

PREFACE

Biotechnology as a fast growing applied science has already impinged everyone's day-to-day life. It is one of the major technologies of the twenty-first century like IT. Its multidisciplinary activities has made it everybody's science. By this time biotechnology has given its impact in almost all areas of public life such as Public Health, Pharmaceuticals, Food and Agriculture, Industry, Bioenergetics Energy sector and information technology. Now it is very clear that biotechnology is not only a key technology for the 21st century, but also the science of the future. It has potential to ensure food security, dramatically reduce hunger and malnutrition, and reduce rural poverty particularly in the developing countries like India. Considering its commercial potential and its possible impact on the economy, government of India has taken a number of measures to build up trained human resource in biotechnology and promote research and development and its commercial aspects in the country. The introduction of biotechnology as a subject discipline in undergraduate levels in all universities of the country and in school at senior secondary level by CBSE are such initiatives to bring the subject to the basic level and make the students aware of the subject, its techniques, its economical potentials and its socio-political and ethical considerations.

The multidisciplinary activities of the biotechnology include recombinant DNA techniques, gene cloning, genetics and genomics, cell biology, application of microbiology, bioprocess and downstream processing, basic biochemistry and proteomics, cell culture, hybridoma technology bioinformatics and information technology. '**Basics of Biotechnology**' is prepared mainly for those students who pursue biotechnology as a subject for undergraduate courses including B.Tech. and B.Sc of all Indian universities. It follows the syllabus prescribed by UGC and the major universities that run this course. It covers all the essential fundamental aspects of modern biology such as biochemistry, molecular biology, genetics, cell biology, biotechnology as an industry and its socio-economical and ethical aspects in a very comprehensive manner. Reading this text book will give the learners an idea about the relationship between the subject and health, nutrition, agriculture, environment, industry etc. and will understand different application of biotechnology in everyday life. Basics of Biotechnology will be very helpful in developing interest in the beginners

to study biotechnology as a discipline and pursue higher studies and research in biotechnology and other professional courses in future.

The book consists of three units and each unit is divided into some chapters. Unit I is divided into four chapters, Unit II consists of two chapters and the Unit III is divided into three chapters. Each of the chapters has been discussed exhaustively as per the requirements of the syllabus and hope that the book will be very useful for undergraduate students and teachers to get basic concepts and understand the techniques of Biotechnology. Suggestions for improvements in the style and content of the textbook, corrections of errors if any will be greatly appreciated from the readers and will be incorporated in future editions.

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