly useful as a resource in introductory plant pathology courses and general biology classes. Most, if not all, the topics covered in this book were part of my PhD plant pathology required classes and this book would have been a fantastic resource to have had at that time. For more general mycology classes and/or new undergraduates joining a fungal lab, Chapters 3 – “How to Be a Fungus” and 15 – “The Plant Microbiome” provide good general information about basic fungal biology and fungal interactions with plants.

The book is divided into two parts. The **first part** introduces fundamental concepts in plant pathology and evolutionary ecology. Chapters 2–7 focus on describing the basic biology of plants and their pathogens (fungi, oomycetes, bacteria, viruses, nematodes, and parasitic plants) including how these organisms are composed, how they acquire nutrients, their growth and reproduction, transmission, and main groups that are important in terms of plant disease. The first part of the book closes by providing an overview of the ways that plants and pathogens interact with each other (Chapter 8) and the main techniques and approaches used by plant disease ecologists in their work (Chapter 9), ranging from diagnosis through culture-based methods, serological, and DNA-based approaches to measuring disease severity and impact on the host.

The **second** part of the book focuses on the science and applications of these plant-microbe interactions, starting with the temporal and spatial aspects of disease epidemiology and tools used to study population dynamics (Chapters 10–11). Then, it provides background on key chemical and physiological traits of pathogens and plants (Chapter 12) and how evolutionary dynamics shape the ecology and epidemiology of plant disease (Chapter 13). Plant diseases are placed into the context of communities of plants interacting with communities of pathogens in Chapter 14, considering plants pathogens as natural parts of wild plant communities. It also dives into the array of mechanisms of plant-microbe interactions and their involvement in plant disease (Chapter 15). The book wraps up contextualizing all these interactions under global changes (Chapter 16), such as land use change and the effects of climate change on pathogen-host interactions, and how to apply knowledge of evolutionary ecology into effective management of plant diseases (Chapter 17).

The information is presented in an effective way using simple explanations and highlights that all plant-microbe interactions fall along dynamic gradients that depend on several factors and do not necessarily fall into “boxes”. The book includes beautiful drawings and figures that easily illustrate the concepts presented in the book. One feature I really liked is that the authors highlight specialized terminology throughout the text. Overall, this book is a great resource for educators and students in plant pathology and mycology and provides a refreshing perspective by going beyond agricultural settings to exploring the role of plant disease in natural ecosystems.

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