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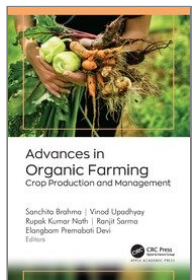
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Advances in Organic Farming

Crop Production and Management



Edited by **Sanchita Brahma, Vinod Upadhyay, Rupak Kumar Nath, Ranjit Sarma, Elangbam Premabati Devi**

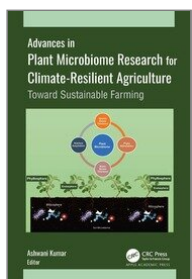
Explores organic farming, discussing issues that include organic crop production practices, organic seed production, organic management of pests and diseases, organic nutrient management, organic farming and climate change mitigation and adaptation, organic crop certification procedures, and marketing aspects of organic produce, etc. It covers the scope and nutritional importance of organic farming, effect of climate change on organic farming, crop management practices in organic farming, soil and nutrient management in organic farming, organic seed production of paddy and vegetable crops, and pest and disease management in organic farming.

Apple Academic Press
November 2024:676
Hb: 978-1-774-91754-1: £200
eBook: 978-1-003-50271-5

* For full contents and more information, visit: www.routledge.com/9781774917541

Advances in Plant Microbiome Research for Climate-Resilient Agriculture

Toward Sustainable Farming



Edited by **Ashwani Kumar**

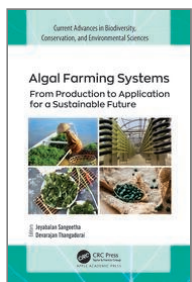
Covers important aspects of plant microbiome research. It introduces the concept of plant microbiome and its importance for climate-resistant crop plants and discusses the tools and techniques to analyze plant microbiome for sustainable agriculture productivity. It covers microbial endophytes as warriors for plant defense against abiotic and biotic stress. It highlights importance of phyto-microbiomes and overviews role of metabolomics in bioremediation for sustainable crop production, introducing metabolomics tools such as GC-MS, LC-MS, and NMR for the sustainable remediation of toxic pollutants.

Apple Academic Press
August 2024:268
Hb: 978-1-774-91764-0: £170
eBook: 978-1-003-50189-3

* For full contents and more information, visit: www.routledge.com/9781774917640

Algal Farming Systems

From Production to Application for a Sustainable Future



Edited by **Jeyabalan Sangeetha, Devarajan Thangadurai**

Series: *Current Advances in Biodiversity, Conservation, and Environmental Sciences*

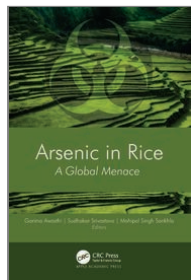
Presents the latest technological innovations in algae production, market status, and prospects for algal applications. It overviews different perspectives on the commercial production of algae-based food, health, and high-value cosmeceutical products, providing an institutional framework to support and promote the development and commercialization of algal farming. The book discusses phycotechnology, presents new information on algal culture conditions and cultivation strategies, the industrial applications of algae, green synthesis of nanoparticles from algae etc.

Apple Academic Press
April 2024:432
Hb: 978-1-774-91652-0: £180
eBook: 978-1-032-70035-9

* For full contents and more information, visit: www.routledge.com/9781774916520

Arsenic in Rice

A Global Menace



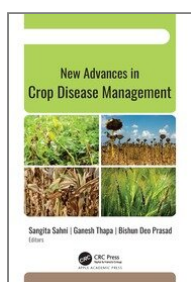
Edited by **Garima Awasthi, Sudhakar Srivastava, Mahipal Singh Sankhla**

Addresses the arsenic-rice problem, covering arsenic in water and in soil and specifically arsenic in rice, offering effective mitigation strategies. It discusses the rhizospheric physiology of rice in paddy fields and how arsenic is transported inside the plant and how arsenic causes toxicity to rice plants. It reviews long-distance translocation of arsenic in rice, arsenic-induced phytotoxicity, economic measures to reduce arsenic load, and techniques that are agronomically safe. The biotechnological and nanotechnological methods to mitigate arsenic stress in rice are considered as are the microbial-mediated techniques that can be applied to regulate arsenic in rice.

Apple Academic Press
February 2024:282
Hb: 978-1-774-91466-3: £150
eBook: 978-1-003-40839-0

* For full contents and more information, visit: www.routledge.com/9781774914663

New Advances in Crop Disease Management



Edited by **Sangita Sahni, Ganesh Thapa, Bishun Deo Prasad**

Provides a comprehensive overview of diverse crop protection strategies with special emphasis on the recent advances in crop protection approaches, fundamental concepts, principles, methodology, relationships, and benefits for crop protection and human health. It covers a variety of disciplines such as plant pathology, biochemistry, cell, and molecular biology, plant physiology, host-pathogen interactions, precision agriculture, decision analysis, disease risk, new ways of exploiting host genetic diversity including host resistance deployment, biological control and microbial interactions, and the consequences of climate change and signaling.

Apple Academic Press
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Hb: 978-1-774-91607-0: £170
eBook: 978-1-032-66711-9

* For full contents and more information, visit: www.routledge.com/9781774916070

Protected Cultivation

Structural Design, Crop Management Modeling, and Automation



Edited by **Mahesh Chand Singh, K. K. Sharma**

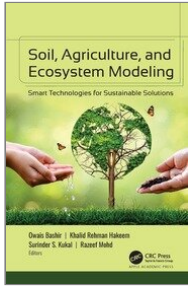
Safeguarding crop plants from the harmful effects of climate change, from environmentally toxic Looks at protected cultivation techniques to safeguard crop plants from the harmful effects of climate change, from environmentally toxic agricultural chemicals, and from crop pests and crop diseases. Topics include selecting site-specific protected structures, structure design and construction, improved crop cultivation techniques, irrigation and fertigation automation, insect-pests and diseases and their management, economic analysis of protected cultivation, modeling greenhouse micro-climate/environment, and more.

Apple Academic Press
February 2024:480
Hb: 978-1-774-91416-8: £147
eBook: 978-1-003-40259-6

* For full contents and more information, visit: www.routledge.com/9781774914168

Soil, Agriculture, and Ecosystem Modeling

Smart Technologies for Sustainable Solutions



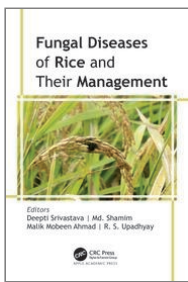
Edited by **Owais Bashir, Khalid Rehman Hakeem, Surinder S. Kukal, Razeef Mohd**

Explores and demonstrates soil, agriculture, and ecosystem modeling using artificial intelligence technologies for fostering smart sustainable agricultural practices. It takes into account the mechanisms of climate change as well as the challenges and hazards related to soil health, providing insight into long-term and sophisticated sustainable agriculture, crop protection and management, soil carbon sequestration, and ecology preservation. The volume covers the fundamental concepts of soil agriculture and ecosystem modeling, with an overview of the numerous model types including environmental models, pathological models, agronomic models, and structurally dynamic models.

Apple Academic Press
October 2024:318
Hb: 978-1-774-91542-4: **£170**
eBook: 978-1-032-68535-9

* For full contents and more information, visit: www.routledge.com/9781774915424

Fungal Diseases of Rice and Their Management



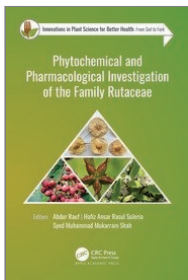
Edited by **Deepti Srivastava, Md. Shamim, Malik Mobeen Ahmad, R. S. Upadhyay**

Examines the bacterial and fungal pathogens that can cause rice diseases and explores how to manage these diseases. It covers the economic and environmental impact of rice fungal diseases on global food security and delves into diagnostic methods for rice fungal pathogens, discussing both traditional and molecular techniques for detection, including biotechnology, bioinformatics tools, and biological methods for the effective management of rice fungal diseases.

Apple Academic Press
January 2024:424
Hb: 978-1-774-91247-8: **£147**
eBook: 978-1-003-33216-9

* For full contents and more information, visit: www.routledge.com/9781774912478

Phytochemical and Pharmacological Investigation of the Family Rutaceae



Edited by **Abdur Rauf, Hafiz Ansar Rasul Suleria, Syed Muhammad Mukarram Shah**

Series: Innovations in Plant Science for Better Health: From Soil to Fork

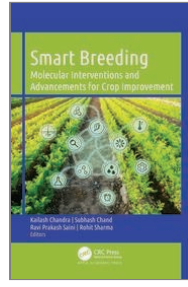
Provides an introduction to the family Rutaceae, which comprises numerous ornamental as well as economically significant fruit-bearing trees with significant phytochemistry and medicinal uses that are important for new drug discovery for pharmaceutical industries, and delineates its phytochemical and pharmacological properties and uses. Also addressed are the nutritional, clinical, and toxicological profiles, elaborating on the nutritional value, healthcare and clinical applications, and possible toxic side effects. The chapters may also direct researchers to isolate/extract pure compounds from family Rutaceae for new and novel drug discoveries.

Apple Academic Press
July 2024:242
Hb: 978-1-774-91371-0: **£147**
eBook: 978-1-003-40146-9

* For full contents and more information, visit: www.routledge.com/9781774913710

Smart Breeding

Molecular Interventions and Advancements for Crop Improvement



Edited by **Kailash Chandra, Subhash Chand, Ravi Prakash Saini, Rohit Sharma**

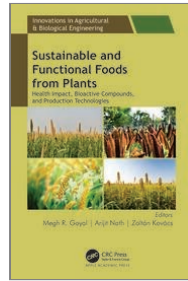
Focuses on novel breeding and biotechnological approaches for crop improvement, covering recent advances in molecular breeding and plant breeding, such as pre-breeding, reverse breeding, allele mining, next-generation sequencing, etc. The book discusses the development of climate-resilient crops that can withstand hostility or adversities of climate without substantially compromising yield and ways to mitigate plant stress. The book includes molecular markers, their genests, and their applications for crop improvement; QTL mapping, a modern breeding approach for mapping quantitative traits; pulse molecular breeding and genomics; and approaches for gene alterations.

Apple Academic Press
February 2024:446
Hb: 978-1-774-91331-4: **£147**
eBook: 978-1-003-36186-2

* For full contents and more information, visit: www.routledge.com/9781774913314

Sustainable and Functional Foods from Plants

Health Impact, Bioactive Compounds, and Production Technologies



Edited by **Megh R. Goyal, Arijit Nath, Zoltán Kovács**

Series: Innovations in Agricultural & Biological Engineering

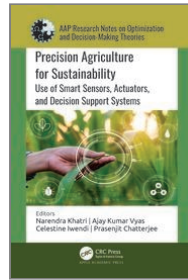
Details food and functionality of plant-based products and provides insight into the nutritional composition of key elements of plant-based diets. It introduces the most common adulteration practices and details quality monitoring and potential applications. The book primarily focuses on millets within plant-based products and discusses the uses of wine and beer, while mapping consumption trends and consumers' expectations and preferences. It also explores some ethnic foodstuffs, ingredients, and condiments in the African, European, and Far Eastern cuisines while exploring the potential of bioactive compounds in medicinal foods.

Apple Academic Press
June 2024:458
Hb: 978-1-774-91454-0: **£147**
eBook: 978-1-003-41576-3

* For full contents and more information, visit: www.routledge.com/9781774914540

Precision Agriculture for Sustainability

Use of Smart Sensors, Actuators, and Decision Support Systems



Edited by **Narendra Khatri, Ajay Kumar Vyas, Celestine Iwendu, Prasenjit Chatterjee**

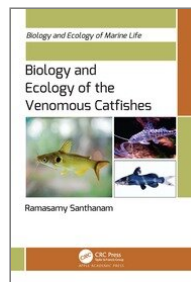
Series: AAP Research Notes on Optimization and Decision Making Theories

A comprehensive exploration of the state-of-the-art digital technological intervention for precision agriculture for sustainable development. It delves into how modern technologies—i.e., GPS, drones, image processing, artificial intelligence, machine learning, Internet of Things, and deep learning—are being used in agriculture to make it more farmer-friendly and more economically profitable. It discusses smart sensors, actuators, and decision support systems that provide intelligent data about crop health and for monitoring for yield prediction, soil quality, and nutrition requirement prediction, etc.

Apple Academic Press
February 2024:506
Hb: 978-1-774-91373-4: **£147**
eBook: 978-1-003-43522-8

* For full contents and more information, visit: www.routledge.com/9781774913734

Biology and Ecology of the Venomous Catfishes



Ramasamy Santhanam

Series: Biology and Ecology of Marine Life

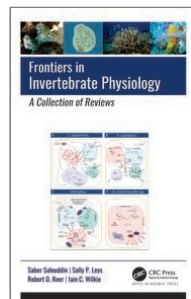
Here is a first-of-its-kind volume on the biology and ecology of venomous and traumatogenic freshwater and marine catfishes, covering their diversity; the aspects of venomology of catfish such as venom apparatus and venom characteristics; catfish envenomation and its treatment and management; and the pharmaceutical value of catfish venoms. This comprehensive volume first provides an introduction to venomous catfish families and then goes on to describe and explain their diversity, species, characteristics, geographical distribution, venomous symptoms, ecology, importance, and more.

