

Book Review**Mycology and Microbiology**

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Fungal biology is an interesting branch of science as it plays an important role in the development of the biomedical and biotechnology sectors. Fungi are non-chlorophyllous living eukaryotes which are variable in form behaviour, function and life cycle. Fungi have created themselves specialized status of a kingdom by virtue of possessing well defined, typically chitinized cell wall and absorptive nutrition besides being ubiquitous as saprobes, symbionts, parasites or hyperparasites and cosmopolitan in distribution. Many natural processes are dependent on the interaction between fungi and their environment. Fungal kingdom is diverse and around 1.5 million is the estimated number. Around one lakh fungi are described from the world and 29000 fungal species are reported from India. India is the cradle for fungi, microbes, plants and other living organisms and this hidden wealth needs to be explored for human welfare in order to provide food, nutritional, health and environmental security for the growing population.

The variety and galaxy of fungi and their natural beauty occupy prime place in the biological world. Fungi are not only beautiful but play a significant role in the daily life of human beings besides their utilization in industry, agriculture, medicine, food industry, textiles, bioremediation, bio-control natural cycling of elements, as biofertilizers, in biotransformation, genetic manipulation and in many other ways. Fungal biotechnology has become an integral part of human welfare. Fungi are well recognized to produce a wide variety of chemical structures, several of which are most valuable pharmaceuticals, agrochemicals and industrial

products. *Saccharomyces cerevisiae* was the first eukaryote available with genome sequence. The recent developments in molecular biology have allowed mycologists to discover the unexplored or hidden wealth of fungi for the benefit of humanity.

Microorganisms are microscopic organisms and include bacteria viruses, microalgae, yeasts, actinomycetes, protozoans and others. Microbes have the ability to breakdown complex chemical substances including hydrocarbons, pesticides, wastes and convert them into simpler substance. These are known to help in recycling of chemical elements and incorporate them into the soil, water and air. Autotrophic bacteria and algae play an important role in photosynthesis which is a food and oxygen generating process. Microbes have applied value and play important role in human welfare. Microbes are used in the synthesis of acetone, glycerine, organic acids, vitamins, amino acids, enzymes, alcohols, vaccines, antibiotics, drugs, in agriculture, bioremediation and others.

These are several good text books available in mycology and microbiology and all such text books have worthy material. In recent times there have been changes in the nomenclature, classification, life cycle studies, relationship between molecular approaches. This book includes a number of chapters dealing with fungal biology, diversity, taxonomy, biotechnology and topics of interest in mycology along with microbial diversity, their structure, reproduction, function and importance. The subject content suffices the needs of UG and PG syllabus of UGC, ICAR institutions, SAU's and others. It is a humble attempt of the learned, experienced author's to make the readers

understand the biology and biotechnology of fungi and microbes in a simple way to communicate the recent developments. It is hope that this text book will be highly useful to the student community, teaching fraternity, young and budding researchers, candidates preparing for competitive examinations and others.

About the Authors

Prof C Manoharachary, Ph D, D Sc was head, Department of Botany, Osmania University, Hyderabad, did post-doctoral work at UK, USA and Germany, is NASI Senior Scientist- Platinum Jubilee Fellow. Guided 46 Ph D students; published over 435 research papers and authored/edited 24 books. He bagged several National awards and is Fellow of eight national academies.

Prof KVBR Tilak, Ph D was Head, Division of Microbiology, IARI, New Delhi and NASI Senior Scientist Platinum Jubilee Fellow. He was DAAD Fellow and Humboldt Fellow, Germany. Guided 30 Ph D students and published 250 research papers. He is Fellow of six Academics and honoured with several national awards.

Prof KV Mallaiah, Ph D is founder of Department of Microbiology and served as Head, Department of Microbiology and Botany, Nagarjuna University, Guntur, AP. He has guided 20 PhD students and published over 150 research papers. He has authored ten books. He is Fellow of four academic societies.

Dr (Mrs) IK Kunwar, D Phil was Visiting Research Associate in USA and Research Scientist in the Department of Botany, Osmania University, Hyderabad. She has published more than 125 research papers and authored/edited 5 books.

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