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Autore	Nesterenko, Yuri V.
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Nota di contenuto	BIOCATALYSIS AND BIOENERGY; CONTENTS; PREFACE; CONTRIBUTORS; PART I. BIODIESEL; 1. Fuel Properties and Performance of Biodiesel; 2. Enzymatic Reactions for Production of Biodiesel Fuel and Their Application to the Oil and Fat Industry; 3. Biodiesel Cost Optimizer: Least-Cost Raw Material Blending for Standardized Biodiesel Quality; 4. New Catalytic Systems for Vegetable Oil Transesterification Based on Tin Compounds; 5. Non-Catalytic Alcoholysis of Vegetable Oils for Production of Biodiesel Fuel; 6. Biodiesel from Acidulated Soapstock (Acid Oil); 7. Industrial Products from Biodiesel Glycerol 8. Development of New Products from Biodiesel Glycerin 9. Optimization of Lipase-Catalyzed Biodiesel by Statistical Approach; 10. Production of Biofuel from Lipids and Alternative Resources; PART II. BIOETHANOL;

11. Biotechnology of Holocellulose-Degrading Enzymes; 12. From Biogas Energy to Keratinase Technology; 13. Emerging Technologies in Dry Grind Ethanol Production; 14. Gram-Positive Bacteria as Biocatalysts to Convert Biomass Derived Sugars into Biofuel and Chemicals; 15. Biological Hydrogen Production by Strict Anaerobic Bacteria: Fundamentals, Operational Strategies, and Limitations

PART III. BIOCATALYSIS (PRODUCTS FROM RENEWABLE RESOURCES)

16. Some Properties of a Self-Sufficient Cytochrome P-450 Monooxygenase System from *Bacillus megaterium* Strain ALA2; 17. Biocatalysis-based Development of Oligosaccharides in Japan; 18. Biocatalysis: Synthesis of Chiral Intermediates for Drugs; 19. Screening of Novel Microbial Enzymes and Their Application to Chiral Compound Production; 20. Hydrogenation Technologies for the Production of High Quantity of Biobeneficiary Conjugated Fatty Acids; 21. Production of Mannitol by Lactic Acid Bacteria: A Review

22. Evaluation of the Physiological Function of Docosahexaenoic Acid in Diet-induced Lipodystrophy Model Mice

23. Conversion of Fishery By-products and Waste into Value-added Products: Ongoing Activity in Hokkaido, Japan; 24. Chemoenzymatic Synthesis of Enantiopure Triacylglycerols; 25. Biosynthesis of Castor Oil Studied by the Regiospecific Analysis of Castor Triacylglycerols by ESI-MS; 26. Composition, Functionality and Potential Applications of Seaweed Lipids; 27. Enzymatic Production of Marine-derived Protein Hydrolysates and Their Bioactive Peptides for Use in Foods and Nutraceuticals

28. Bioengineering and Application of Glucose Polymers

29. Peroxidase-Catalyzed Polymerization of Phenolic Compounds Containing Carbohydrate Residues; 30. Production of Lipase and Oxygenated Fatty Acids from Vegetable Oils; 31. Production of Biologically Active Hydroxy Fatty Acids by *Pseudomonas aeruginosa* PR3; 32. Biotransformation of Oils to Value-added Compounds; INDEX

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#### Sommario/riassunto

An up-to-date overview of diverse findings and accomplishments in biocatalysis and bioenergy. With the high price of petroleum and researchers worldwide seeking new means of producing energy, this comprehensive book on biocatalysis for bioenergy and biofuel applications is very timely. It combines information on state-of-the-art advances and in-depth reviews of the latest achievements in biocatalysis and bioenergy, emphasizing biodiesel, bioethanol, and industrial products. The advantages of biocatalysis include high specificity, efficiency, energy conservation, and pollution reduction.

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