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KEY=DSE - VALENCIA KARTER

INTELLIGENT ROBOTICS AND APPLICATIONS

7TH INTERNATIONAL CONFERENCE, ICIRA 2014, GUANGZHOU, CHINA, DECEMBER 17-20, 2014, PROCEEDINGS, PART II

Springer This two volume set LNAI 8917 and 8918 constitutes the refereed proceedings of the 7th International Conference on Intelligent Robotics and Applications, ICIRA 2014, held in Guangzhou, China, in December 2014. The 109 revised full papers presented were carefully reviewed and selected from 159 submissions. The papers aim at enhancing the sharing of individual experiences and expertise in intelligent robotics with particular emphasis on technical challenges associated with varied applications such as biomedical applications, industrial automations, surveillance, and sustainable mobility.

MICROMACHINING

BoD - Books on Demand To present their work in the field of micromachining, researchers from distant parts of the world have joined their efforts and contributed their ideas according to their interest and engagement. Their articles will give you the opportunity to understand the concepts of micromachining of advanced materials. Surface texturing using pico- and femto-second laser micromachining is presented, as well as the silicon-based micromachining process for flexible electronics. You can learn about the CMOS compatible wet bulk micromachining process for MEMS applications and the physical process and plasma parameters in a radio frequency hybrid plasma system for thin-film production with ion assistance. Last but not least, study on the specific coefficient in the micromachining process and multiscale simulation of influence of surface defects on nanoindentation using quasi-continuum method provides us with an insight in modelling and the simulation of micromachining processes. The editors hope that this book will allow both professionals and readers not involved in the immediate field to understand and enjoy the topic.

THE NEXT STEP: DISENTANGLING THE ROLE OF PLANT-SOIL FEEDBACKS IN PLANT PERFORMANCE AND SPECIES COEXISTENCE UNDER NATURAL CONDITIONS

Frontiers Media SA

YEARBOOK OF INTERNATIONAL ORGANIZATIONS 2013-2014

ORGANIZATION DESCRIPTIONS AND CROSS-REFERENCES

Brill Academic Pub Volume 1 (A and B) of the Yearbook of International Organizations covers international organizations throughout the world, comprising their aims, activities and events

INTERPRETING SOIL TEST RESULTS

WHAT DO ALL THE NUMBERS MEAN?

CSIRO PUBLISHING Interpreting Soil Test Results is a practical reference enabling soil scientists, environmental scientists, environmental engineers, land holders and others involved in land management to better understand a range of soil test methods and interpret the results of these tests. It also contains a comprehensive description of the soil properties relevant to many environmental and natural land resource issues and investigations. This new edition has an additional chapter on soil organic carbon store estimation and an extension of the chapter on soil contamination. It also includes sampling guidelines for landscape design and a section on trace elements. The book updates and expands sections covering acid sulfate soil, procedures for sampling soils, levels of nutrients present in farm products, soil sodicity, salinity and rainfall erosivity. It includes updated interpretations for phosphorus in soils, soil pH and the cation exchange capacity of soils. Interpreting Soil Test Results is ideal reading for students of soil science and environmental science and environmental engineering; professional soil scientists, environmental scientists, engineers and consultants; and local government agencies and as a reference by solicitors and barristers for land and environment cases.

ADDICTION MEDICINE E-BOOK

SCIENCE AND PRACTICE

Elsevier Health Sciences Integrating scientific knowledge with today's most effective treatment options, *Addiction Medicine: Science and Practice, 2nd Edition*, provides a wealth of information on addictions to substances and behavioral addictions. It discusses the concrete research on how the brain and body are affected by addictions, improving your understanding of how patients develop addictions and how best to personalize treatment and improve outcomes. This essential text is ideal for anyone who deals with patients with addictions in clinical practice, including psychiatrists, health psychologists, pharmacologists, social workers, drug counselors, trainees, and general physicians/family practitioners. Clearly explains the role of brain function in drug taking and other habit-forming behaviors, and shows how to apply this biobehavioral framework to the delivery of evidence-based treatment. Provides clinically relevant details on not only traditional sources of addiction such as cocaine, opiates, and alcohol, but also more recently recognized substances of abuse (e.g., steroids, inhalants) as well as behavioral addictions (e.g., binge eating, compulsive gambling, hoarding). Discusses current behavioral and medical therapies in depth, while also addressing social contexts that may affect personalized treatment. Contains new information on compliance-enhancing interventions, cognitive behavioral treatments, behavioral management, and other psychosocial interventions. Includes neurobiological, molecular, and behavioral theories of addiction, and includes a section on epigenetics. Contains up-to-date information throughout, including a new definition of status epilepticus, a current overview of Lennox Gastaut syndrome, and updates on new FDA-approved drugs for pediatric neurological disorders. Features expanded sections on evidence-based treatment options including pharmacotherapy, pharmacogenetics, and potential vaccines. Addresses addiction in regards to specific populations, including adolescents, geriatric, pregnant women, and health care professionals. Includes contributions from expert international authors, making this a truly global reference to addiction medicine.

