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4. Health and HIV/AIDS

Cannabis sativa is best known as the source of marijuana, the world ' s most widely consumed illicit recreational drug. However, the plant is also extremely useful as a source of stem fiber, edible seed oil, and medicinal compounds, all of which are undergoing extremely promising research, technological applications, and business investment. Indeed, despite its capacity for harm as a recreational drug, cannabis has phenomenal potential for providing new products to benefit society and for generating extensive employment and huge profits. Misguided policies, until recently, have prevented legitimate research on the beneficial properties of cannabis, but there is now an explosion of societal, scientific, and political support to reappraise and remove some of the barriers to usage. Unfortunately, there is also a corresponding dearth of objective analysis. Towards redressing the limitation of information, Cannabis: A Complete Guide is a comprehensive reference summarizing botanical, business, chemical, ecological, genetic, historical, horticultural, legal, and medical considerations that are critical for the wise advancement and management of cannabis in its

various forms. This book documents both the risks and benefits of what is indisputably one of the world ' s most important species. The conflicting claims for medicinal virtues and toxicological vices are examined, based mainly on the most recent authoritative scientific reviews. The attempt is made consistently to reflect majority scientific opinion, although many aspects of cannabis are controversial. Aside from the relevance to specialists, the general public should find the presentation attractive because of the huge interest today in marijuana. Unfortunately, society has become so specialized and compartmentalized that most people have limited appreciation of the importance of science to their lives, except when a topic like marijuana becomes sensationalized. This review of cannabis can serve as a vehicle for public education in the realm of science and technology. Indeed, towards the goal of disseminating the important information in this book to a wide audience, the presentation is user-friendly, concise, and well-illustrated in the hope that non-specialists will find the topics both informative and entertaining.

Climate change negotiations have failed the world. Despite more than thirty years of high-level, global talks on climate change, we are still seeing carbon emissions rise dramatically. This edited volume, comprising leading and emerging scholars and

climate activists from around the world, takes a critical look at what has gone wrong and what is to be done to create more decisive action. Composed of twenty-eight essays—a combination of new and republished texts—the anthology is organised around seven main themes: paradigms; what counts?; extraction; dispatches from a climate change frontline country; governance; finance; and action(s). Through this multifaceted approach, the contributors ask pressing questions about how we conceptualise and respond to the climate crisis, providing both ‘big picture’ perspectives and more focussed case studies. This unique and extensive collection will be of great value to environmental and social scientists alike, as well as to the general reader interested in understanding current views on the climate crisis.

This book encompasses the current knowledge of plant microbiomes and their potential biotechnological application for plant growth, crop yield and soil health for sustainable agriculture. The plant microbiomes (rhizospheric, endophytic and epiphytic) play an important role in plant growth, development, and soil health. Plant and rhizospheric soil are a valuable natural resource harbouring hotspots of microbes, and it plays critical roles in the maintenance of global nutrient balance and ecosystem function. The diverse group of microbes is key components of soil–plant systems, where

they are engaged in an intense network of interactions in the rhizosphere/endophytic/phyllospheric. The rhizospheric microbial diversity present in rhizospheric zones has a sufficient amount of nutrients release by plant root systems in form of root exudates for growth, development and activities of microbes. The endophytic microbes are referred to those microorganisms, which colonize in the interior of the plant parts, viz root, stem or seeds without causing any harmful effect on host plant. Endophytic microbes enter in host plants mainly through wounds, naturally occurring as a result of plant growth, or through root hairs and at epidermal junctions. Endophytes may be transmitted either vertically (directly from parent to offspring) or horizontally (among individuals). The phyllosphere is a common niche for synergism between microbes and plant. The leaf surface has been termed as phyllosphere and zone of leaves inhabited by microorganisms as phyllosphere. The plant part, especially leaves, is exposed to dust and air currents resulting in the establishments of typical flora on their surface aided by the cuticles, waxes and appendages, which help in the anchorage of microorganisms. The phyllospheric microbes may survive or proliferate on leaves depending on extent of influences of material in leaf diffuseness or exudates. The leaf diffuseness contains the principal

