PREFACE

The rapid growth of Morden Biotechnology is expected to solve many problems arising at local and global level. In 21st century economy growth of a country certainly depends on exploration of edge area of biotechnology. The demand for innovative and cost-effective products has had considerable impact on the Research and Development (R&D) portfolio in the biotechnological field. With the advent of the new enabling technologies, the biotechnology revolution has created a need for new and more appropriate paradigm for molecular data, especially genomics, metabolomics and proteomics. Over the couple of decades, progress in biotechnology has contributed to our understanding of the molecular mechanisms of many diseases and has made major contributions to human therapeutics. The broadest definition of biotechnology is the use of living organisms including microorganisms and biological processes for our needs. The traditional biotechnology includes agriculture, beer and bread making. The recent approach of modern biotechnology spawned the industries producing vaccines and antibiotics and now, just starting, is the new biotechnology, for example, genetic engineering and nanotechnology. The public usually does not appreciate the long, safe history of biotechnology in producing goods and the food crops and drinks we consume.

The progress in the biological understanding of disease processes and related technological developments have been a major step forward for drug discovery. However, the great majority of the biotechnology companies are confronted with the same issues as major pharmaceutical companies in terms of R&D productivity. A faster approach is the use of biotechnology techniques such as in vitro cell culture, mutagenesis and selection in physiologically inhibitory concentrations of herbicides (also referred to as brute force selection) or genetic transformation of already existing crop cultivars with genes than confer not only resistance to herbicides but also works in an eco-friendly manner.

Since the present day society tends techno driven, which means that scientific knowledge, and its integrity is crucial. This fact underpins the everyday technology on which we depend; however there is an increasing concern that scientific integrity is being undermined. Ethical considerations have led to the development of regulatory frameworks within which biotechnology can be developed in socially acceptable ways, but is this sufficient to assuage public opinion?

Now a day, the level of distrust of applied science, and its resulting technologies, in the general public is at an all time high, and public anxiety is heightened by the constant back and forth debates about global warming, genetically modified organisms and now nano-technology. Today, we see ethical dilemmas arising again but this time in the life-sciences and their applications to biotechnology. The debates surrounding GM technologies have led many scientists to despair over what they see as an illogical loss of public confidence in science and technology and they perceive the 'tyranny of the majority' to have taken hold. This is also a growing concern for political leaders because governments have placed spiral emphasis on science and innovation as a foundation of their economic strategies.

The book "Modern Biotechnology and its Applications" incorporates sixteen seminal papers on issue based research and their practical applications covering latest information and progress on different area of biotechnological research. This book will be very useful for the scholars, biotechnologists, agricultural scientists, medical doctors, researchers, teachers and students in the field of biotechnology.

I acknowledge to all the contributors for writing authoritative and informative chapters for this part. The publication of this volume could not have been possible without sincere co-operation and hard work of the contributors. I hope this book will contribute to the development of ideas on balancing sustainability, productivity and utility in the field of modern biotechnology.

Editor