PLANT STRESS: CHALLENGES AND MANAGEMENT IN THE NEW DECADE

Springer Nature

MEDICALLY IMPORTANT PLANT BIOMES: SOURCE OF SECONDARY METABOLITES

Springer Nature This book provides insights into various aspects of medicinal plant-associated microbes, known to be a unique source of biological active compounds, including their biotechnological uses and their potential in pharmaceutical, agricultural and industrial applications. Featuring review papers and original research by leading experts in the field, it discusses medicinal plants and their interactions with the environment; medicinal plants as a source of biologically active compounds; medicinal plant-associated microbes (diversity and metabolites); their pharmaceutical, agricultural and industrial applications as well as their potential applications as plant growth stimulators and biocontrol agents. As such the book offers a valuable, up-to-date overview of the current research on medicinal plants, their ecology, biochemistry and associated biomes.

27TH EUROPEAN SYMPOSIUM ON COMPUTER AIDED PROCESS ENGINEERING

Elsevier 27th European Symposium on Computer Aided Process Engineering, Volume 40 contains the papers presented at the 27th European Society of Computer-Aided Process Engineering (ESCAPE) event held in Barcelona, October 1-5, 2017. It is a valuable resource for chemical engineers, chemical process engineers, researchers in industry and academia, students, and consultants for chemical industries. Presents findings and discussions from the 27th European Society of Computer-Aided Process Engineering (ESCAPE) event

CO-COMPOSTING OF SOLID WASTE AND FECAL SLUDGE FOR NUTRIENT AND ORGANIC MATTER RECOVERY

IWMI Biological treatment, composting, in particular, is a relatively simple, durable and inexpensive alternative for stabilizing and reducing biodegradable waste. Co-composting of different waste sources allows to enhance the compost nutrient value. In particular, integration of 'biosolids' from the sanitation sector as potential input material for co-composting would provide a solution for the much needed treatment of fecal sludge from on-site sanitation systems, and make use of its high nutrient content. This research paper elaborates in detail the main parameters that govern the co-composting process as well as factors that control the production of a safe and valuable quality compost. It further explains technological options to tailor the final product to crop and farmer needs.

PROGRESS IN HERITABLE SOFT CONNECTIVE TISSUE DISEASES

Springer Nature This volume represents a substantially revised and updated 2nd edition of a reference handbook on major structural components of soft connective tissues and a whole slew of heritable diseases of soft connective tissues. The number of clearly identifiable and distinct disorders has grown somewhat since the 1st edition in 2014, e.g., Ehlers-Danlos syndrome has now 13 entities. A brand new syndrome, Meester Loeys syndrome carrying the name of Bart Loeys was added as a companion to Loeys-Dietz syndrome. Numerous variations of cutis laxa and joint mobility disorders have been discovered taking advantage of recent advancements in genetic analysis. We have acquired better understanding of pathogenesis and biochemical changes in some other, more established entities, such as Marfan and collagen VI myopathies where better management and possible treatment are on the horizon. Even in the case of connective tissue diseases in domestic animals some progress has been made. All these updates were contributed by a

group of distinguished and preeminent physicians and scientists, all of them not just working in the field but making new discoveries described by them. Readers will notice that seemingly there is an overlap among many of these disorders. And indeed, many of them, if not most are interconnected because of the prominent roles of TGF β , of fibrillin microfibrils and collagen fibril assembly (and other molecules) playing in connective tissues physiology, and by extension in pathogenesis of many disorders described in the book. What I found particularly helpful that author(s) of each chapter bring their own perspective even when described closely related mechanism of the disease. These observations should help with diagnosis and management of such cases. The first chapters are more general, concentrating more on the physiology, structure and biochemistry of normal soft tissues. That should help in better understanding of the pathophysiology. Last but not least, the chapters are very readable, more like detective stories than dry description of genetic/biochemical defects. I do hope that basic scientists and clinicians with similar and diverse interests alike will appreciate this volume and will be inspired by it to develop their research in the field.

