

U Satyanarayana Plant Biotechnology

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Introduction to Plant Biotechnology (3/e) - H S Chawla 2011-05-24

This book has been written to meet the needs of students for biotechnology courses at various levels of undergraduate and graduate studies. This book covers all the important aspects of plant tissue culture viz. nutrition media, micropropagation, organ culture, cell suspension culture, haploid culture, protoplast isolation and fusion, secondary metabolite production, somaclonal variation and cryopreservation. For good understanding of recombinant DNA technology, chapters on genetic material, organization of DNA in the genome and basic techniques involved in recombinant DNA technology have been added. Different aspects on rDNA technology covered gene cloning, isolation of plant genes, transposons and gene tagging, in vitro mutagenesis, PCR, molecular markers and marker assisted selection, gene transfer methods, chloroplast and mitochondrion DNA transformation, genomics and bioinformatics. Genomics covers functional and structural genomics, proteomics, metabolomics, sequencing status of different organisms and DNA chip technology. Application of biotechnology has been discussed as transgenics in crop improvement and impact of recombinant DNA technology mainly in relation to biotech crops.

Plant-Microbial Interactions and Smart Agricultural

Biotechnology - Swati Tyagi 2021-09-23

Considering the ever-increasing global population and finite arable land, technology and sustainable agricultural practices are required to improve crop yield. This book examines the interaction between plants and microbes and considers the use of advanced techniques such as genetic engineering, revolutionary gene editing technologies, and their applications to understand how plants and microbes help or harm each other at the molecular level. Understanding plant-microbe interactions and related gene editing technologies will provide new possibilities for sustainable agriculture. The book will be extremely useful for researchers working in the fields of plant science, molecular plant biology, plant-microbe interactions, plant engineering technology, agricultural microbiology, and related fields. It will be useful for upper-level students and instructors specifically in the field of biotechnology, microbiology, biochemistry, and agricultural science. Features: Examines the most advanced approaches for genetic engineering of agriculture (CRISPR, TALAN, ZFN, etc.). Discusses the microbiological control of various plant diseases. Explores future perspectives for research in microbiological plant science. Plant-Microbial Interactions and Smart Agricultural Biotechnology will serve as a useful source of cutting-edge

information for researchers and innovative professionals, as well as upper-level undergraduate and graduate students taking related agriculture and environmental science courses.

Pharmaceutical Biotechnology - Daan J. A.

Crommelin 2002-11-14

The field of pharmaceutical biotechnology is evolving rapidly. A whole new arsenal of protein pharmaceuticals is being produced by recombinant techniques for cancer, viral infections, cardiovascular and hereditary disorders, and other diseases. In addition, scientists are confronted with new technologies such as polymerase chain reactions, combinatorial chemistry and gene therapy. This introductory textbook provides extensive coverage of both the basic science and the applications of biotechnology-produced pharmaceuticals, with special emphasis on their clinical use. **Pharmaceutical Biotechnology** serves as a complete one-stop source for undergraduate pharmacists, and it is valuable for researchers and professionals in the pharmaceutical industry as well.

Advanced Biotechnology - R C Dubey 2014

The book embodies 22 chapters covering various important disciplines of biotechnology, such as cell biology, molecular biology, molecular genetics, biophysical methods, genomics and proteomics, metagenomics, enzyme technology, immune-technology, transgenic plants and animals, industrial microbiology and environmental biotechnology. The book is illustrative. It is written in a simple language

Thermophilic Moulds in Biotechnology - B.N. Johri 2013-04-17

All important aspects of thermophilic moulds such as systematics, ecology, physiology and biochemistry, production of extracellular and intracellular enzymes, their role in spoilage of stores products and solid and liquid waste management, and general and molecular genetics have been dealt with comprehensively by experts in this book which covers progress in the field over the last 30 years since the seminal book *Thermophilic Fungi*

published by Cooney and Emerson in 1964. The experts have reviewed extensive literature on all aspects of thermophilic moulds in a very comprehensive manner. This book will be useful for graduates as well as post-graduate students of life sciences, mycology, microbiology and biotechnology, and as a reference book for researchers.

