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Microbial Biotechnology Jul 17 2021 In the second edition of this bestselling textbook, new materials have been added, including a new chapter on real time polymerase chain reaction (RTPCR) and a chapter on fungal solid state cultivation. There already exist a number of excellent general textbooks on microbiology and biotechnology that deal with the basic principles of microbial biotechnology. To complement them, this book focuses on the various applications of microbial-biotechnological principles. A teaching-based format is adopted, whereby working problems, as well as answers to frequently asked questions, supplement the main text. The book also includes real life examples of how the application of microbial-biotechnological principles has achieved breakthroughs in both research and industrial production.Although written for polytechnic students and undergraduates, the book contains sufficient information to be used as a reference for postgraduate students and lecturers. It may also serve as a resource book for corporate planners, managers and applied research personnel.
Bioprocessing Technology for Production of Biopharmaceuticals and Bioproducts Apr 25 2022 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 Mar 01 2020 Designer Microbial Cell Factories: Metabolic Engineering and Applications, the latest release in the Current Developments in Biotechnology and Bioengineering series, provides a detailed overview of the biotechnological approaches and strategies used to generate engineered microbes and to facilitate the acceleration, modulation and diversion of metabolic pathways to get desired output such as production of value-added compound or biodegradation of xenobiotic pollutant. The book also highlights applied aspects of designer microbes in fields as diverse as agriculture, pharmaceuticals and bioremediation. Designer microbes generated through reprogramming the microbial cell factories (MCFs) provide an edge over their natural counterparts in terms of increased molecular diversity and selective chemistry. These bugs are becoming instrumental in several areas, including agriculture, environment and human health. Engineering microbes through directed evolution not only gives freedom from evolutionary constrains but also allow introduction of regulated and foreseeable functions into MCFs. Dedicated to the designing of microbes, covering state-of-the-art technological advancements in the field Includes applications of metabolic engineering in the field of agriculture, bioremediation, value-added products, therapeutics, and more Contains chapters dedicated to innovative approaches surrounding engineered microbial consortia Provides comprehensive details and helps users understand concepts
Current Developments in Biotechnology and Bioengineering May 15 2021 Current Developments in Biotechnology and Bioengineering: Environmental and Health Impact of Hospital Wastewater narrates the origin (history) of pharmaceuticals discoveries, hospital wastewater and its environmental and health impacts. It covers microbiology of hospital wastewater (pathogens, multi-drug resistance development, microbial evolution and impacts on humans, animals, fish), advanced treatment options (including biological, physical and chemical methods), and highlights aspects required during hospital wastewater treatment processes. This book provides an amalgamation of all recent scientific information on hospital wastewater which is not available in the current literature. Introduces physical, chemical and molecular testing methods for the analysis and characterization of hospital wastewater Discusses the environmental impact and health hazards of hospital wastewater Describes the microbiological aspects of the hospital wastewater, like microbial community, metagenomics, pathogens, VBNC and mechanism of antibiotic

resistance development Explains hospital wastewater and its role in microbial evolution Highlights future treatment options, guidelines and drug disposal tactics

Current Developments in Biotechnology and Bioengineering Oct 08 2020 Smart Solutions for Wastewater: Road-mapping the Transition to Circular Economy, the latest release in the Current Developments in Biotechnology and Bioengineering presents up-to-date information on research and technological developments of resource recovery in wastewater treatment in terms of carbon, nutrients and energy. The book fulfils the gaps and current challenges that hinder the application of resource recovery facilities in wastewater treatment plants, discusses knowledge gaps, provides future research perspectives, and discusses strategies to solve problems from a circular economy perspective. It is an excellent, interdisciplinary and updated overview of technologies in terms of potential yields, pollutants removal, nutrients recovery and energy production. Covers different aspects of resource recovery technologies and research gaps in wastewater treatment Focuses on different MBR configurations and systems/hybrid systems in treating a large variety of wastewaters Provides state-of-the-art technology developments, including technology, advantages and challenges as well as strategies to overcome limitations Includes technologies for managing sewage sludge in order to foster solutions for recovering in a circular economy context