nutrients factors (amino acids, glucose, fructose and sucrose), and such specialized habitats may provide niche for nitrogen fixation and secretions of substances capable of promoting the growth of plants. The microbes associated with plant as rhizospheric, endophytic and epiphytic with plant growth promoting (PGP) attributes have emerged as an important and promising tool for sustainable agriculture. PGP microbes promote plant growth directly or indirectly, either by releasing plant growth regulators; solubilization of phosphorus, potassium and zinc; biological nitrogen fixation or by producing siderophore, ammonia, HCN and other secondary metabolites which are antagonistic against pathogenic microbes. The PGP microbes belong to different phylum of archaea (Euryarchaeota); bacteria (Acidobacteria, Actinobacteria, Bacteroidetes, Deinococcus-Thermus, Firmicutes and Proteobacteria) and fungi (Ascomycota and Basidiomycota), which include different genera namely Achromobacter, Arthrobacter, Aspergillus, Azospirillum, Azotobacter, Bacillus, Beijerinckia, Burkholderia, Enterobacter, Erwinia, Flavobacterium, Gluconoacetobacter, Haloarcula, Herbaspirillum, Methylobacterium, Paenibacillus, Pantoea, Penicillium, Piriformospora, Planomonospora, Pseudomonas, Rhizobium, Serratia and Streptomyces. These PGP microbes could be used as biofertilizers/bioinoculants at place of

chemical fertilizers for sustainable agriculture. The aim of “ Plant Microbiomes for Sustainable Agriculture ” is to provide the current developments in the understanding of microbial diversity associated with plant systems in the form of rhizospheric, endophytic and epiphytic. The book is useful to scientist, research and students related to microbiology, biotechnology, agriculture, molecular biology, environmental biology and related subjects.

Locating Nordic Noir

Plant Microbiomes for Sustainable Agriculture

State-sponsored Homophobia and Its Consequences in Southern Africa

Cannabis

Flowering Plants. Monocots

World Report 2016

National High Blood Pressure Education Program

Ecotourism is a unique facet of globalization, promising the possibility of reconciling the juggernaut of development with ecological/cultural conservation. Davidov offers a comparative analysis of the issue using a case study of indigenous Kichwa people of Ecuador and their interactions with globalization and transnational systems.

This volume is the outcome of a modern phylogenetic analysis of the grass family based on multiple sources of data, in

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particular molecular systematic studies resulting from a concerted effort by researchers worldwide, including the author. In the classification given here grasses are subdivided into 12 subfamilies with 29 tribes and over 700 genera. The keys and descriptions for the taxa above the rank of genus are hierarchical, i.e. they concentrate upon characters which are deemed to be synapomorphic for the lineages and may be applicable only to their early-diverging taxa. Beyond the treatment of phylogeny and formal taxonomy, the author presents a wide range of information on topics such as the structural characters of grasses, their related functional aspects and particularly corresponding findings from the field of developmental genetics with inclusion of genes and gene products instrumental in the shaping of morphological traits (in which this volume appears unique within this book series); further topics addressed include the contentious time of origin of the family, the emigration of the originally shade-loving grasses out of the forest to form vast grasslands accompanied by the switch of many members to C4 photosynthesis, the impact of herbivores on the silica cycle housed in the grass phytoliths, the