O-LEVEL CHEMISTRY COMPLETE GUIDE (YELLOWREEF)

Yellowreef Limited • first to provide exam data-mining in study guide • allow students to focus on most examined concepts - cut study time and increase efficiency • an expert guide to lead one through abstract knowledge and wisdom • provides exact, accurate, complete and independent self-education • holistic question-answering techniques • exact definitions • complete and concise eBook editions available • Books available for other subjects including Physics, Chemistry, Biology, Mathematics, Economics, English • Primary level, Secondary level, GCE O-level, GCE A-level, iGCSE, Cambridge A-level, Hong Kong DSE • visit www.yellowreef.com for sample chapters and more

MOLECULAR MARKERS IN MYCOLOGY

DIAGNOSTICS AND MARKER DEVELOPMENTS

Springer The Kingdom fungi encompass a massive diversity of taxa with wide-ranging ecologies, life cycles, and morphologies ranging from unicellular aquatic chytrids to large mushrooms. Before molecular methods came in existence, taxonomists considered this Kingdom to be a member of the plant kingdom due to certain life styles like immobility and growth habitats. Molecular markers (also known as DNA markers), facilitated a better alternative method over traditional morphological methods, employed for the identification, characterization, and to understand the evolution of fungi. The morphological methods used for identification are mainly dependent on spore color or microscopic features whereas molecular markers are based on DNA polymorphism in the genomic organization. Phylogenetic studies reported in last decade, based on molecular markers, have reshaped the classification system of Kingdom fungi, which divided into one subkingdom, seven phyla, and ten subphyla. Recent advances in molecular mycology have opened the way for researchers to identify and characterize novel fungal species from unique environments. Mycology is concerned with the systematic study of fungi, including their genetic and biochemical properties, their use to humans as a source of medicine and food, as well as their dangers, such as poisoning and infections. In the 21st century with the development of DNA sequencing technologies and phylogenetic analysis based on molecular markers, new insights into fungal taxonomy were provided. This book contains a thorough discussion of molecular characterization and detection of different groups of fungi by using PCR-based markers and provides a comprehensive view of the applications and uses of different molecular markers in molecular mycology. It also addresses the recent molecular markers employed to solve the problems of identification and discusses current approaches used in molecular characterization and detection of fungi.

ALEXANDER'S NURSING PRACTICE E-BOOK

HOSPITAL AND HOME

Elsevier Health Sciences The latest edition of this popular volume has been fully updated throughout to meet the needs of the 2018 NMC Standards of Proficiency. Richly illustrated throughout, the book comes with 'real-life' Case Studies to help readers contextualise and apply new information, pathophysiology to explain disease processes, enhanced discussion of pharmacology and medicines management to assist with 'prescribing readiness', and helpful learning features which include Key Nursing Issues and Reflection and Learning - What Next? Available with a range of supplementary online tools and learning activities, Alexander's Nursing Practice, fifth edition, will be ideal for all undergraduate adult nursing students, the Trainee Nursing Associate, and anyone returning to practice. New edition of the UK's most comprehensive textbook on Adult Nursing! Retains the popular 'three-part' structure to ensure comprehensive coverage of the subject area - Common Disorders, Core Nursing Issues and Specific Patient Groups Illustrative A&P and pathophysiology help explain key diseases and disorders 'Real-life' Case Studies help contextualise and apply new information Explains relevant tests and investigations and, when needed, the role of the nurse in the context of each of them Helpful learning features include Key Nursing Issues and Reflection and Learning - What Next? Encourages readers to critically examine issues that are related to care provision Useful icons throughout the text directs readers to additional online material Glossary contains over 300 entries to explain new terminology and concepts Appendices include notes on Système International (SI) units and reference ranges for common biochemical and haematological values Perfect for second and third-year undergraduate nursing students, senior Trainee Nursing Associates, those 'returning to practice' or needing to review practice and prepare for revalidation Edited by the world-renowned Ian Peate - editor of the British Journal of Nursing - who brings together a new line up of contributors from across the UK and Australia Reflects contemporary issues such as the complexity of acute admissions and the increasing importance of the multidisciplinary approach to patient care Reflects the 2018 NMC