Apple Academic Press
May 2024:274
Hb: 978-1-774-91452-6: £139
eBook: 978-1-003-40929-8

* For full contents and more information, visit: www.routledge.com/9781774914526

Frontiers in Invertebrate Physiology A Collection of Reviews

3-volume set



Edited by Saber Saleuddin, Sally P. Leys, Robert D. Roer, Iain C. Wilkie

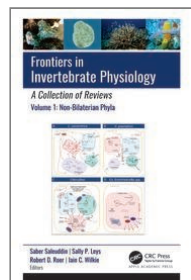
Provides reviews on the physiology of sponges, cnidarians, round and flat worms, annelids, echinoderms, and crustaceans. Vol 1 looks at non-bilaterians (sponges, cnidarians, placozoans), The section on cnidarians covers biomineralization, the nervous system, and development. The biology of placozoans is described in depth including the role of neuropeptides in feeding. Vol 2 looks at crustacea, covering physiological topics ranging from moulting, respiration, water balance, biomineralization, bioreceptors, and temperature regulation to the land adaptation of terrestrial crustaceans. Vol 3 discusses annelida and Echinodermata.

Apple Academic Press
February 2023:1466
Hb: 978-1-774-91398-7: £495.72

* For full contents and more information, visit: www.routledge.com/9781774913987

Frontiers in Invertebrate Physiology: A Collection of Reviews

Volume 1: Non-Bilateria Phyla



Edited by Saber Saleuddin, Sally P. Leys, Robert D. Roer, Iain C. Wilkie

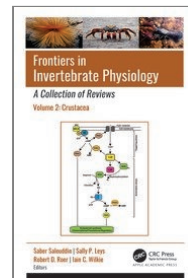
This 3-volume set provides informative reviews on the physiology of sponges, cnidarians, round and flat worms, annelids, echinoderms, and crustaceans. Volume 1 looks at non-bilaterians (sponges, cnidarians, placozoans). The focus on sponge biology has recently been on symbiosis, nutrient uptake, and sensory biology. The section on cnidarians covers biomineralization, the nervous system, and development. The biology of placozoans is described in depth including the role of neuropeptides in feeding. Volume 2 focuses on crustacea, and Volume 3 covers echinoderms and annelids.

Apple Academic Press
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eBook: 978-1-003-40331-9

* For full contents and more information, visit: www.routledge.com/9781774914007

Frontiers in Invertebrate Physiology: A Collection of Reviews

Volume 2: Crustacea



Edited by Saber Saleuddin, Sally P. Leys, Robert D. Roer, Iain C. Wilkie

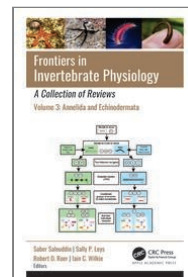
This new 3-volume set provides informative reviews on the physiology of sponges, cnidarians, round and flat worms, annelids, echinoderms, and crustaceans. Chapters on crustacean physiology are grouped in Volume 2 and cover diverse physiological topics ranging from moulting, respiration, water balance, biomineralization, bioreceptors, and temperature regulation to the land adaptation of terrestrial crustaceans. The chapters are comprehensive and add new knowledge to crustacean biology. Volume 1 looks at looks at non-bilaterians (sponges, cnidarians, placozoans). Echinoderms and annelids are covered in Volume 3.

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Frontiers in Invertebrate Physiology: A Collection of Reviews

Volume 3: Annelida and Echinodermata



Edited by Saber Saleuddin, Sally P. Leys, Robert D. Roer, Iain C. Wilkie

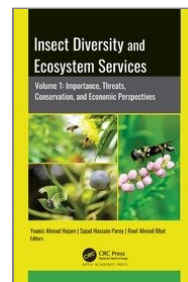
This new 3-volume set provides informative reviews on the physiology of sponges, cnidarians, round and flat worms, annelids, echinoderms, and crustaceans. Echinoderms and annelids are covered in Volume 3. The volume looks at temporary adhesion and regeneration as two important areas in echinoderm biology. It includes an important review of juxtaligamental cells, which may regulate the mechanical properties of connective tissue. Annelid physiology is discussed (neurobiology of locomotion in leeches, regeneration, reproduction) as is neuro-endocrine-immune response.

Apple Academic Press
February 2024:524
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eBook: 978-1-003-40518-4

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Insect Diversity and Ecosystem Services

Volume 1: Importance, Threats, Conservation, and Economic Perspectives



Edited by Younis Ahmad Hajam, Sajad Hussain Parey, Rouf Ahmad Bhat

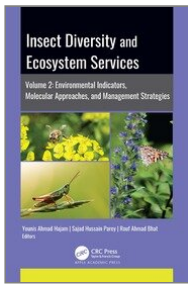
An innovative work on insects and their impact on the ecosystem, describing their enormous free ecosystem services. It covers a range of topics related to insects including their role in environmental pollution, their use in sustainable agricultural services, and the industrial, forensic, and medical applications of insects and their pure products. It also covers the entomological and molecular aspects of insects, identifies the gaps in the research, and looks at integrated management strategies for pests. It discusses the different diversity patterns of biogeographic zones of the world and how insects contribute to maintaining ecological diversity in the world.

Apple Academic Press
August 2024:292
Hb: 978-1-774-91580-6: £150
eBook: 978-1-003-46720-5

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Insect Diversity and Ecosystem Services

Volume 2: Environmental Indicators, Molecular Approaches, and Management Strategies



Edited by **Younis Ahmad Hajam , Sajad Hussain Parey , Rouf Ahmad Bhat**

An innovative work on insects and their impact on the ecosystem, describing their enormous free ecosystem services. It covers topics related to insects including their role in environmental pollution, their use in sustainable agricultural services, and the industrial, forensic, and medical applications of insects and their pure products. It covers topics such as their role as environmental indicators, the effect of pesticides on insect diversity, strategies to control insects, medical and forensic importance of insects, exploring new insect species through DNA barcoding, integrated pest management, and eco-friendly pest management approaches.

Apple Academic Press
August 2024:268
Hb: 978-1-774-91582-0: £150
eBook: 978-1-003-47119-6

* For full contents and more information, visit: www.routledge.com/9781774915820

Insect Diversity and Ecosystem Services

2-volume set



Edited by **Younis Ahmad Hajam , Sajad Hussain Parey , Rouf Ahmad Bhat**

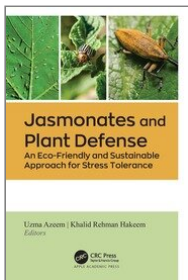
This two-volume set is an innovative work on insects and their enormous free ecosystem services. Vol 1 focuses the different diversity patterns of biogeographic zones of the world and how insects contribute to maintaining ecological diversity in different biogeographic regions of the world. Vol 2 delves into their role as environmental indicators, the effect of pesticides on insect diversity, strategies to control the diversity of insects, medical and forensic importance of insects, exploring new insect species through DNA barcoding, integrated pest management, the role of insect population in agriculture, and eco-friendly pest management approaches, etc.

Apple Academic Press
August 2024:560
Hb: 978-1-774-91577-6: £320

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Jasmonates and Plant Defense

An Eco-Friendly and Sustainable Approach for Stress Tolerance



Edited by **Uzma Azeem , Khalid Rehman Hakeem**

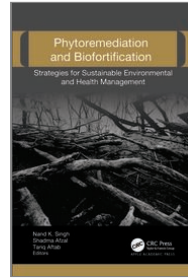
Highlights the beneficial presence and roles of jasmonates in plants, discussing the use of jasmonates in nano- to micromolecular concentrations to mitigate the toxic effects of various biotic and abiotic stresses and to improve crop yield in an eco-friendly and sustainable manner. It discusses in detail the genetic basis of jasmonates' action, effects of jasmonates on the antioxidant defense system, crosstalk between jasmonates and other plant hormones, how jasmonates enhance plant defense under biotic and abiotic stresses, and more.

Apple Academic Press
October 2024:250
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eBook: 978-1-003-45424-3

* For full contents and more information, visit: www.routledge.com/9781774916162

Phytoremediation and Biofortification

Strategies for Sustainable Environmental and Health Management



Edited by **Nand K. Singh , Shadma Afzal , Tariq Aftab**

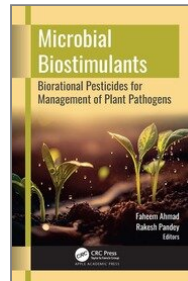
This volume offers a comprehensive overview of phytoremediation and biofortification as two strategies for sustainable environmental management. The book illustrates the emerging and innovative combination of these technologies, particularly highlighting strategies to mitigate pollution from microminerals. Topics include phytoremediation and biofortification strategies that use nanotechnology; algae, fungi, and other plants; CRISPR/Cas9-mediated genome engineering; and more for decontamination of water and soil and for fortifying plants against climate change, toxic chemicals, and other challenges.

Apple Academic Press
February 2024:410
Hb: 978-1-774-91408-3: £147
eBook: 978-1-003-40208-4

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Microbial Biostimulants

Biorational Pesticides for Management of Plant Pathogens



Edited by **Faheem Ahmad , Rakesh Pandey**

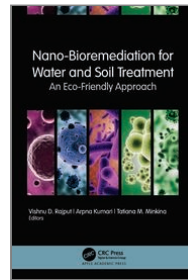
Explores the field of microbial biostimulants. It also explores how microbial-based biopesticides can be used for managing pests and plant diseases as well as for the promotion of growth. It looks at the advantages of employing microbial biostimulants over other pest and disease control methods. It also looks at the application of microbial biostimulants as a response to the modern agricultural need for increased productivity and plant health. It brings together an extensive collection of information on beneficial microorganisms, including newly introduced microorganisms, their biological activities and specificity, resistance mechanisms to pests, formulation, application, etc.

Apple Academic Press
October 2024:446
Hb: 978-1-774-91624-7: £170
eBook: 978-1-003-48483-7

* For full contents and more information, visit: www.routledge.com/9781774916247

Nano-Bioremediation for Water and Soil Treatment

An Eco-Friendly Approach



Edited by **Vishnu D. Rajput , Arpna Kumari , Tatiana M. Minkina**

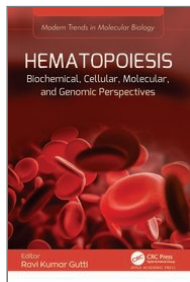
Presents recent nanotechnological advances that provide significant potential for decontamination of many polluted sites. It describes the introductory background of nanoremediation along with the various types and applications in the restoration of environmental sites contaminated with a diverse range of pollutants, such as heavy metal, pesticides, and dyes in soil and water. It details how different types of nanomaterials are used to treat various pollutants, offering various strategies, including nano-phytoremediation, nanomaterials for inorganic pollutants, and more.

Apple Academic Press
June 2024:388
Hb: 978-1-774-91486-1: £150
eBook: 978-1-003-41496-4

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Hematopoiesis

Biochemical, Cellular, Molecular, and Genomic Perspectives



Edited by **Ravi Kumar Gutti**

Series: *Modern Trends in Molecular Biology*

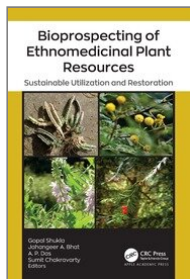
Discusses the widespread concerns of hematopoietic challenges in different and emerging ways, offering a comprehensive overview of the regulation of blood cell development, epigenetic mechanisms, and regulatory non-coding RNAs. It presents concepts related to regulation of hematopoietic stem cell development, as well as survival, proliferation, and differentiation. It also discusses the microenvironmental niche where stem cells exist and develop into distinct blood cell types. A model system used to study non-coding RNA functions and along with transformation of normal cells into cancer cell is elaborated on as well.

Apple Academic Press
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Bioprospecting of Ethnomedicinal Plant Resources

Sustainable Utilization and Restoration



Edited by **Gopal Shukla , Jahangeer A. Bhat , A. P. Das , Sumit Chakravarty**

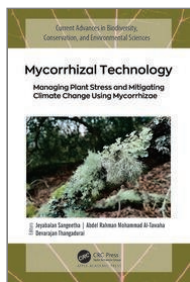
Discusses importance of bioprospecting plants of ethnic origins in a sustainable manner while presenting effective methods of bioprospecting. It shows the importance of sustainability and bioprospecting for formulating novel chemical compounds and new drugs from raw materials from ethnomedicinal plants present in the wild for healthcare and nutritional practices. It provides information on medicinal plant diversification, cultivation techniques, biotechnological approaches, modern and traditional usages, developing new strategies and policies for the systematic management and conservation of medicinal resources for future use.

Apple Academic Press
September 2024:466
Hb: 978-1-774-91618-6: £170
eBook: 978-1-003-45148-8

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Mycorrhizal Technology

Managing Plant Stress and Mitigating Climate Change Using Mycorrhizae



Edited by **Jeyabalan Sangeetha , Abdel Rahman Mohammad Al-Tawaha , Devarajan Thangadurai**

Delivers the remarkable theoretical and practical findings on the applications of mycorrhizal fungi in recovering plant health, in producing the mycorrhizal edible forest trees, and in conserving natural resources. It examines the recent research studies based on mycorrhizal technology that have explored the positive impact of root symbiosis on plant adaptation to climate-associated abiotic stressors, such as salinity, drought, flooding, and high temperatures. Also discusses the extensive commercial applications of mycorrhiza fungi in various industrial sectors including agriculture, horticulture, and biotechnology.

Apple Academic Press
January 2024:304
Hb: 978-1-774-91510-3: £150
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Advanced Research in Electronic Devices for Biomedical and mHealth



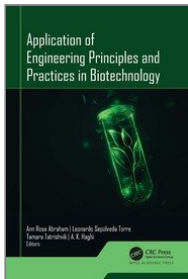
Edited by **Rajesh Kumar Kesharwani**, **Upendra Kumar**, **Raj K. Keservani**

Addresses the major design challenges and research potential in electronic device applications in healthcare and biomedical systems, exploring the blending of innovative mobile communications, network technologies, medical sensors, and ubiquitous computing devices with medical and biological applications. It looks at machine learning, convolutional neural networks, smartphone-based devices, IoT sensors, and other smart technologies for health diagnosis and monitoring. Topics include integrated circuit design, energy harvesting systems, mHealth technologies by using machine learning to predict which blood groups provide resistance against the COVID-19 Delta variant, and more.