Pharmaceutical Biotechnology - Oliver Kayser 2012-05-21

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 and Genomics - P. K. Gupta 2004

Wilson and Walker's Principles and Techniques of Biochemistry and Molecular Biology - Andreas Hofmann 2018-04-19

Bringing this best-selling textbook right up to date, the new edition uniquely integrates the theories and methods that drive the fields of biology, biotechnology and medicine, comprehensively covering both the techniques students will encounter in lab classes and those that underpin current key advances and discoveries. The contents have been updated to include both traditional and cutting-edge techniques most commonly used in current life science research. Emphasis is placed on understanding the theory behind the techniques, as

well as analysis of the resulting data. New chapters cover proteomics, genomics, metabolomics, bioinformatics, as well as data analysis and visualisation. Using accessible language to describe concepts and methods, and with a wealth of new in-text worked examples to challenge students' understanding, this textbook provides an essential guide to the key techniques used in current bioscience research.

Basic and Applied Aspects of Biotechnology -

Varsha Gupta 2016-10-22

This book explores the journey of biotechnology, searching for new avenues and noting the impressive accomplishments to date. It has a harmonious blend of facts, applications and new ideas. Fast-paced biotechnologies are broadly applied and are being continuously explored in areas like the environmental, industrial, agricultural and medical sciences. The sequencing of the human genome has opened new therapeutic opportunities and enriched the field of medical biotechnology while analysis of biomolecules using proteomics and microarray technologies along with the simultaneous discovery and development of new modes of detection are paving the way for ever-faster and more reliable diagnostic methods. Life-saving bio-pharmaceuticals are being churned out at an amazing rate, and the unraveling of biological processes has facilitated drug designing and discovery processes. Advances in regenerative medical technologies (stem cell therapy, tissue engineering, and gene therapy) look extremely promising, transcending the limitations of all existing fields and opening new dimensions for characterizing and combating diseases.

Microorganisms in Sustainable Agriculture and

Biotechnology - Tulasi Satyanarayana 2012-01-03

This review of recent developments in our understanding of the role of microbes in sustainable agriculture and biotechnology covers a research area with enormous untapped potential. Chemical fertilizers, pesticides, herbicides and other agricultural inputs derived from fossil fuels have

increased agricultural production, yet growing awareness and concern over their adverse effects on soil productivity and environmental quality cannot be ignored. The high cost of these products, the difficulties of meeting demand for them, and their harmful environmental legacy have encouraged scientists to develop alternative strategies to raise productivity, with microbes playing a central role in these efforts. One application is the use of soil microbes as bioinoculants for supplying nutrients and/or stimulating plant growth. Some rhizospheric microbes are known to synthesize plant growth-promoters, siderophores and antibiotics, as well as aiding phosphorous uptake. The last 40 years have seen rapid strides made in our appreciation of the diversity of environmental microbes and their possible benefits to sustainable agriculture and production. The advent of powerful new methodologies in microbial genetics, molecular biology and biotechnology has only quickened the pace of developments. The vital part played by microbes in sustaining our planet's ecosystems only adds urgency to this enquiry. Culture-dependent microbes already contribute much to human life, yet the latent potential of vast numbers of uncultured—and thus untouched—microbes, is enormous. Culture-independent metagenomic approaches employed in a variety of natural habitats have alerted us to the sheer diversity of these microbes, and resulted in the characterization of novel genes and gene products. Several new antibiotics and biocatalysts have been discovered among environmental genomes and some products have already been commercialized. Meanwhile, dozens of industrial products currently formulated in large quantities from petrochemicals, such as ethanol, butanol, organic acids, and amino acids, are equally obtainable through microbial fermentation. Edited by a trio of recognized authorities on the subject, this survey of a fast-moving field—with so many benefits within reach—will be required reading for all those investigating ways to harness the power of microorganisms in making both

agriculture and biotechnology more sustainable.

Industrial Biotechnology - Mukesh Yadav

2019-10-08

Industrial Biotechnology summarizes different aspects of plant biotechnology such as using plants as sustainable resources, phytomedical applications, phytoremediation and genetic engineering of plant systems. These topics are discussed from an academic as well industrial perspective and thus highlight recent developments but also practical aspects of modern biotechnology.