Standards of Proficiency for Nurses and the NMC 2018 Code Helps prepare students for 'prescribing readiness', with basic principles of pharmacology, evidence-based person-centred approaches to medicines management and an understanding of the regulatory, professional legal and ethical frameworks Recognises the introduction of the Nursing Associate role in England

PHYSICO-CHEMICAL ASPECTS OF TEXTILE COLORATION

John Wiley & Sons The production of textile materials comprises a very large and complex global industry that utilises a diverse range of fibre types and creates a variety of textile products. As the great majority of such products are coloured, predominantly using aqueous dyeing processes, the coloration of textiles is a large-scale global business in which complex procedures are used to apply different types of dye to the various types of textile material. The development of such dyeing processes is the result of substantial research activity, undertaken over many decades, into the physico-chemical aspects of dye adsorption and the establishment of 'dyeing theory', which seeks to describe the mechanism by which dyes interact with textile fibres. Physico-Chemical Aspects of Textile Coloration provides a comprehensive treatment of the physical chemistry involved in the dyeing of the major types of natural, man-made and synthetic fibres with the principal types of dye. The book covers: fundamental aspects of the physical and chemical structure of both fibres and dyes, together with the structure and properties of water, in relation to dyeing; dyeing as an area of study as well as the terminology employed in dyeing technology and science; contemporary views of intermolecular forces and the nature of the interactions that can occur between dyes and fibres at a molecular level; fundamental principles involved in dyeing theory, as represented by the thermodynamics and kinetics of dye sorption; detailed accounts of the mechanism of dyeing that applies to cotton (and other cellulosic fibres), polyester, polyamide, wool, polyacrylonitrile and silk fibres; non-aqueous dyeing, as represented by the use of air, organic solvents and supercritical CO₂ fluid as alternatives to water as application medium. The up-to-date text is supported by a large number of tables, figures and illustrations as well as footnotes and widespread use of references to published work. The book is essential reading for students, teachers, researchers and professionals involved in textile coloration.

SEED MICROBIOME RESEARCH

Frontiers Media SA

SOLAR ENERGY UPDATE

ROLE OF MATERIALS SCIENCE IN FOOD BIOENGINEERING

Academic Press The Role of Materials Science in Food Bioengineering, Volume 19 in the Handbook of Food Bioengineering, presents an up-to-date review of the most recent advances in materials science, further demonstrating its broad applications in the food industry and bioengineering. Many types of materials are described, with their impact in food design discussed. The book provides insights into a range of new possibilities for the use of materials and new technologies in the field of food bioengineering. This is an essential reference on bioengineering that is not only ideal for researchers, scientists and food manufacturers, but also for students and educators. Discusses the role of material science in the discovery and design of new food materials Reviews the medical and socioeconomic impact of recently developed materials in food bioengineering Includes encapsulation, coacervation techniques, emulsion techniques and more Identifies applications of new materials for food safety, food packaging and consumption Explores bioactive compounds, polyphenols, food hydrocolloids, nanostructures and other materials in food bioengineering

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Springer This new edition provides a comprehensive look at the molecular genetics and biochemical basis of fungal biology, covering important model organisms such as Aspergilli while also integrating advances made with zygomycetes and basidiomycetes. This book groups a total of 15 chapters authored by expert scholars in their respective fields into four sections. Five chapters cover various aspects of gene expression regulation. These range from regulation in organismal interactions between parasitic fungi and their host plant, heavy metal stress and global control of natural product genes to conidiation and regulation through RNA interference. Two chapters are dedicated to signal transduction, highlighting MAP-kinase-dependent signaling and heterotrimeric G-proteins. Fungal carbohydrates are the subject of the third section, which addresses both polymeric cell wall carbohydrates and trehalose as an important, low molecular weight carbohydrate. The fourth section emphasizes the metabolism of major elements (carbon, nitrogen, sulfur) and critical cellular pathways for primary and secondary products.

