



Physiology of Fungi

K.S. Bilgrami & R.N. Verma



3rd Revised Edition by
R.N. Verma

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Third Revised Edition

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Preface to the Third Edition

Since publication of the second edition and subsequent reprints thereof, much water has flowed down the River Ganges. Also, in 1996, Prof. K.S. Bilgrami, the soul and mind behind this book, departed for his heavenly abode, leaving behind his keen desire for further updating and improvement of the text. I feel extremely contended to write this preface with a deep sense of satisfaction that his desire could be fulfilled.

When I initiated the work on this project, I was fully aware of the daunting task ahead of me due to the information-explosion on the subject, yet I could manage it to the level of fair degree of satisfaction and am very hopeful that it will continue to serve its purpose as before.

In this revised edition, I have included two new chapters, viz. (i) Cellular characteristics of Fungi and (ii) Absorption and Transport in Fungi. Further, new and Updated information have been appended to almost all aspects of fungal physiology and Biochemistry, but renewed emphases have been given to the Utilization and Metabolism of Carbon, Nitrogen, Minerals (including heavy metals) and Vitamins. Topics like Respiration, Growth-mechanism, Sexuality and Morphogenesis have received their due additions and improvement. Similarly, contributions on specialized groups of fungi like Mushroom fungi, ECM fungi, Yeasts and dimorphic species have been added to diversify the subject of the book. Also to make the text useful for the people of Commerce and Industry, Applied Institutions, Biotechnologists etc. recent findings on Fungal Enzymes, Proteins, Medicinal and other Toxic Compounds, as well as Bio-remediation of Xenobiotics

and other pollutants have also received their due places in the next.

The revised text has been provided with some topics of general interest like Role of Fungi in Biological Cycles of the Nature, their current Systemic position etc. and have been laced with some new illustrations as well. To this edition have been added over 500 new references drawn from publications emanating from various countries, which I have freely dwelt upon, and record my thanks and appreciation for the same.

In a write-up of this dimension, errors and omissions are bound to occur, for which I owe due responsibility, but I do expect helpful criticis and suggestions from the learned readers for their remediation in future.

I humbly dedicate this 'New Look' enlarged edition of **"PHYSIOLOGY OF FUNGI"**, being published by M/s Scientific Publishers (India), Jodhpur a well known player in the field, to the FOND MEMORY of my esteemed teacher, LATE PROFESSOR KRISHNA SAHAI BILGRAMI.

R.N. VERMA

Preface to the Second Edition

FUNGAL PHYSIOLOGY as an independent discipline is comparatively of recent origin. During the last three decades the subject has made rapid strides and at the same time has contributed substantially to other sciences like biochemistry, genetics and microbiology. Despite its practical utility the subject is still on the periphery so far as the curricular programmes of the Indian Universities are concerned. Lack of proper reading material has been possibly one of the major factors for this situation. Although we were seriously concerned about it since long, the opportunity arose only when the University Grants Commission sanctioned us a book writing project.

This text is designed for post-graduate and research students of fungal physiology. Important physiological processes of fungi like respiration, growth and metabolism are fully elucidated with a bio-chemical framework. Hormonal regulation of sex in fungi forms the basis of chapter on Physiology of Reproduction. A detailed account of a wide variety of metabolic products of fungi is also incorporated to cater the needs of students of applied biology and agriculture. The text is liberally laced with recent references which open the doors to many interesting research problems.

We are indebted to the University Grants Commission and to the National Book Trust of India for subsidizing the publication. We acknowledge with gratitude and affection the generous advice and comments received from the reviewers, Professor R.N. Tandon, New Delhi, Professor K.S. Bhargava, Gorakhpur and Professor S.P. Sen, Kalyani.

In planning the contents we were greatly benefitted by the suggestions of many specialists. In particular, we are thankful to Professor T.S. Sadasivan, Madras and Professor K.S. Thind, Chandigarh, whose opinions were of immense help in setting the frontiers of the book. Professor S.J. Ksená, Sagar, Professor, M.M. Laloraya, Indore; Professor A.B. Lal and Professor J.S. Datta

Munshi, Bhagalpur have given inspiring comments on this presentation, we are grateful to them.

Inevitably the text must include errors and omissions for which we own undiluted responsibility. Any comments or suggestions for future amendments will be gratefully acknowledged.

K.S. Bilgrami

R.N. Verma

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