Yeast Biotechnology: Diversity and Applications -

T. Satyanarayana 2009-04-24

I believe that the book would provide an overview of the recent developments in the domain of yeast research with some new ideas, which could serve as an inspiration and challenge for researchers in this field. New Delhi Prof. Asis Datta Dec. 24, 2007 Former Vice-chancellor, JNU Director, NCPGR (New Delhi) Preface Yeasts are eukaryotic unicellular microfungi that are widely distributed in the natural environments. Although yeasts are not as ubiquitous as bacteria in the natural environments, they have been isolated from terrestrial, aquatic and atmospheric environments. Yeast communities have been found in association with plants, animals and insects. Several species of yeasts have also been isolated from specialized or extreme environments like those with low water potential (e. g. high sugar/salt concentrations), low temperature (e. g. yeasts isolated from Antarctica), and low oxygen availability (e. g. intestinal tracts of animals). Around 1500 species of yeasts belonging to over 100 genera have been described so far. It is estimated that only 1% of the extant yeasts on earth have been described till date. Therefore, global efforts are underway to recover new yeast species from a variety of normal and extreme environments. Yeasts play an important role in food chains, and carbon, nitrogen and sulphur cycles. Yeasts can be genetically manipulated by hybridization, mutation, recombination, cytoduction, spheroplast fusion, single chromosomal transfer and

transformation using recombinant technology. Yeasts (e. g.

Microbial Biotechnology - Pratyosh Shukla

2016-12-01

Microbial Biotechnology: An Interdisciplinary Approach covers all aspects of microbial biotechnology, whilst bringing the field of functional foods and microbial bioremediation to the fore. Recounting the interdisciplinary scope of biotechnology and its discoveries, this text presents innovative ideas in the field of emerging biotechnology providing the scientific community with a much needed new resource. Acting as an important means of information for researchers working in interdisciplinary areas of research, this text: Envisages the recent ideas of novel findings in microbiology Provides insight into the various interdisciplinary research avenues Uniquely covers a diverse range of topics Presents groundbreaking new findings in key areas of modern biotechnology Enhanced and straight forward descriptions cater to the needs of researchers working in areas of bacterial exopolysaccharides, microalgal proteomics, applications of Microbial L-asparaginases, novel aspects of bioremediation, Probiotics and their impact on society, and microbial community analysis in waste water treatment techniques. It will also prove crucial reading for senior undergraduate and graduate students and professionals working in areas of modern biotechnology.

New and Future Developments in Microbial Biotechnology and Bioengineering - Vijai Kumar

Gupta 2020-07-12

New and Future Developments in Microbial Biotechnology and Bioengineering: Recent Developments in Trichoderma Research covers topics on-Trichoderma biodiversity, strain improvement and related researches in bioprocess technology, chemical engineering, bioremediation process, secondary metabolite production, Protein production, plant disease resistance and biocontrol technology. This book includes unique compilations

of different chapters with emerging issues in the area of Trichoderma research and its related importance in the Biochemical-Industry-Agri-Food sector. Includes recent developments on Trichoderma research in plant biotechnology, agriculture and in the environment Provides a detailed and comprehensive coverage of the biodiversity and biochemistry of Trichoderma Covers potential applications of Trichoderma in biotechnology, including secondary metabolites and protein engineering

Biochemistry - Naval Medical School (U.S.) 1960

Dynamics of Agricultural Biotechnology - A. S. Chandel 1995

Biochemistry, 5th Edition (Updated and Revised Edition)-E-Book - U Satyanarayana 2020-06-25 is an amalgamation of medical and basic sciences, and is comprehensively written and later revised and updated to meet the curriculum requirements of Medical, Pharmacy, Dental, Veterinary, Biotechnology, Agricultural Sciences, Life Sciences students, and others studying Biochemistry as one of the subjects. This book fully satisfies the revised MCI competency-based curriculum. is the first textbook on Biochemistry in English with multicolor illustrations by an Asian author. The use of multicolors is for a clear understanding of the complicated structures and reactions. is written in a lucid style with the subject being presented as an engaging story growing from elementary information to the most recent advances and with theoretical discussions being supplemented with illustrations, tables, biomedical concepts, clinical correlates, and case studies for an easy understanding of Biochemistry. has each chapter beginning with a four-line verse followed by the text with clinical correlates, a summary, and self-assessment exercises. The lively illustrations and text with appropriate headings and sub-headings in bold type faces facilitate reading path clarity and quick recall. All this will help the students to

master the subject and face the examinations with confidence. provides the most recent and essential information on Molecular Biology and Biotechnology, and current topics such as Diabetes, Cancer, Free Radicals and Antioxidants, Prostaglandins, etc. describes a wide variety of case studies (77) with biomedical correlations. They are listed at the end of relevant chapters for immediate reference, quick review, and better understanding of Biochemistry. contains the basics (Bioorganic and Biophysical Chemistry, Tools of Biochemistry, Immunology, and Genetics) for beginners to learn easily Biochemistry, origins of biochemical words, confusables in Biochemistry, principles of Practical Biochemistry, and Clinical Biochemistry Laboratory. **Plant Biotechnology, Volume 2** - Sangita Sahni 2017-12-22

