

Revised Edition

A TEXTBOOK OF MICROBIOLOGY



Dr. R.C. DUBEY
Dr. D.K. MAHESHWARI

S. CHAND

MULTICOLOUR REVISED EDITION

A TEXTBOOK OF
MICROBIOLOGY

[For University and College Students in India & Abroad]

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Preface to the Fourth Revised Edition

We feel pleasure to revise the fourth edition of the book by incorporating some recent information and three new chapters. Chapter 15 Viruses-I (General Character) is thoroughly revised. Chapter 16 Viruses-II (Plant Viruses, Viroids, Satellites and Virusoids), Chapter 17 Viruses-III (Animal Viruses and Prions) and Chapter 19 (Pharmaceutical Microbiology) have been written as per syllabus or some Colleges/Universities where these are being taught at UG/PG levels. It has become necessary to provide new materials to the readers due to evolving fast knowledge in different areas of microbiology.

Hopefully, the fourth edition of the book shall meet the demand of the readers.

Helps and critical suggestions rendered by the students, colleagues and friends are gratefully acknowledged. We appreciate the constant availability of comments from S. Chand & Company. Helps and suggestions received in multifarious ways from the management, editorial and DTP team of S. Chand & Co. for betterment of the book are gratefully acknowledged.

Constructive suggestions for improvement of the book shall always be welcome.

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Further, the appearance of the personal name, location, place and incidence, if any; in the illustrations used herein is purely coincidental and work of imagination. Thus the same should in no manner be termed as defamatory to any individual.

Preface to the First Edition

Until recently, Microbiology has been a least concerned branch of biology. But at present it has revolutionised the field of biology throughout the world. Needless to say that the highest number of Nobel prize awardee are from microbiology.

This book contains 30 chapters covering a wide range of areas such as general microbiology, agriculture, medical, fermentation, food and dairy including the advanced fields as well. A detailed account of defense mechanism, working of immune system and antigen-antibody interactions have been given. Moreover, epidemiology, parasitism, antimicrobial chemotherapy and important human diseases (protozoan, fungal, bacterial and viral) are described in detail.

Ecology of microorganisms especially soil, water and air, and microbial interactions has been discussed. The present need of the country is the enhanced crop production and crop protection from pathogens and pests in field and storage conditions. These aspects have also been covered. The knowledge of handling the instruments is very necessary for the graduate and post-graduate students of microbiology. Therefore, for the interest of students a separate chapter has been written on Instrumentations in Microbiology.

The authors have received help, encouragement and suggestions from their well-wishers, colleagues and friends throughout India and abroad while compiling this book. We gratefully acknowledge the helps and suggestions accorded by Dr. H. Uchiyama, N.I.E.S., Ibaraki, Japan for a SEM photograph of *Methylocystis* sp. strain ML, Prof. Y. Nishimura (Japan), Prof. Ajit Verma (JNU, New Delhi), Dr. Y.D. Gaur and Dr. S.K. Goel (IARI), Prof. Subhash Chand (IIT, New Delhi), Prof. T. Satyanarayan (South Campus, Delhi), Dr. D.S. Arora (Amritsar), Prof. J.K. Gupta (Chandigarh), Dr. Swaranjit Singh (IMTECH, Chandigarh), Prof. B.S. Kundu (Kurukshetra), Dr. Geeta Sumbali (Jammu), Prof. S.K. Mahana (Ajmer), Prof. H.C. Dube (Bhavnagar), Dr. P.C. Trivedi (Jaipur), Prof. Shashi Chauhan (Gwalior), Prof. P.S. Bisen (Bhopal), Prof. R.C. Rajak (Jabalpur), Prof. S.C. Agrawal (Sagar), Prof. R.D. Khulbe and Dr. S.C. Sati (Nainital), Prof. K.N. Pandey and Dr. R.C. Gupta (Almora), Prof. B.N. Johri (Pantnagar), Prof. S.K. Garg and Dr. Rajeev Gaur (Faizabad), Dr. A.P. Garg (Meerut), Dr. R.K.S. Kushwaha (Kanpur), Prof. H.N. Verma (Lucknow), Prof. Sudhir Chandra (Allahabad), Prof. Bharat Rai (BHU, Varanasi), Prof. J.S. Singh (BHU), Dr. N.N. Tripathi (Gorakhpur), Dr. D.B. Singh (Sonbhadra), Prof. R.S. Bilgrami (Muzaffarpur), Prof. K.B. Mishra (Patna), Prof. R.P. Purkayastha (Calcutta), Prof. R.R. Mishra (Shillong), Dr. M.S. Singh and Dr. R.R. Pandey (Manipur), Prof. R.K.S. Chauhan (Ujjain), Prof. B.P. Kapadnis (Pune), Prof. C. Manoharachary (Hyderabad), Prof. C. Laxminarsinhan (Thanjavur), Dr. R. Saravanamuthu (Mayiladuthurai).

