



**catalysts**



*Special Issue Reprint*

## **Immobilized Biocatalysts**

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Biocatalysts (enzymes and whole cells) catalyze reactions with the advantage of superior chemo-, regio-, and stereo-specificity in mild conditions, thereby avoiding the production of larger amounts of waste. The currently great practical importance of immobilized biocatalysts is expressed by the high number of scientific publications together with an ever increasing number of different applications in this area of enzyme technology. This mainly relies on new research results with respect to immobilization techniques and the development of advanced carrier materials designed for this purpose.

The employment of immobilized biocatalysts is one of the most effective and powerful tools used in the modern chemical industry as a prerequisite for an economical and environmentally friendly production process. The book presented here reflects the currently great practical importance of immobilized biocatalysts by means of a variety of actual examples. They comprise the immobilization of enzymes from different enzyme classes and a variety of whole cells with particular importance for the production of compounds for application in the chemical, pharmaceutical and food industry (in part from renewable resources), biohydrogen production, the fabrication of biosensors, and the treatment of waste water. Several articles introduce new research results with respect to immobilization techniques and the development of carrier materials designed for this purpose.

In addition, review articles provide among others an overview of the industrial application of immobilized biocatalysts in various areas including the energy sector, or discuss the many advantages of metal-organic frameworks (MOFs) as platforms for enzyme immobilization.

In the pros and cons of many inorganic, organic, hybrid and composite nano-supports, used for the immobilization of biocatalysts, and with that of engineered strains applied to the conversion of lignocellulosic biomass to platform chemicals by consolidated bioprocessing.

In summary, the articles meet the state of the art of both scientific and technical standards



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