Bioprocess Technology Journal

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Biotransformations and Bioprocesses John Wiley & Sons
Environmental sustainability and development is of critical importance. Technological advances in the production of new energy sources are making their way into our lives in more and more depth every day. However, there is an urgent need to address the technological challenges and advancement of the various chemical and bio-processes to maintain the dynamic sustainability of our energy needs. Toward that end, an attempt is being made to look at recent advances, key issues still faced and where possible, offer suggestions on alternative technologies to optimize sustainable processes. Still considered a new area of science, energy sources themselves are still being 'discovered'...meaning, what is financially viable in the current marketplace is changing. For example, energy from plants has not been financially viable in the past because of the high cost of growing, harvesting, breaking down cell walls, disposal of waste products, etc. Materials used to derive energy from sustainable resources is changing, making previously high-cost processes more efficient. It is crucial that the industry as a while works in tandem to develop crops that new technological advances make financially feasible. This book will cover recent advances in the chemicals, bioprocesses and other materials used in growing and extracting energy from sustainable products. Membrane/cell wall digestion issues will also be covered as well as recovering mamixal amounts of energy from sources to limit waste. Finally a section on safety and control will be presented with has been poorly covered in other publications.
Technologies for Production of Nutraceuticals and Functional Food Products Elsevier
This book provides an extensive overview of the latest research in environmentally benign integrated bioprocess technology. The cutting edge bioprocess technologies highlighted in the book include bioenergy from lignocellulose materials, biomass gasification, ethanol, butanol, biodiesel from agro waste, enzymatic bioprocess technology, food fermentation with starter cultures, and intellectual property rights for bioprocesses. This book further addresses niche technologies in bioprocesses that broadens readers' understanding of downstream processing for bio products and membrane technology for bioprocesses. The latest developments in biomass and bioenergy technology are reviewed exhaustively, including IPR rights, nanotechnology for bioenergy products, biomass gasification, and biomass combustion. This is an ideal book for scientists, engineers, students, as well as members of industry and policy-makers. This book also: Addresses cutting-edge technologies in bioprocesses Broadens readers' understanding of metabolic engineering, downstream processing for bioproducts, and membrane technology for bioprocesses Reviews exhaustively the latest developments in biomass and bioenergy technology, including nanotechnology for bioenergy products, biomass gasification, biomass combustion, and more
Advances in Phytoremediation Technology John Wiley & Sons
Colloids show great potential in a wide variety of applications, including drug delivery and medical imaging, and the design and fabrication of colloid systems has attracted considerable interest in the research community. Colloids in Biotechnology describes developments in the field of biotechnological applications in the past decade and bridges the gap between these research efforts and commercially viable options. Highlights the role of colloids in a plethora of biotechnical applications Striking a balance between theory and experiment, between principles and applications, and between molecular and physical approaches to the subject, the book assembles contributions from an international community of colloid scientists to provide a comprehensive reference on the role of colloids in biotechnology and biomedicine. The authors discuss new types of biosurfactants; mixtures of surfactants; and peptides, proteins, and polyelectrolytes. They also describe the formation and properties of magnetic colloids and review their applications in chemical biology and medicine. They highlight current progress in the design of self-assembled materials for biotechnology, and they also cover the formation of nanofibres and the use of sol-gel technology in biology. Contains contributions from a diverse team of researchers The chapter authors have been given the freedom to present the spectrum of the relevant science, from pure to applied, in their particular topic. The compilation of this vast experience makes this text a valuable reference for those working in research and development in a range of technologies as well as academic scientists in the colloid and surface science field.
Kinetics and Reactors CRC Press
Frontiers in Bioengineering and Biotechnology has evolved to become an established go-to open access publishing option for multidisciplinary bioengineering and biotechnology research and in the process has grown considerably over the last few years achieving our first Journal Impact Factor 2018 in 2019. Here we are pleased to introduce this special eBook entitled 'Highlights from Frontiers in Bioengineering and Biotechnology in 2020' edited by our 10 Specialty Chief Editors of Frontiers in Bioengineering and Biotechnology aiming to support Frontiers' strong community by recognizing highly deserving authors. The work presented here highlights the broad diversity of exciting research performed across the journal and aims to put a spotlight on few areas of interest within each section. This collection showcases one or two exceptional articles published in 2020 per section of the journal. Each article has been specially handpicked by each of our 10 Specialty Chief Editors who have written a short paragraph to explain their selection and why this article is a particularly important and exciting addition to their respective fields. Our eBook thus spans Biomaterials, Biomechanics, Bionics and Biomimetics, Bioprocess Engineering, Biosafety and Biosecurity, Industrial Biotechnology, Nanobiotechnology, Preclinical Cell and Gene Therapy, Synthetic Biology and Tissue Engineering and Regenerative Medicine. All research presented here displays advances in the field of Bioengineering and Biotechnology. We hope you enjoy our selection of key articles; please ensure you are signed into your Frontiers Loop profile to download the free eBook. We also thank all authors, editors and reviewers of Frontiers in Bioengineering and Biotechnology for their contributions to our journal and look forward to another exciting year in 2021. Dr. Ranieri Cancedda (Field Chief Editor)
Biological Treatment of Industrial Effluents Springer Science & Business Media
Food and bioprocess technologyJournalAdvances in Bioprocess TechnologySpringer
Food and Industrial Bioproducts and Bioprocessing Elsevier