HANDBOOK OF TOXICOLOGY OF CHEMICAL WARFARE AGENTS

Academic Press Handbook of Toxicology of Chemical Warfare Agents, Third Edition, covers every aspect of deadly toxic chemicals used in conflicts, warfare and terrorism. Including findings from experimental as well as clinical studies, this essential reference offers in-depth coverage of individual toxicants, target organ toxicity, major incidents, toxic effects in humans, animals and wildlife, biosensors and biomarkers, on-site and laboratory analytical methods, decontamination and detoxification procedures, and countermeasures. Expanding on the second edition, Handbook of Toxicology of Chemical Warfare Agents has been completely updated, presenting the most recent advances in field. Brand new chapters include a new chapter on emergency preparedness, coverage of the chemical warfare agents used in Syria, the use of the Novichok agent in the UK, and more. Unites world-leading experts to bring you cutting-edge,

agent-specific information on Chemical Warfare Agents (CWA) and their adverse effects on human and animal health, and the environment Provides you with all the information you need on CWA modes of action, detection, prevention, therapeutic treatment and countermeasures New to this edition: a full update to reflect the most recent advances in the field and new chapters on emergency preparedness, the chemical warfare agents used in Syria, and the use of the Novichok agent in the UK

MEDICINAL MUSHROOMS

RECENT PROGRESS IN RESEARCH AND DEVELOPMENT

Springer Presents the latest R & D information on medicinal mushrooms from diverse geographical locations Offers comprehensive coverage of the most important application areas of medicinal mushrooms Includes contributions by eminently experienced researchers in the field of medicinal mushrooms Medicinal mushrooms are increasingly gaining attention worldwide because of their pharmacologically bioactive compounds, which have demonstrated potent and unique clinical properties. Scientific studies carried out during the last decade have confirmed their efficacy in treating a wide range of diseases. Extracts and bioactive compounds obtained from mushrooms have been used medicinally as anticancer, immunomodulator, antibacterial, antiviral, anti-inflammatory, anti-atherosclerotic, neuroprotectant, cardioprotectant, antioxidant, and anti-hypoglycemic agents, and in stem cell-based therapies. Introducing readers to the latest developments in, and ongoing research efforts on, medicinal mushrooms, this book gathers articles contributed by eminent researchers in different disciplines and from around the globe. Highlighting the tremendous potential of mushrooms for the development of new drugs, the topics covered include but are not limited to: Recent progress in research on the pharmaceutical potential of medicinal mushrooms and prospects for their clinical application Edible mushroom neuronutraceuticals: Basis of therapeutics Overview of therapeutic efficacy of mushrooms Mushrooms - a wealth of resources for prospective stem cell-based therapies Mushrooms as potential natural cytostatics

MEMS AND NANOTECHNOLOGY, VOLUME 8

PROCEEDINGS OF THE 2014 ANNUAL CONFERENCE ON EXPERIMENTAL AND APPLIED MECHANICS

Springer MEMS and Nanotechnology, Volume 8: Proceedings of the 2014 Annual Conference on Experimental and Applied Mechanics, the eighth volume of eight from the Conference, brings together contributions to this important area of research and engineering. The collection presents early findings and case studies on a wide range of areas, including: Small-Scale Plasticity MEMS and Electronic Packaging Mechanics of Graphene Interfacial Mechanics Methods in Measuring Small-Scale Displacements Organic and Inorganic Nanowires AFM and Resonant-Based Methods Thin Films and Nano fibers

CALL OF THE REED WARBLER

A NEW AGRICULTURE, A NEW EARTH

Chelsea Green Publishing In Call of the Reed Warbler, Charles Massy explores regenerative agriculture and the vital connection between our soil and our health. It is the story of how a grassroots revolution--a true underground insurgency--can save the planet, help reduce and reverse climate change, and build healthy people and healthy communities, pivoting significantly on our relationship with growing and consuming food. Using his personal experience as a touchstone--from an unknowing, chemical-using farmer with dead soils to a radical ecologist farmer carefully regenerating a 2000-hectare property to a state of natural health--Massy tells the real story behind industrial agriculture and the global profit-obsessed corporations driving it. With evocative stories, he shows how other innovative and courageous farmers are finding a new way. At stake is not only a revolution in human health and in our communities, but the very survival of the planet. For farmers, backyard gardeners, food buyers, health workers, policy makers, and public leaders alike, Call of the Reed Warbler offers a tangible path forward and a powerful and moving paean of hope. It's not too late to regenerate the earth. Call of the Reed Warbler shows the way forward for the future of our food supply, our planet, and our health.

