Preface

The field of fungal physiology, like other fields of science, has exploded in the past twenty years. This explosion has occasioned an increasing number and frequency of symposium volumes, advanced treatises, and review articles summarizing many important aspects of this field. Also, several introductory mycology texts now include significant coverage of fungal physiology. This book is intended to fill the gap between these two levels of presentation in order to provide the teacher and student of fungal physiology with a book suitable for a semester course.

The book is aimed at the senior-graduate student level and assumes a working familiarity with general and organic chemistry, physics, and calculus. A course in general or cellular physiology would also be useful, as would some familiarity with fungal structure, reproduction, and classification. However, the first chapter is a general introduction to the fungi; this explains the mycological terminology to students without a detailed knowledge of the fungi, and provides a common basis of understanding of fungal reproduction and of the classification I have used.

In writing this book I have deliberately spent little space on those aspects of physiology and biochemistry that are common to most of biology, assuming that these will be studied in greater detail in other courses. They are presented here only in sufficient detail that a student need not have course backgrounds in biochemistry and cytology to use this text. I have tried to concentrate on those aspects of physiology where fungi are significantly different from, and often unique among, other organisms.

While it is important for students to know the current status of concepts of physiology, it is more important to understand how these concepts were derived, and thus how they may be changed in the future. There are two approaches to this kind of understanding, the historical and the experimental. I have not attempted to produce a historical account of the field of fungal physiology, but I have tried to discuss the subject from the experimental point of view. Showing reasoning behind the experimental approaches that can be taken to solve the problems of fungal physiology is an important part of this book, as is the illustration of these experiments by original data. This approach allows students to see and interpret for themselves the results of this process. I also recommend that students read and discuss original research papers to extend this experience beyond that permitted by the confines of this book.

Review articles are referred to wherever possible, for economy of space, to limit the extent of reference citations interrupting the reader's thought, and to provide a guide to the larger body of literature. This means that the student will have to seek out this secondary literature in order to find the original works. The primary literature is cited where specific data is used and where clarity requires it. Also, I have not attempted, necessarily, to cite the most recent papers on a topic (although I have tried to be as current as possible), but rather I have chosen references as examples of the kinds of work being done and for their originality and interest.

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