

Preclinical Evaluation Of Antidiabetic Activity Of Poly

Microcirculation is key to providing enough nutrition and oxygen from head to toe. This is possible only through an extensive network of blood vessels spread around the body. Effect of microcirculation abnormalities stretch beyond one's comprehension. The effects could be felt at any age, from the foetal life to the adulthood. The chapters present in this book describe how these abnormalities could lead to diseases such as atherosclerosis, thrombosis, diabetes, hypertension. Disorders of microcirculation could be related to the structural and/or functional damage to the inner lining of the blood vessels. Early identification of these disorders could benefit many ailments including cardiovascular and cerebrovascular diseases such as heart attack and stroke.

Medicinal plants are globally valuable sources of herbal products. Plant-based remedies have been used for centuries and have had no alternative in the western medicine repertoire, while others and their bioactive derivatives are in high demand and have been the central focus of biomedical research. As Medicinal plants move from fringe to mainstream with a greater number of individuals seeking treatments free of side effects, considerable attention has been paid to utilize plant-based products for the prevention and cure of human diseases. An unintended consequence of this increased demand, however, is that the existence of many medicinal plants is now threatened, due to their small population size, narrow distribution area, habitat specificity, and destructive mode of harvesting. In addition, climate change, habitat loss and genetic drift have further endangered these unique species. Although extensive research has been carried out on medicinal and aromatic plants, there is relatively little information available on their global distribution patterns, conservation and the associated laws prevailing. This book reviews the current status of threatened medicinal plants in light of increased surge in the demand for herbal medicine. It brings together chapters on both wild (non-cultivated) and domestic (cultivated) species having therapeutic values. Thematically, conventional and contemporary approaches to conservation of such threatened medicinal plants with commercial feasibility are presented. The topics of interest include, but not limited to, biotechnology, sustainable development, in situ and ex situ conservation, and even the relevance of IPR on threatened medicinal plants. We believe this book is useful to horticulturists, botanists, policy makers, conservationists, NGOs and researchers in the academia and the industry sectors.

This book is a compilation of articles on various aspects of bioresources and the processes employed for its judicious utilization. Biodiversity and conservation, food security, gene banks and repositories, laws governing biodiversity, bioprospecting, bioresources in traditional medicine and biodiversity mining are some of the important topics covered in the book. The unique contents of the book make it an important source of information for conservation scientists, academics, activists and to those who are actively involved in product oriented research from bioresources.

There is a great deal of consumer interest in natural bioactive substances due to their health benefits. Offering the potential to provide valuable nutraceuticals and functional food ingredients, marine-derived compounds are an abundant source of nutritionally and pharmacologically active agents, with both chemical diversity and complexity. Functional ingredients derived from marine algae, invertebrates, vertebrates, and microorganisms can help fill the need for novel bioactives to treat chronic conditions

such as cancer, microbial infections, and inflammatory processes. With contributions from an international group of experts, *Marine Nutraceuticals: Prospects and Perspectives* provides a comprehensive account of marine-derived nutraceuticals and their potential health benefits. These include antioxidant, anticancer, antiviral, anticoagulant, antidiabetic, antiallergic, anti-inflammatory, antihypertensive, antibacterial, and radioprotective properties. The book focuses on various types of marine-derived compounds—such as secondary metabolites like phlorotannins and fucoxanthin, carotenoid pigments, chito-oligosaccharide derivatives from chitin and chitosan, bioactive peptides, and polysaccharides—presenting an overview of their nutraceutical activities. Chapters address neuroprotective properties of seaweeds, bioactive compounds in abalone, marine products and autoimmune disease, chitosan for weight management, anticancer actions of omega-3 fatty acids, chitosan in dentistry, and much more. The book discusses the sources, isolation and purification, chemistry, functional interactions, applications, and industrial perspectives of marine-derived nutraceuticals. The inaugural book in the new CRC Press series, *Nutraceuticals: Basic Research/Clinical Applications*, it provides a state-of-the-art reference for all readers interested in this growing field—a rich source for new compounds with promising uses in the nutraceutical, medicinal, and functional food industries.