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reproductive biology of grasses, the domestication of major cereal crops and the affinities of grasses within the newly circumscribed order Poales. This volume provides a comprehensive overview of existing knowledge on the Poaceae (Gramineae), with major implications in terms of key scientific challenges awaiting future research. It certainly will be of interest both for the grass specialist and also the generalist seeking state-of-the-art information on the diversity of grasses, the most ecologically and economically important of the families of flowering plants. Responding to a renewed interest in the growing problem of iodine deficiency worldwide, Drs. Charles Oxnard and Peter Obendorf, along with experienced translator and anatomist John Dennison, take a fresh look at the classic text, *Der endemische Kretinismus*, published in 1936 by Springer. Translated here for the first time into English, this landmark text will be a welcome resource for researchers confronting the problem of iodine deficiency. Oxnard and Obendorf point out that there is very little detailed knowledge or numerical data on cretinism available in the English-speaking world. In addition, highly-renowned Professor

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Basil S. Hetzel, recently-retired World Health Organization Chairman of the International Council for Control of Iodine Deficiency Disorders, published in 2009 with Dr Chen Zu-pei on the resurgence of iodine deficiency in China. Indeed, throughout the entire developing world there may be as many as two billion people at risk to iodine deficiency; perhaps three quarters of a billion have goiter, and ten million may be cretins. Even in developed countries, iodine deficiency is re-emerging (as in New South Wales in 19% of children) with the result of significantly reduced numbers of gifted children (though this is not cretinism per se). Certain to be of significant interest to a wide range of researchers, health providers and professionals, including government health administrators, this English translation of Endemic Cretinism is a major contribution to the literature. In the course of evolution, a great variety of root systems have learned to overcome the many physical, biochemical and biological problems brought about by soil. This development has made them a fascinating object of scientific study. This volume gives an overview of how roots have adapted to the soil environment and which roles they play in the soil

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ecosystem. The text describes the form and function of roots, their temporal and spatial distribution, and their turnover rate in various ecosystems. Subsequently, a physiological background is provided for basic functions, such as carbon acquisition, water and solute movement, and for their responses to three major abiotic stresses, i.e. hard soil structure, drought and flooding. The volume concludes with the interactions of roots with other organisms of the complex soil ecosystem, including symbiosis, competition, and the function of roots as a food source.

Medicinal Plants and Natural Product
Research

Microbial Communities and their
Interactions in the Extreme Environment
Complex Life on Many Worlds

From Beck to The Bridge

Events of 2016

Endemic Cretinism

Coasts in Crisis

This report reviews the rationale for primary prevention of hypertension, strategies for prevention of hypertension, and efficacy of interventions to prevent hypertension. Includes policy recommendations.

This open access book, written by world experts in aquaponics and related technologies, provides the

authoritative and comprehensive overview of the key aquaculture and hydroponic and other integrated systems, socio-economic and environmental aspects. Aquaponic systems, which combine aquaculture and vegetable food production offer alternative technology solutions for a world that is increasingly under stress through population growth, urbanisation, water shortages, land and soil degradation, environmental pollution, world hunger and climate change.

Are humans a galactic oddity, or will complex life with human abilities develop on planets with environments that remain habitable for long enough? In a clear, jargon-free style, two leading researchers in the burgeoning field of astrobiology critically examine the major evolutionary steps that led us from the distant origins of life to the technologically advanced species we are today. Are the key events that took life from simple cells to astronauts unique occurrences that would be unlikely to occur on other planets? By focusing on what life does - its functional abilities - rather than specific biochemistry or anatomy, the authors provide plausible answers to this question. Systematically exploring the various pathways that led to the complex biosphere we experience on planet Earth, they show that most of the steps along that path are likely to occur on any world hosting life, with only two exceptions: One is the origin of life itself - if this is a highly improbable event, then we live in a rather "empty universe". However, if this isn't the case, we inevitably live in a universe containing

a myriad of planets hosting complex as well as microbial life - a "cosmic zoo". The other unknown is the rise of technologically advanced beings, as exemplified on Earth by humans. Only one technological species has emerged in the roughly 4 billion years life has existed on Earth, and we don't know of any other technological species elsewhere. If technological intelligence is a rare, almost unique feature of Earth's history, then there can be no visitors to the cosmic zoo other than ourselves. Schulze-Makuch and Bains take the reader through the history of life on Earth, laying out a consistent and straightforward framework for understanding why we should think that advanced, complex life exists on planets other than Earth. They provide a unique perspective on the question that puzzled the human species for centuries: are we alone?