This volume is the second of the new two-volume Plant Biotechnology set. This volume covers many recent advances in the development of transgenic plants that have revolutionized our concepts of sustainable food production, cost-effective alternative energy strategies, microbial biofertilizers and biopesticides, and disease diagnostics through plant biotechnology. With the advancements in plant biotechnology, many of the customary approaches are out of date, and an understanding of new updated approaches is needed. This volume presents information related to recent methods of genetic transformation, gene silencing, development of transgenic crops, biosafety issues, microbial biotechnology, oxidative stress, and plant disease diagnostics and management. Key features: Provides an in-depth knowledge of various techniques of genetic transformation of plants, chloroplast, and fungus Describes advances in gene silencing in plants Discusses transgenic plants for various traits and their application in crop improvement Looks at genetically modified foods and biodiesel production Describes biotechnological approaches in horticultural and ornamental plants Explores the biosafety aspect associated with transgenic crops Considers the role of microbes in

sustainable agriculture

Recombinant DNA and biotechnology - U

Satyanarayana 2014-11-07

Recombinant DNA and biotechnology Recombinant DNA and biotechnology

Biochemistry - E-book - 2017-05-20

Renowned and recommended textbook in the subject that explains the basic concepts in concise manner. • Is an amalgamation of medical and basic sciences, and is comprehensively written, revised and updated to meet the curriculum requirements of Medical, Pharmacy, Dental, Veterinary, Biotechnology, Agricultural Sciences, Life Sciences students and others studying Biochemistry as one of the subjects. • Is the first textbook on Biochemistry in English with multi-color illustrations by an author from Asia. The use of multicolor format is for a clear understanding of the complicated structures and biochemical reactions. • Is written in a lucid style with the subject being presented as an engaging story growing from elementary information to the most recent advances, and with theoretical discussions being supplemented with illustrations, tables, biomedical concepts, clinical correlates and case studies for easy understanding of the subject. • Has each chapter beginning with a four-line verse followed by the text with clinical correlates, a summary, and self-assessment exercises. The lively illustrations and text with appropriate headings and sub-headings in bold typeface facilitate reading path clarity and quick recall. All this will the students to master the subject and face the examination with confidence. • Provides the most recent and essential information on Molecular Biology and Biotechnology, and current topics such as Diabetes, Cancer, Free Radicals and Antioxidants, Prostaglandins, etc. • Describes a wide variety of case studies (77) with biomedical correlations. The case studies are listed at the end of relevant chapters for immediate reference, quick review and better understanding of Biochemistry. • Contains the basics (Bioorganic and Biophysical Chemistry, Tools of Biochemistry, Immunology, and Genetics) for

beginners to learn easily Biochemistry, origins of biochemical words, confusables in Biochemistry, principles of Practical Biochemistry, and Clinical Biochemistry Laboratory. • Complimentary access to full e-book and chapter-wise self-assessment exercises.

Biochip Technology - Jing Cheng 2003-09-02

Biochip technology has experienced explosive growth in recent years and Biochip technology describes the basic manufacturing and fabrication processes and the current range of applications of these chips. Top scientists from the biochip industry and related areas explain the diverse applications of biochips in gene sequencing, expression monitoring, disease diagnosis, tumor examination, ligand assay and drug discovery.

Plant Tissue Culture - B. N. Sathyanarayana 2007

Plant Tissue Culture forms an integral basis of the present day biotechnology. *Plant Tissue Culture: Practices and New Experimental Protocols* is being brought out to fill the existing gap in the available literature on plant tissue culture, especially focusing on the aspects of practical procedures and protocols of tissue culture. This book contains important experimental techniques and gives guidance on carrying out hands-on experiences. It has been designed in a simple way, giving all the necessary procedures as a general guideline and also necessary tips to maneuver any problem encountered. These tips are based on the first hand experiences of the author while teaching and researching the techniques of plant tissue culture. A unique feature of this book is the inclusion of several techniques describing the actual protocols experimented and developed with different plant species by different scientists. A substantial number of original colored plates including fluorescence photographs stand out the book. This pioneering work is valuable for the students who are looking for fresh outlook and search.