The role of diet in the prevention, control and treatment of diabetes continues to provide significant opportunity for non-pharmaceutical interventions for many of the over 20 million people who live with this disease. Looking beyond traditional dietary controls may lead to more effective, cost efficient, and flexible options for many patients. *Bioactive Food as Dietary Interventions for Diabetes* is the only available scientific resource focused on exploring the latest advances in bioactive food research, and the potential benefit of bioactive food choice on the diabetic condition. Written by experts from around the world, it presents important information that can help improve the health of those at risk for diabetes and diabetes related conditions using food selection as its foundation. Focuses on the role of bioactive foods in addressing pre-diabetes symptoms, their potential to complement other treatments for those suffering from diabetes and diabetic-related obesity and other health issues Documents foods that can affect metabolic syndrome and ways the associated information could be used to understand other diseases that share common etiological pathways Includes insights from experts from around the world, providing global perspectives and options based on various regional foods

Novel drug delivery systems cover the approaches, formulation, technologies, and modes for transporting any pharmaceutical compound throughout the body to safely get the desired effect. A growing area of research is the use of herbal formulations for disease therapy. In combining these two areas of research, that of novel drug delivery systems and that of herbal formulations, the usefulness of herbs is not only proved but its future applications and effectiveness are studied. The move towards herbal-based novel drug delivery systems can benefit society in a multitude of advantageous ways. *Enhancing the Therapeutic Efficacy of Herbal Formulations* discusses and explores the ways of preparing herbal formulations loaded in novel drug delivery systems and the resultant improvement in efficacy of the effected drugs/herbs already available on the market. The chapters will highlight traditional and herbal formulations, the effects of

novel drug delivery systems on herbal formulations, and the safe and effective preparation and effects of herbal formulations as a therapeutic intervention. This book is ideal for pharmacists, doctors, and researchers specializing in herbal therapeutics, along with practitioners, researchers, academicians, and students interested in how herbal-based novel drug delivery systems can benefit society.

Preclinical Evaluation of Antidiabetic Properties of Ficus Deltoidea LAP Lambert Academic Publishing

The combination of an increasing prevalence of diabetes and the aging of populations enables the appearance of a greater number of associated complications such as diabetic retinopathy. Diabetic retinopathy is the leading cause of preventable vision loss in working-age adults. The objective of this Special Issue is to highlight the existing evidence regarding the relationship between oxidative stress and low-grade chronic inflammation induced by hyperglycemia with the development and progression of diabetic retinopathy, with an emphasis on the importance of early diagnosis and the use of antioxidant and anti-inflammatory approaches to prevent or delay the harmful effects of diabetes on retinal tissue.

The book provides an introduction to the basics of fungi, discussing various types ranging from edible mushrooms to Neurospora – a model system for genetics and epigenetics. After addressing the classification and biodiversity of fungi, and fungi in different ecological niches, it describes the latest applications of fungi, their role in sustainable environments and in alleviating stress in plants, as well as their role in causing plant and animal diseases. Further chapters explore the advances in fungal interactions research and their implications for various systems, and discuss plant-pathogen interactions. The book also features a section on bioprospecting, and is an extremely interesting and informative read for anybody involved in the field of mycology, microbiology and biotechnology teaching and research.

The incidence and severity of diabetes mellitus is increasing worldwide, presenting a significant burden to society both in economic terms and overall well-being. Fortunately, time-tested anti-diabetes mellitus plant foods exist that are safe and could be effective in addressing this condition when consumed judiciously with a concomitant change in lifestyle. Plants with Anti-Diabetes Mellitus Properties presents an exhaustive compilation of the anti-diabetes mellitus activities of more than 1000 plants occurring worldwide. The author provides a brief botanical description, distribution, pharmacological properties, and phytochemicals, where appropriate. A list of traditional medicinal plants used to treat diabetes, but not tested for anti-diabetic activity, is also given. This unique reference highlights anti-diabetes mellitus plant foods along with a list of the edible parts of plants with anti-diabetes mellitus properties. Anti-diabetes mellitus nutraceuticals are described with guidelines for the development of food supplements and formulations of diets appropriate for diabetic patients. This is a valuable source of information for researchers, students, doctors, diabetic patients, and other individuals wanting to learn more about plant-based treatments for diabetes mellitus.

Medicinal Plants of Bangladesh and West Bengal is a complete compendium. It provides the scientific name, classification, local name(s), historical background, local medicinal uses, botanical description, chemical constituents, pharmacological activity and toxicology of more than 100 medicinal spices used in Bengal. Chemical structures of active constituents are provided as well as numerous references. This book is an indispensable tool for researchers, as well as graduates in various disciplines, including pharmacy, pharmacology, medicine, biotechnology, nutrition, cosmetology and drug development. It is also suitable for anyone who is looking for natural products as leads to be developed in therapeutics, functional nutrition or cosmetology. Focuses on a group of herbs with economic importance – the spices. These herbs demonstrate the richness of chemical diversity and potential pharmacological applications Features field photos with local healers, markets and mode of preparation as well as providing a complete monograph for each plant Discusses the collection and observation of each medicinal spice and presents the ethnopharmacology recorded by the author in Bengal Provides a wealth of scientific information on medicinal spices from an expert in the field Fills an important niche due to the increasing global interests in natural foods and botanical drugs