Apple Academic Press
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Hb: 978-1-774-91516-5: £130
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Application of Engineering Principles and Practices In Biotechnology



Edited by **Ann Rose Abraham** Sacred Heart College (Autonomous), Kochi, India, **Leonardo Sepúlveda Torre** Autonomous University of Coahuila, Mexico, **Tamara Tatrishvili**, **A.K. Haghi**

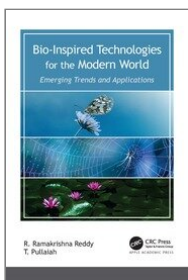
Reflects the multidisciplinary nature of the goals of biotechnology engineering and provides a firm foundation in the science and engineering of biological processes. It is a research-oriented reference book designed to equip practitioners in biotechnology and bioengineering with a highly technical career path. The book discusses the combination of both engineering and science of biological processes from wastewater treatment to tissue engineering. It discusses experimental and theoretical solutions for environmental pollution, new frontiers in bioengineering and biotechnology and use of biotechnology and bio-based routes to sustainable composites.

Apple Academic Press
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Bio-Inspired Technologies for the Modern World

Emerging Trends and Applications



Edited by **R. Ramakrishna Reddy**, **T. Pullaiah**

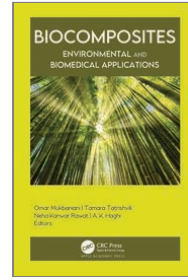
This new volume delves into a sampling of these bio-inspired technologies, those that have inspired scientists and inventors to create new products and innovations. It looks at technological issues that have been tackled with the help of biologically inspired engineering, by such things in nature as bionic plants, the lotus leaf, insects and beetles, geckos, bats, spiders, and butterflies. It considers bio-inspired technologies applied in water purification, for business lessons, in healthcare and medicine, and more.

Apple Academic Press
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Biocomposites

Environmental and Biomedical Applications



Edited by **Omar Mukbaniani**, **Tamara Tatrishvili**, **Neha Kanwar Rawat**, **A. K. Haghi**

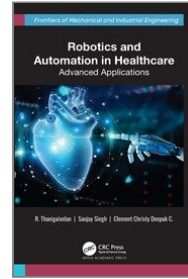
Presents the most recent studies on the different aspects of new green materials and related biocomposites. The chapters focus on the overall characteristics of biocomposites, including chemical composition along with engineering and technical properties of the most in-demand green materials employed for fabricating biocomposites. It also reports on the modern techniques along with new developments engaged to produce biocomposites. After considering applications and trends of biocomposites, the major characterization techniques along with the important environmental effects are discussed in depth.

Apple Academic Press
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* For full contents and more information, visit: www.routledge.com/9781774913697

Robotics and Automation in Healthcare

Advanced Applications



Edited by **R. Thanigaivelan**, **Sanjay Singh**, **Clement Christy Deepak C.**

Series: *Frontiers of Mechanical and Industrial Engineering*

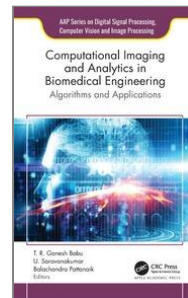
Explores new technologies related to robotics and automation in healthcare. It reviews wireless charging of implantable pacemakers, considers smart bot design for library building of medical colleges, and discusses strain distribution in biomechanical systems. It also discusses medical imaging, drone technology, 3D printing, nano-robots technology and image processing techniques. It also reviews applications and importance of actuators in medical devices as well as in wearable devices for pre-identification of seizure development. Also looks at a decision support system for detection of suitable robots with the support of image processing techniques.

Apple Academic Press
July 2024:314
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eBook: 978-1-003-42416-1

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Computational Imaging and Analytics in Biomedical Engineering

Algorithms and Applications



Edited by **T. R. Ganesh Babu**, **U. Saravanakumar**, **Balachandra Pattanaik**

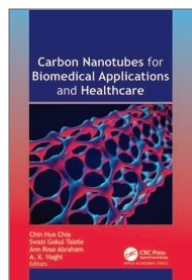
Series: *AAP Series on Digital Signal Processing, Computer Vision and Image Processing*

Focuses on mathematical and numerical methods for medical images and data. It presents the various mathematical modeling techniques, numerical analysis, computing and computational techniques, and applications of machine learning for medical images and medical informatics. It also focuses on programming concepts using MATLAB and Python for medical image and signal analytics. It demonstrates the use of various computational techniques and tools such as machine learning, deep neural networks, artificial intelligence and human-computer interaction, fusion methods for CT and pet images, etc. for diagnosis of various disorders and diseases.

Apple Academic Press
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Carbon Nanotubes for Biomedical Applications and Healthcare



Edited by **Chin Hua Chia , Swati Gokul Talele , Ann Rose Abraham , A. K. Haghi**

Discusses the synthesis, properties, modification of CNT, and progress of carbon nanotubes and their applications for biosensing, cancer treatment, antibacterial therapy, tissue engineering, targeted drug delivery, and toxicity. It relays the potential and promise of carbon-based nanomaterials for host of applications while also looking at the challenges in synthesis, characterization, and applications of nanomaterials and how to overcome them. It examines the applications of carbon nanotubes in biomedical science and human health.

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Corporate Social Responsibility in the Global Business World

A Conceptual, Regulatory, and Illustrative Framework



Edited by Meenu Maheshwari , Ashok Kumar Gupta , Pragya Gaur , Nupur Tiwari , Shobhna Goyal

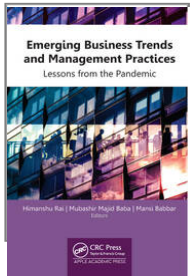
This new volume covers the parameters of corporate social responsibility around the world, elucidating the concepts, evolution, cultural dimensions, key areas, and disclosure and reporting methods and how CSR is being considered and implemented across the globe. The book also offers a future outlook for CSR. The book begins with a thorough introduction to CSR, covering its meaning and definition along with the principles of CSR for effective implementation, its inherent benefits, and its challenges. It goes on to cover the status of CSR in emerging economies with the emphasis on emerging trends in corporate governance, reporting, indexing, and certification.

Apple Academic Press
July 2024:330
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Emerging Business Trends and Management Practices

Lessons from the Pandemic



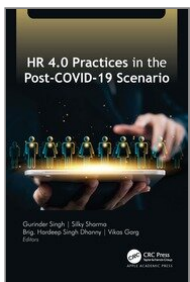
Edited by Himanshu Rai , Mubashir Majid Baba , Mansi Babbar

Explores the dramatic changes in the business environment from the phenomenal impact of the COVID-19 pandemic. It presents emerging trends, strategies, management practices, opportunities, and challenges faced by business leaders, managers, and administrators. It highlights the nuances of business growth and sustainability and different management functions where change results in new management trends and business models followed by innovative ways for competition. It includes a variety of perspectives, practical experiences, knowledge, and insights to aid in formulating and implementing strategies.

Apple Academic Press
February 2024:466
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HR 4.0 Practices in the Post-COVID-19 Scenario



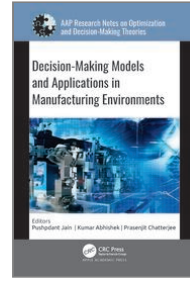
Edited by Gurinder Singh , Silky Sharma , Brig. Hardeep Singh Dhanny , Vikas Garg

Examines the dramatic impact of the COVID-19 pandemic and the digital revolution on human resources management practices, processes, and systems. It looks at the major difficulties, challenges, and opportunities that arose because of the COVID pandemic, equipping HR managers, researchers, and practitioners with the knowledge they need for future organizational directions. Topics include work-from-home, workplace digitization, employee work-life balance, task automation via AI, HRM curriculum in schools and universities, employee development, e-recruitment, internal marketing, and more. The volume includes case studies and data gathered from employee/worker surveys.

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May 2024:278
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Decision-Making Models and Applications in Manufacturing Environments



Edited by Pushpdant Jain , Kumar Abhishek , Prasenjit Chatterjee

Series: AAP Research Notes on Optimization and Decision Making Theories

This new volume applies the multi-criteria decision-making (MCDM) theory to solving problems and challenges in manufacturing environments. It details the decision-making process in relation to many manufacturing aspects. The chapter authors demonstrate the application of myriad MCDM techniques in decision-making, including MADM (multiple attribute decision-making), DEA (data envelopment analysis), fuzzy TOPSIS (technique for order preference by similarities to ideal solution) and others.

Apple Academic Press
February 2024:528
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Post-Pandemic Economy, Technology, and Innovation

Global Outlook and Context



Edited by Samina Yaqoob , Arwa Abdulkreem AL-Huqail , Fakhra Aziz

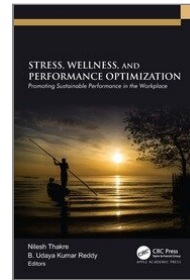
Explores the impact of the pandemic on many aspects of life and work, including the global economy, entrepreneurship and innovation, intellectual property laws, agriculture, healthcare, teaching and education, marketing strategies, banking mechanisms, travel and tourism, and science and technology. The book looks at how the virus outbreak has highlighted and emphasized the role of technological innovation as an essential connector as international borders were shuttered and commercial activity was disturbed at an unprecedented scale.

Apple Academic Press
February 2024:356
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Stress, Wellness, and Performance Optimization

Promoting Sustainable Performance in the Workplace



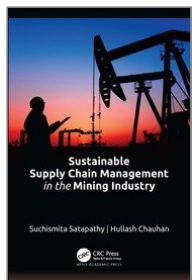
Edited by Nilesh Thakre , B. Udaya Kumar Reddy

Examines the intertwined concepts of stress, performance, and wellness and offers insight and strategies for providing support to individuals and organizations for effective performance optimization. It considers new constructs in organizational stress and provides a comprehensive review of wellness as well as performance aspects. Topics include organizational constraints that negate effective job performance, well-being interventions, the role of family and spirituality, new technology, work-life balance and life satisfaction, organizational justice, burnout and self-efficacy, etc. The book also provides practical examples that combine theory and practice.

Apple Academic Press
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Sustainable Supply Chain Management in the Mining Industry



Suchismita Satapathy , Hullash Chauhan

Provides an overview of sustainable supply chain management through computational and multicriteria decision-making analyses. It explores sustainability and sustainable supply chain management in the context of transportation and electricity generation. Soft computing methods are also discussed as are the detrimental effects of mines and how sustainability management can be forecast. The most significant difficulties in the mining sector are covered as well, taking into account specific analytical indicators to discover the most socially and ecologically responsible solutions. It evaluates the security risks in the mining business and offers solutions as well.

Apple Academic Press

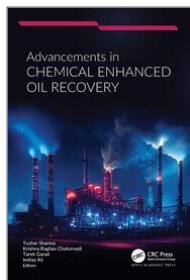
September 2024: 196

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eBook: 978-1-003-48834-7

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Advancements in Chemical Enhanced Oil Recovery



Edited by **Tushar Sharma , Krishna Raghav Chaturvedi , Tarek Ganat , Imtiaz Ali**

Presents, describes, and summarizes the latest advances in chemical enhanced oil recovery, covering methods that include low-salinity water flooding, polymer and surfactant flooding, foam flooding, nanofluid flooding, hybrid methods, ionic liquid applications, and others. It discusses chemical synthesis of EOR agents and numerical simulation of compositional models in porous media, including a description of possible application of nanotechnology acting as a booster of traditional chemical EOR processes. The volume also addresses the need for customized approaches for unconventional reservoirs and the challenges.

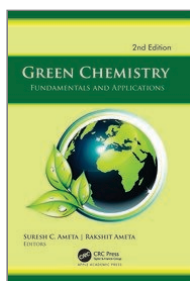
Apple Academic Press
September 2024:404
Hb: 978-1-774-91508-0: £170
eBook: 978-1-003-45372-7

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2ND EDITION

Green Chemistry, 2nd edition

Fundamentals and Applications



Edited by **Suresh C. Ameta , Rakshit Ameta**

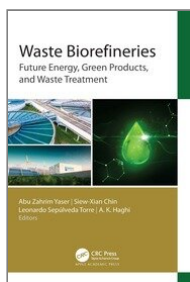
This second edition of the well-received Green Chemistry: Fundamentals and Applications addresses a diverse selection of topics in green chemistry, highlighting the potential and scope of green chemistry for clean and sustainable development. Covering the basics, the book discusses the benefits of environmentally friendly chemical practices and their use in industry. The book has been updated with new research, new advances, and timely references. Specific topics include eco-friendly products, green catalysts, ionic liquids, supercritical fluids, green solvents, photo-Fenton reaction, photocatalysis, sonochemistry, ultrasound-assisted reactions.

Apple Academic Press
January 2023:556
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eBook: 978-1-003-43147-3

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Waste Biorefineries

Future Energy, Green Products, and Waste Treatment



Edited by **Abu Zahrim Yaser , Siew-Xian Chin , Leonardo Sepúlveda Torre , A. K. Haghi**

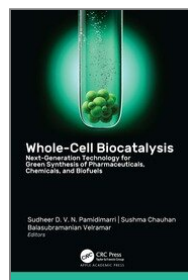
Provides a comprehensive overview of biorefining processing techniques, technologies, and materials that can use waste products in a number of innovative ways. It covers proven case studies that demonstrate the most advanced and innovative processes and product developments on waste biorefinery principles. This new book also provides valuable data and technologies that consider environmental impacts. The book discusses recent steps toward renewable and clean energy along with waste-to-energy technologies, modern technologies for waste valorization that holds a valuable prospective for a sustainable green world and the future energy, green products, and waste treatment.