Worldwide energy and food crises are spotlighting the importance of bio-based products – an area many are calling on for solutions to these shortages. Biocatalysis and Agricultural Biotechnology encapsulates the cutting-edge advances in the field with contributions from more than 50 international experts comprising sectors of academia, industry, and government research institutes, a virtual Who's Who among biocatalysis scientists. Created Under the Editorial Guidance of Leading Biotechnology Experts With the aid of numerous graphs and illustrations, this authoritative reference documents such important advances as: Cloning and characterization of Kennedy pathway acyltransferases Engineering of plants for industrial uses New approaches from acquired tolerance to the biotic and abiotic stress of economically important crops This comprehensive text also explores a variety of bio-based industrial products, including: The modification of enzyme character through gene manipulation The biocatalytic synthesis of chiral intermediates for drug development The use of Omega-3 phospholipid nano capsules as effective forms for transporting immune response modifiers Providing in-depth reviews of this ancient field and its modern-day advances, Biocatalysis and Agricultural Biotechnology is an invaluable lab reference for teachers, graduate students, and industrial scientists conducting research in the biosciences.
Microbial Biotechnology in Food and Health Academic Press
Translational Biotechnology: A Journey from Laboratory to Clinics presents an integrative and multidisciplinary approach to biotechnology to help readers bridge the gaps between fundamental and functional research. The book provides state-of-the-art and integrative views of translational biotechnology by covering topics from basic concepts to novel methodologies. Topics discussed include biotechnology-based therapeutics, pathway and target discovery, biological therapeutic modalities, translational bioinformatics, and system and synthetic biology. Additional sections cover drug discovery, precision medicine and the socioeconomic impact of translational biotechnology. This book is valuable for bioinformaticians, biotechnologists, and members of the biomedical field who are interested in learning more about this promising field. Explains biotechnology in a different light by using an application-oriented approach Discusses practical approaches in the development of precision medicine tools, systems and dynamical medicine approaches Promotes research in the field of biotechnology that is translational in nature, cost-effective and readily available to the community
Vol 1 Elsevier
Current Developments in Biotechnology and Bioengineering: Functional Genomics and Metabolic Engineering provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends in the field, compiling the latest ideas from across the entire arena of biotechnology and bioengineering. This volume provides data-based scientific knowledge and state-of-art information on functional genomics and metabolic engineering. It covers the core subjects of functional genomics, such as epigenomics, metagenomics, genomics of extremophiles, genomics studies in nutrient transport, genomics of miRNA, and genomics of pathogenesis. An overview of metabolic engineering theories and approaches is supported with specific important examples of secondary metabolites, including Streptomyces, pentose utilization in E. coli, bacterial ethanol fermentation, yeast mediated benzaldehyde biotransformation, carotenoid production, acetic acid production by E. coli, and NADH regeneration. Provides state-of-the-art information and applications of functional genomics and metabolic engineering as applied to biotechnology Supports the education and understanding of biotechnology education and R&D Demonstrates new means of enabling cells to produce valuable proteins, polypeptides, and primary and secondary metabolites
Advances in Theory and Research Elsevier
The Elements of Style William Strunk concentrated on specific questions of usage—and the cultivation of good writing—with the recommendation "Make every word tell"; hence the 17th principle of composition is the simple instruction: "Omit needless words." The book was also listed as one of the 100 best and most influential books written in English since 1923 by Time in its 2011 list.
Translational Biotechnology Elsevier
This book is based on a 1981 German language edition published by Springer Verlag, Vienna, under the title Bioprozesstechnik. Philip Manor has done the translation, for which I am deeply grateful. This book differs from the German edition in many ways besides language. It is substantially enlargened and updated, and examples of computer simula tions have been added together with other appendices to make the work both more comprehensive and more practical. This book is the result of over 15 years of experience in teaching and research. It stems from lectures that I began in 1970 at the Technical University of Graz, Austria, and continued at the University of Western Ontario in London, Canada, 1980; at the Free University of Brussels, 1981; at Chalmers Technical University in G6teborg, Sweden; at the Academy of Sciences in lena, East Germany; at the "Haus der Technik" in Essen, West Germany, 1982; at the Academy of Science in Sofia, Bulgaria; and at the Technical University of Delft, Netherlands, 1986. The main goals of this book are, first, to bridge the gap that always exists between basic principles and applied engineering practice, second, to enhance the integration between biological and physical phenomena, and, third, to contribute to the internal development of the field of biotechnology by describing the process-oriented field of bioprocess technology.
A Journey from Laboratory to Clinics Springer Nature
According to Greek mythology Pandora was sent down to earth upon the orders of Zeus. She was given a mysterious box which she was not allowed to open. However, Pandora was very curious and when she arrived on earth she couldn't help taking a peek inside the box. She saw that it was filled with gifts and calamities and to her astonishment they all escaped and spread throughout humanity, with all the dire consequences thereof. Only hope was left at the bottom. Figuratively speaking, Pandora's box today represents a source of much suffering. Is modern biotechnology just such a Pandora's box, as the anti-biotechnology lobby would have us believe? Or can we selectively release the gifts and turn this new Pandora's box into a Panacea? Modern biotechnology makes use of the recombinant DNA technology to genetically modify microorganisms, plants and animals in order to make them more suitable for all kinds of applications, such as cultivating food crops, baking bread, making wine, antibiotics and hormones, xenotransplantation, and gene- and stem cell therapy. The book also particularly addresses the controversial aspects of these applications.
Bioprocessing Technology for Production of Biopharmaceuticals and Bioproducts Academic Press
This book provides in-depth information on basic and applied aspects of biofuels production from algae. It begins with an introduction to the topic, and follows with the basic scientific aspects of algal cultivation and its use for biofuels production, such as photo bioreactor engineering for microalgae production, open culture systems for biomass production and the economics of biomass production. It provides state-of-the-art information on synthetic biology approaches for algae suitable for biofuels