In 1969, the North Atlantic Treaty Organization (NATO) established the Committee on Challenges of Modern Society (CCMS). The subject of air pollution was from the start one of the priority problems under study within the framework of various pilot studies undertaken by this committee. The organization of a periodic conference dealing with air pollution modelling and its application has become one of the main activities within the pilot study relating to air pollution. The first five international conferences were organized by the United States as the pilot country, the second five by the Federal Republic of Germany, the third five by Belgium, the fourth four by The Netherlands, the next five by

Denmark and the last five by Portugal. This volume contains the abstracts of papers and posters presented at the 29th NATO/CCMS International Technical Meeting on Air Pollution Modelling and Its Application, held in Aveiro, Portugal, during September 24–28, 2007. This ITM was organized by the University of Aveiro, Portugal (Pilot Country and Host Organization). The key topics distinguished at this ITM included: Local and urban scale modelling; Regional and intercontinental modelling; Data assimilation and air quality forecasting; Model assessment and verification; Aerosols in the atmosphere; Interactions between climate change and air quality; Air quality and human health.

Negotiating Climate Change in Crisis

Microbial Ecology

Working Group Report on Primary Prevention of Hypertension

Trace Metals and Metalloids in Soils and their Bioavailability

World Report 2017

Aquaponics Food Production Systems

Passives and Middles in Mainland Scandinavian

This volume presents a wide range of new approaches aimed at improving the safety and quality of food products and agricultural commodities. Each chapter provides in-depth information on new and emerging food preservation techniques including those relating to decontamination, drying and dehydration, packaging innovations and the

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use of botanicals as natural preservatives for fresh animal and plant products. The 28 chapters, contributed by an international team of experienced researchers, are presented in five sections, covering: Novel decontamination techniques Novel preservation techniques Active and atmospheric packaging Food packaging Mathematical modelling of food preservation processes Natural preservatives This title will be of great interest to food scientists and engineers based in food manufacturing and in research establishments. It will also be useful to advanced students of food science and technology.

The best country-by-country assessment of human rights. The human rights records of more than ninety countries and territories are put into perspective in Human Rights Watch's signature yearly report. Reflecting extensive investigative work undertaken by Human Rights Watch staff, in close partnership with domestic human rights activists, the annual World Report is an invaluable resource for journalists, diplomats, and citizens, and is a must-read for anyone interested in the fight to protect human rights in every corner of the globe. This book is a treatise on microbial ecology that covers traditional and cutting-edge issues in the ecology of microbes in the biosphere. It emphasizes on study tools, microbial taxonomy and the fundamentals of microbial activities and interactions within their communities and environment as well as

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on the related food web dynamics and biogeochemical cycling. The work exceeds the traditional domain of microbial ecology by revisiting the evolution of cellular prokaryotes and eukaryotes and stressing the general principles of ecology. The overview of the topics, authored by more than 80 specialists, is one of the broadest in the field of environmental microbiology. The overview of the topics, authored by more than 80 specialists, is one of the broadest in the field of environmental microbiology.

Human Rights Watch's annual World Report 2016 highlights the armed conflict in Syria, international drug reform, drones and electronic mass surveillance and is a must-read for anyone interested in the fight to protect human rights in every corner of the globe.

