

Advances in Animal
Science & Zoology

Advances in
Medicine & Biology

Animal Science,
Issues & Research

Bacteriology
Research
Developments

Biochemistry &
Molecular Biology in
the Post Genomic
Era

Biochemistry
Research Trends

Birds - Evolution,
Behavior & Ecology

Botanical Research
& Practices

Cell Biology
Research Progress

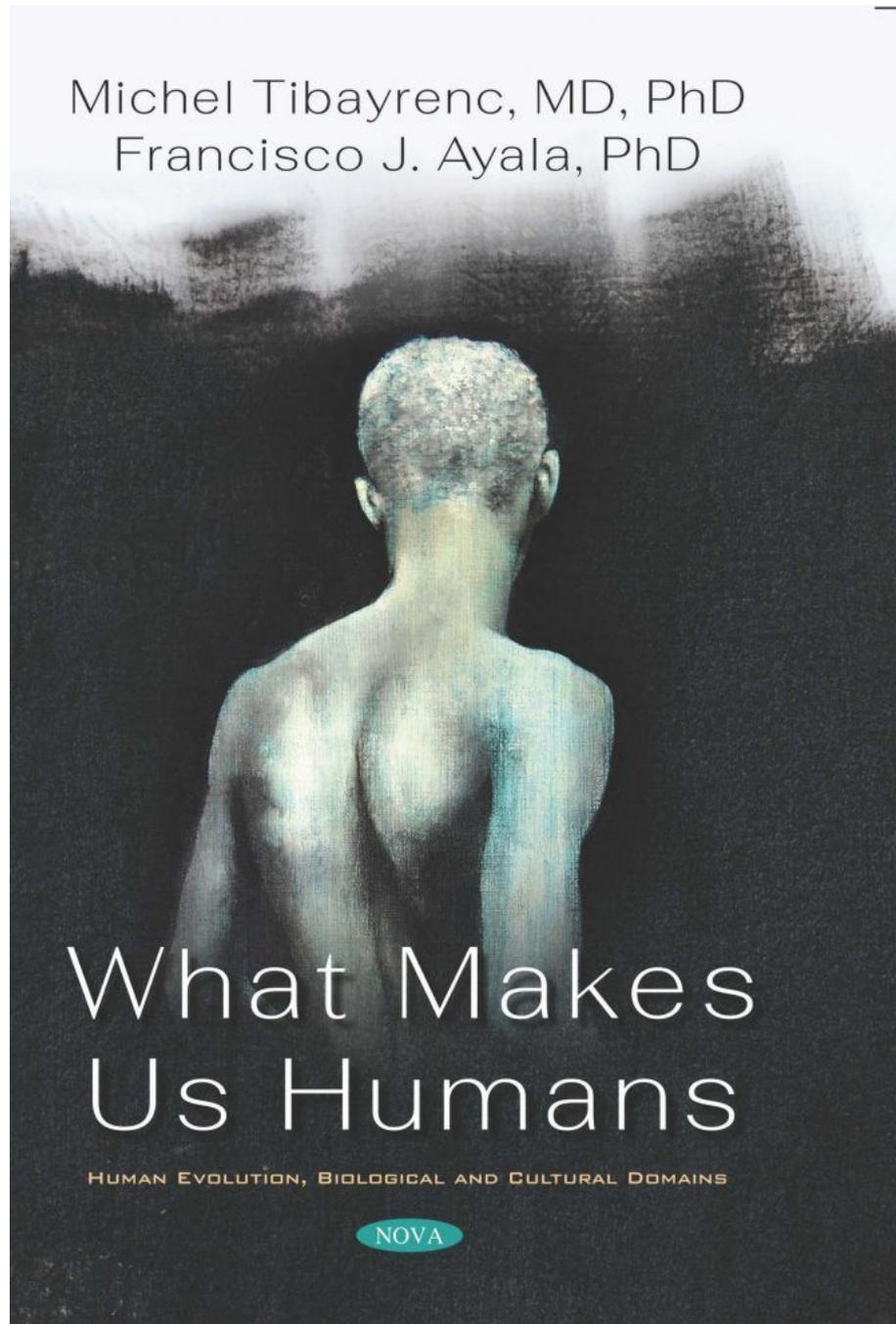
Chemistry Research
& Applications

Environmental
Remediation
Technologies,
Regulations & Safety



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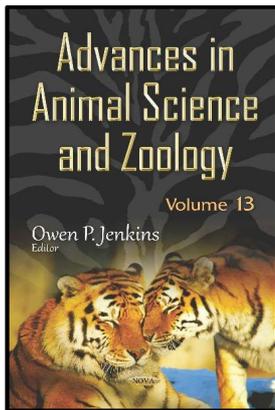
Biosciences
New Titles



Titles published by Nova Science

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Advances in Animal Science and Zoology

Edited by Owen P. Jenkins

The opening chapter of *Advances in Animal Science and Zoology, Volume 13* reviews the parasite morphology, genetic variability, transmission dynamics in both intermediate and definitive hosts and the parasite-host relationship, emphasizing the metabolic and physiologic alterations in hosts of *Angiostrongylus cantonensis*.

In the second chapter, nematode biology is examined in the context of understanding the infective juveniles persistence, distribution, and effect on insect populations. Potential entomopathogenic nematodes species are identified by distribution, survival, persistence, infectivity of wide host range.

Continuing, the authors attempt to explain how Rocky Mountain elk, generally are considered a northern montane ungulate, survive in the Oscura Mountains, a Chihuahuan Desert range located in south-central New Mexico, US.

Additionally, this compilation discusses how the effect of predation on ungulates remains contentious, at least in part due to a lack appreciation for the importance of local environmental conditions on predator-prey relationships.

The authors study insect pollinators' status of *Talbotiella gentii* for five years, focusing on the flowers of the trees in five locations, determining that there were no animal pollinators present. This is a major threat and could lead to the extinction of the species.

The next section proposes that despite the industrialization of Rourkela, the butterfly diversity at the National Institute of Technology (NIT) campus is not very affected. Moreover, it suggests the need for taking up conservation measures to sustain the butterfly faunal diversity of the NIT campus.

Subsequently, catfish are examined due to their potential influence on aquatic ecosystems. The catfish population can dispose of up to 26% of the total fish biomass, therefore it plays an important role in the biomanipulation of many freshwater systems.

Methods for capturing catfish are also evaluated. It is determined that the most effective method is the use of long-lines simulating angling with a supporting buoy, as it predominantly results in the fish being caught alive. Only a low mortality rate is connected with the method of long-lines in comparison to other methods.

The authors discuss European catfish, a large species with only a few competitors likely to be apparent in any locality. Moreover, the additional threat of hybridization between the invasive European catfish and closely related native species is explored.

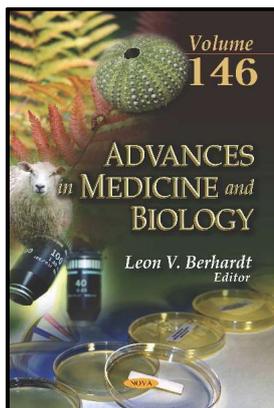
The author's attempt to predict the forage potential in three forest tree species based on tree species and size, focusing on species commonly consumed by red deer, namely aspen, goat willow, and rowan.

The final chapter presents various types of snakes by geography and clinical manifestations according to known venom toxins, thus allowing clinicians to treat the patient even when specific identification is not possible.

Volume 13 - HB 9781536160482 £210.99 September 2019 Nova Science Publishers 209 pages

Volume 14 - HB 9781536164893 £210.99 November 2019 Nova Science Publishers 240 pages

Advances in Medicine & Biology Series



Advances in Medicine and Biology Volume 146

Edited by Leon V. Berhardt

In *Advances in Medicine and Biology, Volume 146*, the authors begin by exploring the mammalian eye lens, a unique transparent organ, with a distinctive cellular architecture and polarity. For more than a century, it has been used as a model to study mechanisms of induction, morphogenesis, differentiation and disease.

Following this, the authors discuss guanylate-binding protein-1 (GBP-1), an interferon-inducible large GTPase involved in the epithelial barrier and cell proliferation. Induction of GBP-1 by proinflammatory cytokines is regulated via various signaling pathways and is a reliable marker of interferon- γ -activated cells in various diseases.

This compilation also examines remifentanyl, a synthetic fentanyl derivative and ultra-short acting, selective μ -opioid receptor agonist. Its chemical structure includes a methyl-ester ring that allows its hydrolysis by non-specific plasma and tissue esterases.

The authors suggest that the role of sevoflurane in preventing oxidative damage and inflammatory response to ventilator injury-induced lung injury requires further investigation. Sevoflurane is a halogenated anaesthetic developed in the early '70s which preserves the hypoxic vasoconstriction reflex, doesn't irritate the airways, and maintains self-regulation of the district circles.

Additionally, the current knowledge on immune-checkpoint inhibitors, immune mediated hepatitis and pancreatitis is summarized. Immune-checkpoint inhibitors continue to revolutionize cancer therapy and are expected to be utilized in an increasing number of malignancies in the coming years.

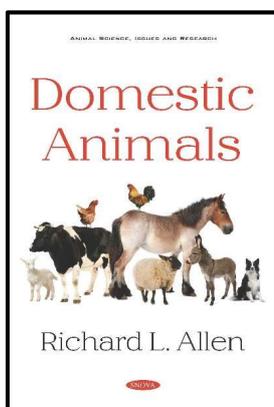
The closing chapter discusses vitamin E, a collective term including compounds which are either naturally occurring or synthetic analogues exhibiting the biological activity of vitamin E. Vitamin E is a micronutrient and fat-soluble vitamin which has an important role in human beings, particularly children.

Volume 146 - HB 9781536159615 £210.99 August 2019 Nova Science Publishers 232 pages

Volume 148 - HB 9781536161816 £210.99 September 2019 Nova Science Publishers 232 pages

Volume 151 - HB 9781536163520 £210.99 August 2019 Nova Science Publishers 183 pages

Animal Science, Issues & Research Series

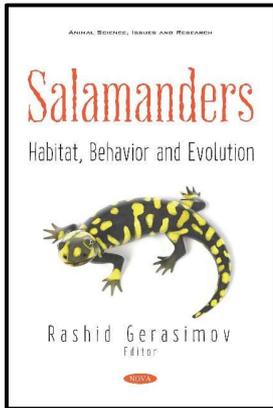


Domestic Animals

Richard L. Allen

This book on the history, breeding, management and diseases of domestic animals is a snapshot of American animal husbandry around the year 1850.

HB 9781536163124 £163.99 September 2019 Nova Science Publishers 276 pages



Salamanders Habitat, Behavior and Evolution

Edited by Rashid Gerasimov

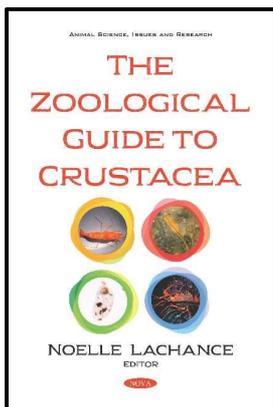
In Waterton Lakes National Park, located in southwest Alberta, Canada, under-road crossing structures were installed in 2008 to protect a population of long-toed salamander (*Ambystoma macrodactylum*) at Linnet Lake from mortality during breeding migrations that intersected with the park's entrance road. This compilation first investigates orientation and movement patterns of marked individuals at Linnet Lake in 2013 and 2014, and at a smaller, shallower wetland Stable Pond in 2014 to document in detail how long-toed salamanders used the terrestrial landscape around breeding sites during adult migration and juvenile dispersal.

