

Manzoor Ahmad Shah

Mycorrhizas: Novel Dimensions in the Changing World

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 Springer

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Preface

We are presently a part of the fast-changing world wherein our perceptions about various environmental concerns, and actions to address them, must change accordingly. Anthropogenic climate change, biological invasions, deforestation, desertification and frequent droughts are just some of the major elements of current global environmental change. In-depth knowledge and proper understanding of mycorrhizal mutualism, and all it entails in the global change context, is vitally important. I believe that ecologists and mycorrhizologists must rethink basic notions of how we set and accomplish our objectives in mycorrhizal research in a complex and changing environment. Contemporary researchers, especially in the field of ecology, are beset with a challenge to make sense of the traditional disciplines in the context of global environmental change and using new approaches to solve old problems. This challenge became a driving force for my motivation to write this book and provide students and budding researchers some hopefully useful insights into the changing roles of mycorrhizal symbioses in the rapidly changing world. How far I succeed in doing so can be best judged by the readers of the book.

In fact, more than a decade ago when I started working on mycorrhizas at the University of Kashmir with my supervisor Professor Z.A. Reshi, I could realise the dynamism of plant–mycorrhiza interactions, notwithstanding the methodological difficulties to manipulate such interactions in the field or laboratory for experimental purposes. A number of books have been written on various aspects of mycorrhizas. How this book is different from previously published books is something that readers might be eager to know about. In this book, I attempt to provide a global perspective of mycorrhizal diversity and distribution followed by providing some insights into the impact of various global change elements such as climate change, plant invasion and extreme environmental conditions on mycorrhizas and the role of these mutualists in turn to help their host plants to withstand such changing selection pressures. Special attention here is given to the interesting, but largely neglected topics, such as the role of mycorrhizas in ecological restoration of degraded environments and mycorrhizal status of aquatic plants. Though most of the aforementioned topics and processes are taught and researched within the academic discipline of mycorrhizal ecology independently, this book attempts to unify these topical areas in a common integrated framework.

This book can be used by the undergraduate- and graduate-level students studying mycorrhizal symbioses in the context of current ecological applications. The materials in this book will benefit biological scientists actively involved in research on mycorrhizal ecology and global environmental change. Besides, the contents of the book make sense to restoration ecologists and biodiversity managers. It is important to mention that this book was never intended as a review of the literature on any subject pertaining to the title and chapters of this book. I render apology to my readers and solicit forgiveness for my error of omission if their seminal work is not cited. The limitations of time, space and my brain are to blame.

Srinagar, India

Manzoor Ahmad Shah

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The writing of this book has been a mammoth task. However, I have been very fortunate to get the opportunity to work for various mycorrhiza-related projects during the formative phase of my research with competent mentors like Prof. Zafar A. Reshi and Damase P. Khasa, whose wisdom, knowledge and experience shine through. I therefore thank them for their superb support and hard work for enabling me to handle the nuts and bolts of mycorrhizal research. I would certainly have not been able to complete this task had there not been a huge support from my family, especially my wife, Dr. Sameera, who all through took care of the kids – Muqadas, Ahmad and Mohammad. I dedicate this book to my mother who is an embodiment of wisdom, love and affection.

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