Research Methodology In Plant Science - P.S.

Narayana 2016-11-01

The book comprises of different chapters associated

with methodology in Plant science (Botany), describing in a simple and comprehensive way. The importance of creativity and motivation in research, the planning and proposal of research project, the description of different techniques involved in research are described in an elaborate way. It also includes the sources/collection of scientific information, method of scientific report/paper/thesis writing etc. The book is also a source of different aspects of research methodology in plant science dealt with in a comprehensive manner tailored to the needs of postgraduate students/research scholars for easy understanding. The book is profusely illustrated. The different chapters described in the book include: Introduction, Microscopy, Plant micro-technique, Smear/Squash technique, Plant tissue culture, Herbarium technique, Hydrogen ion concentration (pH), Centrifugation, Chromatography, Electrophoresis, Colorimetry, Spectro-photometry, Radio-isotopes in biology and Computers and their application in plant sciences. Chapters on Biostatistics, Biophysics and Bioinformatics have also been included to help the student in the statistical analysis of the results, physical principles involved in the operation of different instruments and basics of bioinformatics. We sincerely hope that this book helps to fill up the lacuna and provides what all that is needed about the research methods required for a scholar/student in plant sciences to pursue their higher studies.

New and Future Developments in Microbial Biotechnology and Bioengineering - Ali Asghar Rastegari 2020-05-16

New and Future Developments in Microbial Biotechnology and Bioengineering: Trends of Microbial Biotechnology for Sustainable Agriculture and Biomedicine Systems: Diversity and Functional Perspectives describes how specific techniques can be used to generalize the metabolism of bacteria that optimize biologic improvement strategies and bio-transport processes. Microbial biotechnology focuses on microbes of agricultural, environmental, industrial, and clinical significance. This volume

discusses several methods based on molecular genetics, systems, and biology of synthetic, genomic, proteomic, and metagenomics. Recent developments in our understanding of the role of microbes in sustainable agriculture and biotechnology have created a highly potential research area. The soil and plant microbiomes have a significant role in plant growth promotion, crop yield, soil health and fertility for sustainable developments. The microbes provide nutrients and stimulate plant growth through different mechanisms, including solubilization of phosphorus, potassium, and zinc; biological nitrogen fixation; production of siderophore, ammonia, HCN and other secondary metabolites which are antagonistic against pathogenic microbes. This new book provides an indispensable reference source for engineers/bioengineers, biochemists, biotechnologists, microbiologists, agrochemists, and researchers who want to know about the unique properties of this microbe and explore its sustainable agriculture future applications. Introduces the principles of microbial biotechnology and its application in plant growth and soil health for sustainable agriculture Explores various plant microbiomes and their beneficial impact on plant growth for crop improvement Explains the mechanisms of plant-microbe interaction and plant growth promotion Includes current applications of microbial consortium for enhance production of crop in eco-friendly manners

A Textbook of Biotechnology - R C Dubey 1993 FOR UNIVERSITY & COLLEGE STUDENTS IN INDIA & ABROAD Due to expanding horizon of biotechnology, it was difficult to accommodate the current information of biotechnology in detail. Therefore, a separate book entitled Advanced Biotechnology has been written for the Postgraduate students of Indian University and Colleges. Therefore, the present form of A Textbook of Biotechnology is totally useful for undergraduate students. A separate section of Probiotics has been added in Chapter 18. Chapter 27 on Experiments on

Biotechnology has been deleted from the book because most of the experiments have been written in 'Practical Microbiology' by R.C. Dubey and D.K. Maheshwari. Bibliography has been added to help the students for further consultation of resource materials.