Following this, the authors use generalized linear models to model salamander occurrence and abundance in the Beaver Hills region of north-central Alberta as a function of land cover type and pocket gopher density.

The authors go on to address whether any ecological barriers exist in the distribution range of the two newt species *N. strauchii* and *N. crocatus*. According to the findings of this study, an identity test was found to be significantly different from the null distribution, whereas a background test was not significantly different from the null distribution.

The concluding chapter summarizes the processes by which light is converted into neural signals by rods and cones and then transmitted to downstream neurons in the retina, with a focus on salamander photoreceptors. The different types of photoreceptor cells and other light-sensitive cells in salamanders and their role in vision are also discussed.

PB 9781536164701 £68.99 October 2019 Nova Science Publishers 154 pages



The Zoological Guide to Crustacea

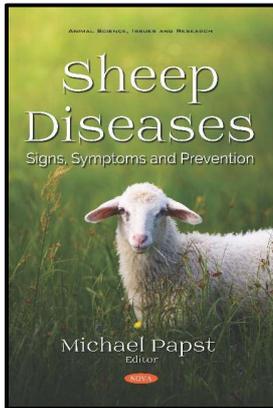
Edited by Noelle Lachance

The Zoological Guide to Crustacea opens by providing an update on the cave crustacean decapods from Mexico, because in the last thirty years several species have been described. Mexico has diverse cave environments according to cave origin, such as: karstic caves, volcano caves with freshwater habitats and anchialine caves with marine and brackish habitats.

The following study focuses on a total of 2,700 *Artemia franciscana* collected at the Al Wathba Reserve between December 2017 and May 2018, which were examined for the presence of larval helminths by direct microscopy of glycerin mounted specimens. Of these, 341 (= 12.6%) specimens contained different species of the Hymenopepididae and Progynotaeniidae families. The penultimate study investigates whether the non-marine ostracod *Heterocypris incongruens* can detect and react to chemical compounds derived from a predator and from injured conspecifics.

The closing study demonstrates the diversity of larval phases and their importance to lobster populations and fisheries, and provides a summary of larval developmental patterns and behaviors and their potential impacts on larval dispersal and lobster demographic connectivity.

PB 9781536163667 £79.99 October 2019 Nova Science Publishers 171 pages



Sheep Diseases Signs, Symptoms and Prevention

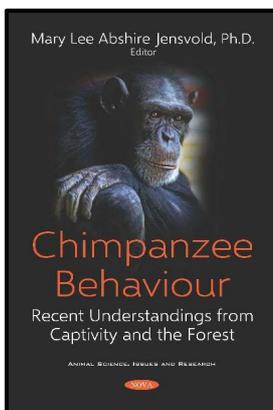
Edited by Michael Papst

Sheep Diseases: Signs, Symptoms and Prevention first addresses a comprehensive review of sheep mastitis. The authors covers up-to-date reports on aetiology and epidemiology, important features of the disease, such as pathogenesis, clinical signs and diagnosis, and the current knowledge on treatment and prophylactic strategies for mastitis control.

The following study examines listeriosis, a life threatening disease. Infections are caused by *Listeria monocytogenes*, which enters by inhalation, orally and by ocular mucosa. Normally, disease will not be produced if the host is immunocompetent, but when the immune system is depressed. Aiming to evaluate lesions caused by listeriosis in sheep from 2013 to 2017, all cases sent to the Research Center of Advanced Studies in Animal Health were analyzed.

The concluding investigation aims to identify diseases transmitted by *Melophagus ovinus*, since it serves as vector of pathogenic diseases such as *Trypanosoma melophagium*, *Anaplasma ovis*, Blue tongue virus, *Bartonella schoenbuchensis*, *Bartonella chomelii*, *Bartonella melophagi*, and *Bartonella* spp all over the world.

PB 9781536159875 £68.99 August 2019 Nova Science Publishers 119 pages



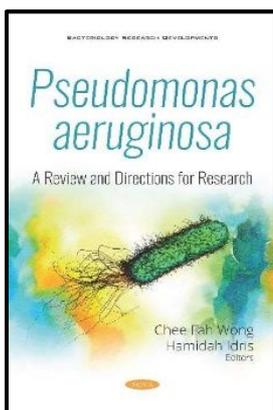
Chimpanzee Behaviour Recent Understandings from Captivity and the Forest

Mary Lee Jensvold

Chimpanzee Behaviour: Recent Understandings from Captivity and the Forest brings diverse topics together in one volume. It presents new data from chimpanzee hunting behaviour and tool use in the forest. It covers gestural communication in free-living populations and sign language communication in captive individuals. It presents research in chimpanzee artwork including numerous images. Finally it provides a framework for care in captivity with a humane approach.

HB 9781536159066 £134.99 September 2019 Nova Science Publishers 218 pages

Bacteriology Research Developments



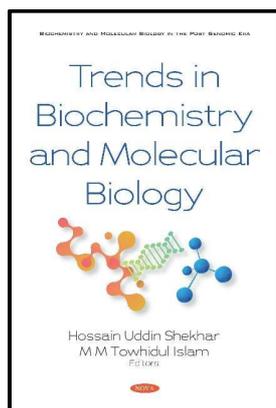
Pseudomonas aeruginosa A Review and Directions for Research

Edited by Chee Fah Wong

Pseudomonas aeruginosa is characterized by its metabolic versatility and found ubiquitously in soil and aquatic habitats and persists survival on various surfaces of plants, animals and humans. Diversity in *Pseudomonas* characteristics have led to recent technological advances and lay out important avenues of research focused on the role of *Pseudomonas* and the molecular mechanisms of their beneficial actions.

This book brings together respected *P. aeruginosa* experts from around the world to provide a timely, extensive and updated review of *Pseudomonas* research. It covers various aspects in applications of *Pseudomonas* in molecular engineering of genetic tools for *Pseudomonas* protein expression, medical and environmental fields including biofilm development, quorum sensing, heavy metal bioremediation and photodynamic therapy as well as the industrially-important lipoxygenase biocatalysis properties. This book is essential reading for scientists working with *Pseudomonas* and serves as a ready reference and text book for graduate students, young field microbiologists and research scientists in academia, research institutes and industry.

HB 9781536161007 £163.99 October 2019 Nova Science Publishers 284 pages



Trends in Biochemistry and Molecular Biology

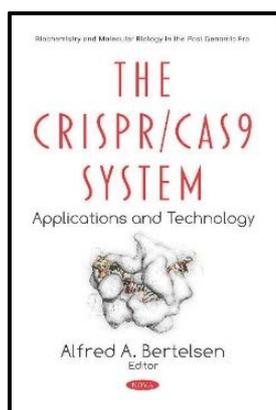
Edited by Hossain Uddin Shekhar

“Trends in Biochemistry and Molecular Biology” provides the essential information necessary for students in the life and health sciences. The book adopts a readable, student-friendly style that helps introduce students to this fascinating and often-times daunting subject. Each chapter begins with a summary of essential facts followed by descriptions of the subjects that focus on core information with clear, simple diagrams that are easy for students to understand and recall in essays. The extensive use of cross-referencing makes it possible for students to return to individual sections for review purposes without difficulty.

Whether students interests lie in biological, chemical, or medical aspects of biochemistry and molecular biology, “Trends Biochemistry and Molecular Biology” will help make students able, excited, and eager to read more widely and more deeply on this engaging subject. This important new book not only covers an extensive set of topics of current and special interest, but includes more traditional areas in biochemistry as well. Covering a wide range of topics, from classical biochemistry to proteomics and genomics, it also details the properties of commonly used biochemicals, laboratory solvents, and reagents. Coverage is expanded to include a section on stem cells, chapters on immunochemical techniques and spectroscopy techniques, and additional chapters on drug discovery and development, and clinical biochemistry. Moreover, a number of techniques used in molecular biology, for example, molecular cloning, gel electrophoresis, polymerase chain reaction, microarrays, etc. are also explained with practical examples.

It also includes some of the vital pieces of work being conducted across the world, on various topics related to molecular biology. Through it, we attempt to further enlighten the readers about the new concepts in this field. Altogether, presented in an organized, concise, and simple-to-use format, “Trends in Biochemistry and Molecular Biology” allows quick access to the most frequently used data. There is an emphasis on biological aspects of biochemistry and new topics are introduced in their biological context wherever possible. Experimental design and the statistical analysis of data are emphasized at the end to ensure students are equipped to successfully plan their own experiments and examine the results obtained.

HB 9781536164343 £226.99 November 2019 Nova Science Publishers 422 pages



The CRISPR/Cas9 System

Applications and Technology

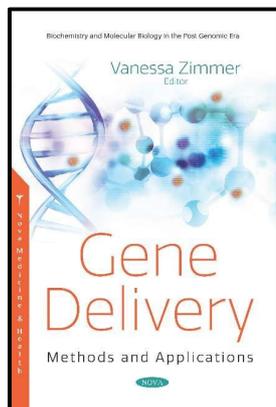
Edited by Alfred A. Bertelsen

This compilation focuses on the CRISPR/Cas9 system, a genome editing tool that has been hailed as the most profound molecular biology discovery in the past decade. By employing the natural process of bacterial immunity towards bacteriophages, the tool allows researchers to precisely excise and edit parts of the genetic sequence to modify them.

The authors summarize the molecular pathogenesis of hepatocellular carcinoma, available treatments/drugs and their limitations, the landscape of CRISPR targeting hepatocellular carcinoma, limitations and potential targets in future.

The closing review summarises the use of CRISPR/Cas9 gene editing in ophthalmology and focuses on the advancement of gene editing in the cornea. The majority of corneal dystrophies are the result an autosomal dominant inheritance pattern within the TGFBI gene, which presents an ideal model suited for a CRISPR/Cas9 knock out methodology.

PB 9781536164268 £79.99 August 2019 Nova Science Publishers 180 pages



Gene Delivery Methods and Applications

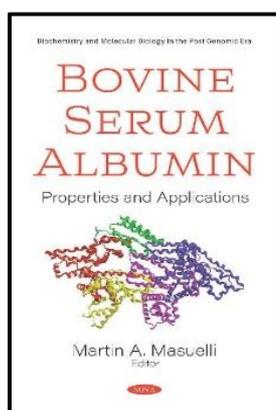
Edited by Vanessa Zimmer

Gene Delivery: Methods and Applications provides a comprehensive overview on viral and non-viral methods used to genetically engineer human mesenchymal stromal cells. In addition, an update on ongoing and completed clinical studies with engineered mesenchymal stromal cells will be provided, as well as a snapshot of the advances and technical challenges yet to be addressed.

Next, a variety of gene delivery systems including physical transfection techniques, virus-based delivery vectors, chemically engineered delivery systems and bio-inspired vehicles are reviewed and their strengths, shortcomings and biomedical applications are discussed. Selfish DNA called transposons capable of cutting out and pasting into the host genome are active throughout the phylogenetic kingdoms. Researchers have repurposed natural transposons for use in delivering a gene-of-interest, enabling for the study of a large and growing list of preclinical gene therapy applications. As such, the authors discuss the past achievements and future challenges of this early-stage technology.

The closing chapter introduces cell-penetrating peptides as an efficient tool for DNA transfection. HR9, a designed cell-penetrating peptides, containing nona-arginine flanked by cysteine and penta-histidine displayed a high penetrating ability in mammalian cells.