production, followed by algal biomass harvesting, algal oils as fuels, biohydrogen production from algae, formation/production of co-products, and more. The book also covers topics such as metabolic engineering and molecular biology for algae for fuel production, life cycle assessment and scale-up and commercialization. It is highly useful and helps you to plan new research and design new economically viable processes for the production of clean fuels from algae. Covers in a comprehensive but concise way most of the algae biomass conversion technologies currently available Lists all the products produced from algae, i.e. biohydrogen, fuel oils, etc., their properties and potential uses Includes the economics of the various processes and the necessary steps for scaling them up

Production, Isolation and Purification of Industrial Products Food and bioprocess technologyJournalAdvances in Bioprocess Technology

Emphasizing their emerging capabilities, this volume provides a strong foundation for an understanding of how micro- and nanotechnologies used in biomedical research have evolved from concepts to working platforms. Volume editor Christopher Love has assembled here a highly interdisciplinary group of authors with backgrounds ranging from chemical engineering right up to materials science to reflect how the intersection of ideas from biology with engineering disciplines has spurred on innovations. In fact, a number of the basic technologies described are reaching the market to advance the discovery and development of biopharmaceuticals. The first part of the book focuses on microsystems for single-cell analysis, examining tools and techniques used to isolate cells from a range of biological samples, while the second part is dedicated to tiny technologies for modulating biological systems at the scale of individual cells, tissues or whole organisms. New tools are described which have a great potential for (pre)clinical development of interventions in a range of illnesses, such as cancer and neurological diseases. Besides describing the promising applications, the authors also highlight the ongoing challenges and opportunities in the field.