Biochemistry, 6e-E-book - U Satyanarayana
2021-09-10

is an amalgamation of Medical and basic sciences, and is comprehensively written, revised, and updated to meet the curriculum requirements of Medical, Pharmacy, Dental, Veterinary, Biotechnology, Agriculture, Life sciences, and others studying Biochemistry as one of the subjects. is written in a lucid style with the subject being presented as an engaging story, growing from elementary information to the most recent advances, and with theoretical discussions being supplemented with illustrations, tables, Medical concepts, clinical correlates, and case studies for easy understanding of Biochemistry. has each chapter beginning with a four-line verse followed by the text with clinical correlates, a summary, and self-assessment exercises. the lively illustrations and text with appropriate headings and sub-headings in bold type faces facilitate reading path clarity and quick recall. All this will help the students to master the subject and boldly face the examinations. describes a variety of case studies with Medical correlations. the case studies are listed at the end of relevant chapters for immediate reference, quick review, and better understanding of Biochemistry. contains the basics (Bioorganic and Biophysical Chemistry, Tools of Biochemistry, Immunology, and Genetics) for beginners to learn easily Biochemistry, origins of biochemical words, confusables in Biochemistry, principles of Practical Biochemistry, and clinical Biochemistry Laboratory. has medically/clinically oriented Biochemistry with inputs from M.D. (Biochemistry) and M.D. (General Medicine) Professors. Satisfies the new MCI/NMC curriculum with a relevant competency map, specifically giving information on competency codes with

chapters and pages. is thoroughly revised and reorganized with special focus on medical concepts/clinical correlates, case studies and current topics such as Diabetes, Cancer, Free Radicals and Antioxidants, COVID-19, etc.

Agricultural Biotechnology, Biodiversity and Bioresources Conservation and Utilization - Olawole O. Obembe 2022-05-10

This book covers a range of important topics on crop and animal genetics, breeding and genomics, as well as biodiversity and genetic resources conservation and utilization reflecting three thematic sections of working groups of the Biotechnology Society of Nigeria. The topics range from agricultural biotechnology, including genetically modified organisms and gene-editing for agronomically important traits in tropical crops, to Nigeria's mega biodiversity and genetic resources conservation. This book will engender a deeper understanding of underpinning mechanisms, technologies, processes and science-policy nexus that has placed Nigeria as a leader in biotechnology in Africa. The book will be useful reference material for scientists and researchers working in the fields of food and agricultural biotechnology, bioinformatics, plant and animal genetics, breeding and genomics, genetic resources conservation and enhancement. Emphasizes recent advances in biotechnologies that could ameliorate the high-level global food and nutrition insecurity through plant and animal genetics, breeding, as well as genomics Provides detailed information towards harnessing indigenous bioresources for food and nutrition security and climate change adaptation Introduces new frontiers in the area of genomics, most especially their relevant applications in crop and animal breeding Reviews biotechniques that could enhance plant genetic resources conservation and utilization Discusses current biotechnological approaches to exploit genetic resources including the development of synthetic hexaploid wheat (SHW) for crop adaptation to the increasingly changing global climate Olawole O. Obembe, Ph.D., is a

Professor of Plant Biotechnology and UNESCO Chair, Plant Biotechnology, Covenant University Ota, Nigeria. Emmanuel Olufemi Ekundayo, Ph.D., is Associate Professor of Medical Microbiology and Microbial Genetics, Michael Okpara University of Agriculture, Umudike, Nigeria. Arinze Stanley Okoli, Ph.D., is Associate Professor at Genoek – Centre for Biosafety, Universitetet II, Breivika, Tromsø, Norway. Abubakar Gidado, Ph.D., is Professor of Biochemistry and Director North-East Zonal Biotechnology Centre of Excellence at the University of Maiduguri, Nigeria. Charles Oluwaseun Adetunji, Ph.D., is Associate Professor of Microbiology and Biotechnology and Director of Intellectual Property and Technology Transfer, Edo State University, Uzairue, Nigeria. Abdulrazak B. Ibrahim, Ph.D., is a Capacity Development Expert at the Forum for Agricultural Research in Africa (FARA) and Associate Professor of Biochemistry, Ahmadu Bello University, Zaria, Nigeria. Benjamin Ewa Ubi, Ph.D., is a Professor of Plant Breeding and Biotechnology and Director, Biotechnology Research and Development Centre, Ebonyi State University Abakaliki, Nigeria.