PB 9781536162684 £79.99 October 2019 Nova Science Publishers 207 pages

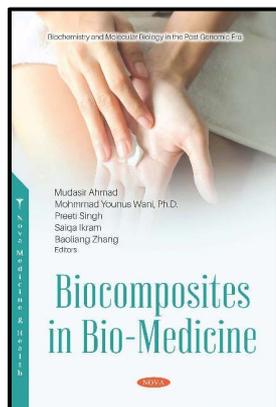


Bovine Serum Albumin Properties and Applications

Edited by Martin A. Masuelli

Serum albumin is a large protein present in cow serum protein (BSA, Bovine Serum Albumin) rich in essential amino acids and compounds with disulfide bridges and thiol groups. This protein passes into breast milk from the bloodstream by diffusion, has antioxidant capacity and protects fats from oxidation. Albumin has the ability to inhibit tumor factors and bind to fat, mobilize them in the body to perform other functions such as obtaining energy or forming membranes. It is also able to block the conversion of angiotensin I into angiotensin II (vasoconstrictor) which gives it antihypertensive action. In addition, it has the ability to reduce cholesterol absorption, complex heavy metals and is an opioid agonist (acts on opioid receptors and promotes analgesia). BSA is the most studied and produced protein worldwide in the last 80 years. This protein brings large dividends to the world economy with a very prominent and favorable annual growth at a cost of 100 USD per gram. This book brings new contributions to the science and industry of this biopolymer. The audience of this book is very wide from students, teachers and researchers (doctors, pharmacists, biochemists and industrialists of this sector). Therefore, this book has a great future and many readers to whom it is addressed.

HB 9781536167870 £134.99 January 2020 Nova Science Publishers 220 pages



Biocomposites in Bio-Medicine

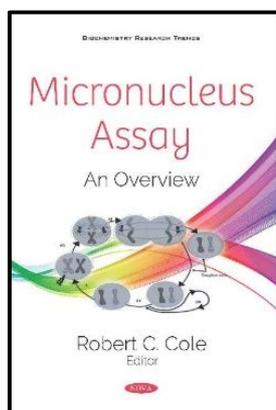
Edited by Saiqa Ikram

This book covers important topics of Biopolymers nanocomposites in simple language with clear presentation. Traces of their use as biomedical and pharmaceutical application, gelatin, polysaccharides based nanocomposites for applications in antibacterial/microbial/biomedical engineering, drug delivery system and tissue engineering is covered.

Further, it presents the opportunities and applications in the field of biocomposites highlighting recent advances in areas commencing chemical synthesis and biosynthesis for end-user applications. This book will serve as a comprehensive literature guide for beginner researchers to grab the attention of biomedical researchers in both academia and industries to help streamline the efforts and understand the need to develop new biocomposites that could solve some of the most serious biomedical problems. The book is aimed to be a reference material for the academic and research community involved in biomedical research.

PB 9781536162479 £79.99 October 2019 Nova Science Publishers 175 pages

Biochemistry Research Trends Series



Micronucleus Assay

An Overview

Edited by Robert C. Cole

Micronucleus is defined as the small nucleus that forms whenever a chromosome or its fragment is not incorporated into one of the daughter nuclei during cell division. It is concluded that micronucleus assay can be used for risk prediction, screening, diagnosis and treatment of various chronic diseases. In this Micronucleus Assay: An Overview, the applications of micronucleus assay will be discussed.

Ionizing radiations, ultraviolet rays, geogenic or anthropogenic pollutants can induce mutagenic, teratogenic or carcinogenic effects due to the induction of micro or macrolesion over DNA. Several models have been used to measure the mutagenic and clastogenic effect of such agents. As such, the authors focus on one of these models: the micronucleus test.

The micronucleus test can assess abnormalities earlier in the drug discovery pipeline, making structure/genotoxicity connection a possible system for drug characterization.

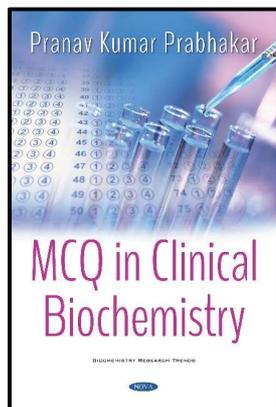
Additionally, the authors provide knowledge about micronucleus assay and its usage in occupational toxicology studies. It is now recognized as one of the most successful and reliable assays for genotoxic carcinogens.

The authors go on to present an overview of the evaluation of micronucleus assay by flow cytometry, reviewing the studies published in the international literature so far that employ different experimental designs for a variety of purposes.

Humans can become exposed to a variety of chemical substances that can have adverse biological effects, and the sub-lethal genotoxicity can have the most far reaching and severe consequences like cancer or abnormal progeny as per the cell type involved. Hence, the penultimate chapter focuses on the significance of identifying and predicting potential genotoxic agents by using laboratory markers, thus regulating and preventing exposure to cancer causing agents.

In the concluding review, generation of micronucleus assay in the bone marrow cells of mice induced by various clastogenic chemicals, drugs, and radiation are elaborately elucidated. Bone marrow cells are easily susceptible to oxidative damage and sensitive to various clastogenic as well as aneugenic agents.

PB 9781536166781 £79.99 January 2020 Nova Science Publishers 182 pages



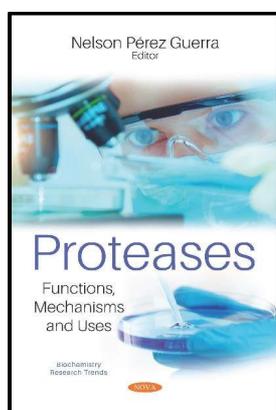
MCQ in Clinical Biochemistry

Pranav Kumar Prabhakar

Multiple Choice Questions (MCQs) are the backbone for all entrance examinations throughout the world. MCQs are used to evaluate student's cognitive acumen in all the fields and discipline. This book contains 28 chapters covering almost all of the biochemistry syllabus through 3500+ MCQs. Each MCQ is validated from the reference biochemistry books. The book is mainly designed for the undergraduate, postgraduate, MBBS medical biochemistry students of medical, pharmacy, physiotherapy, nursing, medical laboratory sciences and other allied courses.

This book can also be useful for the PG entrance exam of various universities, NET examinations, USMLE entrance examinations, etc. It includes questions from all categories, i.e. from the simplest ones to real brain teasers, in order to cater the needs of the unprepared students who start studying at the eleventh hour, besides, of course, the committed ones who are well conversant with the subject. The book is based on the current pattern of exam, and will prove very useful for studying, practice and during precious moments before the exam for reference and revision. It is highly recommended to sharpen your problem solving skills with thorough practice of numerous questions provided in the book, and prepare to face the exam confidently and successfully.

HB 9781536161748 £193.99 October 2019 Nova Science Publishers 386 pages



Proteases

Functions, Mechanisms and Uses

Edited by Nelson Pérez Guerra

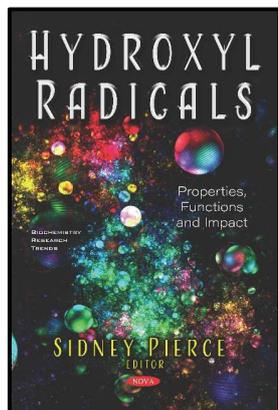
Proteases or proteinases have a wide application in different industrial processes including cheese production, meat tenderization, production of protein hydrolysates, silver recovery and silk; in many other fields including biotechnological, baking, textiles, pharmaceutical and leather industries and also, as an additive to detergents and in bioremediation procedures. These enzymes are present in plants, animals and microorganisms (protozoa, bacteria, fungus and some types of algae and viruses).

Considering the wide applications of these enzymes, it is necessary to know their functions, origin (plants, animals, bacteria and fungus), classification and characteristics, action mechanisms, their specific target substrates and products obtained in the reactions that these enzymes catalyze, as well as their optimal temperature and pH of activity and stability.

The book provides an overview of the latest knowledge about the functions and action mechanisms of protease enzymes and their applications in different industrial fields. It addresses four important aspects: the main characteristics of proteases of different origins, the design of emerging technologies for production of novel proteases with enhanced specificity, stability and catalytic activity for a wide industrial application, utilization of proteases to produce functional foods and the use of protease inhibitors to control or block the activity of these enzymes for preventing diseases in humans and animals. It was felt necessary to include a chapter based on the use of bioinformatics resources (databases, tools, visualization and data analysis) to provide a better understanding of proteases and their functions at the molecular level.

Although production and application of bacterial and fungal proteases have long been reported, little is known about the proteases produced by insects (mainly those economic and medically important species), organisms inhabiting marine environments and protozoa, their action mechanisms, properties and physiology. This knowledge is important for designing new strategies for herbivory insect control to avoid the transmission or development of pathogens in their corresponding entity hosts (in case of insect digestive proteases), or designing specific antiparasitic drugs to block the action of proteases and avoid colonization and imminent parasitism (in case of protozoa proteases). In addition, the knowledge about the integrity and function of marine proteases under extreme reaction conditions could facilitate their application in a wider processing conditions than the terrestrial proteases.

HB 9781536158540 £193.99 October 2019 Nova Science Publishers 322 pages



Hydroxyl Radicals Properties, Functions and Impact

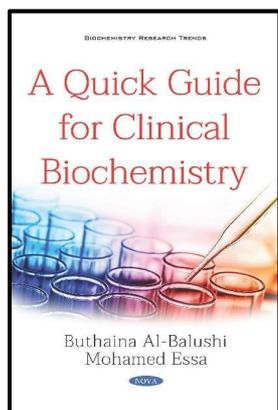
Edited by Sidney Pierce

In *Hydroxyl Radicals: Properties, Functions and Impact*, to understand the reaction of OH in detail at the surface of a photocatalyst, an electrochemical analysis of the irradiated semiconductors was attempted via the fluorescence probe method. For the single crystal rutile TiO₂ electrodes, the facet dependence on the OH formation could be observed along with oxygen evolution by the photooxidation of water.

In the subsequent study, the authors present the kinetics and mechanism of the gas-phase reaction of CH₃CH₂OCH₂CH₂Cl (2-chloroethyl ethyl ether, 2CIEEE) with OH radical using quantum chemical methods. Optimization and frequency calculations of all the species involved in the reactions were carried out at BHandHLYP/6-311++G(2d,2p) level of theory.

The closing chapter is focused on the effect of hydroxyl radical and the regulation mechanism. Host immune systems generate reactive oxygen species) in order to defend microbial pathogens. Reactive oxygen species induce oxidative stress and encompass nonradical oxidants, such as hydrogen peroxide and singlet oxygen, as well as oxygen free radicals, such as superoxide anion radical and hydroxyl radical.

PB 9781536166811 £68.99 January 2020 Nova Science Publishers 83 pages



A Quick Guide for Clinical Biochemistry

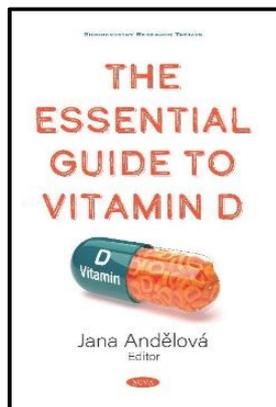
Edited by Mohamed Essa

Finding a simple and step-by-step procedure to conduct clinical biochemistry-related analyses is a real challenge for many undergraduate, graduate students, researchers and technicians in universities and laboratories. Moreover, understanding the theory of the experiment, which is not provided in some currently available manuals, is a useful and essential requirement in the experiment for successful performance, accuracy and acceptable results. The book contains 14 chapters. The first three chapters describe essential clinical aspects in laboratory such as specimens used for clinical chemistry analysis and sample collecting methods with common sampling errors. In addition, the fundamentals and laboratory techniques commonly used for sample analysis such as centrifugation, electrophoresis, photometry, fluorometry, and chromatography are also covered in one separate chapter.

