

Preface

In the first edition of *Biotechnology Fundamentals*, published in 2011, I focused on the delivery of biotechnology information in a concise manner, without sacrificing any content. Another interesting feature of the first edition was that it included the career aspects of biotechnology to help the many students who decided to follow a career path in the fields related to biotechnology, such as microbial or industrial biotechnology, agricultural biotechnology, medical biotechnology, and animal biotechnology. Being a teacher of biotechnology, I had been searching for a book that covered all the aspects of biotechnology, including its business aspect. A great number of textbooks were available that dealt with these issues independently; however, there was no single resource that covered all the aspects of biotechnology. The first edition was published in consideration of this. We received feedback from instructors and students from various colleges and universities, most of which was encouraging and inspiring, but some suggested improvements to the content and updates to the topics.

I discussed with T. Michael Slaughter, executive editor, CRC Press/Taylor & Francis Group, the idea of a new and revised version of the book. We exchanged a few e-mails on this, and Michael also agreed it was time for a revised edition. I started working on revising the manuscript with the aim to improve the quality of the content, make the book more attractive to readers, and address the errors of the first edition.

Today, the field of biotechnology is developing with lightning speed. It is very important to keep abreast of all the new information that, directly or indirectly, affects this field. This new edition includes all such information. The book discusses both the conventional and modern aspects of biotechnology with suitable examples and gives the impression that the field existed for ages, but with different names—plant breeding, cheese making, *in vitro* fertilization, and alcohol fermentation are all products of biotechnology. The primary aim of this book is to help students learn both the classical and modern approaches to biotechnology by providing them with basic information before moving on to complex topics.

The book contains 15 chapters covering topics ranging from introduction to biotechnology, genes to genomics, protein to proteomics, recombinant DNA technology, microbial biotechnology, agricultural biotechnology, animal biotechnology, environmental biotechnology, medical biotechnology, nanobiotechnology, product development in biotechnology, industrial biotechnology, ethics in biotechnology, careers in biotechnology, and laboratory tutorials. All chapters begin with a brief summary followed by text with suitable examples. Each chapter is illustrated with simple line diagrams, pictures, and tables and concludes with a question session, assignment, and field trip information. I have devoted a separate chapter for laboratory tutorials to expose students to various laboratory techniques and protocols. This practical information would be an added advantage to students while they learn the theoretical aspects of biotechnology.

I thank all those who have supported and helped me in successfully completing this revised edition on time. First, I am grateful to the Almighty Allah who gave me the strength and focus to complete this book within the stipulated time. I am thankful to many people who helped me during its production, especially T. Michael Slaughter, executive editor of CRC Press/Taylor & Francis Group, who was a constant source of inspiration; his timely suggestions helped me make this book unique and attractive. I am also thankful to the entire team at CRC Press/Taylor & Francis Group for bringing about this second edition. I thank Hayley Ruggieri, project coordinator, editorial project development, CRC Press/Taylor & Francis Group, for her timely support. I am thankful to Dr. Alexandra Gorgevska for her critical review of the first edition and her recommendations to improve the quality and presentation of this edition.

I thank the entire management team, faculty, and staff of Manipal University, India and Dubai, for their constant support. I am grateful to all my teachers and mentors, especially Professor Nishikant Subhedar and late Professor Obaid Siddiqi, FRS, for training me. I also thank all my friends, well-wishers, and colleagues for their support and cooperation.

I am grateful to all my family members, especially my late father Nayeemuddin Khan and mother Sarwari Begum, my brothers (Aftab Alam Khan, Javed Alam Khan, Intekhab Alam Khan, and Dr. Sarfaraz Alam Khan), my sisters (Sayeeda Khanum, Kausar Khanum, Kahkashan Khanum, and Aysha Khanum), my wife Samina Khan, my sons (Zuhayr Ahmad Khan, Zaid Ahmad Khan, and Zahid Ahmad Khan), my daughter (Azraa Khan), my father-in-law (Abdul Qayyum Siddiqui), and mother-in-law (Uzma Siddiqui) for their constant support and prayers.

I welcome your comments and suggestions to improve future editions of this book and to make them more thought-provoking.

Enjoy reading!

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