Biotechnology of Anti-diabetic Medicinal Plants - Saikat Gantait 2021-11-13

This book is a unique overview of insights on the genetic basis of anti-diabetic activity, chemistry, physiology, biotechnology, mode-of-action, as well as cellular mechanisms of anti-diabetic secondary metabolites from medicinal plants. The World Health Organization estimated that 80% of the populations of developing countries rely on traditional medicines, mostly plant drugs, for their primary health care needs. There is an increasing demand for medicinal plants having anti-diabetic potential in both developing and developed countries. The expanding trade in medicinal plants has serious implications on the survival of several plant species, with many under threat to become extinct. This book describes various approaches to conserve these genetic resources. It discusses the whole spectrum of biotechnological tools from

micro-propagation for large-scale multiplication, cell-culture techniques to the biosynthesis and enhancement of pharmaceutical compounds in the plants. It also discusses the genetic transformation as well as short- to long-term conservation of plant genetic resources via synthetic seed production and cryopreservation, respectively. The book is enriched with expert contributions from across the globe. This reference book is useful for researchers in the pharmaceutical and biotechnological industries, medicinal chemists, biochemists, botanists, molecular biologists, academicians, students as well as diabetic patients, traditional medicine practitioners, scientists in medicinal and aromatic plants, Ayurveda, Siddha, Unani and other traditional medical practitioners.

Advances in Animal Biotechnology and its Applications - Suresh Kumar Gahlawat 2018-05-29

This book explores the recent advancements in cutting-edge techniques and applications of Biotechnology. It provides an overview of prospects and applications while emphasizing modern, and emerging areas of Biotechnology. The chapters are dedicated to various field of Biotechnology including, genome editing, probiotics, in-silico drug designing, nanoparticles and its applications, molecular diagnostics, tissue engineering, cryopreservation, and antioxidants. It is useful for both academicians and researchers in the various disciplines of life sciences, agricultural sciences, medicine, and Biotechnology in Universities, Research Institutions, and Biotech companies. This book provides the readers with a comprehensive knowledge of topics in Genomics, Bionanotechnology, Drug Designing, Diagnostics, Therapeutics, Food and Environmental Biotechnology. The chapters have been written with special reference to the latest developments in the frontier areas of Biotechnology that impacts the Biotech industries.

New and Future Developments in Microbial Biotechnology and Bioengineering - Joginder Singh 2020-09-21

New and Future Developments in Microbial Biotechnology and Bioengineering presents an account of recent developments and applied aspects of fungi and its metabolites for human welfare. The fungi and its metabolites are employed in diverse fields of agri-food, biochemistry, chemical engineering, diagnostics, pharmaceuticals and medical device development. The book contains chapters by the eminent researchers working with fungi and fungal metabolites who explain their importance and potential in manifold prospects. The book includes a description of various fungal metabolites and their chemistry and biotechnology. Highlights the latest developments surrounding the utilization of fungi and fungal metabolites
Overviews applied aspects of fungi and their metabolites for human welfare
Details the usage of fungi and their metabolites in diverse fields
Identifies the importance and potential of fungi and fungal metabolites in manifold prospects
Illustrates recent trends in fungal metabolite research using elaborate, expressive tables and figures with concise information

Applied Environmental Biotechnology: Present Scenario and Future Trends - Garima Kaushik
2015-01-16

Applied Environmental Biotechnology: Present Scenario and Future Trends is designed to serve as a reference book for students and researchers working in the area of applied environmental science. It presents various applications of environmental studies that involve the use of living organisms, bioprocesses engineering technology, and other fields in solving environmental problems like waste and waste waters. It includes not only the pure biological sciences such as genetics, microbiology, biochemistry and chemistry but also from outside the sphere of biology such as chemical engineering, bioprocess engineering, information technology, and biophysics. Starting with the fundamentals of bioremediation, the book introduces various environmental applications such as bioremediation, phytoremediation, microbial

diversity in conservation and exploration, in-silico approach to study the regulatory mechanisms and pathways of industrially important microorganisms biological phosphorous removal, ameliorative approaches for management of chromium phytotoxicity, sustainable production of biofuels from microalgae using a biorefinery approach, bioelectrochemical systems (BES) for microbial electroremediation and oil spill remediation. The book has been designed to serve as comprehensive environmental biotechnology textbooks as well as wide-ranging reference books. Environmental remediation, pollution control, detection and monitoring are evaluated considering the achievement as well as the perspectives in the development of environmental biotechnology. Various relevant articles are chosen up to illustrate the main areas of environmental biotechnology: industrial waste water treatment, soil treatment, oil remediation, phytoremediation, microbial electro remediation and development of biofuels dealing with microbial and process engineering aspects. The distinct role of environmental biotechnology in future is emphasized considering the opportunities to contribute with new approached and directions in remediation of contaminated environment, minimising waste releases and development pollution prevention alternatives at before and end of pipe.