The later chapters discuss the biologic basics of liver, kidney and heart diseases and the common enzymes measured to assess the function of these organs. Moreover, properties, diagnosis and analysis of vital minerals disorders such as iron, calcium, phosphate, zinc and magnesium are discussed in five different chapters. Hematological disorders related to nutrition and some case histories and comments are added in order to help students to analyze and interpret the lab results in proper way.

The book also has a separate chapter with lot of case studies and their solutions for better understanding. This book will be a useful reference for new students, non-native English medicine and life science students as it relies on figures and diagrams that explain the concepts and diagnosis of diseases in a simple way. Therefore, this quick guide aims to provide and develop the basic practical skills in the users with simple steps to follow along with the theoretical explanation for better understanding. It is expected that this quick handbook will provide good tools and useful guidelines for the students and researchers as well.

PB 9781536148602 £68.99 August 2019 Nova Science Publishers 128 pages



The Essential Guide to Vitamin D

Edited by Jana Andělová

The Essential Guide to Vitamin D first discusses vitamin D receptor, a member of the superfamily of nuclear steroid/thyroid hormone receptors that can be found in both the cytoplasm and nucleus. It acts mainly as a ligand-dependent DNA-binding transcriptional factor mediating the actions of the biological active form of vitamin D (VD), the metabolite $1\alpha,25[\text{OH}]_2\text{D}_3$.

Vitamin D has a complex role in the human body. Beside the classical effects in bone mineralization, a significant amount of data regarding the role of this vitamin in cell differentiation, defense mechanism, allergy, inflammation, metabolism and hormonal regulation continue to accumulate. As such, the relevance of these effects for lung disorders is under investigation.

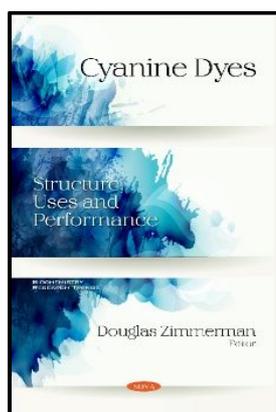
Vitamin D is a hormone with pleiotropic effects; it controls calcium homeostasis, immune response, and hemodynamic wall stress. In the last decade, numerous studies have focused on the role of vitamin D levels in cardiovascular disease. In particular, it has been shown that insufficient Vitamin D levels are frequently observed among patients with cardiovascular disease. Additionally, calcitriol, which is also called 1, 25-dihydroxy vitamin D₃, is involved in several physiological processes maintaining balanced bone turnover and a healthy bone microenvironment. The beneficial effects of vitamin D on bone biomechanical features are not exclusively attributable to the reduction in non-mineralized bone matrix, but to the osteocyte number and their connectivity, too.

Studies have reported that Vitamin D is essential for recovery of hospitalized patients as they are at increased risk of developing/worsening vitamin D deficiency due to lack of availability of sources of the vitamin. Various cognitive disorders have also been associated with hypovitaminosis D.

Vitamin D has also been proposed as a risk-modifying factor for many chronic diseases, including multiple sclerosis, schizophrenia, cognitive issues, hypertension, heart disease, diabetes, cancer, psoriasis, and other autoimmune diseases.

Vitamin D deficiency is the main cause of osteoporosis and osteomalacia in adults and rickets in children. The low serum of this vitamin is common in patients suffering from cardiovascular, autoimmune, cancer, psoriasis, depression and atherosclerosis disorder. The highly sensitive nature of vitamin D to environmental factors including light, heat, and oxygen, as well as hydrophobicity and acid labile nature, are the major drawbacks that need to be addressed for development of an efficient formulation for vitamin D.

PB 9781536166002 £79.99 January 2020 Nova Science Publishers 202 pages



Cyanine Dyes

Structure, Uses and Performance

Edited by Douglas Zimmerman

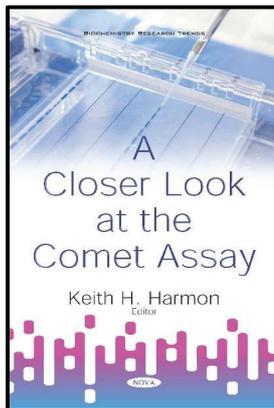
Cyanine Dyes: Structure, Uses and Performance begins with evaluation of the potential of 23 novel methine cyanine dyes to inhibit the amyloid fibril formation by insulin, and the limitations in the production and storage of insulin pharmaceutical formulations.

Next, the authors describe the spectral properties of a series of monomethine, pentamethine and heptamethine cyanine dyes with an accent on their applicability to non-covalent labeling of biological macromolecules.

Additionally, the authors provide an overview of various experimental and theoretical methods for the study of cyanine dyes self-organization, as well as their applications.

The closing chapter focuses on exploring the interactions and aggregation behaviour of cyanine dyes within various ionic liquids and deep eutectic solvents-based systems.

HB 9781536162394 £134.99 September 2019 Nova Science Publishers 248 pages



A Closer Look at the Comet Assay

Edited by Keith H. Harmon

A Closer Look at the Comet Assay opens with a discussion on the clinical applications of comet assay. Comet assay is rapid, simple method which able to assess DNA damage in different samples like blood, cells and tissues.

Following this, the authors examine comet assay usage in occupational toxicology studies. Isolated lymphocytes were the most used cell line in these studies, but exfoliated cells such as nasal and buccal cell, liver, kidney and sperm cells may be used.

Comet assay may also be used to detect nanoparticles-associated DNA damage. As such, this compilation assesses potential limitations due to the interaction of the nanoparticles with the method.

Next, to shed light on the mechanisms of the DNA track formation, the authors apply an original approach based on the kinetic measurements in the comet assay, arguing that in neutral conditions at low levels of DNA damages, the comet tail is formed by extended DNA loops.

New applications of the comet assay are described for the detection of aberrant DNA methylation, which is a promising marker in cancer diagnosis and follow-up.

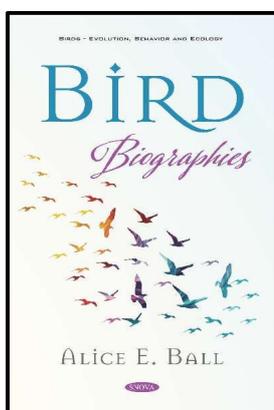
The authors go on to describe and analyse the results of in vitro treatment of lymphocytes with insecticide using comet assay under alkaline and neutral conditions, testing the commercial product Calypso® 480SC and its active agent thiacloprid at concentrations of 30; 60; 120; 240 and 480 µg.ml⁻¹.

In one study, *Helianthus annuus* (sunflower) seedlings were irrigated with Hoagland solution containing different concentrations of AlCl₃. Morphological parameters such as germination rate and stoma number are evaluated.

Additionally, the genotoxic effects of endosulfan pesticide at different times and in different concentrations in wheat leaf samples are analyzed in two-week old wheat seedlings in an effort to demonstrate that endosulfan is a genotoxic agent causing DNA breaks in wheat. In the closing chapter, the correlation between the comet assay parameters, cell viability, and hydroquinone concentration is explored. The relationship between comet assay and remaining hydroquinone after fungal treatment is also investigated in order to evaluate its biodegradation efficiency.

HB 9781536110289 £134.99 October 2019 Nova Science Publishers 246 pages

Birds - Evolution, Behaviour & Ecology Series

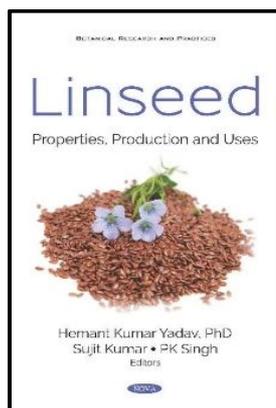


Bird Biographies

Alice E. Ball

The purpose of this book is to give, not only a portrait and a description of the birds, but a summing up of the beneficial and injurious habits of each, gained from the highest authorities obtainable. The book is intended for those who long to know birds intimately and intelligently, and wish to belong to the great army of bird-students who are "doing their bit" to preserve the bird-life of our country.

HB 9781536164602 £163.99 October 2019 Nova Science Publishers 298 pages



Linseed Properties, Production and Uses

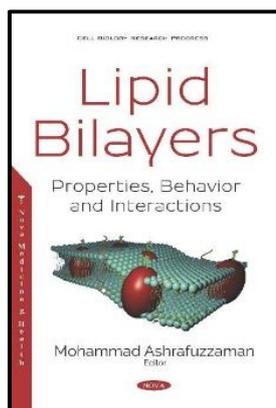
Edited by Hemant Kumar Yadav

This book consists of seven chapters on various aspects related to linseed. Linseed (*Linum usitatissimum* L.) commonly known as 'alsi' is a member of genus *Linum* within the family *Linaceae* with 14 genera and over 200 species. Out of those, only *Linum usitatissimum* L. possess both agronomic and economic properties and are being exploited for both industrial and human consumption purposes. Irrespective of medicinal, nutraceuticals and industrial uses of linseed, the popularity and attention required for its improvement is still not enough.

Therefore, the aim of this book is to summarize all the information about linseed, which will provide a wide perspective to the on-going research activities for crop improvement. It is a collection of incisive reviews along with original research. The included chapters are an excellent source of information for linseed production, cultivation, properties, uses and breeding strategies. This book will initiate interest in utilization of linseed as major crop and also ignite the research possibilities, which are left unexplored.

PB 9781536160901 £134.99 September 2019 Nova Science Publishers 226 pages

Cell Biology Research Progress Series



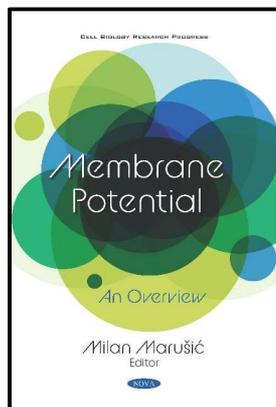
Lipid Bilayers Properties, Behavior and Interactions

Edited by Mohammad Ashrafuzzaman

The book 'Lipid Bilayers: Properties, Behavior and Interactions' provides a broad overview of an important biological system 'cell membrane'. The cell is the powerhouse where processes of life are controlled. Cell membranes consist of lipid bilayers that make biological boundaries. The bilayer participates in determining most of the cell-based uptakes of materials, exchanging of information between both sides and ensuring helping vital biological processes to continue. We have focused specifically on an understanding of various aspects of lipid membrane bilayers. The book is focused on a detailed description of the diverse mechanisms and phenomena associated with membranes. Lipid bilayers exist in various parts of the cell, namely, across the plasma membrane, mitochondrial membrane, and nuclear membrane. While exploring lipid bilayers we shall, therefore, need to consider structures and functions of various sections of biological cells. Besides spectroscopic observations and electrical measurements of membrane bilayers, we address here the phenomena of coexistence and independent existence of different membrane components using various theoretical and experimental methodologies popularly used in biology, physics, mathematics, chemistry, biomedical engineering, and general medical sciences. The focus has been made on explaining diverse mechanisms that play crucial roles in molecular level in the construction of lipid bilayers and maintaining the relevant biological functions. This book will be helpful for readers who want to understand biological processes by applying both simple observations and fundamental scientific analysis. It provides a deep understanding of the causes and effects of molecular processes inside lipid bilayer membranes.

A group of eminent scientists from around the globe contributed chapters focusing on different aspects. Each chapter may be found to present an individual topic and elaborate on a specific problem. But the chapters altogether have covered most of the basic aspects relevant to the title of the book. The book will be a vital reference for scientific understanding of lipid bilayers.

