
Volume Preface to the Second Edition

Fungal associations play a prominent role in terrestrial ecosystems due to their impact on ecosystem health. Scientists as well as laymen have been fascinated for a long time by the fact that fungi can enter mutualistic symbioses with organisms of totally different origin, such as plants, algae and bacteria, resulting in new forms differing from the original partners.

This book focuses on mycorrhizas and lichens, but is also concerned with fungal–bacterial associations. Major progress has been achieved in this field during the last decade. It particularly concerns the analysis of molecular interactions, leading to a better understanding of crucial events at the level of genome, proteome and metabolome during colonization and subsequent steps. The communication by chemical signals plays a decisive role. Progress is also seen in the appreciation of ecological impacts caused by the interaction of these symbioses with their environment.

More than one decade after the appearance of the first edition of Volume IX of “The Mycota”, a new edition of “Fungal Associations” was overdue. Again, internationally renowned scientists could be won as authors; many of whom formed their discipline and also contributed already to the first edition. I am most grateful to all authors and co-authors for their cooperation and willingness to update their former chapter or contribute a new chapter.

The size of the book has now been increased from 13 to 18 chapters. It guarantees a well-balanced overview of a rapidly expanding field. It is hoped that this second edition will encourage young scientists to enter a fascinating field, disseminate new ideas and serve as an attractive reference.

I would like to thank Springer Verlag, particularly Dr. Andrea Schlitzberger, for continued interest and active help. I am indebted to the series editor, Prof. Dr. Karl Esser, who accompanied the progress of the book with encouragement and on cordial terms.

Freising-Weihenstephan, Germany

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The vital role of fungal associations for all ecosystems was only recognized in the second half of the twentieth century. The growing realization that the relevance of fungal associations goes beyond classical mycology has greatly accelerated research in this field. The availability of new tools, provided especially by molecular biology, has triggered new approaches to the study of fungi as hosts as well as symbionts.

Due to the enormous amount of new work in the field of fungal associations, it has been impossible to include all topics of interest in this Volume. Rather, it has been decided to concentrate in more depth on subjects such as mycorrhizae, lichens, as well as some new developments coming up more recently, e.g., *Geosiphon* and *Piriformospora* associations. Therefore a compromise had to be made, resulting in the omission of other important aspects such as fungal endophytes or symbioses with insects. Nevertheless, it is hoped that this Volume will contribute to a better understanding of fungal associations.

It has been a pleasure to edit this book, primarily due to the stimulating discussions with the series editor Prof. Karl Esser. I am indebted to Springer-Verlag for all the help and active cooperation during the preparation of this Volume. I am grateful to Stefanie Rauchalles who has eliminated many errors in the manuscripts and helped to attain consistency in the presentation of the chapters.

I hope that this book will help to answer questions concerning the complex fungal associations and provide guidance for future research.

Freising-Weihenstephan, April 2000

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