Advances in Bioprocess Technology Apr 06 2023 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

Current Developments in Biotechnology and Bioengineering Feb 04 2023 Current Developments in Biotechnology and Bioengineering: Food and Beverages Industry provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends compiled from the latest ideas across the entire arena of biotechnology and bioengineering. This volume reviews current developments in the application of food biotechnology and engineering for food and beverage production. As there have been significant advances in the areas of food fermentation, processing, and beverage production, this title highlights the advances in specific transformation processes, including those used for alcoholic beverage and fermented food production. Taking a food process and engineering point-of-view, the book also aims to select important bioengineering principles, highlighting how they can be quantitatively applied in the food and beverages industry. Contains comprehensive coverage of food and beverage production Covers all types of fermentation processes and their application in various food products Includes unique coverage of the biochemical processes involved in beverages production

Media Effects Oct 20 2021 This new edition updates and expands the scholarship of the 1st edition, examining media effects in

Current Developments in Biotechnology and Bioengineering Jul 29 2022 Current Developments in Biotechnology and Bioengineering: Technologies for Production of Nutraceuticals and Functional Food Products covers a wide range of topics related to the the microbial process for the production of high-value nutraceuticals and fermented functional foods. This reference includes the bioactive compounds derived from the foods substrate, including bioactive peptides, transformed polyphenols, oligosaccharides, prebiotics, and functional lipids. Scientific information related to the recombinant microorganisms and their role in the production of nutraceutical and functional foods are also included. The translational aspects of microbial bioprocess technologies are illustrated, by emphasizing the current requirements and

future perspectives of industrial and food biotechnology. Edited by a group of experienced Eeditors and contributors, Technologies for Production of Nutraceuticals and Functional Food Productsthe book gives scientists and engineers the translational aspects of microbial processes for the development of functional foods and high- value nutraceuticals with future perspectives. Provides a deep and conceptual understanding of enzyme catalysis, enzyme engineering, discovery of novel enzymes, and technology perspectives Offers information about inventions and advancements in microbial process development for the production of high value nutraceuticals and fermented functional foods Includes updated references for further understanding of fermentation technology in the functional foods industry

Developments in Sustainable Chemical and Bioprocess Technology Nov 20 2021 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. ?

Biomechatronic Design in Biotechnology May 03 2020 “... a must-read for all modern bio-scientists and engineers working in the field of biotechnology.” – Biotechnology Journal, 2012, 7 A cutting-edge guide on the fundamentals, theory, and applications of biomechatronic design principles Biomechatronic Design in Biotechnology presents a complete methodology of biomechatronics, an emerging variant of the mechatronics field that marries biology, electronics, and mechanics to create products where biological and biochemical, technical, human, management-and-goal, and information systems are combined and integrated in order to solve a mission that fulfills a human need. A biomechatronic product includes a biological, mechanical, and electronic part. Beginning with an overview of the fundamentals and theory behind biomechatronic technology, this book describes how general engineering design science theory can be applied when designing a technical system where biological species or components are integrated. Some research methods explored include schemes and matrices for analyzing the functionality of the designed products, ranking methods for screening and scoring the best design solutions, and structuring graphical tools for a thorough investigation of the subsystems and sub-functions of products. This insightful guide also: Discusses tools for creating shorter development times, thereby reducing the need for prototype testing and verification Presents case study-like examples of the technology used such as a surface plasmon resonance sensor and a robotic cell culturing system for human embryonic stem cells Provides an interdisciplinary and unifying approach of the many fields of engineering and biotechnology used in biomechatronic design By combining designs between traditional electronic and mechanical subsystems and biological systems, this book demonstrates how biotechnology and bioengineering design can utilize and benefit from commonly used design tools— and benefit humanity itself.

Biocatalysis and Agricultural Biotechnology Dec 22 2021 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.