SECURITY OWNER'S STOCK GUIDE

SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

FRACTIONAL CALCULUS AND WAVES IN LINEAR VISCOELASTICITY: AN INTRODUCTION TO MATHEMATICAL MODELS (SECOND EDITION)

World Scientific Fractional Calculus and Waves in Linear Viscoelasticity (Second Edition) is a self-contained treatment of the mathematical theory of linear (uni-axial) viscoelasticity (constitutive equation and waves) with particular regard to models based on fractional calculus. It serves as a general introduction to the above-mentioned areas of mathematical modeling. The explanations in the book are detailed enough to capture the interest of the curious reader, and complete enough to provide the necessary background material needed to delve further into the subject and explore the research literature. In particular the relevant role played by some special functions is pointed out

POSSESSIONS, EXCEPT ALASKA AND HAWAII

PLANT ROOT INTERACTION WITH ASSOCIATED MICROBIOMES TO IMPROVE PLANT RESILIENCY AND CROP BIODIVERSITY

Frontiers Media SA

MONTHLY CATALOG OF UNITED STATES GOVERNMENT PUBLICATIONS

CANNABINOID THERAPEUTICS: WHAT'S HOT

Frontiers Media SA Every year, 10 outstanding Research Topics are selected as finalists of the Frontiers Spotlight Award. These shortlisted article collections each address a globally important field of research with the potential to drastically impact our future. They bring together the latest, cutting-edge research to advance their fields, present new solutions and foster essential, large-scale collaborations across multiple disciplines and research groups worldwide. This international research prize recognizes the most innovative and impactful topics and the winning team of editors receives \$100,000 to organize an international scientific conference on the theme of their successful collection.

BACTERIAL CELL WALLS AND MEMBRANES

Springer This book provides an up-to-date overview of the architecture and biosynthesis of bacterial and archaeal cell walls, highlighting the evolution-based similarities in, but also the intriguing differences between the cell walls of Gram-negative bacteria, the Firmicutes and Actinobacteria, and the Archaea. The recent major advances in this field, which have brought to light many new structural and functional details, are presented and discussed. Over the past five years, a number of novel systems, e.g. for lipid, porin and lipopolysaccharide biosynthesis have been described. In addition, new structural achievements with periplasmic chaperones have been made, all of which have revealed amazing details on how bacterial cell walls are synthesized. These findings provide an essential basis for future research, e.g. the development of new antibiotics. The book's content is the logical continuation of Volume 84 of SCBI (on Prokaryotic Cytoskeletons), and sets the stage for upcoming volumes on Protein Complexes.

RECENT TRENDS IN MYCOLOGICAL RESEARCH

VOLUME 1: AGRICULTURAL AND MEDICAL PERSPECTIVE

Springer Nature Fungi range from being microscopic, single-celled yeasts to multicellular and heterotrophic in nature. Fungal communities have been found in vast ranges of environmental conditions. They can be associated with plants epiphytically, endophytically, or rhizospherically. Extreme environments represent unique ecosystems that harbor novel biodiversity of fungal communities. Interest in the exploration of fungal diversity has been spurred by the fact that fungi perform numerous functions integral in sustaining the biosphere, ranging from nutrient cycling to environmental detoxification, which involves processes like augmentation, supplementation, and recycling of plant nutrients - a particularly important process in sustainable agriculture. Fungal communities from natural and extreme habitats help promote plant growth, enhance crop yield, and enhance soil fertility via direct or indirect plant growth promoting (PGP) mechanisms of solubilization of phosphorus, potassium, and zinc, production of ammonia, hydrogen cyanides, phytohormones, Fe-chelating compounds, extracellular hydrolytic enzymes, and bioactive secondary metabolites. These PGP fungi could be used as biofertilizers, bioinoculants, and biocontrol agents in place of chemical fertilizers and pesticides in eco-friendly manners for sustainable agriculture and environments. Along with agricultural applications, medically important fungi play a significant role for human health. Fungal communities are useful for sustainable environments as they are used for bioremediation which is the use of microorganisms' metabolism to degrade waste contaminants (sewage, domestic, and industrial effluents) into non-toxic or less toxic materials by natural biological processes. Fungi could be used as mycoremediation for the future of environmental sustainability. Fungi and fungal products have the biochemical and ecological capability to degrade environmental organic chemicals and to decrease the risk associated with metals, semi-metals, and noble metals either by chemical modification or by manipulating chemical bioavailability. The two volumes of Recent Trends in Mycological Research aim to provide an understanding of fungal communities from diverse environmental habitats and their potential applications in agriculture, medical, environments and industry. The books are useful to scientists, researchers, and students involved in microbiology, biotechnology, agriculture, molecular biology, environmental biology and related subjects.