Antimicrobial Resistance in Wastewater and Human Health - Dharm Pal 2023-01-31

Antimicrobial Resistance in Wastewater and Human Health provides updated knowledge on the human health risks associated with antimicrobial resistance of wastewater. The book's chapters address commonly found bacteria and drug resistant genes in wastewater, treatment plant problems and challenges, human health hazards, and gaps in current literature. Written for researchers, scientists, graduate and PhD students in the areas of Public Health, Biotechnology, Chemical Engineering, and Environmental Science, this will be an ideal resource. Examines AMR in wastewater

and related risks to human health Provides the reader with expert analysis across a variety of scientific disciplines Presents a comprehensive analysis of AMR in wastewater, risks to human health and the way forward

Plant Biotechnology - H. S. Chawla 2003

Basics; Laboratory organization; Sterilization techniques; Nutrition medium; Choice of the explant; Plant tissue culture; Seed culture; Micropropagation- meristem culture; Micropropagation- axillary bud proliferation; Micropropagation- adventitious regeneration; Micropropagation- organogenesis; Micropropagation- embryogenesis; Cell suspension; Secondary metabolite production in a cell suspension culture; Anther culture; Protoplast isolation and fusion; Biotechnology; SDS-PAGE electrophoresis of proteins; Isolation of DNA from plant tissues; Isolation and purification of plasmid DNA; Restriction enzyme digestion of DNA; Agarose gel electrophoresis; Preparation of competent cells, transformation of E. coli with plasmid DNA and ligation of insert DNA to a vector; Agrobacterium-mediated gene transfer; Biolistic method of transformation in plants; In vitro amplification of DNA by PCR: detection of transgenes; RAPD analysis; Microsatellite marker analysis; Southern blotting; Southern hybridization.

Biotechnology for Environmental Management and Resource Recovery - Ramesh Chander Kuhad 2013-03-25

Various types of secondary agriculture and forestry wastes represent valuable resource materials for developing alternate energy as biofuels and other value added products such as sugars, phenols, furans, organic acids, enzymes and digestible animal feed etc. However, if not managed properly, waste material and environmental contaminants generated by various industries such as food and feed, pulp and paper and textile may lead to severe environmental pollution. The energy, food and feed demand necessitate developing simple and economically viable technologies for environmental management

and resource recovery. Microorganisms and their enzymes contribute significantly in utilization of plant residues, resource recovery and eventually in pollution mitigation. "Biotechnology for Environmental Management and Resource Recovery" presents a comprehensive review of selected research topics in a compendium of 16 chapters related to environmental pollution control and developing biotechnologies in agro-ecosystem management and bioconversion of agro-residues (lignocellulosics) into biofuels, animal feed and paper etc. This book provides a valuable resource for reference and text material to graduate and postgraduate students, researchers, scientists working in the area of microbiology, biotechnology, and environmental science and engineering.

Biotechnology in Flavor Production - Daphna Havkin-Frenkel 2009-01-21

Biotechnology can deliver complex flavors both as fermentation products and single constituents. Recent developments in transgenic research have spawned numerous studies in the use of metabolic engineering of biosynthetic pathways to produce high-value secondary metabolites that can enhance the flavors of food products. Biotechnology is also playing an increasingly important role in the breeding of food crops for enhanced flavor. This book provides a unique overview of the current state of the art of flavor production through biotechnology, examining the principles and current methods of producing flavors from plants and other organisms. Chapters are included on plant tissue culture, genetic engineering of plants for flavor improvement and genetic engineering of bacteria and fungi for flavor improvement of fermented beverages and dairy products. The book is directed at food scientists and technologists in the food and flavour industries as well as academics and ingredients suppliers.

Current Developments in Biotechnology and Bioengineering - Ashok Pandey 2016-09-17
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

Carbohydrates - U Satyanarayana 2014-11-07

Carbohydrates Carbohydrates

Educational Infrastructure for Biotechnology in India - R. K. Mishra 2006

A Textbook of Plant Physiology, Biochemistry and Biotechnology - SK Verma | Mohit Verma 2008-03

For Degree and Post Graduate Students.

Biotechnology - U. Satyanarayana 2017