Advances in Food Bioproducts and Bioprocessing Technologies Jan 23 2022 The book explores and exploits the synergy and boundary between biotechnology, bioprocessing and food engineering. Divided into three parts, Advances in Food Bioproducts and Bioprocessing Technologies includes contributions that deal with new developments in procedures, bioproducts, and bioprocesses that can be given quantitative expression. Its 40 chapters will describe how research results can be used in engineering design, include procedures to produce food additives and ingredients, and discuss accounts of experimental or theoretical research and recent advances in food bioproducts and bioprocessing technologies.

Translational Biotechnology Jan 29 2020 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

Current Developments in Biotechnology and Bioengineering May 07 2023 Current Developments in Biotechnology and Bioengineering: Synthetic Biology, Cell Engineering and Bioprocessing Technologies covers the current perspectives and outlook of synthetic biology in the agriculture, food and health sectors. This book begins with the basics about synthetic biology and cell engineering, and then explores this in more detail, focusing on topics like applications of synthetic biology, industrial bioprocesses, and future perspectives. Information on cell engineering is also presented, and manipulation in endogenous metabolic network is studied alongside advanced topics such as fine tuning of metabolic pathways, de novo biosynthetic pathway design, enzyme engineering targeted to improved kinetics and stability, and potential applications of the novel biological systems in bioprocess technology to achieve the production of value-added compounds with specific biological activities. Assists in developing a conceptual understanding of synthetic biology and cellular and metabolic engineering. Includes comprehensive information on new developments and advancements. Lists applications of synthetic biology in agriculture, food, and health

Bioprocess Technology Dec 02 2022 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.

Current Developments in Biotechnology and Bioengineering Sep 30 2022 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

Current Developments in Biotechnology and Bioengineering Jan 03 2023 Advances in Bioprocess Engineering, the latest release in the Current Developments in Biotechnology and Bioengineering series, provides a comprehensive overview of bioprocess systems, kinetics, bioreactor design, batch and continuous reactors and introduces key principles that enable bioprocess engineers to engage in analysis, optimization and design with consistent control over biological and chemical transformations. The bioprocessing sector is also updating its technologies with state-of-the art techniques to keep up with the rising demand of the industry and R&D. This book covers these aspects, taking readers through a step-by-step journey of bioprocessing while also guiding them towards a new era and future. Covers state-of-the-art, technological advancements in the field of bioprocessing Includes design and scale-up of bioreactors, monitoring and control systems, advances in upstream and downstream processing Includes design and development of fermentation processes such as the suitability of experimental design, full factorial, central composite design, Box-Behnken, Plackett-Burman, and more

Current Developments in Biotechnology and Bioengineering Jul 05 2020 Current Developments in Biotechnology and Bioengineering: Food and Beverages Industry provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends compiled from the latest ideas across the entire arena of biotechnology and bioengineering. This volume reviews current developments in the application of food biotechnology and engineering for food and beverage production. As there have been significant advances in the areas of food fermentation, processing, and beverage production, this title highlights the advances in specific transformation processes, including those used for alcoholic beverage and fermented food production. Taking a food process and engineering point-of-view, the book also aims to select important bioengineering principles, highlighting how they can be quantitatively applied in the food and beverages industry.

Issues in Biotechnology and Medical Technology Research and Application: 2011 Edition Jan 11 2021 Issues in Biotechnology and Medical Technology Research and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biotechnology and Medical Technology Research and Application. The editors have built Issues in Biotechnology and Medical Technology Research and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biotechnology and Medical Technology Research and Application in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biotechnology and Medical Technology Research and Application: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Biochemical Engineering and Biotechnology Apr 01 2020 Biochemical Engineering and Biotechnology, 2nd Edition, outlines the principles of biochemical processes and explains their use in the

manufacturing of every day products. The author uses a diirect approach that should be very useful for students in following the concepts and practical applications. This book is unique in having many solved problems, case studies, examples and demonstrations of detailed experiments, with simple design equations and required calculations. Covers major concepts of biochemical engineering and biotechnology, including applications in bioprocesses, fermentation technologies, enzymatic processes, and membrane separations, amongst others Accessible to chemical engineering students who need to both learn, and apply, biological knowledge in engineering principals Includes solved problems, examples, and demonstrations of detailed experiments with simple design equations and all required calculations Offers many graphs that present actual experimental data, figures, and tables, along with explanations