CELLULAR AND MOLECULAR PHYTOXICITY OF HEAVY METALS

Springer Nature Plant growth and development is closely dependent on the plant environment, including the widespread presence of organic and inorganic xenobiotics and pollutants. Currently, heavy metals are the most common inorganic environmental pollutants and they have pronounced effects and consequences not only for plants, but also for the ecosystem in which the plants form an integral component. It has been suggested that these contaminants accumulate in agricultural crops, thus entering the food chain and posing a significant health risk. Plants growing in polluted sites exhibit altered metabolism, reduced growth, and decreased biomass production. These pollutants adhere to plant roots and exert physical or chemical toxicity and subsequently cell death in plants. Yet, plants have developed various defence mechanisms to counteract the toxicity induced by heavy metals. Only detailed study of the processes and mechanisms would allow researchers and students to understand the interactions, responses, and

adaptations of plants to these pollutants; however, there are several unresolved issues and challenges regarding the interaction and biological effects of heavy metals. Therefore, this volume provides relevant, state-of-the-art findings on environmental phytotoxicity and the mechanisms of such interactions at the cellular and molecular levels. This volume consists of chapters on relevant topics contributed by different experts or group of experts so as to make available a comprehensive treatise designed to provide an in-depth analysis of heavy metals phytotoxicity. This book may serve as a reference to scientists, researchers and students in the fields of toxicology, environmental toxicology, phytotoxicology, plant biology, plant physiology, plant biochemistry and plant molecular biology, and especially those interested in heavy metals toxicology.

INDUSTRIALLY IMPORTANT FUNGI FOR SUSTAINABLE DEVELOPMENT

VOLUME 1: BIODIVERSITY AND ECOLOGICAL PERSPECTIVES

Springer Nature Fungi are an understudied, biotechnologically valuable group of organisms. Due to their immense range of habitats, and the consequent need to compete against a diverse array of other fungi, bacteria, and animals, fungi have developed numerous survival mechanisms. However, besides their major basic positive role in the cycling of minerals, organic matter and mobilizing insoluble nutrients, fungi have other beneficial impacts: they are considered good sources of food and active agents for a number of industrial processes involving fermentation mechanisms as in the bread, wine and beer industry. A number of fungi also produce biologically important metabolites such as enzymes, vitamins, antibiotics and several products of important pharmaceutical use; still others are involved in the production of single cell proteins. The economic value of these marked positive activities has been estimated as approximating to trillions of US dollars. The unique attributes of fungi thus herald great promise for their application in biotechnology and industry. Since ancient Egyptians mentioned in their medical prescriptions how they can use green molds in curing wounds as the obvious historical uses of penicillin, fungi can be grown with relative ease, making production at scale viable. The search for fungal biodiversity, and the construction of a living fungi collection, both have incredible economic potential in locating organisms with novel industrial uses that will lead to novel products. Fungi have provided the world with penicillin, lovastatin, and other globally significant medicines, and they remain an untapped resource with enormous industrial potential. Volume 1 of Industrially Important Fungi for Sustainable Development provides an overview to understanding fungal diversity from diverse habitats and their industrial application for future sustainability. It encompasses current advanced knowledge of fungal communities and their potential biotechnological applications in industry and allied sectors. The book will be useful to scientists, researchers, and students of microbiology, biotechnology, agriculture, molecular biology, and environmental biology.