

respectively. The detailed chemical composition and geometry of the norbornene building blocks are discussed in the end of this section.

To open the third section, Martin Green presents a review of the current state of the silicon photovoltaics industry and discusses his third-generation, high-efficiency silicon photovoltaic devices. The another chapter of this section describes how artificial molecular systems that mimic bacterial photosynthetic energy conversion can be designed and synthesized.

The first chapter of third section focuses on addressing the hydrogenase oxygen-sensitivity problem. The end of this chapter summarizes the state of the art in getting better irradiation of cells deeper in high-density microalgal culture.

The opening chapter of last section focuses on the manipulating ribulose biphosphate carboxylase/oxygenase in the chloroplasts of higher plants. The next chapter of this chapter presents how to define the inefficiencies in the chemical mechanism of the photosynthetic enzyme rubisco by computational. Carbon-based end products of artificial photosynthesis are discussed in the chapter 15. The next chapter introduce the artificial photosynthesis system. The end chapter of this book describe the greenhouse gas technologies.

Numerous tables, charts and figures throughout this volume provide excellent illustrative material to support the detailed information presented in text. In conclusion, this book outlines the first steps of research in service to energy transformation. This book can be used as a textbook in teaching course as well as in research jobs of this field.

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Available online 28 November 2005

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doi:10.1016/j.carbpol.2005.08.044

Kurt Faber, Biotransformations in Organic Chemistry, 5th ed., Springer, Heidelberg, Germany, 2005 (xi + 454 pp., £27.00, ISBN 3-540-20097-5)

The methodology of biotransformation has been developed and used in recent decades. The utilization of natural catalysts (enzymes) for the transformation of non-natural man-made organic compounds is totally different from the early researches. This method has become an indispensable tool for asymmetric, not only in the academic field, but also on an industrial scale.

There are five parts in this textbook. In the first part, it gives a basic introduction in the principles of biocatalytic

methods. It mainly describes the enzyme properties as well as the classification and nomenclature. In the second part, it discusses the biocatalytic applications, which is the main chapter in this book. It gives the principles of different reactions—hydrolysis, reduction, oxidation, addition and elimination, glycosyl-transfer, C–C bond formation. It also describes the principles of stereoselective transformations, and kinetics of enzymes. The following part indicates the special techniques in this field. It focuses on the organic solvents, immobilization, modification and artificial enzymes. The operation and principle of each technique are described in detail. Charts and figures are cited in the text, which help the readers to understand the points more easily. The following part deals with the state of art and outlook. It is a brief summary on the state of the art of biotransformation. The outlook focuses on future developments. The final part is the appendix, which deals with the basic rules for the safe and practical handling of biocatalysts. The abbreviations, suppliers of enzymes and the commonly preparations of enzymes are included in this part.

Biotransformations in Organic Chemistry as a textbook provides an extensive and basic background in this field and it is a foundation book for students of undergraduate and postgraduate in the course of modern organic chemistry.

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Available online 28 November 2005

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doi:10.1016/j.carbpol.2005.08.043

E. Klipp, R. Herwig, A. Kowald, C. Wierling and H. Lehrach, editors, Systems Biology in Practice (2005, Wiley/VCH, Weinheim, Germany) (xix + 465 pp., € 99.00, ISBN 3-527-31078-9)

A desire to understand a system of living organisms has existed for a long time. Systems biology is the coordinated study of biological system by the researches in the component of cellular network and interaction, genome technique and computer work with experimental efforts. Therefore, the enterprise of systems biology research requires both breadth and depth of understanding for various aspects of biological, computational, mathematical engineer issues.

Systems Biology in Practice is a textbook based on the concept, implementation and application. It covers extensive aspects of biology and computation, which are important in