



Microbial Applications , 1/e

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About the Book

Increasing importance of the subjects like Microbiology, Biochemistry, Biotechnology and Environmental Science envisages elaborate and consolidated information on these modern disciplines of science. There is an urgent need to integrate all these disciplines to devise a truly interdisciplinary branch of science that caters to the need of all those who are genuinely interested to solve the multifaceted problems faced by the mankind. Therefore, this book is a step forward in the direction of integrating the aforesaid frontline branches into an interdisciplinary course quenching the academic thirst of all those concerned.

Microbial Applications aims to provide information to both undergraduate and post-graduate students studying in various fields of Life Sciences. Though an edited book it has been designed in such a way that even beginners in the field, who are not well acquainted with the problems mentioned in the individual chapters, can also easily grasp the subject.

This book includes twenty-two chapters related to applications and deleterious aspects of microorganisms including utility of *A. pullulans* in industry, symbiotic nitrogen fixation, microbial enzymes, probiotics, microbes in heavy metal remediation, immunosensor, role of bioinformatics in microbiology, biofertilizers, and microbes as source of plant growth promoting factors etc. Each chapter provides introductory description on the topic followed by a detailed account. All the topics covered in the book are dealt with sound scientific footing. Different chapters were invited from specialists in the concerned disciplines. It is expected that this will cater to the needs of science students.

Salient Features

- ▶ Comprises of 22 contributed chapters: explains applications and deleterious aspects of microorganisms.
- ▶ Each article is preceded with an introductory summary followed by a detailed account, and ends with a conclusion, and references.
- ▶ Contains colour picture at appropriate places in the book.

Table of Contents

- ▶ Biology, distribution and utility of *Aureobasidium pullulans*
- ▶ Microbial laccases: Occurrence, properties and applications
- ▶ Bacterial protease inhibitors
- ▶ Exploitation of microbes and microbiols in pest management: Current status and future prospects
- ▶ Microbial interactions and control of bacteria and phytopathogenic fungi
- ▶ Probiotics: Role in fodder technology
- ▶ Structure and function of HIV
- ▶ GMM food: Problems and perspectives
- ▶ Role of fungi in production of ergot alkaloid
- ▶ Role of bioinformatics in microbial studies.
- ▶ Microbes for heavy metal remediation
- ▶ Microbial degradation of pesticides
- ▶ Microbial degradation of sulfide in aerobic and anaerobic conditions
- ▶ Bioinformatics in microbiology: An introduction
- ▶ Biofertilizers and plant growth promoting rhizobacteria.
- ▶ Biosensors: A real time analytical tool
- ▶ Immunosensor: A new strategy in detection and analysis of biomolecules
- ▶ Bacterial resistance in mercury and its bioremediation in contaminated environment
- ▶ Role of phosphate solubilizing microorganisms in agriculture
- ▶ Microorganisms for improving productivity and quality in horticultural crops
- ▶ Studies in *Rhizobium* association with *Sesbania* species, an important green manure crop

About the Author

Rajeeva Gaur :- did post-graduation in Microbiology from G.B. Pant University of Agriculture and Technology, Pantnagar, Nainital in 1984. He earned his Ph.D. degrees in Microbiology from the Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi in 1992. He joined Sarya Distillery as the Manager, Research and Development in 1992 and worked till 1994. Then he joined as lecturer in the Department of Microbiology, Dr. Ram Manohar Lohia Avadh University, Faizabad (UP) and is presently working as Reader in the same department. He has successfully completed several research projects from different funding agencies and has served the University with distinction in various academic and administrative positions. He has published 45 research papers in national and international journals of repute. His current research interest is in the commercial exploitation of *Aureobasidium pullulans* as a source of biodegradable plastic.

R. R. Pandey :- post-graduated from Rohilkhand University, Bareilly in 1979, and obtained his Ph.D. degrees in Botany from Banaras Hindu University, Varanasi in 1984. From 1985-1995, he worked as Post-Doctoral Fellow, Research Associate and Pool Officer at Banaras Hindu University and partly at Rohilkhand University. In 1995, he joined the Department of Life Sciences, Manipur University, Imphal as Assistant Professor and promoted to Associate Professor in 2007 in the same university.

His area of specialization is Mycology, Plant Pathology and Microbiology. He has over 14 years experience of teaching and 25 years of research experience. Dr. Pandey has published 32 research and review papers in national and international journals/edited books of repute. Two scholars have already been awarded Ph.D. degrees under his guidance. Recently, he has completed a research project entitled '*Comparative studies of microbial diversity and soil biological processes during leaf litter decomposition in natural oak forest and plantations of Manipur, North East India*' funded by the Ministry of Environment & Forests, New Delhi.

Pandey is the Fellow of the Indian Botanical Society (FBS), and the International Society for Conservation of Natural Resources (FNRS). He is the life member of Indian Phytopathological Society and Indian Science Congress Association (ISCA).

S. Mehrotra :- is Associate Professor in the Department of Biochemistry, University of Lucknow, Lucknow (UP). He has a teaching and research experience of more than 22 years. Earlier he served in the Department of Biochemistry, Dr. R.M.L. Avadh University, Faizabad for a period of 13 years and was also its founder member. Four students have been awarded Ph. D. degree under his guidance. He has published 12 papers in national and international journals and contributed many chapters in edited books. Dr. Mehrotra and his research group have also presented more than 30 papers in various national and international seminars, conferences and symposia. He has completed a number of research projects sponsored by various funding agencies such as AICTE, UPCST, UGC, etc. He is a life member of various academic bodies such as SBC (I), STOX (I), ISCA.