More Than a Name

Marine Macro- and Microalgae

Bacterial Diversity in Sustainable
Agriculture

Plant Communication from an Ecological
Perspective

A Complete Guide

Events of 2018

Advancing Science, Navigating Uncertainty,
and Aligning Research with Public Values

* The most up-to-date and comprehensive coverage of the relationship of brain function and neuroactive chemicals * Authors are world-known leaders in the field * Molecular Neuropharmacology is the hot topic

in medicine

Heavy metals in soils continue to receive increasing attention due to the growing scientific and public awareness of environmental issues and the development of analytical techniques to measure their concentrations accurately. Building on the success and acclaim of the first edition, this book continues to provide an up-to-date, balanced and comprehensive review of the subject in two sections: the first providing an introduction to the metals chemistry, sources and methods used for their analysis; and the second containing chapters dealing with individual elements in detail.

The book entitled Medicinal Plants and Natural Product Research describes various aspects of ethnopharmacological uses of medicinal plants; extraction, isolation, and identification of bioactive compounds from medicinal plants; various aspects of biological activity such as antioxidant, antimicrobial, anticancer, immunomodulatory activity, etc., as well as characterization of plant secondary metabolites as active substances from medicinal plants.

This monograph explores the properties of passive and middle voice constructions in Norwegian and Swedish, concentrating on the linguistic variation related to these two constructions in Mainland Scandinavian. At an empirical level, we provide a detailed discussion of the morphosyntax and semantics of the two main types of passives in both languages, lexical (s-) and

periphrastic (bli-) passives. At a theoretical level, we propose an architecture of the language faculty where exponents play a central role. Exponents are selected to identify the structures generated by the grammar and provide a platform that make these units interpretable by the sensori-motor and conceptual-intentional interfaces. Exponents this play an essential role in determining the well-formedness of linguistic structures. We demonstrate how different syntactic structures identified and lexicalized by exponents in these two languages are capable of capturing the microvariation observed in the voice systems of these two languages in a straightforward way. The amount of linguistic information (i.e., aspect and mood) identified by each exponent in each language determines the types of complements and specifiers that can be integrated into and lexicalized by a given exponent. Although our approach shares certain affinities with other neo-constructionist approaches, a novel proposal we advance in this book is that exponents are housed in an intermediate level of structure that exists between the narrow syntax and external interfaces. This exponency-level (?-structure) allows for a more parsimonious theoretical analysis that does not sacrifice descriptive adequacy.

Abortion and Democracy

Microvariation Through Exponency

Environmental Microbiology: Fundamentals and Applications

Biochar for Environmental Management
Combined Aquaculture and Hydroponic Production
Technologies for the Future

The CIAM Discourse on Urbanism, 1928-1960

A Foundation for Clinical Neuroscience

This book is a comprehensive study of Nordic Noir television drama from the 1990's until today. The authors introduce the history of contemporary Nordic Noir from the perspective of place, production and location studies. The chapters include readings of well-known television crime dramas such as Beck, The Killing, Trapped and The Bridge as well as a range of other important Nordic Noir cases. The authors position the development of Nordic Noir in the global market for popular television drama and place the international attention towards Nordic crime dramas within regional development of drama production in Sweden, Denmark, Norway and Iceland.

Consequently, Nordic Noir is read as both a transnational financial and creative phenomenon and as a local possibility for community building. Offering a comprehensible, scholarly and methodologically original approach to the popularity of Nordic television crime dramas, this volume is aimed at readers with an interest in crime drama as well as scholars and students of television drama.

This book discusses the role of the microbiome in rheumatic diseases and details its implications for patient treatment. Recently, with technological advances, there has been significant research into the microbiome. This has enabled us to more profoundly understand its role in our immune system maturation as well as the role played by microorganisms in autoimmunity and the deeply related rheumatic diseases. This book comprehensively explains the emerging microbiome research through the interrelationships of biomedical sciences, including: immunology, microbiology, bioinformatics, and, with

special emphasis, the clinical aspect of rheumatology. It examines the interplay between infectious organisms and major autoimmune diseases, including rheumatoid arthritis, psoriatic arthritis, juvenile arthritis, systemic lupus erythematosus, and vasculitis, and explains how to apply that knowledge to diagnostic techniques and treatment decisions. The international team of expert authors provides insight into current therapies and future interventions specifically targeting the microbiota and explores the impact of our deeper understanding on enhancing personalized medicine. The Microbiome in Rheumatic Diseases and Infection is an essential resource for rheumatologists, pediatricians, internists, microbiologists, and critical care providers caring for children and adults with rheumatic diseases.

