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Preface

Biocatalysis in biorefinery: A green and highly efficient way to convert renewables

Scientific and commercial interests in biorefinery become increasingly strong due to continual increase of petroleum price and environmental pollution problems. People have to face great challenges of global warming and lacking for transport fuel and chemicals derived from petroleum. Renewable raw materials are more and more widely used to produce fuel such as ethanol, biodiesel, chemicals such as 1,3-propanediol (PDO), and biodegradable materials such as polylactic acid (PLA) and polyhydroxy acid (PHA). So biorefinery that utilizes renewables for production of fuel, chemicals and materials is becoming more important in chemical industry than ever before. The first international conference on biorefinery was held in Beijing from October 20 to October 23, 2007. About 480 participants from 28 countries including US, Canada, Japan, Germany and Denmark took part in the successful conference. There were seven sessions, including bioenergy, biomaterials, biobased chemicals, feed stock, platform technology and application of biorefinery. Some new developments in biorefinery were presented in this conference.

For utilization of renewables in biorefinery, there are different methods: (1) thermal chemical method such as pyrolysis of biomass for fuel; (2) chemical method such as production of poly lactic acid; (3) biocatalytic methods including enzymatic biocatalysis such as cellulase treatment of cellulosic biomass and whole-cell biocatalysis including fermentation. Biocatalysis is a key technology in biorefinery process due to mild conversion condition and high efficiency. Biocatalysis can be used not only for production of biofuel such as ethanol and biodiesel, but also for synthesis of biodegradable plastics such as polyesters.

It is our great honor to publish a special issue for the biorefinery conference in this distinguished journal. After peer-review, 19 papers were accepted for the special issue, with various topics

including screening of highly selective enzymes by genetic cloning method, biocatalytic production of bulk chemicals such as acrylic acid, purification and characterization of some enzymes such as lipases.

On behalf of the organizing committee of Biorefinery Conference 2007, we would like to express our sincere thanks to Elsevier staff for giving us this great opportunity and helps during the edition process of this special issue.

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