Apple Academic Press
August 2024:298
Hb: 978-1-774-91546-2: £147
eBook: 978-1-032-68507-6

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Whole-Cell Biocatalysis

Next-Generation Technology for Green Synthesis of Pharmaceutical, Chemicals, and Biofuels



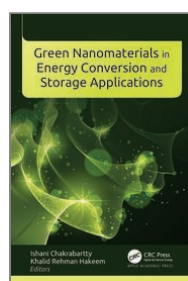
Edited by **Sudheer D. V. N. Pamidimarri , Sushma Chauhan , Balasubramanian Velramar**

This book offers a comprehensive understanding of whole-cell biocatalysis. It presents basic as well as advanced concepts of whole-cell biocatalysis. It looks at the promising developments in whole-cell biocatalysis in the past decade and discusses the application of computational tools, the use of metabolic flux systems, and the role of metabolic networks for the cell system development for whole-cell catalysis. The book also explores whole-cell biocatalysis for the production of chemicals, of fuels, and for environmental restoration, through case studies and success stories that showcase new developments in the technology and its practical applications.

Apple Academic Press
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eBook: 978-1-003-41313-4

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Green Nanomaterials in Energy Conversion and Storage Applications



Edited by **Ishani Chakrabartty , Khalid Rehman Hakeem**

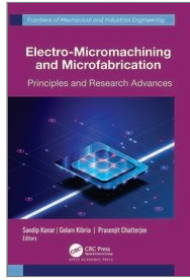
Addresses the energy challenge by discussing the various aspects of design, exploitation, and applications of green nanomaterials in energy devices—for energy efficiency, energy conversion, energy storage, and energy saving. The book also addresses the limitations that currently exist and how green nanomaterials can be utilized as a future prospect towards a sustainable economy. The book emphasizes the importance and different modes of synthesis of nanomaterials, with detailed emphasis on green nanomaterials. Energy efficiency and environmental impact of the utilization of green nanomaterials as energy conversion devices are a major focus of the book.

Apple Academic Press
February 2024:266
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Electro-Micromachining and Microfabrication

Principles and Research Advances



Edited by **Sandip Kumar , Golam Kibria , Prasenjit Chatterjee**

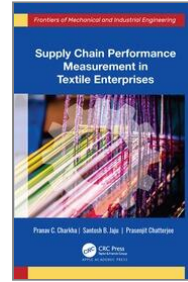
Series: *Frontiers of Mechanical and Industrial Engineering*

Provides an overview of micromachining technologies, with an emphasis on nontraditional approaches and advances. It discusses the ultrasonic micromachining processes for producing a variety of micro-shapes, such as micro-holes, micro-slots, and micro-walls, as well as assisted hybrid micromachining with ultrasonic vibration of the tool or workpiece, all which help to improve precision and to advance research. Computer-aided design, and computer-aided manufacturing, dental micromachining technologies are discussed. Micro-electrical discharge machining, laser micro grooving, and laser micromachining are among the advanced micro-manufacturing processes addressed.

Apple Academic Press
April 2024:432
Hb: 978-1-774-91379-6: **£147**
eBook: 978-1-003-39779-3

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Supply Chain Performance Measurement in Textile Enterprises



Pranav C. Charkha , Santosh B. Jaju , Prasenjit Chatterjee

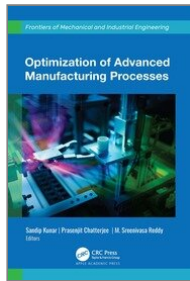
Series: *Frontiers of Mechanical and Industrial Engineering*

Provides detailed insight into supply chain management (SCM) and supply chain performance measurement (SCPM) in textile industry, offering the information needed to understand, implement, and evaluate the supply chain performance of the textile industry and its cyclic processes. Also offers a comprehensive set of performance sub-criteria for the evaluation of supply chain performance measurement and elaborating on the practices of supply chain performance in identified textile industries. Using the Delphi, the authors studied companies of diverse sizes and applied an analytical hierarchy process to establish crucial performance measurement criteria.

Apple Academic Press
June 2024:252
Hb: 978-1-774-91386-4: **£131**
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Optimization of Advanced Manufacturing Processes



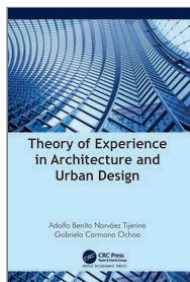
Edited by **Sandip Kumar , Prasenjit Chatterjee , M. Sreenivas Reddy**

Explains how to optimize various industrial systems and processes using new significant statistical and evolutionary methodologies. Statistical, multi-criteria decision-making, and evolutionary strategies for single- and multi-objective optimization are covered here, with relevant theoretical details. It presents a variety of advanced manufacturing processes and optimization techniques with basic explanations, characteristics, and applications in various technological and biomedical domains. It also addresses the processes prediction of mechanical properties, design and development of tools, impact of power supply, additive manufacturing etc.

Apple Academic Press
November 2024:284
Hb: 978-1-774-91602-5: **£150**
eBook: 978-1-003-48712-8

* For full contents and more information, visit: www.routledge.com/9781774916025

Theory of Experience in Architecture and Urban Design



Edited by **Adolfo Benito Narváez Tijerina , Gabriela Carmona Ochoa**

Presents practical tools for architects and urban designers to improve the work processes of architectural design—from the conception to the construction, taking into consideration the personalized world of users, architects, and urban designers. It starts from the conception of architectural space as a continuum that goes from the subjective depth of the mind to the objective reality, taking into consideration the perspective of building experiences for users.

Apple Academic Press
July 2024:430
Hb: 978-1-774-91218-8: **£139**
eBook: 978-1-003-33205-3

* For full contents and more information, visit: www.routledge.com/9781774912188

Computational Science and Its Applications



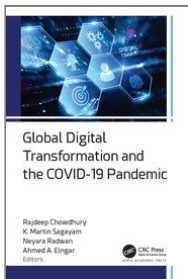
Edited by **Anupama Chadha** MRIIRS, India, **Sachin Sharma** Manav Rachna International Institute of Research and Studies, India, **Vasudha Arora**

Explores the overlapping behavior of some aspects of the computational intelligence, focusing on real-life applications of these new tools and technologies. It discusses how computational science can interact with artificial intelligence, machine learning, data science, quantum computing, image processing, evolutionary algorithms (ESs), process simulation, deep learning, for big data analysis, and computational intelligent algorithms.

Apple Academic Press
January 2024:264
Hb: 978-1-774-91275-1: £131
eBook: 978-1-003-34748-4

* For full contents and more information, visit: www.routledge.com/9781774912751

Global Digital Transformation and the Covid-19 Pandemic



Edited by **Rajdeep Chowdhury**, **K. Martin Sagayam**, **Neyara Radwan**, **Ahmed A. Elngar**

Explores post-Covid transformation by looking at the adoption of artificial intelligence, machine learning, and the Internet of Things (IoT) technologies proven effective in the medical context. It discusses the fundamentals of computer intelligence, related techniques, and procedures. It also describes the cutting-edge methods of new information technology used in healthcare, addressing the problem of effective data analysis and storage in healthcare institutions. It delves into mobile application technology, medical diagnosis technology, transmission dynamics prediction models, post-pandemic crowd safety provisioning applications, etc.

Apple Academic Press
November 2024:308
Hb: 978-1-774-91550-9: £130
eBook: 978-1-032-71686-2

* For full contents and more information, visit: www.routledge.com/9781774915509

Handbook of Research on Artificial Intelligence and Soft Computing Techniques in Personalized Healthcare Services



Edited by **Uma N. Dulhare**, **A. V. Senthil Kumar**, **Amit Dutta**, **Seddik Bri**, **Ibrahiem M. M. El Emary**

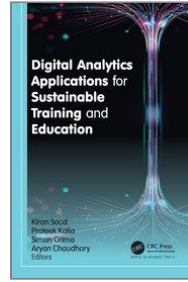
Series: *AAP Advances in Artificial Intelligence and Robotics*

Presents new applications in AI and soft computing for intelligent personalized healthcare. It looks at AI and soft computing techniques, applications, and algorithms, such as deep learning, robotics, machine learning, blockchain, emerging cloud, edge computing, Practical Byzantine Fault Tolerance consensus, CNN architecture, Splunk, genetic algorithms, DurBhashan, and more. It shows the uses of AI and computer techniques in healthcare for enhanced data sharing, remote health monitoring, tele-rehabilitation, connecting rural populations with healthcare services, identifying diseases and health issues, automated medical diagnosis, optimizing expenditures, etc.

Apple Academic Press
January 2024:492
Hb: 978-1-774-91338-3: £193
eBook: 978-1-003-37125-0

* For full contents and more information, visit: www.routledge.com/9781774913383

Digital Analytics Applications for Sustainable Training and Education



Edited by **Kiran Sood**, **Prateek Kalia**, **Simon Grima**, **Aryan Chaudhary**

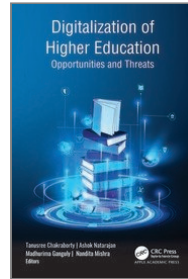
Showcases digital analytics (DA) as a new trend using new technologies to measure, collect, analyze, and report on data about learners and their contexts to understand and optimize learning and learning environments. It looks at digital technologies as a means to foster sustainable educational innovations for improving the teaching, learning, and assessment from K-12 to higher education. Such technological tools for quantitative and qualitative data analysis and data mining techniques as artificial intelligence, deep learning, cloud computing, big data, machine learning are discussed in the context of educational digital analytics.

Apple Academic Press
November 2024:520
Hb: 978-1-774-91594-3: £170
eBook: 978-1-032-71336-6

* For full contents and more information, visit: www.routledge.com/9781774915943

Digitalization of Higher Education

Opportunities and Threats



Edited by **Tanusree Chakraborty**, **Ashok Natarajan**, **Nandita Mishra**, **Madhurima Ganguly**

The book examines the policies of governments, higher education institution management, leadership styles to aid digitalization, the use of online teaching tools, changes in educational pedagogy, the impact of educational technology on the attitudes of students and educators to learning. It covers the opportunities in higher education that were made available by a digitalization process, digital management leadership of the HEIs, governmental initiatives introduced in conjunction with new education policy, how digitalization makes the process of learning more efficient, students' and teachers' acceptance of digitalization and psychological constructs of model cognitive.

Apple Academic Press
February 2024:404
Hb: 978-1-774-91414-4: £131
eBook: 978-1-003-41215-1

* For full contents and more information, visit: www.routledge.com/9781774914144

Revolutionary Challenges and Opportunities of Fintech



Edited by **Shweta Anand**, **Shalini Srivastav**, **Vikas Garg**, **Geetika Garg**

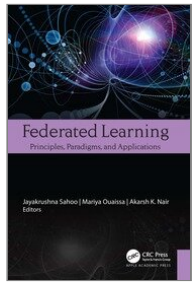
This book explores the emergence of artificial intelligence blended with financial concepts as a promising new area in business and technology—financial technology, or fintech. It introduces the concepts of fintech, its financial derivatives, management information systems, and artificial intelligence and provides tools to find solutions to complex problems in the finance and investment domain. The case studies provide firsthand knowledge of real problems faced by the industry and highlight the thought processes in resolution of complex problems.

Apple Academic Press
May 2024:240
Hb: 978-1-774-91504-2: £120
eBook: 978-1-003-42871-8

* For full contents and more information, visit: www.routledge.com/9781774915042

Federated Learning

Principles, Paradigms, and Applications



Edited by Jayakrushna Sahoo , Mariya Ouaisa , Akarsh K. Nair

Provides an in-depth understanding of federated learning. It explores how federated learning integrates AI technologies, such as blockchain, machine learning, IoT, edge computing, and fog computing systems, allowing multiple collaborators to build a robust machine-learning model using a large dataset. It highlights the capabilities and benefits of federated learning, addressing critical issues such as data privacy, data security, data access rights, and access to heterogeneous data. The volume presents a comprehensive analysis of some of the common challenges, proven threats, and attack strategies affecting FL systems.

Apple Academic Press
September 2024:352
Hb: 978-1-774-91638-4: **£150**
eBook: 978-1-003-49719-6

* For full contents and more information, visit: www.routledge.com/9781774916384

The Fusion of Artificial Intelligence and Soft Computing Techniques for Cybersecurity



Edited by M. A. Jabbar , Sanju Tiwari , Subhendu Kumar Pani , Stephen Huang

Series: AAP Advances in Artificial Intelligence and Robotics

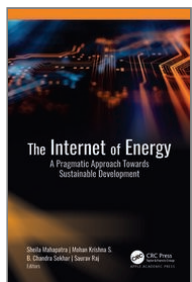
Investigates the advances in artificial intelligence and soft computing techniques in cybersecurity. It specifically looks at cybersecurity during the COVID-19 pandemic, the use of cybersecurity for cloud intelligent systems, applications of cybersecurity techniques for web applications, and cybersecurity for cyber-physical systems. A diverse array of technologies and techniques are explored for cybersecurity applications, such as the Internet of Things, edge computing, cloud computing, artificial intelligence, soft computing, machine learning, cross-site scripting in web-based services, neural gas (GNG) clustering technique, and more.