HB 9781536163926 £134.99 November 2019 Nova Science Publishers 242 pages



Membrane Potential

An Overview

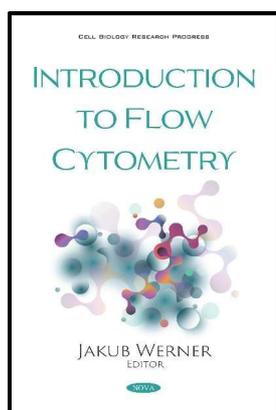
Edited by Milan Marušić

Membrane Potential: An Overview provides trends for the development of novel membranes as separators with applicable properties. The authors offer a comprehensive review of the various types of polymeric materials used as separators either as an electrolyte or not, in different kinds of batteries.

The mathematical formulations of both membrane and fluid parts are reviewed, and general governing equations of the membrane are presented. Also, general formulations of the fluid region and interface conditions between the membrane and fluid sides are presented.

The concluding chapter focuses on the estimation of the plasma membrane potential in yeast by the fluorescence changes of various indicators. The most used of these indicators have been DiSC3(3) and DiSC3(5).

PB 9781536167436 £68.99 December 2019 Nova Science Publishers 122 pages



Introduction to Flow Cytometry

Edited by Jakub Werner

Introduction to Flow Cytometry first discusses the general principles of flow cytometry. This technique continues to be developed and is used in many medical applications.

The authors discuss the condition of cell suspension which is entrained in the center of stream of liquid.

Additionally, the most common usage and selected applications of flow cytometry in clinical practice is presented.

In recent years, thanks to the use of new generation dyes, the cytometry has a much higher sensitivity and specificity and allows for the simultaneous registration of more parameters, which leads to a huge amount of information from a single experiment.

Selected techniques of flow cytometry dedicated to measuring DNA content are reviewed. Flow cytometry is used to estimate DNA content in individual cells in large cell populations.

Flow cytometry measures changes in the quality and quantity of specific cells. As such, flow cytometer-associated software for analysis of large data sets is examined.

Parameters and probes used in this technique are also discussed.

Next, the authors discuss the application of flow cytometry in the study of cells in normal blood and bone marrow.

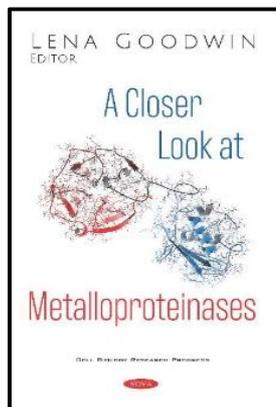
The application of flow cytometry to acute leukaemia diagnosis is explored. This diagnostic method is prerequisite for individual treatment strategies and for the evaluation of treatment response.

Following this, the application of flow cytometry to disorders of plasma cell diagnosis is discussed. This compilation similarly explores the evolution of the crossmatch assay and the important factors to take into consideration while performing, as well as interpreting results of this fundamental assay for the fate of the transplanted organ.

The penultimate chapter mainly focuses on comparing cytometric bead array to ELISA, which is considered the "gold standard" for soluble molecules determination.

In closing, the authors discuss modern applications of flow cytometry, including the analysis of tumor cells, tumor infiltrating leukocytes, untouched isolation of tumor cells, exosome isolation and analysis, circulating tumor cells, and GMP-engineered T cells.

HB 9781536166040 £193.99 February 2020 Nova Science Publishers



A Closer Look at Metalloproteinases

Edited by Lena Goodwin

A Closer Look at Metalloproteinases first presents an analysis of the matrix metalloproteinases system in two common neurodegenerative disorders, namely age-related macular degeneration and Alzheimer's disease.

Next, this collection aims to evaluate the expression of matrix metalloproteinase-9 in nasopharyngeal carcinoma patients. The cross-sectional analytic study enrolled 106 patients with nasopharyngeal carcinoma based on radiologic and histopathological examination. The patient never underwent radiotherapy, chemotherapy and/or a combination. Matrix metalloproteinase-9 was assessed using immunohistochemical staining of matrix metalloproteinase-9 in the anatomic pathology department.

The authors go on to discuss the matrix metalloproteinases family, their structural organization, functions and role in cardiovascular disease.

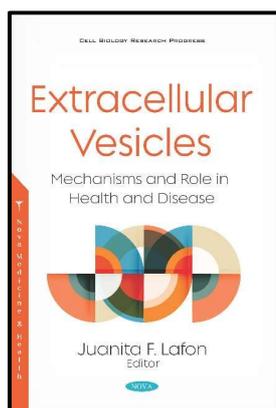
Data about the role of matrix metalloproteinases in the pathogenesis of psoriasis is summarized. In psoriasis, matrix metalloproteinases facilitate structural remodeling of the epidermis that, in turn, results in the development of psoriatic plaques.

Additionally, pregnancy is a very peculiar event in which the uterus undergoes intense morphophysiological modifications, especially related to vascular remodeling and angiogenesis, as well as trophoblast invasion, which occurs in early pregnancy period until reaching maternal spiral arteries and replacing the endothelium forming the endovascular-trophoblast. Such vascular modifications ensure the high-flow and low-pressure blood supply to the developing fetus, which in turn requires more and more space, causing the uterus to become enlarged and distended. In this context, an orchestrated regulation of matrix metalloproteinases and their endogenous inhibitors is essential for proper gestational development.

In the penultimate chapter, tissue components, matrix metalloproteinases properties and functions, bone modelling, remodelling and resorption, repair and regeneration, and pathological bone resorption are discussed.

The concluding chapter explores the way in which protein tyrosine phosphatases are important targets that are known to play a key role in the development of chronic degenerative diseases such as obesity, diabetes, and some neurological diseases.

HB 9781536165173 £163.99 November 2019 Nova Science Publishers 310 pages



Extracellular Vesicles

Mechanisms and Role in Health and Disease

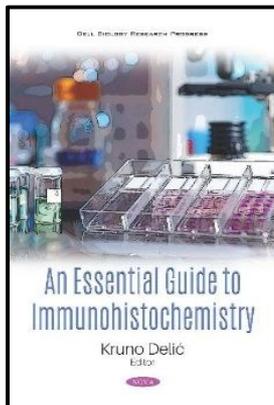
Edited by Juanita F. Lafon

Extracellular vesicles are small vesicles (or membrane-bound organelles) that can be found in blood and other biofluids and their internal content and surface reflect their origin and potential function. *Extracellular Vesicles: Mechanisms and Role in Health and Disease* begins with a summary of the most recent findings about the potential role of extracellular vesicles in human health and diseases and discusses future directions.

The authors discuss how intercellular communication at the developing fetomaternal interface is of cardinal interest. The implantation itself is at least partially dependent on extracellular vesicles' mediated processes. Furthermore, the altered local and systemic immunomodulatory state seems to be significantly influenced by proteomic and nucleic acid cargo found in extracellular vesicles.

Lastly, recent studies in the development of metastatic potential are studied by focusing on the role of oxidative stress under the control of reprogrammed onco-metabolism using the LNCaP-C4-2B prostate cancer progression model system.

PB 9781536164664 £68.99 December 2019 Nova Science Publishers 136 pages



An Essential Guide to Immunohistochemistry

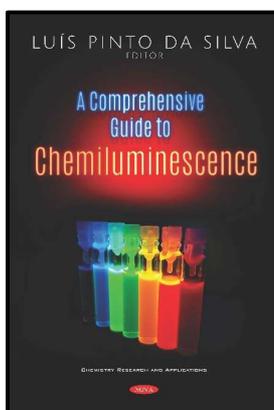
Edited by Kruno Delic

Immunohistochemistry has become one of the most reliable techniques to study the expression of different molecules throughout very specific regions, especially in neuroscience. In this compilation, the authors begin by explaining how to perform excellent immunohistochemistry to obtain high quality images, and more importantly, how to automatically analyze these images. In immunohistochemistry, it is also essential to be able to guarantee analytical reproducibility. By involving experienced observers, data consistency may be improved by increasing interobserver concordance.

Immunohistochemistry has value in melanoma diagnostics, allowing for the distinguishing of malignant melanocytes from benignant ones. This technique also has prognostic relevance in detecting tumor infiltrating lymphocytes and microvascular metastases, discerning the lymphatics from the blood vessels.

HB 9781536167399 £163.99 January 2020 Nova Science Publishers 236 pages

Chemistry Research & Applications



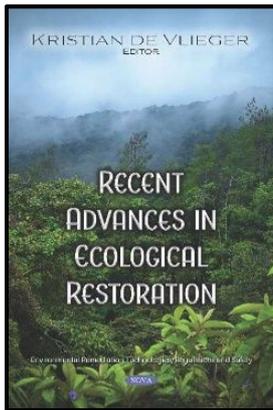
A Comprehensive Guide to Chemiluminescence

Luís Pinto da Silva

Chemiluminescence is a fascinating and mesmerizing phenomenon, which consists on the generation of light as the result of a chemical reaction. This process has been gaining attention in the last decades, being now a standard tool in analytical, bioimaging, biomedical and pharmaceutical applications. This book provides a detailed overview of the basic mechanisms and principles of the most relevant chemiluminescent systems, as well as describing the most recent advances and applications. Written by experts, this is a reference text suitable both for researchers focused on chemiluminescence and for those wanting to start working on this field. In Chapter One, the progress and evolution of the chemiluminescent studies in imidazopyrazinone-based compounds are reviewed, with emphasis on their potential as diagnosis tools. Chapter Two addresses the spectral changes associated with firefly bioluminescence by focusing on the tautomeric equilibria of the light emitter. Chapter Three reviews, for the first time, the liquid-phase chemiluminescence of fullerene and derivatives. Chapter Four is devoted to studies of chemiluminescence with the participation of lanthanide ions. Chapter Five summarizes the mechanism behind the chemiluminescence of acridinium esters, while discussing their current applications. Chapter Six explains the potential of phenothiazine derivatives as enhancers in analytic chemiluminescent assays. Chapter Seven collects the available information of both well-known and lesser-known examples of squid bioluminescence.

Chapter Eight discusses the enhancement of chemiluminescent emission by using metal-nanoparticles near a luminescent molecule, which is known as metal-enhanced chemiluminescence. In Chapter Nine it is explained how model molecules can make the study of complex bioluminescence reaction mechanisms accessible, as well as allowing for chemiluminescence on macroscopic molecular crystals. Chapter Ten describes experimental and computational approaches used for enhancing the thermostability of firefly luciferase. Chapter Eleven demonstrates the usefulness of theoretical studies for better understanding chemiluminescent reactions. Chapter Twelve describes the fundamental theoretical aspects of state-of-the-art multiconfigurational methods and shows illustrative examples of their application to the study of chemiluminescence. Finally, Chapter Thirteen discusses chemiluminescent experiments that are simple, inexpensive and can be performed by students.

HB 9781536161700 £193.99 October 2019 Nova Science Publishers 398 pages



Recent Advances in Ecological Restoration

Edited by Kristian de Vlieger

In Rio Grande do Sul, Southern Brazil, there are hundreds of Eucalyptus forest farms for pulp production distributed in several municipalities. In these pulpwood production farms, a major forestry restoration project is underway for Permanent Preservation Areas, which have peculiarities that may favor or hinder restoration. In this compilation, in order to search for alternatives for the restoration of these Permanent Preservation Areas, the planting of seedlings of native species in nuclei is implemented and evaluated as an alternative technique to traditional reforestation with total area plantation.

Suitable techniques for forest restoration in mined areas are also explored, with the goal of attaining environmental sustainability for the bauxite mining in the region. Thus, by monitoring of mined and restored areas, 146 native species of the Atlantic Forest were found, 61 in the planting of seedlings, 97 in the inventories for evaluation of these plantings and 92 in natural regeneration.

