

Following a logical progression, the 22 chapters offer a comprehensive and up-to-date review of a wide range of topics, from general classification considerations to projections on the future industrial applications of lactic acid bacteria. Most chapters start with a paragraph summarizing the facts and data available on a subject, and end with concluding remarks and a list of references.

With each of the chapters contributed by different collaborators, the reader can come across redundant information. As an offset, any chapter can easily be consulted as a separate unit by readers interested in specific issues. With clear referenced information, this volume reports scientific, commercial and technological findings. It should be of interest to a wide audience ranging from academic or industrial microbiologists and food technologists, to students, regulatory agents and nutritionists. It can also be recommended to consumers desirous to find unbiased detailed information on the effects of lactic acid bacteria and related controversial issues.

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**K. Buchholz, V. Kasche and U.T. Bornscheuer, editors.**  
**Biocatalysts and Enzyme Technology (2005, Wiley-VCH,**  
**Weinheim, Germany) (xvii + 448 pp., £65.00, ISBN 3-527-**  
**30497-5)**

Enzymes as biocatalysts are of key importance in biotechnology and new processes have been and are being developed to manufacture both bulk and value added products using enzyme technology. Their application ranges from the production of processed foods such as bread, cheese, juice and beer, pharmaceuticals and fine chemicals, to the processing of leather and textiles as process aids in detergents and also in environmental engineering. The driving force in the development of enzyme technology has been and will continue to be

development of new and better products, processes and services to meet these needs and improvement of existing processes.

The basic fundamentals of enzymes along with historical highlights and their potential are summarised in the introductory chapters of *Biocatalysts and Enzyme Technology*. The application of enzymes in organic synthesis and an overview of enzyme production and purification are given in subsequent chapters. The applied biocatalysis with free enzymes together with suitable examples is described in chapter 5.

Immobilisation has been found to be the convenient method to make re-utilisation of biocatalysts, higher cell densities in bioreactors and easier purification of the final product. Moreover, the continuous operation is more easily and efficiently controlled while using this technology. The different methods and applications of enzyme immobilisation are discussed in chapter 6, while the immobilisation of microorganisms and cells is described in a separate chapter.

The study of the properties that are important for the application of immobilised biocatalysts and how these are influenced by the nano—and microenvironment around the immobilised enzymes is of great significance. Chapter 8 gives information on different aspects related to the characterisation of immobilised biocatalysts. The bioreactor represents the central part of the plant as a whole, where the reaction takes place under controlled conditions. Details of reactors and process engineering techniques in enzyme technology are discussed in chapter 9.

*Biocatalysts and Enzyme Technology* is an instructive and comprehensive overview of current knowledge of biocatalysts and enzyme technology. In each chapter, an introductory survey is provided together with exercises and recent references. This book will be a useful resource for all persons involved in chemistry, biochemistry, biotechnology and process engineering, and will make a real contribution to the flourishing area of enzyme technology.

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