Current Developments in Biotechnology and Bioengineering Springer

Current Developments in Biotechnology and Bioengineering: Emerging Organic Micropollutants summarizes the current knowledge of emerging organic micropollutants in wastewater and the possibilities of their removal/elimination. This book attempts a thorough and exhaustive discussion on ongoing research and future perspectives on advanced treatment methods and future directions to maintain and protect the environment through microbiological, nanotechnological, application of membrane technology, molecular biological and by policymaking means. In addition, the book includes the latest developments in biotechnology and bioengineering pertaining to various aspects in the field of emerging organic micropollutants, including their sources, health effects and environmental impacts. Includes testing methods for the analysis and characterization of emerging organic micropollutants in wastewater Discusses the environmental impact and health hazards of emerging organic micropollutants in wastewater Provides a useful guide to identify priority areas of research demand in the remediation/removal of emerging organic micropollutants

Potential and Perspectives Elsevier

This book covers the latest development of bioprocess technology including theoretical, numerical, and experimental approaches in biotechnology as well as green technology that bridge conventional practices and Industry 4.0. Bioprocessing is one of the key factors in several emerging industries of biofuels, used in the production of biogas, bioethanol, and biodiesel; industrial enzymes; waste management through biotechnology; new vaccines; and many more. It is hoped that the novel bioprocess and green biotechnologies presented in this book are useful in assisting the global community in working towards fulfilling the Sustainable Development Goals (SDG) of the United Nations.

Waste Biorefinery John Wiley & Sons

Written for industrial and academic researchers and development scientists in the life sciences industry, Bioprocessing Technology for Production of Biopharmaceuticals and Bioproducts is a guide to the tools, approaches, and useful developments in bioprocessing. This important guide: • Summarizes state-of-the-art bioprocessing methods and reviews applications in life science industries • Includes illustrative case studies that review six milestone bio-products • Discuses a wide selection of host strain types and disruptive bioprocess technologies

Current Developments in Biotechnology and Bioengineering Frontiers Media SA

Current Developments in Biotechnology and Bioengineering: Biological Treatment of Industrial Effluents provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends in data-based scientific knowledge and advanced information on the role and application of environmental biotechnology and engineering in the treatment of industrial effluents. These treatment processes have been broadly classified under aerobic and anaerobic processes which determines the scope and level of pollutant removal. Chapters in this volume review the most recent developments and perspectives at different environmental cleanup operation scales. Outlines available biochemical processes for the treatment of solid industrial waste Covers aerobic and anaerobic treatments, their mechanisms, and selection criteria Highlights specific industrial applications, such as anammox processes

Food and bioprocess technology CRC Press

This book presents the select peer-reviewed proceedings of the International Conference on Advances in Bioprocess Engineering and Technology (ICABET 2020). The book covers all aspects of bioprocesses, especially related to fermentation technology, food technology, environmental biotechnology, and sustainable energy. Along with this primary theme, the focus is on recent advances in bioprocessing research such as biosensors, micro-reactors, novel separation techniques, bioprocess control, bio-safety, advanced techniques for waste to wealth generation, and nanobiotechnology. This contents are divided according to the major themes of the conference: (i) Fermentation Technology and Bioreactor, (ii) Food Pharmaceuticals and Health care, (iii) Environment and Agriculture, and (iv) Sustainable Energy. This book is intended to help students, researchers, and industry professionals acquire knowledge on innovative technologies and recent advancements in the field of bioprocess engineering and technology.

Bioprocessing Technologies in Biorefinery for Sustainable Production of Fuels, Chemicals, and Polymers John Wiley & Sons

This second edition of a very successful book is thoroughly updated with existing chapters completely rewritten while the content has more than doubled from 16 to 36 chapters. As with the first edition, the focus is on industrial pharmaceutical research, written by a team of industry experts from around the world, while quality and safety management, drug approval and regulation, patenting issues, and biotechnology fundamentals are also covered. In addition, this new edition now not only includes biotech drug development but also the use of biopharmaceuticals in diagnostics and vaccinations. With a foreword by Robert Langer, Kenneth J Germeshausen Professor of Chemical and Biomedical Engineering at MIT and member of the National Academy of Engineering and the National Academy of Sciences.

Biotechnology for Sustainability and Social Well Being CRC Press

Between 1973 and 2016, the ways to manipulate DNA to endow new characteristics in an organism (that is, biotechnology) have advanced, enabling the development of products that were not previously possible. What will the likely future products of biotechnology be over the next 5â€"10 years? What scientific capabilities, tools, and/or expertise may be needed by the regulatory agencies to ensure they make efficient and sound evaluations of the likely future products of biotechnology? Preparing for Future Products of Biotechnology analyzes the future landscape of biotechnology products and seeks to inform forthcoming policy making. This report identifies potential new risks and frameworks for risk assessment and areas in which the risks or lack of risks relating to the products of biotechnology are well understood.