Biomass, Biofuels, Biochemicals Sep 18 2021 Advances in Enzyme Catalysis and Technologies intends to provide the basic structural and functional descriptions, and classification of enzymes. The scientific information related to the recombinant enzyme modifications, discovery of novel enzymes and development of synthetic enzymes are also presented. The translational aspects of enzyme catalysis and bioprocess technologies are illustrated, by emphasizing the current requirements and future perspectives of industrial biotechnology. Several case studies are included on enzymes for biofuels application, micro algal biorefineries, high-value bioactive molecules production and enzymes for environmental processes, such as enzymatic bioprocessing for functional food development, biocatalytic technologies for the production of functional sweetener, etc. Provides a conceptual understanding of enzyme catalysis, enzyme engineering, discovery of novel enzymes, and technology perspectives Includes comprehensive information about the inventions and advancement in enzyme system development for biomass processing and functional food developmental aspects Gives an updated reference for education and understanding of enzyme technology

Current Developments in Biotechnology and Bioengineering May 27 2022 Current Developments in Biotechnology and Bioengineering: Foundations of Biotechnology and Bioengineering is a package of nine books that compile the latest ideas from across the entire arena of biotechnology and bioengineering. This volume focuses on the underlying principles of biochemistry, microbiology, fermentation technology, and chemical engineering as interdisciplinary themes, constructing the foundation of biotechnology and bioengineering. Provides state-of-art information on basics and fundamental principles of biotechnology and bioengineering Supports the education and understanding of biotechnology education and R&D Contains advanced content for researchers engaged in bioengineering research

Special Issue: Advances in Bioprocess Technology Mar 05 2023

Current Developments in Biotechnology and Bioengineering Feb 21 2022 The primary concern of environmental sustainability is to: (i) reduce use of physical and depletable resources; (ii) recycle and use renewable resources; (iii) redesign the production process to eliminate the production of toxic materials and protect the environment. Biochar, as a renewable material, can be produced from various sustainable biomass feedstocks through pyrolysis technologies. Biochar Towards Sustainable Environment highlights the contribution of biochar to environmental sustainability. The book provides a detailed overview of the sustainable biomass wastes feedstocks and different technologies for biochar production, and its sustainable applications in various aspects. Includes sustainable production and activation of biochar from various biowastes Describes multiple applications of biochar for sustainable environment Covers sustainable assessments of the biochar production and application

Bioprocess Engineering Nov 08 2020 Bioprocess Engineering: Downstream Processing is the first book to present the principles of bioprocess engineering, focusing on downstream bioprocessing. It aims to provide the latest bioprocess technology and explain process analysis from an engineering point of view, using worked examples related to biological systems. This book introduces the commonly used technologies for downstream processing of biobased products. The covered topics include centrifugation, filtration, membrane separation, reverse osmosis, chromatography, biosorption, liquid-liquid separation, and drying. The basic principles and mechanism of separation are covered in each of the topics, wherein the engineering concept and design are emphasized. This book is aimed at bioprocess engineers and professionals who wish to perform downstream processing for their feedstock, as well as students.

The Elements of Style Dec 30 2019 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.

Handbook of Food Processing Feb 09 2021 This book presents the information necessary to design food processing operations and describes the equipment needed to carry them out in detail. It covers every step in the sequence of converting raw material to the final product. It also discusses the most common food engineering unit operations and food preservation processes. such as blanching, pasteurization, chilling, freezing to aseptic packaging, non thermal food processing and the use of biosensors. The inclusion of case studies and problem calculations in each chapter differentiates this book from other books on food processing and engineering.

