MICROBIAL PROCESS DEVELOPMENT

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Preface

Microbial technology, an investor's paradise, long established by its robust performance in the commercial and industrial sectors, especially, of the technically-advanced societies, is increasingly being considered as a resource. This is primarily due to the blending in classical microbiology with the several new techniques that are likely to influence the development of the bioindustries of tomorrow.

Whereas several current texts stress the molecular approach and aspects of biotechnology, this book emphasizes the need to explore, document, and tap the natural existing microbial wealth for development, albeit, sustainable in nature. Such an approach also argues for the conservation of natural microbial germplasm and biodiversity. In focussing on microbial process development, attention is drawn to the different process development strategies that necessitate an understanding of strain preservation, of microbial biochemistry and physiology, and of cell growth and cell thermodynamics.

Furthermore, prior to embarking upon the harnessing and use of microbial labour force, attention is given to different strategies for conserving and patenting microbial culture and for the genetic improvement of strains. Again, in the wake of the U. N. Conference on Environment and Development (UNCED), attention is drawn to the natural biogeochemical cycles and phenomenal microbial contributions to their equilibration and maintenance. The importance of these cyclic mechanisms in redressing the 'wear and tear' of the environment is further emphasized in terms of use of renewable and non-renewable substrates.

This current and multi-authored text, and by consequence with stylistic variations, has other distinctive features. Apart from the treatment of basic and traditional microbiological concepts in conjunction with the use of monoclonal antibodies and nucleic acid probes, this text is produced in the developing world with a view to reaching vast populations of tomorrow's microbiologists, biotechnologists, chemical engineers, researchers and teachers. Furthermore it aims to introduce and update existing curricula that are either medically-oriented or in need of revision.

Finally, this text is likely to be used in the Pacific Region where there is a need for simple and clearcut teaching material. The Microbial Resources Centre (MIRCEN) at the University of Queensland has been instrumental in developing the Pacific Regional Network in microbial technology, comprised of the collaborative efforts of scientists in Australia, New Zealand, Papua New Guinea, Fiji, Tonga and

Western Samoa. The appearance of this book as reference and teaching material, is a useful and timely response to the need for easily available and inexpensive scientific texts for use in the teaching institutes of several Pacific islands, which emerged from a survey in the region.

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