The authors set out to elucidate the underlying processes modeled by diversity and community composition with respect to aboveground biomass during succession in an Amazon forest in order to devise better passive restoration plans. 45 20m × 50m (1000 m²) plots were sampled across three sites in secondary forests, having different stand ages after shifting cultivation, and an old-growth forest located in the Northern Amazon forest, Venezuela.

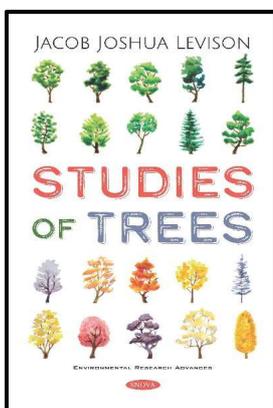
One study discusses how, due to the environmental heterogeneity conditions, active restoration measures are fundamental in degraded areas where natural regeneration is limited, mainly due to the absence of fragments in the landscape. Finally, it is emphasized that passive restoration is playing an important role in the ecosystem services recovery at local-scale.

In the penultimate study, the authors compare the floristic composition and structure of the natural regeneration stratum of a 23-year-old restored forest with an adjacent dense ombrophilous forest. For this purpose, 60 plots with dimensions of 3×3 m (9m²) were equally and systematically distributed in these two areas. All shrub-tree individuals with height ≥30 cm and circumference at breast height <15 cm in these plots were included and their heights and diameter at ground level were measured.

Lastly, the dynamics of soil use and coverage in a region under the influence of mining activities are explored. This region is located in Minas Gerais state, more specifically in the municipalities of São Sebastião da Vargem Alegre and Mirai, both located in Zona da Mata Mineira.

PB 9781536165548 £79.99 December 2019 Nova Science Publishers 178 pages

Environmental Research Advances

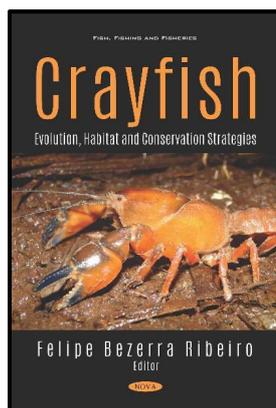


Studies of Trees

Jacob Joshua Levison

In presenting this volume, the author is aware that there are several excellent books, dealing with one phase or another of tree life. It is believed, however, that there is still need for an all-round book, adapted to the beginner, which gives in a brief and not too technical way the most important facts concerning the identification, structure and uses of our more common trees, and which considers their habits, enemies and care both when growing alone and when growing in groups or forests.

HB 9781536163162 £163.99 September 2019 Nova Science Publishers 250 pages



Crayfish

Evolution, Habitat and Conservation Strategies

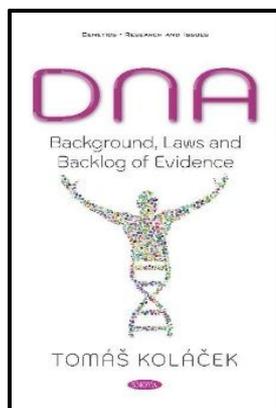
Felipe Bezerra Ribeiro

Crayfish are one of the most iconic freshwater crustacean groups of the world. The wide range of biological adaptations of the freshwater crayfish to the limnetic ecosystems is surprising, as is there is high potential of some taxa to become invasive species. There is a constant growing interest in develop research with freshwater crayfish. They can be an important food source in several countries, the aquarium pet trade and cultural importance, in addition to the presence of several imperiled species. This book brings important reviews of some aspects of diversity, biological features, evolution, habitat characteristics, behavior and conservation strategies of freshwater crayfish, including native taxa, especially endemic from South America, New Guinea and North America, and non-indigenous species.

In South American, new species have been discovered in recent years and are classified in threat categories, indicating the need of more studies regarding taxonomy and conservation. For New Guinean species, data about their exploitation by humans and further perspectives about the improvement of conservation practices are presented. In relation to the North American crayfish, this book brings information about some aspects of biology and behavior of the burrowing species *Procambarus acanthophorus*. A global assessment and future perspectives for all alien crayfish species are also presented in this book. Regarding the partenogenetic marbled crayfish, *Procambarus virginalis*, the book brings an extensive review covering aspects of detection history, biology, ecology, evolution, systematics and utilization of this species in the world. In addition, an overview of integrative taxonomy studies and cryptic diversity in crayfish is also presented.

HB 9781536169416 £163.99 January 2020 Nova Science Publishers 268 pages

Genetics - Research & Issues Series



DNA

Background, Laws and Backlog of Evidence

Edited by Tomáš Kolářček

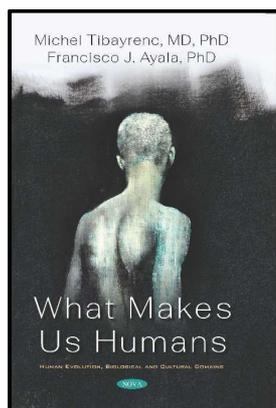
Deoxyribonucleic acid, or DNA, is the fundamental building block for an individual's entire genetic makeup. DNA is a powerful tool for law enforcement investigations because each person's DNA is different from that of every other individual (except for identical twins). As early as the 1980s, states began enacting laws that required the collection of DNA samples from offenders convicted of certain sexual and other violent crimes. Chapter 1 provides an overview of how DNA is used to investigate crimes and help protect the innocent. Chapters 2 and 3 report on the establishment of a system for integration of Rapid DNA instruments for use by law enforcement to reduce violent crime and reduce the current DNA analysis backlog.

Chapter 4 examines what is known about the amount of backlogged DNA evidence at state and local government labs; the extent to which OJP measures CEBR grant performance; and the extent to which OJP has designed controls to identify conflicts of interest related to CEBR grants. Chapter 5 reviews the level of crime scene DNA evidence backlogs among CEBR grantees and the factors that contribute to such backlogs; the extent to which DOJ has clearly defined goals for CEBR; and the extent to which OJP has controls for CEBR related to federal conflicts of interest and lobbying requirements.

In 2016, about 323,000 individuals age 12 or older were reported victims of sexual assault, according to the Bureau of Justice Statistics.

HB 9781536161175 £134.99 August 2019 Nova Science Publishers 242 pages

Human Evolution, Biological & Cultural Domains



What Makes Us Humans

Michel Tibayrenc

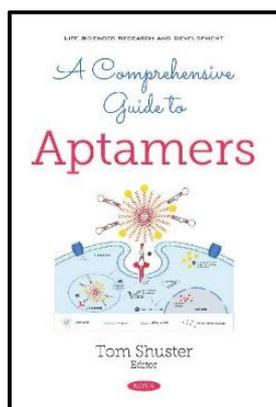
The knowledge on human biology is blooming. Progresses in genomics, epigenetics, neurobiology, human evolution, population genetics, and prehistory is extremely fast presently. However, few bridges have been launched between these fields on one hand, and human sciences (ethics, politics, psychoanalysis, philosophy) on the other hand. Now knowledge on human nature and on what makes us specifically humans do need tight collaborations between biological and human sciences.

One of the specific goals of the book is to sort out, in our knowledge on human nature, what is: (i) strongly supported; (ii) still speculative; (iii) still extremely tentative; (iv) obviously (sometimes purposely) misleading; (v) definitely to be rejected. Such a sorting out is sorely needed, since this theme is politically loaded and full of propaganda, storytelling and “fake news”. This kind of endeavor is urgent because there is now a strong tendency in the general public to lose confidence in science and to believe in alternate sources of knowledge with uncertain backgrounds (social networks, internet).

This book uniquely offers a thorough discussion, based on biology as well as on human sciences, on major societal debates of the time, such as origin of humankind, human genetic diversity, biology of cognition, science in front of intolerant ideologies, science and religion, and science and creationism/intelligent design. Its specific feature is sorted by the present states of knowledge, what is robust, then still speculative, unintentionally or intentionally (“scientific fake news”) misleading, and obviously wrong. Thorough updating is based on more than 300 references from the specialized literature as well as from the general media. The book, which is written in an accessible language and is completed with a glossary of specialized terms, will be therefore profitable to specialists of the concerned fields, university professors, teachers, students, as well as the general public.

HB 9781536168532 £193.99 January 2020 Nova Science Publishers 313 pages

Life Sciences Research & Development Series



A Comprehensive Guide to Aptamers

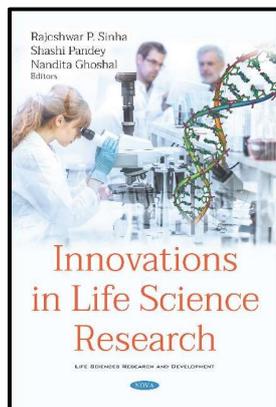
Edited by Tom Shuster

This collection opens with a focus on recent advancements on the development of nucleic acid aptamers as alternative delivery systems for therapeutic oligonucleotides. Additionally, key examples of targeted delivery of the most common nucleic acid therapeutics, including small interfering RNAs, short hairpin RNAs, microRNAs and antisense oligonucleotides for a number of disorders are discussed.

The following chapter deals with in vivo studies that were conducted with radiopharmaceuticals based on aptamers, the radionuclides used, the radiolabeling strategies, the chemical modifications of interest to improve their properties, and the main aptamers advantages and drawbacks for application as radiopharmaceuticals.

In conclusion, the authors discuss the perspectives of using aptamers in various detection methods, their advantages and disadvantages, and the results of such work carried out through the present day.

PB 9781536162936 £79.99 September 2019 Nova Science Publishers 149 pages



Innovations in Life Science Research

Edited by Rajeshwar P. Sinha

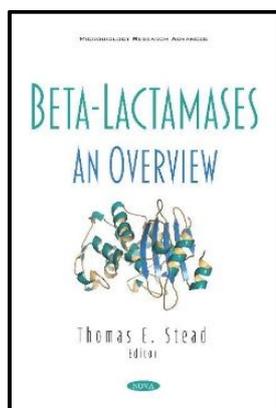
At any given moment, a number of innovations in life science research occurs. There has always been an ever-increasing demand for the interdisciplinary research in life science to solve the problems of mankind. It is a challenging task to bring the fruits of laboratory level research to the commercial level for the welfare of humans. This book is an attempt to keep abreast with the recent innovations made in various fields of life science research. The book encompasses topics ranging from prokaryotic microscopic organisms to eukaryotic higher plants, distributed in fifteen chapters for the benefit of graduate and postgraduate students as well as young researchers, scientists and professionals.

The book deals with topics pertaining to natural sunscreens, secondary metabolites, genome editing, molecular markers, stress biology, crop improvement, herbal medicines, plant diseases, genetic engineering, biotechnology and aspects related to ecology.

This book imparts the latest innovations and knowledge in the specific fields of life sciences. In addition, it also provides details of newer and state-of-the-art technology/tools employed in achieving the potential of microbes and higher plants to make products that can be readily available for the welfare of humans. An insight for future perspectives has also been provided that makes this book highly useful and a must-read for students, researchers and professionals working in the field of microbiology, botany, biotechnology, agriculture, molecular biology, photobiology, ecology and other streams of life sciences.

HB 9781536158687 £193.99 October 2019 Nova Science Publishers 420 pages

Microbiology Research Advances Series



Beta-Lactamases

An Overview

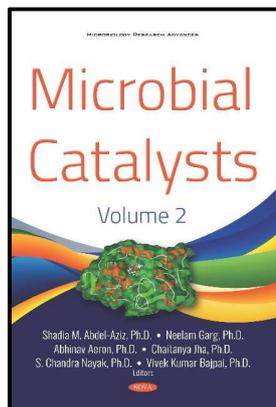
Edited by Thomas E. Stead

In this compilation, the authors describe the occurrence and characteristics of ESBL/AmpC-producing Enterobacteriaceae in poultry, cattle and pigs, pointing to risk factors that lead to their spread and highlighting possible mitigation strategies that could be applied to reduce their prevalence in food-producing animals.