Bioprocessing for Value-Added Products from Renewable Resources Apr 13 2021 Bioprocessing for Value-Added Products from Renewable Resources provides a timely review of new and unconventional techniques for manufacturing high-value products based on simple biological material. The book discusses the principles underpinning modern industrial biotechnology and describes a unique collection of novel bioprocesses for a sustainable future. This book begins in a very structured way. It first looks at the modern technologies that form the basis for creating a bio-based industry before describing the various organisms that are suitable for bioprocessing - from bacteria to algae - as well as their unique characteristics. This is followed by a discussion of novel, experimental bioprocesses, such as the production of medicinal chemicals, the production of chiral compounds and the design of biofuel cells. The book concludes with examples where biological, renewable resources become an important feedstock for large-scale industrial production. This book is suitable for researchers, practitioners, students, and consultants in the bioprocess and biotechnology fields, and for others who are interested in biotechnology, engineering, industrial microbiology and chemical engineering. ·Reviews the principles underpinning modern industrial biotechnology ·Provides a unique collection of novel bioprocesses for a sustainable future ·Gives examples of economical use of renewable resources as feedstocks ·Suitable for both non-experts and experts in the bioproduct industry

Current Developments in Biotechnology and Bioengineering Dec 10 2020 Current Developments in Biotechnology and Bioengineering: Advanced Membrane Separation Processes for Sustainable Water and Wastewater Management - Aerobic Membrane Bioreactor Processes and Technologies consolidates up-to-date research developments in AeMBR systems for wastewater treatments in terms of membrane materials and decorations, reactor designs and fouling mechanisms. It includes discussions on developments in AeMBR research on energy efficiency and fouling control strategies, gaps, future research and application perspectives. This book is a potential resource for membrane separation and AeMBR practitioners, engineers, scientists, educators and students, and public to understand the latest developments and future prospects in membrane technology. Provides the latest comprehensive review in various important aspects of AeMBR Consolidates scattered AeMBR information into a single easily assessible resource Provides state-of-the-art technology development of membrane separation, AeMBR reactor designs, membrane development, advantages and challenges in operational implementation and their appropriate control strategies Presents a comprehensive review on Quorum Quenching (QQ) fouling control strategy, QQ benefits and drawbacks Provides an excellent resource on the latest techniques in characterizing and understanding fouling mechanisms

Biotechnology for Sustainability and Social Well Being Mar 13 2021 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.

Biofuels from Algae Mar 25 2022 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

Industrial Biorefineries and White Biotechnology Sep 06 2020 Industrial Biorefineries and White Biotechnology provides a comprehensive look at the increasing focus on developing the processes and technologies needed for the conversion of biomass to liquid and gaseous fuels and chemicals, in particular, the development of low-cost technologies. During the last 3-4 years, there have been scientific and technological developments in the area; this book represents the most updated information and technological perspective on the topic. Provides information on the most advanced and innovative pretreatment processes and technologies for biomass Covers information on lignocellulosic and algal biomass to work on the principles of biorefinery Provides information on integration of processes for the pretreatment of biomass Designed as a textbook for both graduate students and researchers

Current Developments in Biotechnology and Bioengineering Jun 03 2020 Advances in Food Engineering, the latest release in the Current Developments in Biotechnology and Bioengineering series, is a unique source of state-of-art information about scientific and technological advances in food engineering. The book gives specific understanding of the engineering properties of food materials such as the morphological, physic-chemical, nutritional, thermal and organoleptic characteristics of food products. It covers food processing and preservation methods such as pressure, light, electromagnetic, sound and heat based and also the use of artificial intelligence-based machineries, intelligent control systems, Internet of Things (IoT) and Blockchain for food security traceability. Reviews technological advancements in food engineering Includes applications of emerging thermal, non-thermal and intelligent techniques/systems in the field of food processing, food supply chain and food analysis Presents innovative approaches like artificial intelligence in food engineering Provides comprehensive and integrated details in food processing/engineering/analysis while also helping users understand covered concepts