This book starts with a general introduction to phytochemistry, followed by chapters on plant constituents, their origins and chemistry, but also discussing animal-, microorganism- and mineral-based drugs. Further chapters cover vitamins, food additives and excipients as well as xenobiotics and poisons. The book also explores the herbal approach to disease management and molecular pharmacognosy and introduces methods of qualitative and quantitative analysis of plant constituents. Phytochemicals are classified as primary (e.g. carbohydrates, lipids, amino acid derivations, etc.) or secondary (e.g. alkaloids, terpenes and terpenoids, phenolic compounds, glycosides, etc.) metabolites according to their metabolic route of origin, chemical structure and function. A wide variety of primary and secondary phytochemicals are present in medicinal plants, some of which are active phytomedicines and some of which are pharmaceutical excipients.

Nonalcoholic Beverages, Volume Six in The Science of Beverages series, offers a wide-range of knowledge and expertise from research professionals around the world. The book focuses on the research and development of innovative products and new growing trends based on consumer demand for natural drinks that have health benefits. The book discusses the properties and benefits of developing nonalcoholic beverages, their production particularities, associated properties, physiochemical characteristics, and methods to help researchers and students learn about utilized nonalcoholic beverages. Presents a broad scope of topics and process solutions from experts in the beverages industry Covers the latest technologies and microbiological methods that enhance the health benefits of beverages Includes emerging trends in nonalcoholic beverages and offers a variety of safety and quality techniques for adding value to products

Diabetes mellitus is a chronic disorder affecting one hundred million people worldwide. This volume comprehensively reviews new developments to provide a clear picture of the role played by drugs and diet in the aetiology, pathogenesis and management of the disease. KEY TOPICS: The book deals with all aspects of the interactions between drugs and diabetes, highlighting recent advances and mechanistic input. It has a unique approach to the subject. And all authors are actively involved in diabetes research, their ongoing commitment to research in the area ensures that all contributions are up-to-date. For clinicians in research industries, hospitals and medical schools. Degree course lecturers and students in pharmacy, medical sciences and biological sciences. The pharmaceutical industry and the food/nutrition/biotechnology industries where information on the aetiology and management of diabetes is greatly needed in the research and development of drugs to combat the disease.

Rapidly increasing aging population and environmental stressors are the two main global concerns of increasing incidence of a variety of pathologies in the modern society. The complex etiologies and pathologies cause major challenges to disease treatment. On the other hand, several herbs are known for their health-caring and disease-curing activities. Ashwagandha, a popular herb in Indian traditional home medicine, Ayurveda, has gathered increasing recognition in recent years when the chemically synthesized drugs for single target therapies showed limited success and adverse toxic effects. Ashwagandha is known as a powerful adaptogen and trusted to enhance function of the brain, reproductive system, cell-mediated immunity and increase the body's defense against disease, and possess anti-inflammatory, anticancer and anti-arthritic activities. In this book, for the first time, we provide a complete portrait on scientific understanding of the effects of Ashwagandha and its active principles for a variety of preventive and therapeutic activities.

The new 4th edition of Histopathology of Preclinical Toxicity Studies is now completely in full color and continues to describe the pathology found in drug safety studies in laboratory animals with an evidence-based discussion of the relevance of these findings to the clinical investigation of new drugs for humans. Organized according to organ systems, this revision features a thoroughly updated bibliography and discusses new drug-induced pathologies and applicable species comparisons to aid in the preclinical safety assessment of new medicines. This updated reference is essential for those involved in drug safety evaluation, including pathologists, toxicologists and pharmacologists working in corporate, government, academic and research settings. This edition is in full color and features nearly 200 high-quality images Provides extended commentary on the relevance of pathological findings and features a fully updated bibliography containing sources for further reading Includes new content coverage on the commonly used transgenic animal models that are used in safety assessment, specific tumor types induced by drugs in rodents, and new drug-induced pathologies and lesions