One review focuses on the wide array of antimicrobial resistance mechanisms that have been described in *A. baumannii*. The most concerning ones being the β -lactamases with carbapenemase activity, i.e, Ambler class-D serine oxacillinases and Ambler class-B metallo- β -lactamases.

The closing study will walk readers through the discovery and golden age of β -lactam, its mechanism of action as broad-spectrum antibiotic, the expansion of beta-lactam derivatives and β -lactamase inhibitors to antibiotic resistance in β -lactams.

PB 9781536168181 £79.99 January 2020 Nova Science Publishers 190 pages



Microbial Catalysts

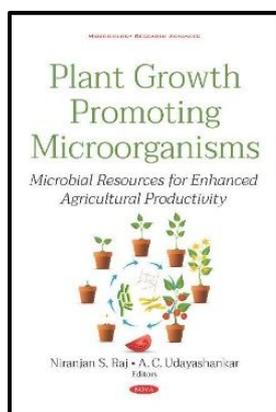
Volume 2

Edited by Neelam Garg

This book comprises a total of 14 chapters contributed by experts from different countries worldwide. It is a comprehensive collection of articles to illustrate an overview of microbial catalysts that include enzymes widely contribute to many fields in food and industrial products. Microorganisms have served and continue to serve as one of the largest and most useful sources of many enzymes used in foods and the food industry. Microbial catalysts are environmentally friendly and consume lower energy. A particular aim of this book is focused on applied and industrial microbiology, agricultural microbiology, and food microbiology.

All sections discuss microbial catalysts viz., enzymes with respect to their function and its benefit to human kind especially, and to biotechnology as a subject of which enzymology is an integral part. The book also deals with structure and function of some microbial enzymes. Microbial catalysts are generally preferred than plant and animal as sources of industrial enzymes because their production cost is low. In addition, enzymes are more predictable and controllable, and more so because of the easy availability of raw materials with constant composition for their cultivation.

HB 9781536160888 £193.99 October 2019 Nova Science Publishers 390 pages



Plant Growth Promoting Microorganisms

Microbial Resources for Enhanced Agricultural Productivity

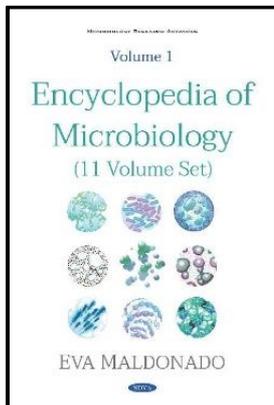
Edited by Niranjana S. Raj

Plant growth promoting microorganisms (PGPM) have gained acceptance and importance due to their dual benefits of promoting plant growth in addition to managing plant pests and diseases and are extensively used as microbial inoculants in improving agricultural productivity. Use of PGPM mixtures and their integration with other means, like host resistance and chemicals, has proven to be more useful in management of several disease problems. Successful greenhouse and field demonstrations have been done using PGPM for growth promotion and resistance induction in various crops, against a broad spectrum of pathogens. Practical use of PGPM-based products has advanced and many formulations are made available in commercial scale, and more are currently under development.

Further, novel formulation technologies have been formulated. Microorganisms constitute the major players in the rhizosphere and their composition and biomass significantly alters the plants response to the environment. Composition and interaction of rhizomicroflora with its surroundings highly influences plant health and productivity. Such beneficial rhizo-ecosystems engineering and manipulation of the rhizosphere to exploit or enhance this innate genetic potential, which will most probably play a key role in the future development of sustainable agricultural processes, is also reviewed. In recent years, a substantial amount of work has been done in the area of PGPM and voluminous literature is available. This book presents a methodical, comprehensive and latest research survey in this area.

An overview of the scale and impact of PGPM in plant growth promotion and management of crop diseases, focusing attention on details most relevant to the development and application of biological control strategies involving various microbial strains is discussed. Problems and prospects of commercialization, advantages and disadvantages of their use and their potential for integrated pest management are also outlined. Most of the available books either refer to the subject of plant growth promoting fungi or plant growth promoting bacteria, however, this comprehensive book includes research pertaining to all beneficial microorganisms that are plant growth promoting in nature. Moreover, this is a rapidly developing field of research and has global impact. Therefore, keeping in pace with the latest developments in this area is totally necessary, and this book will be a latest and up-to-date compilation of the research from different parts of the world.

HB 9781536157765 £193.99 August 2019 Nova Science Publishers 354 pages



Encyclopedia of Microbiology (11 Volume Set)

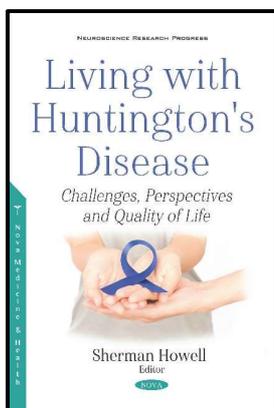
Edited by Eva Maldonado

This 11 volume set covers a wide range of topics, including:

- Klebsiella pneumoniae
- endophytic bacteria
- infra-red spectroscopy
- probiotics
- soil heterogeneity
- organic pollutants

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Neuroscience Research Progress Series



Living with Huntington's Disease

Challenges, Perspectives and Quality of Life

Edited by Sherman Howell

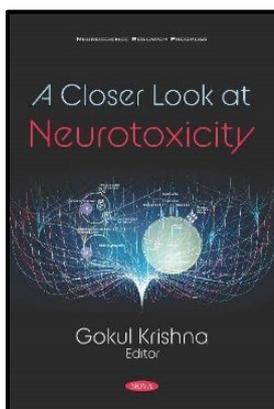
Living with Huntington's Disease: Challenges, Perspectives and Quality of Life first discusses the variety of sleep disorders in Huntington's Disease, as well as how sleep quality can be associated with other important clinical symptoms.

Although Huntington's disease is categorized as a movement disorder, the wide range of non-motor symptoms including cognitive impairment and behavioral abnormalities are considered by patients and their caregivers to be just as disabling as the motor symptoms. As such, the authors explore the importance of symptomatic treatment of Huntington's disease-related symptoms.

Following this, the emotional and communicational issues in Huntington's disease and their interrelations are examined, including depressive symptomatology, anxiety, helplessness or anger, as well as verbal and non-verbal communication and assistive technology.

Lastly, the authors describe current trends and efforts in gene therapy techniques and the improvements in health conditions of Huntington's disease patients and their families.

PB 9781536167290 £79.99 December 2019 Nova Science Publishers 172 pages

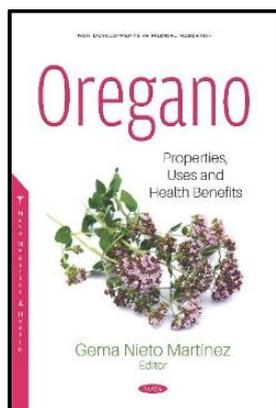


A Closer Look at Neurotoxicity

Edited by Gokul Krishna

This book details neurotoxicology research about the neurotoxic effects of substances on the young, adult or aging nervous system. Chapters (both review and original research papers) about the epidemiological reports, animal research, in vitro adverse effects of toxic agents on neurodevelopment and mature nervous systems are included. Neurotoxicity contributes to pathogenesis of neurodevelopmental, neurobehavioral, and neurodegenerative disorders. The chapters provide a basic foundation on the significant outcome effects on current knowledge in neurotoxicity research.

PB 9781536165913 £68.99 February 2020 Nova Science Publishers



Oregano Properties, Uses and Health Benefits

Edited by Gema Nieto Martínez

Humans have employed medicinal plants for thousands of years in traditional medicine. Oregano has been cultivated mainly for centuries in the Mediterranean area, although it now can be found on most continents. Oregano is one of the most popular plants in Spanish traditional remedies and its leaves have been used in traditional medicines in order to treat illness such as aching muscle, skin sores, asthma, digestion disorders, infections, inflammation or maintaining general health. In addition, oregano has been used since ancient times as an ingredient in Mediterranean diet. In this sense, there are several species of oregano, being Spanish thyme or *Origanum vulgare*, the spice variety sold most in the United States and Europe.

Nowadays the use of oregano is not exclusive for culinary proposes, because the consumers' concerns about the use of synthetic additives into foods have led the food industry to the search for green strategies.

In this sense, oregano extracts, essential oils and individual compounds from this herb have demonstrated antioxidant, anti-inflammatory, anticancer, and antimicrobial actions, which may contribute to the capacity to avoid human infections or to protect the cardiovascular and nervous systems by blood glucose and lipid modulation.

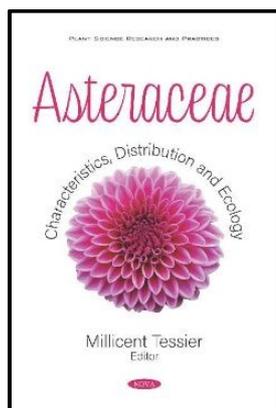
Therefore, based on the current scientific literature, oregano essential oil can be considered as a rich source of bioactive compounds and its addition to food matrices transmit these benefits; this approach can be used as a tool to generate functional foods.

This book reviews and discusses oregano containing several potent antimicrobial, antioxidant compounds that may contribute to benefit the nervous and cardiovascular systems. In addition, the opportunity of using *Origanum vulgare* as potential platform for producing polyphenols, biogas and energy under biorefinery approach has been discussed. Moreover, the possibility to be added into foods as natural additives and a strategy in order to improve human health was also discussed. In this sense, the inclusion of oregano into meat products, yogurt, juices and others could be an interesting strategy to produce functional foods.

The oregano extract and essential oil represents a good strategy in order to substitute synthetic antioxidants and to produce functional foods with an extended shelf life.

Several industries are now looking for sources of new, natural and safe agents. Essential oil from *Origanum spp.* has shown efficacy retarding lipid oxidation in food matrices. Oregano essential oil possesses strong antimicrobial activity against food pathogen bacteria highlighting its potential as a tool to achieve food safety. Oregano essential oil has shown efficacy in reducing microbial growth of deteriorative microorganisms (bacteria, yeast, molds), representing the potential to increase shelf-life of food. Oregano essential oil can be considered as a rich source of bioactive compounds and its addition to food matrices transmit these benefits; this approach can be used as a tool to generate functional foods. Results obtained from numerous studies can help to exploit the use of the *Origanum* EOs studied as the functional food and pharmacological ingredients for promoting health.

HB 9781536162844 £193.99 October 2019 Nova Science Publishers 334 pages



Asteraceae

Characteristics, Distribution and Ecology

Edited by Millicent Tessier

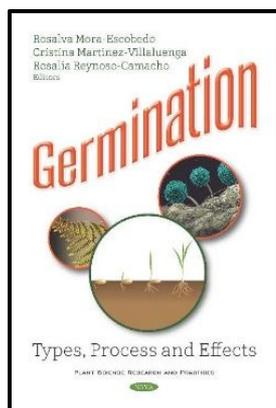
In *Asteraceae: Characteristics, Distribution and Ecology*, the authors first review different factors that affect the chemical composition of essential oils such as chemotype, ecotype, phenology, organ type and extraction method.

Cichorium sp., *Cynara* sp., *Helianthus* sp., *Taraxacum* sp. and *Lactuca* sp are widely used by the general population in the forms of teas and infusions, as well as in direct contact with wounds. In order to potentiate the action of these plants and direct these compounds to their place of action, this collection reviews some strategies that have been developed to direct these compounds to their place of action.