Apple Academic Press
June 2024:294
Hb: 978-1-774-91480-9: **£131**
eBook: 978-1-003-42850-3

* For full contents and more information, visit: www.routledge.com/9781774914809

The Internet of Energy

A Pragmatic Approach Towards Sustainable Development



Edited by Sheila Mahapatra , Mohan Krishna S. , B. Chandra Sekhar , Saurav Raj

Discusses the automation of electricity infrastructures for energy producers, integrating the implementation of IoT technology for distributed energy systems to optimize energy efficiency and wastage. Provides efficient, clean, and safe solutions for interfacing internet technology with energy power grids for smart cities and smart transportation. Describes research on algorithms for the design and control of energy grids, investigations of thermal efficiency from solar, energy for smart buildings using IoT, deep learning for electrical load forecasting, hybrid ultracapacitors in solar microgrids, power loss reduction and voltage improvement.

Apple Academic Press
February 2024:416
Hb: 978-1-774-91418-2: **£147**
eBook: 978-1-003-39982-7

* For full contents and more information, visit: www.routledge.com/9781774914182

Artificial Intelligence for Smart Technology in the Hospitality and Tourism Industry



Edited by Vinod Kumar Shukla , Amit Verma , Jean Paolo G. Lacap

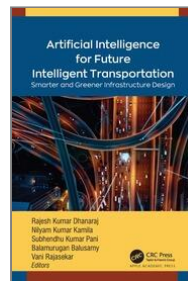
Focuses on the shifting requirements of the hospitality service industry, aiming to incorporate smart information technology into the tourism services. The book explains how artificial intelligence can support a company's strategy to revolutionize the business by sharing how to use smart technology most effectively. The chapters explore the myriad evolving technologies, including artificial intelligence, Internet of Things, big data, blockchain, and automation and robotics in the hospitality industry, for transforming hotels into smart hotels and for revolutionizing many aspects involved in effectively servicing hospitality clientele.

Apple Academic Press
July 2024:372
Hb: 978-1-774-91490-8: **£140**
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Artificial Intelligence for Future Intelligent Transportation

Smarter and Greener Infrastructure Design



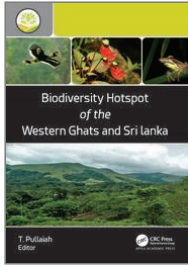
Edited by Rajesh Kumar Dhanaraj , Nilayam Kumar Kamila , Subhendu Kumar Pani , Balamurugan Balusamy , Vani Rajasekar

Emphasizing a sustainable and green approach, this new book presents an overview of state-of-the-art AI strategies for solving transportation challenges around the world, with a focus on traffic management, traffic safety, public transportation, urban mobility, and pollution mitigation. The book examines modern AI technologies such as IoT, cloud computing, machine learning, and neural networking in the context of fully automated transportation that meets current requirements. The book provides an informative review of the difficulties and recent developments in smart mobility and transportation, encompassing technical, algorithmic, and social elements.

Apple Academic Press
January 2024:336
Hb: 978-1-774-91352-9: **£131**
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* For full contents and more information, visit: www.routledge.com/9781774913529

Biodiversity Hotspot of the Western Ghats and Sri Lanka



Edited by **T. Pullaiah**

Series: *Biodiversity Hotspots of the World*

Focuses on the most interesting and important properties of biodiversity hotspot of Western Ghats and Sri Lanka, covering physiography and climatology, vegetation and forest types, amphibian and reptile biodiversity, genetic diversity of crops and plants, fishes, butterflies, insects etc. This hotspot, construed as forming a community of species because of their shared biogeographical history, is extraordinarily rich in species, especially plants, found nowhere else. However, its forests face tremendous population pressure and have been dramatically impacted by demands for timber and agricultural land are globally threatened.

Apple Academic Press
April 2024:652

Pb: 978-1-774-91376-5: **£82.99**

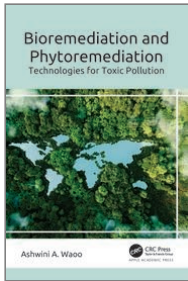
Hb: 978-1-774-91375-8: **£193**

eBook: 978-1-003-40875-8

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Bioremediation and Phytoremediation

Technologies for Toxic Pollution



Ashwini A. Waoo

Provides an informative overview of the emerging issues related to bioremediation and phytoremediation. It discusses alternative technologies for the removal of pollutants from the environment, restoring contaminated sites, and preventing further pollution using bioremediation. The multitude of bioremediation and phytoremediation technologies and methods covered include biochar for remediation, cyanobacteria, biosensors and bioindicators, rhizoremediation, and plant tissue culture studies such as dyes and plastics, mine waste, contaminated soil, heavy metals, wastewater, etc.

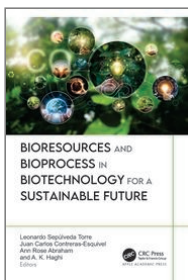
Apple Academic Press
February 2024:406

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eBook: 978-1-003-40959-5

* For full contents and more information, visit: www.routledge.com/9781774913840

Bioresources and Bioprocess in Biotechnology for a Sustainable Future



Edited by **Leonardo Sepúlveda Torre, Juan Carlos Contreras-Esquivel, Ann Rose Abraham, A. K. Haghi**

Reports on the latest achievements in the field of biotechnology and focuses on the different aspects of bioresources and bioprocesses in biotechnology for sustainable development and a sustainable future. It covers the various fields of agricultural biotechnology and focuses on selected commercial crops, discussing key parameters in evaluation of biodegradation in bio-based materials in soil for the better management of natural resources. Case studies on bioremediation and biodegradation are presented for improvement in the conditions of polluted soil and water bodies.

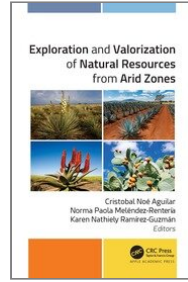
Apple Academic Press
April 2024:354

Hb: 978-1-774-91432-8: **£147**

eBook: 978-1-003-41004-1

* For full contents and more information, visit: www.routledge.com/9781774914328

Exploration and Valorization of Natural Resources from Arid Zones



Edited by **Cristobal Noé Aguilar, Norma Paola Meléndez-Rentería**

Karen Nathiely Ramirez-Guzman

Analyses the exploration and sustainable valorization of natural resources from the arid zones, focussing on the challenges the industry faces in an era of sustainability. The volume describes the geographic and climatic characteristics and the natural resources from arid zones, divided into three main groups: a) microbiological resources; b) plants as an important source of principal compounds or subproducts; and c) animal resources, including insects, animal residues, products from animal sources. The authors focus on the processes or bioprocesses used in the valorization and transformation of these three main groups for research purposes.

Apple Academic Press

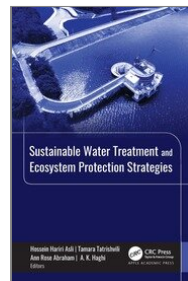
August 2024:282

Hb: 978-1-774-91552-3: **£140**

eBook: 978-1-032-67223-6

* For full contents and more information, visit: www.routledge.com/9781774915523

Sustainable Water Treatment and Ecosystem Protection Strategies



Edited by **Hossein Hariri Asli, Tamara Tatrishvili, Ann Rose Abraham, A. K. Haghi**

Reports on research studies on sustainable water treatment and ecosystem protection strategies. It reviews new advances in pollution control and addresses the need to design greener water treatment systems to prevent water pollution from affecting ecosystems. The chapters explain the most recent practical techniques to be used for wastewater and water treatment. It also covers new insights in green technologies for a cleaner environment. It describes in detail the consequences and outcome of increasing global water pollution and analyzes precaution measures for mitigation.

Apple Academic Press

August 2024:388

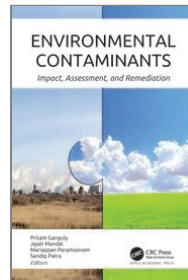
Hb: 978-1-774-91518-9: **£130**

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* For full contents and more information, visit: www.routledge.com/9781774915189

Environmental Contaminants

Impact, Assessment, and Remediation



Edited by **Pritam Ganguly, Jajati Mandal, Mariappan Paramshivam, Sandip Patra**

Looks at the impact, assessment, and remediation of various environmental contaminants. It discusses the environmental changes that can occur due to arsenic, heavy metals, herbicides, fluorides, microplastics, chemical fertilizers contaminants; the remedial measures of these environmental contaminants; and how to analyze trace-level concentrations of contaminants. The book discusses methods of trace analysis for persistent pollutants, explores phytoremediation and green approaches for the removal of contaminants, looks at the role of nanotechnology on remediation of environmental contaminants, and considers agronomic intervention for mitigation of environmental pollutants.

Apple Academic Press

February 2024:380

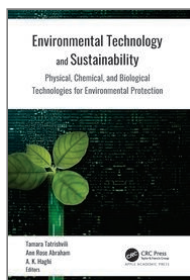
Hb: 978-1-774-91396-3: **£139**

eBook: 978-1-003-41223-6

* For full contents and more information, visit: www.routledge.com/9781774913963

Environmental Technology and Sustainability

Physical, Chemical and Biological Technologies for Environmental Protection



Edited by **Tamara Tatrishvili, Ann Rose Abraham, A. K. Haghi**

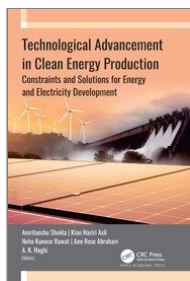
Covers the most recent theoretical and practical advancements in green technology for a clean and healthy environment, providing information on advanced materials and green composites. It also expounds on environmental chemistry for a sustainable world by providing information on different characterization methods as well as new techniques. The volume also considers recent developments and applications of clean energy materials. It presents case studies that emphasize the green technologies being discussed.

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April 2024:368
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* For full contents and more information, visit: www.routledge.com/9781774914342

Technological Advancement in Clean Energy Production

Constraints and Solutions for Energy and Electricity Development



Edited by **Amritanshu Shukla, Kian Hariri Asli, Neha Kanwar Rawat, Ann Rose Abraham, A. K. Haghi**

Presents the latest progress on clean energy technology and related materials. It also presents recent advances in theoretical and experimental research on devices that can be used in production of new types of solar cells and hydrogen generation for pollution control. It also examines potential applications to promote green processes and techniques for energy and environment sustainability, pathways to achieve pollution reduction, new insights into novel forms of energy and the latest progress in the field of green energies and nanomaterials technology. The book also reviews the new development and characterization of modern energy materials.

Apple Academic Press
November 2024:322
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eBook: 978-1-032-68442-0

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Tailored Functional Materials for Clean and Sustainable Development



Edited by **Tamara Tatrishvili, Neha Kanwar Rawat, Ann Rose Abraham, A. K. Haghi**

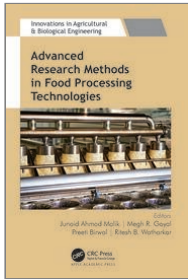
This new volume presents tailoring and characterization of modern materials with functional applications and for use in clean technologies in different sectors. It covers new topics in nanotechnology, nanoscience, biopolymers, energy, carbon nanotubes, solid materials, biomaterials, and biomedical and healthcare for contributing to a greener environment. The book explains why the unique features of tailored nanomaterials make them ideal candidates for applications in biosensors technology, pathogenic microbe detection, and modification of polyester-based polymers. Several chapters summarize polymer functionalization and their applications.

Apple Academic Press
January 2024:334
Hb: 978-1-774-91365-9: £139
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Advanced Research Methods in Food Processing Technologies

Technology for Sustainable Food Production



Edited by **Junaid Ahmad Malik, Megh R. Goyal, Preeti Birwal** Punjab Agricultural University, India, **Ritesh B. Watharkar** MIT-ADT University, India

Series: Innovations in Agricultural & Biological Engineering

Presents new research on advanced technologies for food processing and preservation to maintain and improve food quality, extend shelf-life, and provide new solutions to food processing challenges. It discusses cold plasma and ultrasound processing, thermosonication, microwave processing of foods, high-pressure processing, electrosinning technology in foods, encapsulation techniques, freezing and thawing processes on textural properties of food products, 3D printing of foods, enzyme-linked immunosorbent assay (ELISA) in food authentication, and state-of-the-art applications of nanotechnology in food processing.

Apple Academic Press
February 2024:472
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Advances in Sustainable Food Packaging Technology



Edited by **Megh R. Goyal, Preeti Birwal, Anand Kumar Pandey, Ritesh Balaso Watharkar**

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Investigates recent innovations in active, intelligent, and smart packaging systems that embrace packaging potential to not only provide protection to food but can also improve nutritive value, reduce contamination by releasing antimicrobials, and provide real-time status of food quality. It presents the leading features of food storage, management, and food packaging and addresses emerging and advanced approaches in packaging of foods, including nanotechnology-based improvements in food packaging, biodegradation and bio-based approaches for management of plastic waste, and more.

Apple Academic Press
February 2024:342
Hb: 978-1-774-91394-9: **£151.44**
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Analytical Methods for Milk and Milk Products

3-volume set



Edited by **Megh R. Goyal, N. Veena, Santosh K. Mishra**

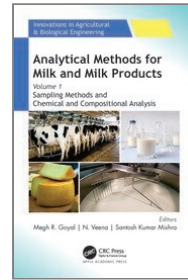
Presents analytical techniques for assessing the physical, chemical, and microbiological properties of milk products to ensure quality and safety. Vol 1: Sampling Methods, Chemical, and Compositional Analysis describes sampling methods and chemical analysis, highlighting procedures and the physicochemical and compositional aspects. Vol 2: Physicochemical Analysis of Concentrated, Coagulated, and Fermented Products focuses on methods for physicochemical and compositional analysis of concentrated, coagulated, and fermented dairy products. Vol 3: Microbiological Analysis, Isolation, and Characterization covers bacterial enumeration, pathogen detection etc.