The earth's biodiversity is a degree of ecosystem health which is vital to ecology and environmental sustainability. The microbial world is the largest unexplored reservoir. The agro-ecosystem enriched with rhizosphere implicit abundant and species-rich component of microbial diversity. Its global exploration designs a worldwide framework for agricultural sustainability adjoining benefits in its conservation. Agricultural sustainability requires a major share from ecosystem management which is better paid by microbial diversity and conservation. Diversity of bacteria influences plant productivity providing nutrient convenience from soil instead altering per se community and diversity in the rhizosphere where they may influence mechanistic competent and antagonistic micro-flora. The potential species among the diversity are therefore, essential subjective to their maintenance for use around the globe. Microbial population in agro-ecosystem is influenced by stresses, reduce functionality as a component. It is therefore, important to explore secrets of planned strategy so as to unravel the microbial diversity and conservation in agricultural development. Microorganisms are minute, pervasive in nature

and alleged as disease host instead tiny recognize as employee of agro-ecosystem, indulge in agricultural development and potential contributor in world of ecological and economical wealth creation. This step pertinently would help to launch scientific motivation needed to support the refrain of microbial diversity and conservation.

The first history of the *Congres Internationaux d'Architecture Moderne* traces the development and promotion of its influential concept of the "Functional City."

Molecular Basis of Neuropharmacology : A Foundation for Clinical Neuroscience

Popular Photography

The Cosmic Zoo

World Report 2020

Science and Technology

Events of 2019

3D Printing and Biofabrication

Biodiversity and Biomedicine: Our Future provides a new outlook on Earth's animal, plant, and fungi species as vital sources for human health treatments. While there are over 10 million various species on the planet, only 2 million have been discovered and named. This book identifies modern ways to incorporate Earth's species into biomedical practices and emphasizes the need for biodiversity conservation. Written by leading biodiversity and biomedical experts, the book begins with new insights on the benefits of biologically active compounds found in fungi and plants, including a chapter on the use of wild fruits as a treatment option. The book goes on to discuss the roles of animals, such as amphibians and reptiles, and how

the threatened presence of these species must be reversed to conserve biodiversity. It also discusses marine organisms, including plants, animals, and microbes, as essential in contributing to human health. Biodiversity and Biomedicine: Our Future is a vital source for researchers and practitioners specializing in biodiversity and conservation studies. Students in natural medicine and biological conservation will also find this useful to learn of the world's most bio-rich communities and the molecular diversity of various species. Presents new developments in documenting and identifying species for biodiversity conservation and ethical considerations for biodiversity research Examines biodiversity as an irreplaceable resource for biomedical breakthroughs using available species for medical research Discusses challenges and opportunities for biodiversity protection and research in biosphere reserves

The marine environment accounts for most of the biodiversity on our planet, while offering a huge potential for the benefit and wellbeing of mankind. Its extensive resources already constitute the basis of many economic activities – but many more are expected in coming years. This book covers current knowledge on uses of marine algae to obtain bulk and fine chemicals, coupled with optimization of the underlying production and purification processes. Major gaps and potential opportunities in this field are discussed in a critical manner. The current trends pertaining to marine macro- and microalgae

are explained in a simple and understandable writing style. This book covers a wide variety of topics, and as such it will be appropriate as both student text and reference for advances researchers in the field. The human rights records of more than ninety countries and territories are put into perspective in Human Rights Watch's signature yearly report. Reflecting extensive investigative work undertaken in 2016 by Human Rights Watch staff, in close partnership with domestic human rights activists, the annual World Report is an invaluable resource for journalists, diplomats, and citizens, and is a must-read for anyone interested in the fight to protect human rights in every corner of the globe.