Current Developments in Biotechnology and Bioengineering Aug 18 2021 Current Developments in Biotechnology and Bioengineering: Current Advances in Solid-State Fermentation provides knowledge and information on solid-state fermentation involving the basics of microbiology, biochemistry, molecular biology, genetics and principles of genetic engineering, metabolic engineering and biochemical engineering. This volume of the series is on Solid-State fermentation (SSF), which would cover the basic and applied aspects of SSF processes, including engineering aspects such as design of bioreactors in SSF. The book offers a pool of knowledge on biochemical and microbiological aspects as well as chemical and biological engineering aspects of SSF to provide an integrated knowledge and version to the readers. Provides state-of-the-art information on basic and fundamental principles of solid-state fermentation Includes key features for the education and understanding of biotechnology education and R&D, in particular on SSF Lists fermentation methods for the production of a wide variety of enzymes and metabolites Provides examples of the various industrial applications of enzymes in solid state fermentation

Current Developments in Biotechnology and Bioengineering Jun 27 2022 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

Current Developments in Biotechnology and Bioengineering Nov 01 2022 Current Developments in Biotechnology and Bioengineering: Production, Isolation and Purification of Industrial Products provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, focusing on industrial biotechnology and bioengineering practices for the production of industrial products, such as enzymes, organic acids, biopolymers, and biosurfactants, and the processes for isolating and purifying them from a production medium. During the last few years, the tools of molecular biology and genetic and metabolic engineering have rendered tremendous improvements in the production of industrial products by fermentation. Structured by industrial product classifications, this book provides an overview of the current practice, status, and future potential for the production of these agents, along with reviews of the industrial scenario relating to their production. Provides information on industrial bioprocesses for the production of microbial products by fermentation Includes separation and purification processes of fermentation products Presents economic and feasibility assessments of the various processes and their scaling up Links biotechnology and bioengineering for industrial process development

Enzymes in Food Biotechnology Jun 15 2021 Enzymes in Food Biotechnology: Production, Applications, and Future Prospects presents a comprehensive review of enzyme research and the potential impact of enzymes on the food sector. This valuable reference brings together novel sources and technologies regarding enzymes in food production, food processing, food preservation, food engineering and food biotechnology that are useful for researchers, professionals and students. Discussions include the process of immobilization, thermal and operational stability, increased product specificity and specific activity, enzyme engineering, implementation of high-throughput techniques, screening to relatively unexplored environments, and the development of more efficient enzymes. Explores recent scientific research to innovate novel, global ideas for new foods and enzyme engineering Provides fundamental and advanced information on enzyme research for use in food biotechnology, including microbial, plant and animal enzymes Includes recent cutting-edge research on the pharmaceutical uses of enzymes in the food industry

Highlights from Frontiers in Bioengineering and Biotechnology in 2020 Aug 06 2020 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)

Current Developments in Biotechnology and Bioengineering Aug 30 2022 Current Developments in Biotechnology and Bioengineering: Bioprocesses, Bioreactors and Controls provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, reviewing industrial biotechnology and bioengineering practices that facilitate and enhance the transition of processes from lab to plant scale, which is becoming increasingly important as such transitions continue to grow in frequency. Focusing on industrial bioprocesses, bioreactors for bioprocesses, and controls for bioprocesses, this title reviews industrial practice to identify bottlenecks and propose solutions, highlighting that the optimal control of a bioprocess involves not only maximization of product yield, but also taking into account parameters such as quality assurance and environmental aspects. Describes industrial bioprocesses based on the reaction media Lists the type of bioreactors used for a specific bioprocess/application Outlines the principles of control systems in various bioprocesses

- Current Developments In Biotechnology And Bioengineering
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- Bioprocessing For Value Added Products From Renewable Resources
- Biotechnology For Sustainability And Social Well Being
- Handbook Of Food Processing
- Issues In Biotechnology And Medical Technology Research And Application 2011 Edition
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