Apple Academic Press
February 2024:1196
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Analytical Methods for Milk and Milk Products

Volume 1: Sampling Methods and Chemical and Compositional Analysis



Edited by **Megh R. Goyal, N. Veena, Santosh Kumar Mishra**

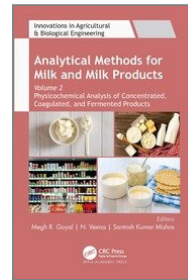
Comprehensively illustrates analytical techniques and methodologies for assessing the physical, chemical, and microbiological properties of milk and milk products to ensure quality and safety. Volume 1 covers analysis of milk and milk products with a description of the main analytical techniques and methodologies and their application to the compounds involved in nutritional and technological quality. It describes sampling methods and chemical analysis of milk, highlighting the standard methods used for glassware, sampling procedures, and the physicochemical and compositional aspects and assessment of the quality of raw milk intended for processing and manufacturing.

Apple Academic Press
February 2024:410
Hb: 978-1-774-91307-9: **£147**
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* For full contents and more information, visit: www.routledge.com/9781774913079

Analytical Methods for Milk and Milk Products

Volume 2: Physicochemical Analysis of Concentrated, Coagulated and Fermented Products



Edited by **Megh R. Goyal, N. Veena, Santosh Kumar Mishra**

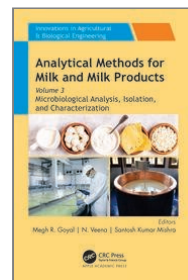
Illustrates a wide range of analytical techniques and methodologies for assessing the physical, chemical, and microbiological properties of milk and milk productions to ensure nutritional and technological quality and safety of milk and milk products. It focuses on various analytical methods for physicochemical and compositional analysis of concentrated, coagulated, and fermented dairy products in detail. It also describes the standard methodologies for the analysis of nutraceutical components and food additives commonly used in various dairy products to meet technological and nutritional quality standards.

Apple Academic Press
February 2024:408
Hb: 978-1-774-91309-3: **£147**
eBook: 978-1-032-67581-7

* For full contents and more information, visit: www.routledge.com/9781774913093

Analytical Methods for Milk and Milk Products

Volume 3: Microbiological Analysis, Isolation, and Characterization



Edited by **Megh R. Goyal, N. Veena, Santosh Kumar Mishra**

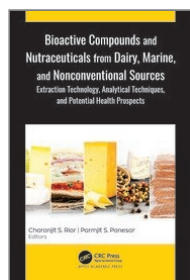
Discusses the microbiological analysis of milk and milk products, including bacterial enumeration, pathogen detection, mastitis milk identification, quality testing for starter cultures, isolation and characterization of lactic acid bacteria (LAB), safety assessment protocols for probiotics, DNA isolation methods, molecular characterization techniques, and statistical tools for laboratory data analysis. It presents an in-depth description of the methodologies for isolation, identification, and confirmatory tests for various hygiene and safety indicator organisms.

Apple Academic Press
February 2024:378
Hb: 978-1-774-91741-1: **£147**
eBook: 978-1-032-67607-4

* For full contents and more information, visit: www.routledge.com/9781774917411

Bioactive Compounds and Nutraceuticals from Dairy, Marine, and Nonconventional Sources

Extraction Technology, Analytical Techniques, and Potential Health Prospects



Edited by **Charanjit S. Riar , Parmjit S. Panesar**

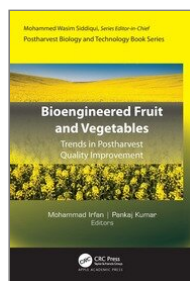
Provides an overview of bioactive compounds and nutraceuticals with explanations of their chemical characteristics, profile, and physicochemical aspects of bioactive compounds and nutraceuticals from natural sources such as milk and dairy products, marine algae and seaweeds, and nonconventional sources, such as from spices and condiments sources and microbial sources. It details the extraction technologies of active ingredients and analytical techniques along with the profiling of functional compounds and nutraceuticals. It gives detailed descriptions of the techniques for extraction, isolation, and characterization of active ingredients from food preparations.

Apple Academic Press
June 2024:324
Hb: 978-1-774-91498-4: **£140**
eBook: 978-1-003-45276-8

* For full contents and more information, visit: www.routledge.com/9781774914984

Bioengineered Fruit and Vegetables

Trends in Postharvest Quality Improvement



Edited by **Mohammad Irfan , Pankaj Kumar**

Series: *Postharvest Biology and Technology*

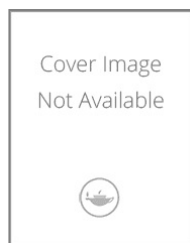
Addresses issues related to postharvest losses in fruits and vegetable crops using cutting-edge technologies. It details recent developments in this field, like gene overexpression approaches (enzymes, transcriptional factors, or combinatorial engineering), promoter engineering, enhancing postharvest stability (shelf life), antioxidant-regulated expression, metabolic engineering, and regulation of postharvest pathogen infection and decay using biotechnological tools and much more. It throws light on the current as well as future prospects in this field. The technologies covered include bioengineering, genome editing with zinc-finger nucleases (ZFNs), and more.

Apple Academic Press
November 2024:366
Hb: 978-1-774-91748-0: **£180**
eBook: 978-1-003-50195-4

* For full contents and more information, visit: www.routledge.com/9781774917480

Emerging Technologies for the Food Industry

3-volume set



Edited by **C. Anandharamkrishnan , Jeyan Arthur Moses**

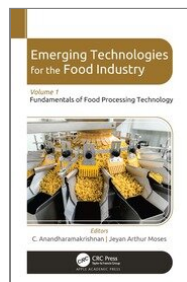
A compilation of emerging and futuristic food processing technologies, presenting fundamental concepts of food technology, trending applications, and a range of interdisciplinary concepts that have found numerous interwoven applications in the food industry. This multi-volume set covers a range of aspects, starting from an introduction to food processing technology, emerging thermal and nonthermal processing technologies, ICT applications for the food industry, and concluding with future technologies. It provides a substantial contribution to the field of food processing.

Apple Academic Press
April 2024:1050
Hb: 978-1-774-91430-4: **£385**

* For full contents and more information, visit: www.routledge.com/9781774914304

Emerging Technologies for the Food Industry

Volume 1: Fundamentals of Food Processing Technology



Edited by **C. Anandharamkrishnan , Jeyan Arthur Moses**

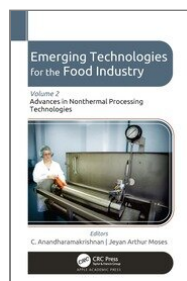
Presents the basics of food preservation, covering hurdle technology, aspects of minimal processing, ohmic heating of foods, edible coatings, and electromagnetics and allied applications in food processing. It also introduces various unit operations in the food industry. This volume also discusses novel methods of food quality evaluation and covers the fundamentals of and increasing applications of nanotechnology in the food sector.

Apple Academic Press
April 2024:392
Hb: 978-1-774-91424-3: **£139**
eBook: 978-1-003-41359-2

* For full contents and more information, visit: www.routledge.com/9781774914243

Emerging Technologies for the Food Industry

Volume 2: Advances in Nonthermal Processing Technologies



Edited by **C. Anandharamkrishnan , Jeyan Arthur Moses**

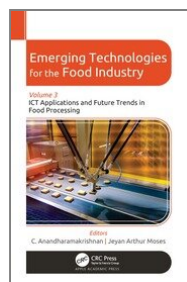
Focuses on nonthermal processing and its applications in the food industry. This includes high-pressure processing, ultrasound processing, high intensity pulsed light technology, pulsed electric field processing, cold plasma, ozone processing, as well as the use of sub- and supercritical processing. It also discusses emerging electrohydrodynamic technologies: electrospraying and electrospinning. This volume provides rich content on fundamental concepts, applications, and challenges in nonthermal processing, throwing light on the scope of developing sustainable technologies for the food industry.

Apple Academic Press
April 2024:290
Hb: 978-1-774-91426-7: **£139**
eBook: 978-1-003-41361-5

* For full contents and more information, visit: www.routledge.com/9781774914267

Emerging Technologies for the Food Industry

Volume 3: ICT Applications and Future Trends in Food Processing



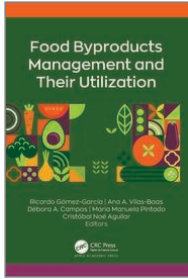
Edited by **C. Anandharamkrishnan , Jeyan Arthur Moses**

Here is an exploration of the future of food processing, highlighting emerging and disruptive technologies and their gaining influence in the food sector. The first five chapters focus on computer and information technology-linked applications such as CFD modeling, robotics, automation, artificial intelligence, big data, the Internet of Things, cloud computing, and blockchain management for the food industry. The book then details selected concepts that have made phenomenal advancements in recent years.

Apple Academic Press
April 2024:382
Hb: 978-1-774-91428-1: **£139**
eBook: 978-1-003-41366-0

* For full contents and more information, visit: www.routledge.com/9781774914281

Food Byproducts Management and Their Utilization



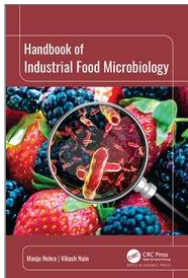
Edited by **Ricardo Gómez-García**, **Ana A. Vilas-Boas**, **Débora A. Campos**, **Maria Manuela Pintado**, **Cristóbal Noé Aguilar**

Discusses how food byproducts can be value-added renewable sources with the application of novel biotechnologies that avoid hazardous chemicals. It explores the importance of valorizing food wastes and illustrates their value-added properties for industry. It explains the progress in bioresources processing for compound extraction and production as well as the increasing interest of food ingredients development. Also looks at waste byproducts of various crops and their uses in the generation of health-benefiting bioactive compounds and discusses various biotechnological strategies to extract, produce, and recover bioactive compounds.

Apple Academic Press
January 2024:520
Hb: 978-1-774-91295-9: £147
eBook: 978-1-003-37780-1

* For full contents and more information, visit: www.routledge.com/9781774912959

Handbook of Industrial Food Microbiology



Manju Nehra, Vikash Nain

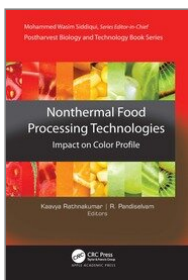
Introduces industrial microbiology in the food industry. The techniques and technologies focus on production, processing, and recovery of food industry metabolites (primary or secondary). The process of alcohol production, fermentation metabolites, and drug delivery components through food are the highlights of the book. The book lays out the principles of overproduction of metabolites in the food industry and also addresses biomass production, immobilization of enzymes in food systems, and waste treatment in the food industries.

Apple Academic Press
August 2024:262
Hb: 978-1-774-91526-4: £150
eBook: 978-1-003-41277-9

* For full contents and more information, visit: www.routledge.com/9781774915264

Non-Thermal Food Processing Technologies

Impact on Color Profile



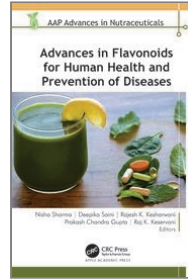
Edited by **Kaavya Rathnakumar**, **R. Pandiselvam**

Provides an informative overview of non-thermal food processing technologies that can preserve food color and appearance. It covers the application of emerging technologies on the color profile of different food products. It discusses the impact of emerging technologies on the color and appearance of foods and beverages, along with their challenges and prospects. Food processing technologies discussed include cold plasma, ultrasound, microwave processing, ozone processing, ohmic heating, pulsed light etc. It contextualizes how applying emerging food processing technologies can solve food safety issues and enhance shelf-life extension while paying attention to food appearance.

Apple Academic Press
October 2024:412
Hb: 978-1-774-91636-0: £180
eBook: 978-1-003-48691-6

* For full contents and more information, visit: www.routledge.com/9781774916360

Advances in Flavonoids for Human Health and Prevention of Diseases



Edited by **Nisha Sharma** Chhatrapati Shahu Ji Maharaj University, India, **Deepika Saini**, **Rajesh K. Kesharwani**, **Prakash Chandra Gupta**, **Raj K. Keservani**

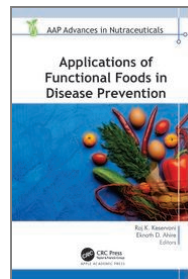
Series: *AAP Advances in Nutraceuticals*

An overview of advances in flavonoids, exploring the applications and characteristics of polyphenol derivatives for the management and prevention of diseases. It examines the nutritional and pharmacological properties of polyphenols and flavonoids, including their ability to prevent the start and development of diseases and how they aid in the management of chronic pathological illnesses. Topics also include the benefits of natural food dyes as nutraceuticals and their functions, how flavonoid-rich diets are good for better health and help to prevent chronic noncommunicable diseases, the neuroprotective effects of flavonoids, and much more.

Apple Academic Press
January 2024:304
Hb: 978-1-774-91344-4: £131
eBook: 978-1-003-36981-3

* For full contents and more information, visit: www.routledge.com/9781774913444

Applications of Functional Foods in Disease Prevention



Edited by **Raj K. Keservani**, **Eknath D. Ahire**

Series: *AAP Advances in Nutraceuticals*

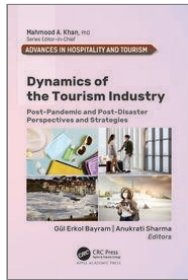
Explores the role of functional food applications in prevention and management of various diseases, including diabetes, obesity, microbial infections, ulcers, mental disorders, cardiac health, bone health, and more. Provides an introduction, overview, and an explanation of the classifications of functional foods. It discusses using bioactive compounds in the prevention, management, or treatment of a number of diseases, with illustrative case studies. It also looks at how food products help to reduce the risk of heart disease by lowering blood lipid levels, improving arterial compliance, lowering low-density lipid oxidation, and inhibiting platelet aggregation.

