

Biosensors

Recent advances and mathematical challenges

Editors:

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Monographs

Biosensors Recent Advances And Mathematical Challenges

Alexandru Grumezescu



Biosensors Recent Advances And Mathematical Challenges:

Biosensors: Recent advances and mathematical challenges Johann F. Osma, Margarita Stoytcheva, 2014-03-04 Many researchers and research groups around the globe are dealing with interdisciplinary problems and multidisciplinary groups but especially those that deal everyday with biosensors have the feeling of not having enough personnel with the sufficient background to cover all topics With this feeling in our minds we decided to invite wonderful researchers from different parts to design this book not as a conventional biosensors book but as an interesting journey in the complex world of biosensors A close look to some recent and key advances on the topic but at the same time tips through novel mathematical modelling to improve our work and last but not least tricks to fool those undesired electrical disturbances that commonly messes our daily work can be found in these pages Feel free to navigate the book through its chapters once in your hands you will feel eager to learn more about biosensors It has been an experience to put all this together but now with the book ready we can say that this trip has being a wonderful adventure That is why want to thank all the authors for their great contributions the Editorial and Irene for their constant input and to you the reader for being part of this book

Microbial Fermentation and Enzyme Technology Hrudayanath Thatoi, Pradeep K. Das Mohapatra, Sonali Mohapatra, Keshab C. Mondal, 2020-04-29 The discovery of enzymes as biocatalysts has led to various biotechnological developments The capability of enzymes to catalyse various chemical reactions both in vivo and in vitro has led them to applications in various industries such as food feed pharmaceutical diagnostics detergent textile paper leather and fine chemical industries Microbial Fermentation and Enzyme Technology mainly focuses on production and application of enzymes in various industries Further it also discusses recent developments in enzyme engineering particularly those involved in creating and improving product formations through enzyme and fermentation technology Salient features Includes current research and developments in the area of microbial aspects in different fields like food chemicals pharmaceutical bioprocess etc Discusses various enzymes that are used in refinement of environmental pollutions and its application in different industrial sectors Focuses on production and application of enzymes in various industries Highlights recent developments in enzyme engineering with respect to its application in textile pharmaceutical nanobiotechnology bioremediation and many other related fields

Biosensors for Environmental Monitoring Toonika Rinken, Kairi Kivirand, 2019-11-20 Real time and reliable detection of molecular compounds and bacteria is essential in modern environmental monitoring For rapid analyses biosensing devices combining high selectivity of biomolecular recognition and sensitivity of modern signal detection technologies offer a promising platform Biosensors allow rapid on site detection of pollutants and provide potential for better understanding of the environmental processes including the fate and transport of contaminants This book including 12 chapters from 37 authors introduces different biosensor based technologies applied for environmental analyses

Environmental Biotechnology Rouf Ahmad Bhat, Moonisa Aslam Dervash, Khalid Rehman Hakeem, Khalid Zaffar Masoodi, 2022-06-30 This book provides a

review of innovative and novel biotechnological techniques that can be implemented to assess analyze and mitigate harmful pollutants and wastes that result from agricultural and industrial operations It helps to meet the much needed demand for improvement of low cost technologies that tackle pollution problems scientifically for the safeguard of the environment focusing on bioremediation solutions that also create useful and renewable forms of energy The biotechnological interventions discussed in the volume include approaches involving genomics proteomics transcriptomics metabolomics and fluxomics In addition biological agents such as microalgae bacteria fungi and bacteriophage which can also prove to be helpful in the elimination of wastes are explored Topics in Environmental Biotechnology Sustainable Remediation of Contamination in Different Environs include the associated consequences and hazards from agricultural and industrial waste and a variety of bioremediation measures including the use of bioaugmentation biosensors challenges of biofuel production and more The book is directed to researchers scientists industrialists farmers agricultural waste management authorities as well as to faculty and students and aims to help implement these novel technologies for environmental stability

Biosensors - Recent Advances and Future Challenges Paolo Bollella, Evgeny Katz, 2021-01-27 The present book is devoted to all aspects of biosensing in a very broad definition including but not limited to biomolecular composition used in biosensors e g biocatalytic enzymes DNazymes abiotic nanospecies with biocatalytic features bioreceptors DNA RNA aptasensors etc physical signal transduction mechanisms e g electrochemical optical magnetic etc engineering of different biosensing platforms operation of biosensors in vitro and in vivo implantable or wearable devices self powered biosensors etc The biosensors can be represented with analogue devices measuring concentrations of analytes and binary devices operating in the YES NO format possibly with logical processing of input signals Furthermore the book is aimed at attracting young scientists and introducing them to the field while providing newcomers with an enormous collection of literature references

