LABORATORY MANUAL IN MICROBIOLOGY

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Dedication

To Our Parents, Teachers and Students.

PREFACE

We feel blissful to make available our book 'Laboratory Manual in Microbiology' to the students, teachers and all other readers. This book is a sweet fruit to the honest and hard efforts for five years. Keeping in view the requirements of students and teachers, it is our humble attempt to present the contents in a lucid and appealing manner. The book constitutes '14' Sections including experiments conducted in the Microbiology laboratories with particular reference to the approach, requirements, procedure and interpretation of results and conclusion. The book constitutes '160' figures, Index in detail, Separate Appendices and List of References for further reading.

We have tried to cover maximum areas in Practical Microbiology along with the experiments in Biochemistry, Biotechnology, Environmental Science, Dairy Science and other courses related to these subjects. This book is very useful to conduct the experiments related to Agricultural Microbiology, Microbiology of Drinking Water and Sewage, Microbiology of Food and Milk, Air Microbiology, Microbial Metabolism (Enzymology), Genetics, Molecular Biology, Medical Microbiology, Pathology, Industrial Microbiology, etc. We hope that, this book would help to understand the basic concepts in Microbiology and make easy for the students and teachers to conduct experiments in microbiology and other subjects of life sciences. We heartily welcome the comments and suggestions from students and teachers which will be helpful for necessary improvements in subsequent edition.

On this occasion, it is our great pleasure and prime duty to express gratefulness to our family members, teachers, Honorable President and all other members of Maharashtra Education Society, Principal, Librarian and Other staff members of our college. We also express my sincere thanks to the Librarians of different Universities and Colleges where we visited for reference work regarding this book and Authors of many books those we referred.

We are thankful to Director Mrs. Rajani Adam, Kripa Drishti Publications, Pune to co-operate and publish this book. We are also thankful to all known and unknown personalities who have helped us to present this book.

Balkrishna M. Sandikar

Shaileshkumar V. Mamdapure

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About the Book

The book 'Laboratory Manual in Microbiology' covers maximum experiments conducted in Microbiology Laboratories of all the Degree Colleges affiliated to different Universities in India. It also includes some experiments in other subjects related to Life-sciences like Biotechnology, Biochemistry, Environmental Science, Dairy Science, Food Technology, Agrotechnology, etc. The book starts with the General Rules/Instructions, Essential things and Techniques relates to Microbiology experiments. It constitutes 13 Sections including 150 experiments those routinely conducted in the Microbiology laboratories and Section: 14 regarding- Preparation of reagents, indicators, stains and buffers. The book constitutes 160 figures those facilitates the understanding of experiments, Book contents in detail, and separate Appendices regarding- Commonly used pH indicator dyes, McCrady's table, International atomic weights of elements, Units of measurements and their interconversions. List of references at the end of book helps to get additional information about specific experiment. We hope that, this book will be very useful for all the Teachers, Students and Laboratory Assistants in Departments of Life-sciences, especially the Microbiology.

About the Authors

Dr. Balkrishna M. Sandikar

He is working as a Professor in Microbiology, at Maharashtra Udayagiri College, UDGIR Dist. Latur affiliated to Swami Ramanand Teerth Marathwada University, Nanded- Maharashtra.

He has 33 years teaching experience to students of Microbiology, i.e. since the date of his appointment 2nd July 1988. He is conducting research work especially in the field 'Biological control and plant growth promotion'. He has been awarded M. Phil. degree in microbiology for his research work on Role of fluorescent pseudomonads in growth promotion of Cassia uniflora in May 2000, by University of Pune. He has been completed minor research project sanctioned and financially supported by University Grants Commission Pune, on Biological control of damping–off diseases during 2002-2004. He has been awarded Ph.D. degree in Microbiology by Swami Ramanand Teerth Marathwada University, Nanded, for his research work on Studies on biological control agents against soil-borne fungal pathogens of crop plants in March 2009.
He has been published research papers in national and international journals regarding his research. He has been selected on advisory board of International Journal of Plant Protection, published by Hind Agricultural Research and Training Institute, Muzaffarnagar, U.P. He has worked as In-charge Principal of Maharashtra Udayagiri College, UDGIR Dist. Latur.
His first book Applied Microbiology has been published by Himalaya Publishing House, Mumbai in 2013, second book Fundamental Microbiology by Books and Allied, Publications Kolkata in 2021 and Basic Biochemistry and Microbial Metabolism in 2021 by Himalaya Publishing House, Mumbai.

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He has competed his B.Sc. in 2012 from Maharashtra Udayagiri College, UDGIR and M. Sc. Microbiology in 2014 from School of Life sciences, Swami Ramanand Teerth Marathwada University, Nanded- Maharashtra. Presently he is working as an Assistant Professor (CHB) in Microbiology, at Maharashtra Udayagiri College, UDGIR Dist. Latur affiliated to Swami Ramanand Teerth Marathwada University, Nanded- Maharashtra. He is actively involved in teaching and research since last 6 years regarding different fields of Microbiology. He has published research papers in National and International peer reviewed journals.

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