Apple Academic Press
January 2024:364
Hb: 978-1-774-91361-1: £139
eBook: 978-1-003-39573-7

* For full contents and more information, visit: www.routledge.com/9781774913611

Dynamics of the Tourism Industry

Post-Pandemic and Post-Disaster Perspectives and Strategies



Edited by **Gül Erkol Bayram , Anukrati Sharma**

Series: Advances in Hospitality and Tourism

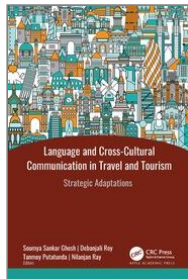
Presents a broad look of the tourism issues related to pandemics and natural disasters. It looks at the history of pandemics and disasters; tourist motivation and safety during and after pandemics and disasters; recovery of the tourism industry; redesign, reconstruction, and creation of tourism activities; crisis management and planning; the role of governments in the management of the tourism industry; competitive marketing strategies; reflections of climate change on tourism; and much more. The book includes cases and practical studies that deal with the current situation, addressing challenges, solutions, and future strategies after pandemics and natural disasters.

Apple Academic Press
February 2024:306
Hb: 978-1-774-91448-9: £131
eBook: 978-1-003-45543-1

* For full contents and more information, visit: www.routledge.com/9781774914489

Language and Cross-Cultural Communication in Travel and Tourism

Strategic Adaptations



Edited by **Soumya Sankar Ghosh , Debanjali Roy ,
Tanmoy Putatunda , Nilanjan Ray**

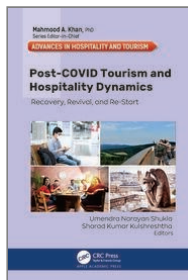
Discusses the theoretical and scholarly undertakings of tourism and impact of scrutinizing language in the context of intellectual deliberation in relation to travel and tourism. It also cross-examines culture and intercultural facets of tourism interactions and focuses on culture as a process or phenomenon engaged in or enacted on by individuals. It brings together perspectives from the lived experiences of residents, hosts, and ethnographers to explore the extent to which linguistic and cultural differences are identified, constructed, negotiated, and maintained in tourism encounters also addressing impact of COVID-19 pandemic on tourism.

Apple Academic Press
October 2024:288
Hb: 978-1-774-91570-7: £150
eBook: 978-1-003-47714-3

* For full contents and more information, visit: www.routledge.com/9781774915707

Post-COVID Tourism and Hospitality Dynamics

Recovery, Revival, and Re-Start



Edited by **Umendra Narayan Shukla , Sharad Kumar
Kulshreshtha**

Series: Advances in Hospitality and Tourism

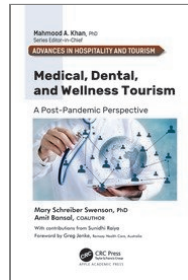
An in-depth look at the post-COVID tourism and hospitality scenario and how the industry is adapting to the new normal by sharing information and experiences on how diverse hospitality and tourism sectors are navigating the post-COVID era. The book offers post-COVID tourism sector recovery strategies and presents detailed analyses of post-COVID trends in the travel, tourism, and hospitality sector along with case studies from several countries of the world. Topics also cover post-COVID pandemic travel preferences, post-COVID safety protocols, sustainable tourism practices, post-COVID-19 public policies for tourism, specific tourism and hospitality sectors, and more.

Apple Academic Press
January 2024:520
Hb: 978-1-774-91512-7: £150
eBook: 978-1-003-42972-2

* For full contents and more information, visit: www.routledge.com/9781774915127

Medical, Dental, and Wellness Tourism

A Post-Pandemic Perspective



Edited by **Mary Schreiber Swenson , Amit Bansal**

Series: Advances in Hospitality and Tourism

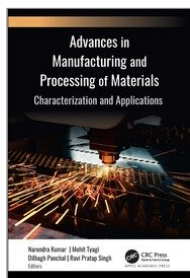
Offers a thorough and informative guide to medical travel and tourism for treatment of health-related issues. The book first defines medical, dental, and wellness tourism and travel for treatment and then goes on to look at the myriad issues involved, such as benefits and challenges of travel for treatment, how the COVID-19 pandemic has affected the treatment sectors in tourism, selecting the right destination and facility, ending your life in another country, the growing world of birth tourism, dental tourism, medical travel for second opinions, privacy and health data security and more.

Apple Academic Press
January 2024:308
Hb: 978-1-774-91494-6: £140
eBook: 978-1-003-43356-9

* For full contents and more information, visit: www.routledge.com/9781774914946

Advances in Manufacturing and Processing of Materials

Characterization and Applications



Edited by **Narendra Kumar**, **Mohit Tyagi**, **Dilbagh Panchal**, **Ravi Pratap Singh**

Examines important advancements in materials and manufacturing processes, focusing on characterization and applications and defining solutions to current issues as well as for inspiration for future innovation. It looks material characterization using modern technologies, process and chemical characterization, drilling, milling, structural materials, polymers, mortars, scanning-electron, atomic-force, transmission-electron, materials and methods for surface coating, additive manufacturing, 3D and 4D printing technologies and applications, biodegradable packaging materials, processing of materials for novel drug delivery systems, hardfacing of aluminum alloys, and more.

Apple Academic Press
August 2024:332
Hb: 978-1-774-91492-2: **£140**
eBook: 978-1-003-40834-5

* For full contents and more information, visit: www.routledge.com/9781774914922

Bio-Based Polymers and Composites

Properties, Durability, and Applications



Edited by **Amadou Belal Gueye**, **Sabu Thomas**, **Nandakumar Kalarikkal**, **Modou Fall**

Explores the latest in natural biopolymers, green composites, and green nanocomposites. It consolidates information on the synthesis and applications of biopolymers, green composites, and green nanocomposites for various applications with detailed characterization, mechanical approaches, and theoretical consideration. It provides fundamentals and advanced concepts for developing nanostructured materials based on biopolymers and their composites. It also looks at bio-based polymers and composites for environmental sustainability, natural polymers from waste products, the use of bio-based polymers and composites in fertilization in horticulture, etc.

Apple Academic Press
August 2024:334
Hb: 978-1-774-91532-5: **£130**
eBook: 978-1-032-66924-3

* For full contents and more information, visit: www.routledge.com/9781774915325

Foundation and Growth of Macromolecular Science

Advances in Research for Sustainable Development



Edited by **Meegle S. Mathew** Mahatma Gandhi University, India, **Józef T. Haponiuk** Gdansk University of Technology, Poland, **Sabu Thomas** Mahatma Gandhi University, India

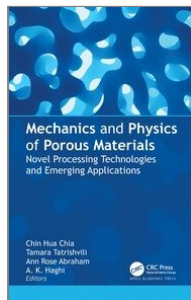
Explores macromolecular science and its current challenges, applications, and solutions to challenges. It discusses new applications of polymers and their composites and innovations in the synthesis and characterization of polymers, providing explanations of the behavior of polymers in solutions and in bulk. Covers zein-based composites, polymers to strengthen concrete, polymer/metal nanocomposite magnetic materials, synthetic polymers in aquatic environments, pharmaceutical 3D-printing, alginate-based wound healing dressings, and more. Some chapters place emphasis on sustainable development and green eco-friendly approaches.

Apple Academic Press
February 2024:398
Hb: 978-1-774-91367-3: **£151.44**
eBook: 978-1-003-37050-5

* For full contents and more information, visit: www.routledge.com/9781774913673

Mechanics and Physics of Porous Materials

Novel Processing Technologies and Emerging Applications



Edited by **Chin Hua Chia**, **Tamara Tatrishvili**, **Ann Rose Abraham**, **A. K. Haghi**

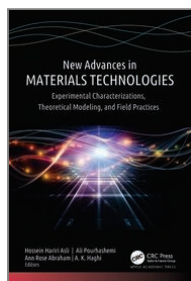
Presents new research on a wide range of porous materials with case studies on the synthesis, design, characterization, and applications of different types of porous materials and solids, considering experimental and theoretical aspects of materials science related to porous materials and solids. The book aims to help approach characterizing a particular types of materials for more in-depth analysis.

Apple Academic Press
June 2024:350
Pb: 978-1-774-91464-9: **£82.99**
Hb: 978-1-774-91465-6: **£139**
eBook: 978-1-003-41446-9

* For full contents and more information, visit: www.routledge.com/9781774914649

New Advances in Materials Technologies

Experimental Characterizations, Theoretical Modeling, and Field Practices



Edited by **Hossein Hariri Asli**, **Ali Pourhashemi**, **Ann Rose Abraham**, **A. K. Haghi**

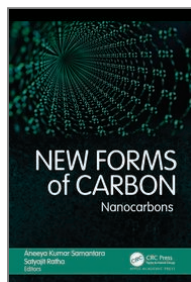
Examines the mathematical and experimental methods for advanced engineering materials and structures to determine practical applications under a wide range of conditions. The diversity of such mathematical models and experimental methods applied for different types of advanced materials and structures and their behavior is highlighted. Topics include geospatial information systems and networked sensors modeling, mathematical modeling in fluid and solid mechanics, deformations in a nonlocal isotropic thermoelastic materials, optical properties of solid materials, nano-scale and modern energy materials and devices, and smart materials-based E-nose technology.

Apple Academic Press
June 2024:322
Hb: 978-1-774-91484-7: **£139**
eBook: 978-1-003-45926-2

* For full contents and more information, visit: www.routledge.com/9781774914847

New Forms of Carbon

Nanocarbons



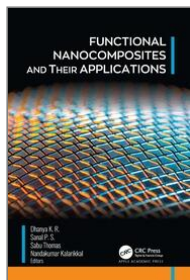
Edited by **Aneeya Kumar Samantara**, **Satyajit Ratha**

A detailed overview of the fundamental aspects of nanocarbons and their allotropic forms, their preparation techniques, and their applications in several fields of interest. New forms of carbon have the potential to revolutionize many aspects of research, including drug delivery, catalysis, energy conversion and storage, high-strength physics, structural engineering, and more. This volume covers the recent literature on carbon with emphasis on the emerging carbon-based materials developed, studies of their properties, and possible prototype fabricated for practical applications.

Apple Academic Press
July 2024:276
Hb: 978-1-774-91279-9: **£131**
eBook: 978-1-003-37646-0

* For full contents and more information, visit: www.routledge.com/9781774912799

Functional Nanocomposites and Their Applications



Edited by **Dhanya K. R. , Sanal P. S. , Sabu Thomas , Nandakumar Kalarikkal**

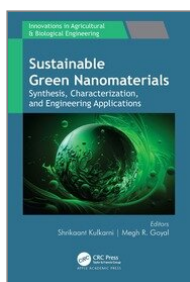
This book explains innovative developments in nanocomposites. It covers novel findings and various applications of nanocomposites in different emerging fields. Chapters cover several types of nanocomposites as well as their synthesis, manufacturing, characteristics, and applications. Special emphasis is given to innovative works on functional nanocomposites and their relevant areas of use. The authors depict the stability and functionality of nanocomposites and their applications in various sectors, such as industrial, structural, biomedical, etc. This book will help readers easily understand the effective implementation of different types of nanocomposites.

Apple Academic Press
September 2024:372
Hb: 978-1-774-91440-3: **£147**
eBook: 978-1-003-41274-8

* For full contents and more information, visit: www.routledge.com/9781774914403

Sustainable Green Nanomaterials

Synthesis, Characterization, and Engineering Applications



Edited by **Shrikanth Kulkarni , Megh R. Goyal**

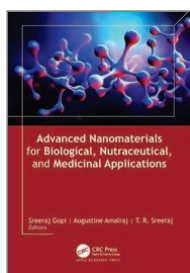
Series: *Innovations in Agricultural & Biological Engineering*

Presents an overview of fabrication, testing, and utility of green nanomaterials in sustainable agriculture, smart drug delivery, wastewater treatment, and healthcare. It first discusses the synthesis, characterization, and general applications of green nanomaterials, looking specifically at electrospun polymer nanofibers and carbon quantum dots. Later, it introduces applications of green nanomaterials in areas such as agriculture, healthcare, and wastewater treatment. It also looks at the use of artificial intelligence and machine learning for removal of heavy metals from water using green nanomaterials.

Apple Academic Press
November 2024:322
Hb: 978-1-774-91680-3: **£180**
eBook: 978-1-003-50157-2

* For full contents and more information, visit: www.routledge.com/9781774916803

Advanced Nanomaterials for Biological, Nutraceutical, and Medicinal Applications



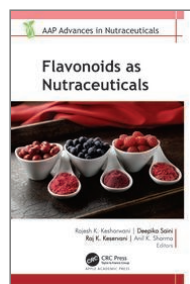
Edited by **Sreeraj Gopi , Augustine Amalraj , T. R. Sreeraj**

This new volume discusses a selection of nanomaterials that can be employed for advanced biological, nutraceutical, and medicinal applications. The book also includes a chapter that provides a helpful comparison of market analysis between biological and synthetic nanomaterials. The volume concludes with an insightful perspective on possible future applications of nanomaterials as nutraceutical, biological, and medicinal agents.

Apple Academic Press
July 2024:328
Hb: 978-1-774-91346-8: **£147**
eBook: 978-1-003-38916-3

* For full contents and more information, visit: www.routledge.com/9781774913468

Flavonoids as Nutraceuticals



Edited by **Rajesh K. Kesharwani**, **Deepika Saini**, **Raj K. Keservani**, **Anil Kumar Sharma**

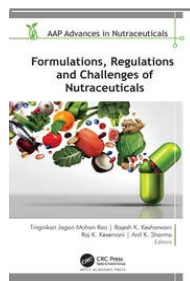
Series: *AAP Advances in Nutraceuticals*

This new volume examines the growing use of flavonoids for prevention and treatment of diseases and discusses their beneficial mechanisms. Chapters in the volume address diverse themes, including their various uses, including as anti-ageing tools, as anti-inflammatory agents, for treating pregnancy-induced disorders, as a promising tool to combat infection of Covid-19, etc. The book explores their specific therapeutic antiviral potentials, the gene expression by flavonoids, and the role of flavonoids in agriculture.