Nanobiosensors Alexandru Grumezescu, 2016-09-28 Nanobiosensors Nanotechnology in the Agri Food Industry Volume 8 provides the latest information on the increasing demand for robust rapid inexpensive and safe alternative technologies that monitor test and detect harmful or potentially dangerous foods Due to their high sensitivity and selectivity nanobiosensors have attracted attention for their use in monitoring not only biological contaminants in food but also potential chemical and physical hazards This book offers a broad overview regarding the current progress made in the field of nanosensors including cutting edge technological progress and the impact of these devices on the food industry Special attention is given to the detection of microbial contaminants and harmful metabolites such as toxins and hormones which have a great impact on both humans and animal health and feed Includes the most up to date information on nanoparticles based biosensors and quantum dots for biological detection Provides application methods and techniques for research analysis for bacteriological detection and food testing Presents studies using analytical tools to improve food safety and quality analysis **Data**

Science in the Medical Field Seifedine Kadry, Shubham Mahajan, 2024-09-30 Data science has the potential to influence

and improve fundamental services such as the healthcare sector This book recognizes this fact by analyzing the potential uses of data science in healthcare Every human body produces 2 TB of data each day This information covers brain activity stress level heart rate blood sugar level and many other things More sophisticated technology such as data science allows clinicians and researchers to handle such a massive volume of data to track the health of patients The book focuses on the potential and the tools of data science to identify the signs of illness at an extremely early stage Shows how improving automated analytical techniques can be used to generate new information from data for healthcare applications Combines a number of related fields with a particular emphasis on machine learning big data analytics statistics pattern recognition computer vision and semantic web technologies Provides information on the cutting edge data science tools required to accelerate innovation for healthcare organizations and patients by reading this book

Recent Advances in Fluorescent Probes for Super-Resolution Microscopy Chayan Kanti Nandi,Fan Wang,Xusan Yang,Qiuqiang Zhan,2021-07-21

Sensores electroquímicos Fernando Enrique Larmat González,2023-07-28 Sensores electroquímicos Teoría y aplicaciones es un libro de texto que aborda los conceptos fundamentales en el funcionamiento de los sensores químicos y particularmente de los sensores electroquímicos disponibles hoy día No pretende ser una guía especializada en algún tipo en particular sino revisar las diferentes posibilidades y diseños de los sensores electroquímicos ilustrando los principios básicos y mostrando aplicaciones específicas El libro está dividido en diez capítulos los primeros cuatro capítulos introducen tipos de sensores sensores electroquímicos y polímeros utilizados en sensores se dedican a la introducción a los sensores en general y a los sensores electroquímicos en particular Los siguientes cinco capítulos sensores potenciométricos sensores amperométricos sensores conductimétricos biosensores electroquímicos microelectrodos arreglos de microelectrodos y modificación con nanomateriales se enfocan en los diferentes tipos de sensores electroquímicos y sus aplicaciones Este libro podrá ser utilizado en cursos de posgrado y pregrado como una guía de referencia para los interesados estudiantes e investigadores en la operación y aplicaciones de los sensores electroquímicos dada la amplia bibliografía que se incluye

Artificial Intelligence in Microbiology: Scope and Challenges Volume 1 ,2024-08-02 Nowadays the field of microbiology is undergoing a revolutionary change due to the emergence of Artificial Intelligence AI AI is being used to analyze massive data in a predictable form about the behavior of microorganisms to solve microbial classification related problems exploring the interaction between microorganisms and the surrounding environment It also helps to extract novel microbial metabolites which have been used in various fields like medical food and agricultural industries As the pace of innovation in Microbiology is accelerating the use of AI in these industries will be beneficial AI will not only show its extraordinary potential in expanding the market of antibiotics food and agriculture but also offer an eco friendly safer and profitable solution to the respective industries It would be challenging to search out specific features and discuss future research on AI in microbiology with a wide perspective Uncovering extended functions of AI in Microbiology Production and development of

novel drug targets through AI Challenges for using and selecting appropriate AI tools in health agriculture and food sector

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