Next, the authors present information established from available scientific literature discussing the ethnopharmacological, biological and phytochemical activities of some important endemic medicinal species from Asteraceae family growing in Algerian Sahara namely: *Anvillea radiata* Coss, *Brocchia cinerea*, *Bubonium graveolens*, *Launaea arborescens* and *Warionia saharae*.

The concluding chapter focuses on the endemic and rare species of the Asteraceae family in the southern Iberian Peninsula. Its global floristic contingent includes a large number of genera and species that are distributed throughout a wide range of environments from sea level to Mediterranean high mountains on all substrate types.

PB 9781536166323 £79.99 December 2019 Nova Science Publishers 198 pages



Germination

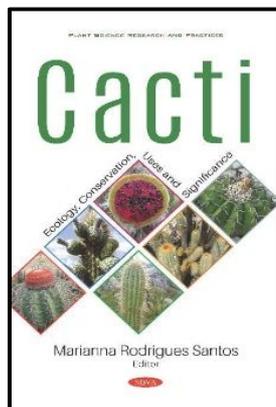
Types, Process and Effects

Edited by Rosalva Mora-Escobedo

Germination: Types, Process and Effects is a book that brings together the contribution of new and relevant information from many experts in the fields of food and biological sciences, nutrition, and food engineering, to provide the reader with the latest information of fundamental and applied research in the role of edible seeds and discuss the benefits of consuming them.

In this book, you will find relevant information regarding origin and taxonomy of seeds, global markets, physicochemical composition and the effect of edible seeds germination on chronic degenerative diseases, such as obesity, diabetes, cancer, cardiovascular disease, inflammation and arthritis. This book will be of great interest to food scientist, biologists, nutritionists, and food engineers who are particularly interested in the process, changes and contribution of seed germination to food security.

HB 9781536159738 £193.99 October 2019 Nova Science Publishers 368 pages



Cacti

Ecology, Conservation, Uses and Significance

Edited by Marianna Rodrigues Santos

Cactaceae is a botanical family composed of arborescent, shrub, climbing, globose, discoid or epiphytic species, being almost all endemic to the Americas. Cactaceae occurs between latitudes 35° North and South, both at sea level and up to over 5000m altitude. In this way, their species have the capacity to grow in different ecosystems. However, the greatest diversity is found in arid and semi-arid regions, where they are important sources of resources for several species of vertebrates and invertebrates, mainly in the drought season, when there is a great shortage of resources.

In addition, some species of cacti represent an important source of food resources for humans and their herds, as well as having enormous ornamental value. Thus, cacti have always aroused the because of their morphological peculiarities and chemical properties. Due to this, cacti have now been the subject of diverse studies. This book brings studies of several areas of plant biology, ecology, conservation and uses of cacti.

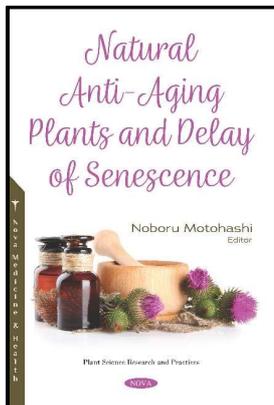
The first four chapters compose the part related to ecology and conservation. Several species of Cactaceae in Brazil and the world are seriously endangered, with about 31% of the family categorized as threatened. Chapter 1 discusses the importance and how the ex situ conservation of cacti is carried out in the Botanical Garden of Rio de Janeiro in Brazil. In Chapter 2, the authors carried out population studies of two species of endemic cacti of Chapada Diamantina, Brazil, in order to evaluate the population structure of the species for decision-making in relation to their conservation. In Chapter 3, authors studied the biogeography and conservation of *Discocactus* species that are endemic to South America. In Chapter 4, the authors discuss the floral morphology and the ecological interactions highlighting the importance of conservation of cacti for ecosystems maintenance.

Chapters 5 to 10 address issues related to the uses and significance of cacti. Chapter 5 discusses cacti of the genus *Pereskia* with a healthy diet alternative due to its nutritional properties. The toxicological evaluation, antinociceptive and anti-inflammatory effects of plant extracts is discussed in Chapter 6, specifically, roots of *Cereus jamacaru*.

In Chapter 7 the use of fibers from *Opuntia* species in the manufacture of Agave juice is evaluated, due to the importance of including fibers in human consume, because dietary fiber may contribute in the prevention of chronic diseases such as diabetes, cancer and cardiovascular illnesses. The antioxidant activity of prickly pear of *Opuntia* is discussed in Chapter 8, because besides betalains, prickly pear contains vitamins and phenolics. In Chapter 9, the research describes the industrial applications of the berry as well as key points for future research. And in Chapter 10, bioactive compounds of *Opuntia oligacantha* were determined, as well as their antioxidant capacity, antimicrobial activity and shelf life.

All the studies presented in this book are of great importance and serve as a basis for further research to be carried out to make the species of the Cactaceae family be seen beyond their ornamental value.

HB 9781536163544 £163.99 November 2019 Nova Science Publishers 280 pages



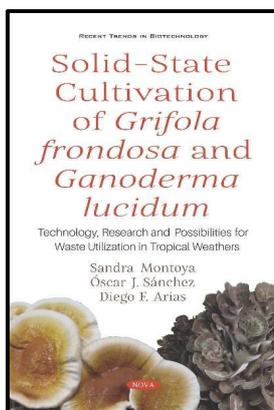
Natural Anti-Aging Plants and Delay of Senescence

Edited by Noboru Motohashi

Worldwide, human life is headed for longevity. On the other hand, humans have a desire to stay healthy and live longer. However, synthetic drugs are immediately effective, but some drugs can cause serious side effects. From about 100 to 150 years ago, humans have used all diseases for treatment and prevention, using natural resources such as plants, animals and minerals. These natural ingredients can minimize side effects etc. even after long-term administration. In addition, these natural ingredients can also control chronic toxicity etc. in a concentration-dependent manner. Based on these ideas, this book will focus on plant ingredients and plants that can be expected to maintain health until this longevity.

PB 9781536162820 £90.99 November 2019 Nova Science Publishers 216 pages

Recent Trends in Biotechnology Series



Solid-State Cultivation of *Grifola frondosa* and *Ganoderma lucidum* Technology, Research and Possibilities for Waste Utilization in Tropical Weathers

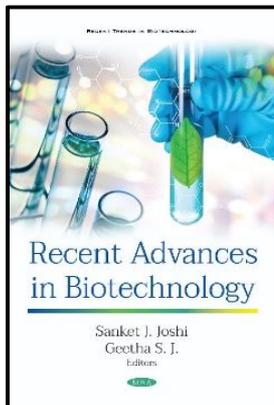
Sandra Montoya, Oscar J. Sanchez, Diego F. Arias

The worldwide market of medicinal mushrooms is constantly increasing considering the improvement of the level of life of population and the concerns for a healthy quality of life. The consumption of Macromycetes fungi as delicatessen food or nutraceuticals is increasing due to their gourmet features, nutritional characteristics and medicinal properties. The fruiting bodies of several fungal species contain different types of compounds that are valuable in the medical and cosmetic industry and have applications in other industrial sectors. However, the cultivation of Macromycetes is not fully disseminated at world level and just a few species are grown on a commercial scale (about 10 species).

In particular, the demand of the Macromycetes *Grifola frondosa* (Maitake) and *Ganoderma lucidum* (Reishi) in their different trade presentations is increasing because of their medicinal features and their applications in the pharmaceutical industry. Thus, research and development regarding the improvement of the cultivation parameters for these two fungal species have a paramount importance in order to reach a higher coverage in their industrialization. *G. frondosa* is a less-known and newer species in the mushroom industry. Its cultivation presents different levels of complexity and there are a few commercial facilities for its production. Likewise, *G. lucidum*, although more known than Maitake, exhibits significant complexity levels during its cultivation as well. In the present book, a comprehensive compilation of the developments achieved for improving the cultivation parameters of these two species in tropical weathers aimed at implementing them at industrial scale is provided. The book presents extensive research outcomes obtained by the authors not only at small scale, but also at pilot and industrial scales.

The main markets for these two species are presented as well as the most promising residual feedstocks to be used for production of Reishi and Maitake fruiting bodies in the context of countries with tropical weather. The conventional procedures for solid-state cultivation at different production scales is analyzed and specific conditions for such production in tropical weathers are also discussed. In addition, a description of the potential biologically active compounds that could be extracted from these two fungal species is provided as well as main lignocellulytic enzymes obtained from these mushrooms. This book is intended to researchers, graduate students, technologists, and entrepreneurs as well as private firms working in the medicinal mushroom industry.

HB 9781536164817 £134.99 February 2020 Nova Science Publishers



Recent Advances in Biotechnology

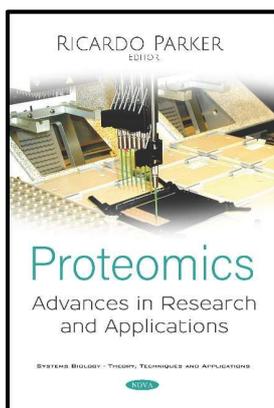
Edited by Sanket J. Joshi, Geetha S J

The biotechnology as we know today is the perfect amalgam of 'Biology' and its applications by utilizing advances in different fields such as engineering, physics, chemistry, and mathematics/information technology. Recent advances and developments in areas such as nanotechnology, molecular biology and OMICS, synthetic-biology, and genetic engineering tools further pave the way to achieve different selective criteria and development of 'tailor-made' microbe-metabolites that can be effectively applied for different applications. The presence of biotechnology has reached beyond academics research in microorganisms, plants and animals to different 'day-to-day' applications in pharmaceuticals, cosmetics, green-nanotechnology, petroleum industry and environmental applications, to list a few.

It is worth mentioning the impact of substantial academic and industrial research and developments in last decade on several attributes of different branches of biotechnology, especially in nanotechnology for health and enzyme research, environmental applications, applications of extremophiles, proteomics, uses of toxins, and many more remarkable fields. In the current book, researchers highlighted such emerging technological advances and their applications. The current book was compiled with the help of leading biotechnologists from the Middle East and India, with the objective of providing recent developments in global status and opportunities of biotechnology. This book will prove to be a useful and timely contribution to both academic and industrial researchers from diverse biological background all over the world.

HB 9781536158601 £193.99 August 2019 Nova Science Publishers 290 pages

Systems Biology - Theory, Techniques & Applications Series



Proteomics

Advances in Research and Applications

Edited by Ricardo Parker

This compilation provides a brief overview of proteomic techniques used in acute leukemia, including the high-throughput reverse phase protein array, which will highlight the importance of measuring proteins.

Following this, the authors discuss the molecular mechanism of oseltamivir and the advantages and disadvantages of using it. Proteomics- and transcriptomics-based alternatives to oseltamivir are described as well.

Additionally, the most recent research studies aiming to identify biomarkers for the early prediction of spontaneous preterm labor using mass spectrometry-based proteomics are reviewed.

In order to understand the mechanisms of efficient degradation of lignocellulosic biomass, a comprehensive analysis of carbohydrate-degrading and metabolic enzymes is required. As such, the authors summarize a proteome analysis of *C. cellulovorans* cultured with different carbon sources, and provide some insights as to how *C. cellulovorans* optimizes diverse enzymes depending on carbon sources.

The concluding chapter focuses on comparative fluorescence gel electrophoresis, which was invented in 2009 and has since then become the prime method for reproducible coordinate assignment in two-dimensional protein polyacrylamide gel electrophoresis.

PB 9781536164404 £68.99 November 2019 Nova Science Publishers 136 pages



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