Apple Academic Press
April 2024:312
Hb: 978-1-774-91382-6: £147
eBook: 978-1-003-41244-1

* For full contents and more information, visit: www.routledge.com/9781774913826

Formulations, Regulations, and Challenges of Nutraceuticals



Edited by **Tingirikari Jagan Mohan Rao**, **Rajesh K. Kesharwani**, **Raj K. Keservani**, **Anil K. Sharma**

Series: *AAP Advances in Nutraceuticals*

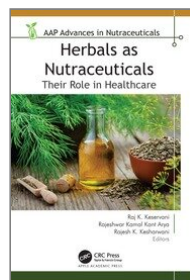
Focuses on novel micro- and nanocarriers being employed in the formulation and delivery of nutraceutical ingredients to increase their efficacy, bioavailability, safety, and stability. It also highlights the current challenges and future strategies for the development of novel nutraceuticals and functional foods with enhanced health benefits. This volume addresses the need for common regulatory guidelines with important research on the production of stable and efficient nutraceutical formulations. The numerous regulatory frameworks being employed in Asia and European regulatory agencies in commercialization of nutraceutical products are discussed.

Apple Academic Press
August 2024:356
Hb: 978-1-774-91456-4: £147
eBook: 978-1-003-41249-6

* For full contents and more information, visit: www.routledge.com/9781774914564

Herbals as Nutraceuticals

Their Role in Healthcare



Edited by **Raj K. Keservani**, **Rajeshwar Kamal Kant Arya**, **Rajesh K. Kesharwani**

Series: *AAP Advances in Nutraceuticals*

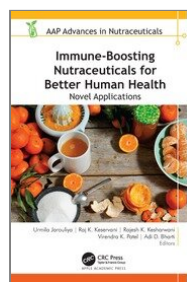
Provides insight into nutraceuticals and their function in human health. It describes the current scenario and their global demand. It also provides information on the nutraceutical potential of herbal drugs, illustrates the ayurvedic system of medicine, and describes the nutraceutical properties of various medicinal herbs. It details the role of nutraceuticals in treating diseases such as Alzheimer's, Parkinson's, obesity, cancer, and cardiovascular diseases. It provides an overview of herbal nutraceuticals and their prospects. It also covers the use of herbs as supplements and other recent advancements in herbal nutraceuticals.

Apple Academic Press
November 2024:336
Hb: 978-1-774-91614-8: £170
eBook: 978-1-003-48839-2

* For full contents and more information, visit: www.routledge.com/9781774916148

Immune-Boosting Nutraceuticals for Better Human Health

Novel Applications



Edited by **Urmila Jarouliya**, **Raj K. Keservani**, **Rajesh K. Kesharwani**, **Virendra K. Patel**, **Adi D. Bharti**

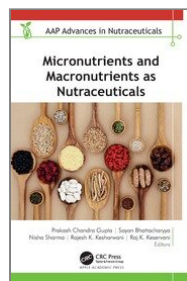
Series: *AAP Advances in Nutraceuticals*

Discusses the contribution of immune-boosting properties of nutraceuticals and functional foods toward human health, exploring dietary antioxidants, vitamins, minerals, edible microalgae, herbs, phytonutrients, omega 3-fatty acids, and probiotics. It addresses the immune-boosting properties of herbs and vegetables and the pharmacological and therapeutic importance of commonly used medicinal herbs and carotenoids-containing vegetables and their immunological and biological actions for treating disease and maintaining health.

Apple Academic Press
January 2024:414
Hb: 978-1-774-91357-4: £147
eBook: 978-1-003-37106-9

* For full contents and more information, visit: www.routledge.com/9781774913574

Micronutrients and Macronutrients as Nutraceuticals



Edited by **Prakash Chandra Gupta**, **Sayan Bhattacharyya**, **Nisha Sharma**, **Rajesh K. Kesharwani**, **Raj K. Keservani**

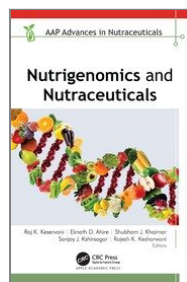
Series: *AAP Advances in Nutraceuticals*

Explores in detail the beneficial properties of micronutrients and macronutrient, such as their antioxidant activity and immunity-boosting properties. The volume considers the roles of microbes and microbial products as nutraceuticals and discusses how micronutrients, macronutrients, and nutraceuticals can be incorporated into the human diet for optimum health, growth of beneficial bacteria in gut, and inhibition of pathogens. The authors emphasize that efficient nutrient delivery of micronutrients and macronutrient is necessary for maximum benefit and explain how to achieve that.

Apple Academic Press
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Nutrigenomics and Nutraceuticals



Edited by **Raj K. Keservani**, **Eknath D. Ahire**, **Shubham J. Khairnar**, **Sanjay J. Kshirsagar**, **Rajesh K. Kesharwani**

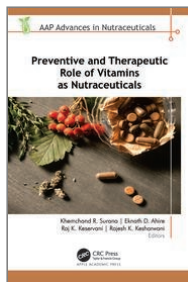
Series: *AAP Advances in Nutraceuticals*

A comprehensive overview of the field of nutraceuticals and genomics—also called nutrigenomics, a rapidly growing field as the science of nutrition and genomics advances. It discusses techniques to investigate the nutritional basis of health disorders and covers the nutrigenomic tools for the prevention of disease conditions such as cancer, viral infection, microbial infection, COVID-19, HIV/AIDS, tuberculosis, hypertension, neurodegenerative disease, obesity, baldness, and anemia. Some nutrigenomic tools can also be used for brain health, weight loss, human nutrition, skin care, and maintaining health during pregnancy.

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Preventive and Therapeutic Role of Vitamins as Nutraceuticals



Edited by **Khemchand R. Surana, Eknath D. Ahire, Raj K. Keservani, Rajesh K. Kesharwani**

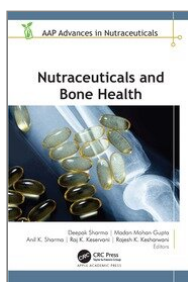
Series: *AAP Advances in Nutraceuticals*

Describes the effects of vitamins as nutraceuticals in chronic diseases, such as in treating cancer through antitumor and antioxidant activity, for improving the immunity of patients with HIV and AIDS, for the treatment of tuberculosis, for peptic ulcers, for infectious diseases (including COVID-19), etc. The functional activity of vitamins in brain health, in obesity management, for blindness and vision issues, for baldness, and for skincare issues is also explored. It covers each major vitamin with food sources that play a role in neurodegenerative diseases and, in some cases, how they adversely affect human health.

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Nutraceuticals and Bone Health



Edited by **Deepak Sharma, Madan Mohan Gupta, Anil K. Sharma, Raj K. Keservani, Rajesh K. Kesharwani**

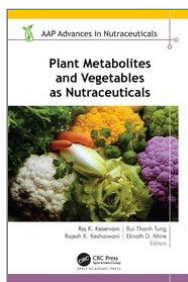
Series: *AAP Advances in Nutraceuticals*

Presents scientific information on the importance of nutraceuticals and herbal remedies for bone health and the probable mechanisms of nutraceuticals in the prevention, treatment, and management of bone-related diseases as well as their curable effects on bone injuries. The volume explains the progression or development of bones, which is a multifaceted process that requires an endless and ample supply of nutrients, such as calcium, phosphorus, potassium, protein, vitamin D, magnesium, and fluoride.

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Plant Metabolites and Vegetables as Nutraceuticals



Edited by **Raj K. Keservani, Bui Thanh Tung, Rajesh K. Kesharwani, Eknath D. Ahire**

Series: *AAP Advances in Nutraceuticals*

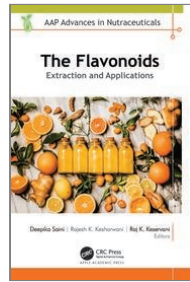
Explores vegetables and plant metabolites as nutraceuticals facilitating the prevention and/or treatment of diseases and maintaining the body's energy balance. It looks at the potential of nutraceuticals and health promotion of plant metabolites and vegetables, the nutraceutical benefits of bioactives and flavonoids, and the benefits of plant metabolites and vegetables in prevention and treatment of diseases. It explores various applications and implications of plant metabolites and vegetables as nutraceuticals and the relationship between eating fruits and vegetables and the incidence of serious and chronic diseases.

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The Flavonoids

Extraction and Applications



Edited by **Deepika Saini, Rajesh K. Kesharwani, Raj K. Keservani**

Series: *AAP Advances in Nutraceuticals*

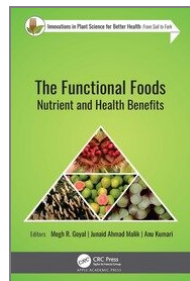
Describes advances in polyphenol (flavonoids) derivatives for human health and in the management and prevention of diseases along with their positive effects on human and animal health and for disease therapy and chemoprevention. The biochemistry and applications of flavonoids are explored, and their proven and potential pharmacological health benefits are listed. Summarizes the classification of flavonoids and explores their potential as immunity-boosting compounds, for mental health, for prevention of cardiovascular illnesses, for their antimicrobial and anti-inflammatory uses, for their use in vasodilation, dermatology and cosmetic preparation.

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The Functional Foods

Nutrient and Health Benefits



Edited by **Megh R. Goyal, Junaid Ahmad Malik, Anu Kumari**

Series: *Innovations in Plant Science for Better Health: From Soil to Fork*

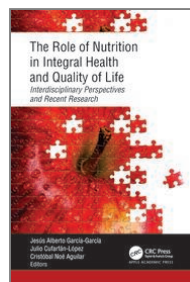
Discusses the nutritional and health benefits of functional foods. It details the functional activities of plants and their derivatives, discussing microgreens as functional foods, antiviral activities of functional foods, the beneficial antidiabetic activities of plants, probiotics as functional foods for human health, discussing the role of probiotics in gut microflora, probiotics as dietary supplements, various extraction methods, and more. The volume addresses the quality aspects of functional foods, providing an overview of foodborne pathogens and food-related microorganisms.

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Hb: 978-1-774-91536-3: £145
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The Role of Nutrition in Integral Health and Quality of Life

Interdisciplinary Perspectives and Recent Research



Edited by **Jesús Alberto García-García, Julio Cufarín-López, Cristóbal Noé Aguilar**

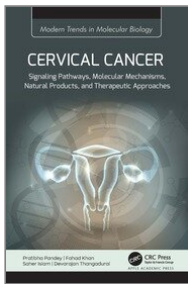
Explores important advances of the role played by nutrition in creating integral health. It focuses on the challenges arising due to sedentary lifestyle, diseases associated with food consumption, stress from pandemics, and social, economic, environmental, and cultural crises. The chapters present interdisciplinary research that offers outstanding and novel contributions in research studies of integral health and how health is affected by nutrition and its impact on the quality of life. Analysis of obesity and its dimensions, quality of life in adult patients with diabetes, the role of genetics and epigenetics in obesity, and its socioeconomic dimensions are discussed.

Apple Academic Press
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Hb: 978-1-774-91420-5: £147
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Cervical Cancer

Signaling Pathways, Molecular Mechanisms, Natural Products, and Therapeutic Approaches



Edited by **Pratibha Pandey , Fahad Khan , Saher Islam , Devarajan Thangadurai**

Series: Modern Trends in Molecular Biology

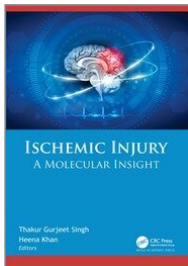
Focuses on new approaches to one of the major cancers of the female reproductive system—cervical cancer. Cervical cancer is the fourth most frequent cancer in women worldwide and, especially, a foremost cause of morbidity in women in developing countries, including India. Several research findings have suggested that modulation in various signaling pathways is responsible for cervical cancer pathogenesis, and inhibition of these crucial pathways could be a better therapeutic approach for cervical cancer management.

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April 2024:322
Hb: 978-1-774-91566-0: £150
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Ischemic Injury

A Molecular Insight



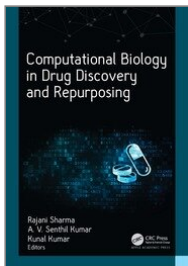
Edited by **Thakur Gurjeet Singh , Heena Khan**

Details studies on ischemic injury, emphasising the molecular-level mechanisms and the role of signaling pathways in the body, their structure, and their mechanism of action. It explains research on new therapeutic molecules to combat this life-threatening disease, reviewing significant etiologies of ischemic and hemorrhagic stroke in detail. It discusses stroke occurrence at different stages of life, the COVID-19 pandemic, treatment and diagnosis of patients with cardiovascular events, effect of stroke in daily life and complications from stroke.

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Computational Biology in Drug Discovery and Repurposing



Edited by **Rajani Sharma , A. V. Senthil Kumar , Kunal Kumar**

Takes an in-depth look at the emerging field of computational biology and bioinformatics, which possesses the ability to analyze large accumulated biological data collected from sequence analysis of proteins and genes and cell population for new drug discovery. The book explains the basic methodology associated with a bioinformatics and computational approach in drug designing and covers the implementation of computational programming, bioinformatics, pharmacophore modeling, biotechnological techniques, and pharmaceutical chemistry in designing drugs. Using computer language and programming helps to reduce the time and costs in drug design.

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Hb: 978-1-774-91556-1: £193
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