This volume provides an in-depth introduction to 3D printing and biofabrication and covers the recent advances in additive manufacturing for tissue engineering. The book is divided into two parts, the first part on 3D printing discusses conventional approaches in additive manufacturing aimed at fabrication of structures, which are seeded with cells in a subsequent step. The second part on biofabrication presents processes which integrate living cells into the fabrication process.

Poaceae

Ecotourism and Cultural Production

Therapeutic Ribonucleic Acids in Brain Tumors

Events of 2015

The Microbiome in Rheumatic Diseases and Infection

Gene Drives on the Horizon

An Anthropology of Indigenous Spaces in Ecuador

This book focuses on the global threats to coastal environments from invasive, non-native species and examines how these alien biological species adversely alter landscapes and socioeconomic conditions as well as the psychological attitudes and perceptions of local inhabitants and tourists. Designed for the professional or specialist in marine science, coastal zone management, biology, and related disciplines, this volume appeals to those not only working directly with invasive flora and fauna species, but also those individuals involved in a wide array of coastal related fields. Examples and case studies of coastal invasive species are drawn from many different geographic areas worldwide, including North and South America, Europe, Oceania, the Caribbean, Southeast Asia, and Africa.

Abortion and Democracy offers critical analyses of abortion politics in Latin America's Southern Cone, with lessons and insights of wider significance. Drawing on the region's recent history of military dictatorship and democratic transition, this edited volume explores how abortion rights demands fit with current democratic agendas. With a focus on Argentina, Chile, and Uruguay, the book's contributors delve

into the complex reality of abortion through the examination of the discourses, strategies, successes, and challenges of abortion rights movements. Assembling a multiplicity of voices and experiences, the contributions illuminate key dimensions of abortion rights struggles: health aspects, litigation efforts, legislative debates, party politics, digital strategies, grassroots mobilization, coalition-building, affective and artistic components, and movement-counter-movement dynamics. The book takes an approach that is sensitive to social inequalities and to the transnational aspects of abortion rights struggles in each country. It bridges different scales of analysis, from abortion experiences at the micro level of the clinic or the home to the macro sociopolitical and cultural forces that shape individual lives. This is an important intervention suitable for students and scholars of abortion politics, democracy in Latin America, gender and sexuality, and women's rights. In the past few years nucleic acids technologies have grown into a powerful analytical and also increasingly therapeutic tool. It has been applied not only to the uncovering of gene functions

in many organisms, but also to pathogenetic analysis and recently also for the treatment of human diseases. The book discusses in depth the potential of these innovative methods in the broad field of central nervous system and brain tumours particularly. Whereas there is currently no comprehensive overview on potential and challenges of nucleic acids technologies for basic brain tumours and for the clinical management of patients with brain tumours, this book does explicitly cover the many other aspects of the "RNA World" (pathogenic and therapeutic potential of microRNAs, aptamer technology, etc.), too. With this significantly broadened scope as compared to currently existing books it appears to be an urgently needed new publication. Aimed at both students and new researchers, the fourth edition of this text provides a concise yet comprehensive overview of cancer biology, covering the current status of both research and treatment.

An Overview

Introduction to the Cellular and Molecular Biology of Cancer

Contentious Body Politics in Argentina, Chile, and Uruguay

Heavy Metals in Soils

Root Ecology

World Report 2019

Progress in Food Preservation

This third edition of the book has been completely re-written, providing a wider scope and enhanced coverage. It covers the general principles of the natural occurrence, pollution sources, chemical analysis, soil chemical behaviour and soil-plant-animal relationships of heavy metals and metalloids, followed by a detailed coverage of 21 individual elements, including: antimony, arsenic, barium, cadmium, chromium, cobalt, copper, gold, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, tin, tungsten, uranium, vanadium and zinc. The book is highly relevant for those involved in environmental science, soil science, geochemistry, agronomy, environmental health, and environmental engineering, including specialists responsible for the management and clean-up of contaminated land.