We thank our colleagues Dr. G.P. Gupta and Dr. Navneet for helps and critical suggestions time to time. Assistance rendered by our research scholars Messrs V.K. Sharma, Roshan Lal, Vineet Kumar, Chandra Prakash, Navin K. Arora and Promen Sharma is gratefully acknowledged. Our sincere thanks are also due to our publisher Mr. R.K. Gupta of S. Chand & Co. Ltd., for timely bringing out the book.

We shall welcome the constructive suggestion, if any, from the readers.

AUTHORS

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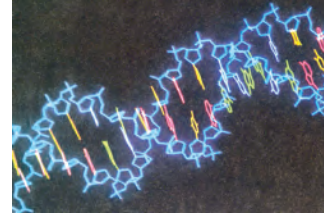


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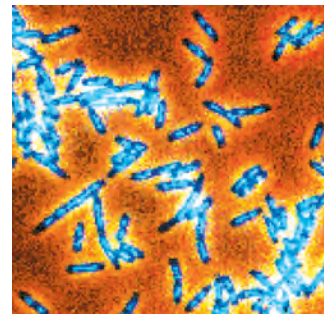
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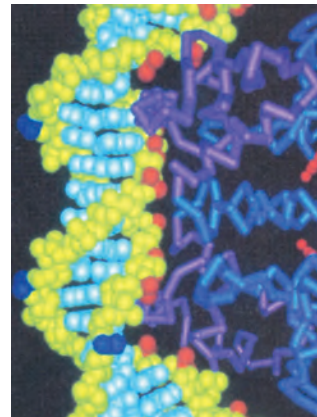
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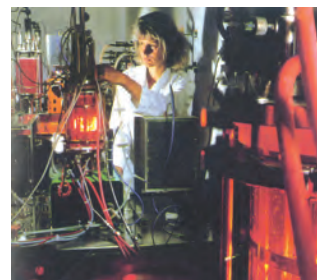
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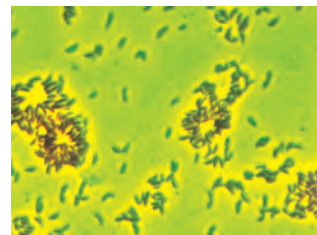
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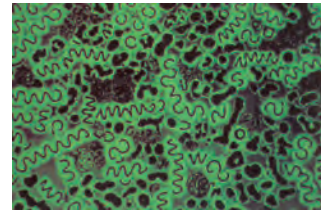


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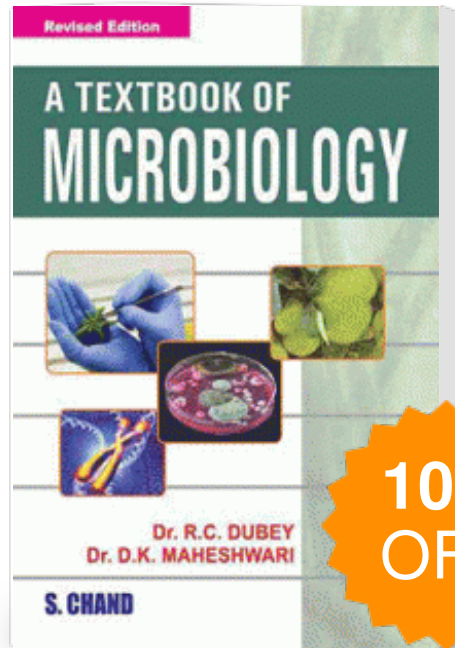
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