Research on gene drive systems is rapidly advancing. Many proposed applications of gene drive research aim to solve environmental and public health challenges, including the reduction of poverty and the burden of vector-borne diseases, such as malaria and dengue, which disproportionately impact low and middle income countries. However, due to their intrinsic qualities of rapid spread and irreversibility, gene drive systems raise many questions with respect

to their safety relative to public and environmental health. Because gene drive systems are designed to alter the environments we share in ways that will be hard to anticipate and impossible to completely roll back, questions about the ethics surrounding use of this research are complex and will require very careful exploration. Gene Drives on the Horizon outlines the state of knowledge relative to the science, ethics, public engagement, and risk assessment as they pertain to research directions of gene drive systems and governance of the research process. This report offers principles for responsible practices of gene drive research and related applications for use by investigators, their institutions, the research funders, and regulators.

Biochar is the carbon-rich product when biomass (such as wood, manure or crop residues) is heated in a closed container with little or no available air. It can be used to improve agriculture and the environment in several ways, and its stability in soil and superior nutrient-retention properties make it an ideal soil amendment to increase crop yields. In addition to this, biochar sequestration, in combination with sustainable biomass production, can be carbon-negative and therefore used to actively remove carbon dioxide from the atmosphere, with major implications for mitigation of climate change. Biochar production can also be combined with

bioenergy production through the use of the gases that are given off in the pyrolysis process. This book is the first to synthesize the expanding research literature on this topic. The book's interdisciplinary approach, which covers engineering, environmental sciences, agricultural sciences, economics and policy, is a vital tool at this stage of biochar technology development. This comprehensive overview of current knowledge will be of interest to advanced students, researchers and professionals in a wide range of disciplines. This second edition of the book entitled "Microbial Communities and Interactions in extreme environments" focus on thermophilic and halophilic extremophiles from various ecosystems, their biodiversity, interactions with other organisms and functions within their hostile environment. Biotechnology of extremophiles and their potential agricultural and industrial applications is the focus of this edition. However, extremophiles may cope with their challenging environments. Information on biodiversity of extremophiles and their interactions with the surrounding biomes helps in understanding their ecology and functions within their respective extreme environments. This book is of interest to teachers, researchers, microbiologists, capacity builders and policymakers. Also, the book serves as additional reading material for undergraduate and graduate

students of agriculture, forestry, ecology, soil science, microbiology and environmental sciences.

*Air Pollution Modeling and Its Application XIX
Impacts of Invasive Species on Coastal
Environments*

Our Future

Air Navigation Radio Aids

Biodiversity and Biomedicine

Since the concept of allelopathy was introduced almost 100 years ago, research has led to an understanding that plants are involved in complex communicative interactions. They use a battery of different signals that convey plant-relevant information within plant individuals as well as between plants of the same species or different species. The 13 chapters of this volume discuss all these topics from an ecological perspective. Communication between plants allows them to share physiological and ecological information relevant for their survival and fitness. It is obvious that in these very early days of ecological plant communication research we are illuminating only the ‘ tip of iceberg ’ of the communicative nature of higher plants. Nevertheless, knowledge on the identity and informative value of volatiles used by plants for communication is increasing with breath-taking speed. Among the most spectacular examples are situations where plant emitters warn neighbours about a danger, increasing their innate immunity, or when herbivore-attacked plants attract the enemies of the herbivores (‘ cry for help ’ and ‘ plant bodyguards ’ concepts).

It is becoming obvious that plants use not only volatile signals but also diverse water soluble molecules, in the case of plant roots, to safeguard their evolutionary success and accomplish self/non-self kin recognition. Importantly, as with all the examples of biocommunication, irrespective of whether signals and signs are transmitted via physical or chemical pathways, plant communication is a rule-governed and sign-mediated process.