The increasing prevalence of diabetes mellitus world-wide is an issue of major socio-economic concern. Scientific interest in plant-derived medicine is steadily rising, yet there is often a wide disparity in the caliber of information available. A detailed compilation of scientific information from across the globe, *Traditional Medicines for Modern Times: Antidiabetic Plants* highlights the potential role of dietary and medicinal plant materials in the prevention, treatment, and control of diabetes and its complications. The book not only describes plants traditionally used to treat diabetes, but evaluates the scientific studies on these plants and describes in vitro, in vivo, and clinical methods for their investigation. It examines the theory that changes in dietary patterns from traditional plant foodstuffs containing beneficial components, to richer, more processed "junk" food is responsible for the increased prevalence of diabetes worldwide. The book begins with an introduction to the disease diabetes mellitus written by a consultant physician and an up-to-date, detailed summary table and discussion of scientifically screened antidiabetic plants compiled by authors from the Jodrell Laboratories, Royal Botanic Gardens, Kew, UK. The next chapters provide an outline of clinical, in vivo, and in vitro methods for assessing antidiabetic activity of plant materials, followed by descriptions of traditional plant remedies used in Asia, the Americas, Africa, Europe, and Australia written by an international group of authors active in antidiabetic plant research. The final chapters emphasize the role of particular phytochemical groups in the treatment or prevention of diabetes. By documenting both traditional and scientifically derived knowledge, *Traditional Medicines for Modern Times: Antidiabetic Plants* brings us closer to the translation of traditional knowledge into new methods for treatment of this important disease.

Diabetes mellitus describes as heterogeneous disease caused by a combination of inherited and acquired deficiency in secretion of insulin and by reduced sensitivity of the tissues to secreted insulin. The number of people with diabetes is increasing owing to population growth, ageing, and sedentary lifestyle. Current medicine despite the efficacy showed wide range of side effects, which itself increases the annual rate of morbidity and mortality of diabetes mellitus. In this circumstance there is urge for novel medicine with lower adverse effect. Standardized natural product that derived from nature and defined by scientists can be substitution for current synthetic medicine. Systematical investigation on antidiabetic properties of *Ficus deltoidea* performed by selection of appropriate in vitro and in vivo models. Further phytochemical studies provides a detailed insight into the active principle responsible for glucose lowering effect. This book provides guidance for researcher interested in investigation of antidiabetic properties of herbal medicine, it also delivers scientific support for traditional claim of glucose lowering effect of *Ficus deltoidea*.

Nutraceuticals: Efficacy, Safety and Toxicity, Second Edition, brings together everything that is currently known about nutraceuticals and their potential toxic effects. The book introduces readers to nutraceuticals, herbal medicines, Ayurvedic medicines, prebiotics, probiotics, adaptogens, and their uses and specific applications. This essential reference discusses the mechanism of action for the judicious use of these nutraceuticals and the best tools for their evaluation before detailing the safety and toxicity of nutraceuticals and interactions with other therapeutic drugs. Finally, and crucially, regulatory aspects from around the world are covered. Completely revised and updated, this updated edition provides toxicologists, pharmacologists,

pharmaceutical scientists, and those interested in medicinal plants and natural products with a comprehensive overview of the most effective tools upon which to evaluate the safety and toxicity of nutraceuticals, prebiotics, probiotics and alternative medicines. Presents a completely revised and updated resource on the impact of nutraceuticals and various disease states such as diabetes and ophthalmic and dermal diseases Grants an overview of the current state-of-the-science of nutraceuticals, their use and applications, and known adverse effects Provides effective tools to evaluate the potential toxicity of any nutraceutical Includes details of regulatory issues as written by international experts

As volume 2 of this three-volume set on phytochemistry, this book features chapters that comprehensively review a selection of important recent advances in ethnopharmacology and alternative and complementary medicines. It also presents many informative chapters on the medicinal potential of phytochemicals in the treatment and management of various diseases, such as cancer, diabetes, diabetic nephropathy, autoimmune diseases, neurological disorders, male infertility, and more. Presents the latest R & D information on medicinal mushrooms from diverse geographical locations Offers comprehensive coverage of the most important application areas of medicinal mushrooms Includes contributions by eminently experienced researchers in the field of medicinal mushrooms Medicinal mushrooms are increasingly gaining attention worldwide because of their pharmacologically bioactive compounds, which have demonstrated potent and unique clinical properties. Scientific studies carried out during the last decade have confirmed their efficacy in treating a wide range of diseases. Extracts and bioactive compounds obtained from mushrooms have been used medicinally as anticancer, immunomodulator, antibacterial, antiviral, anti-inflammatory, anti-atherosclerotic, neuroprotectant, cardioprotectant, antioxidant, and anti-hypoglycemic agents, and in stem cell-based therapies. Introducing readers to the latest developments in, and ongoing research efforts on, medicinal mushrooms, this book gathers articles contributed by eminent researchers in different disciplines and from around the globe. Highlighting the tremendous potential of mushrooms for the development of new drugs, the topics covered include but are not limited to: Recent progress in research on the pharmaceutical potential of medicinal mushrooms and prospects for their clinical application Edible mushroom neuronutraceuticals: Basis of therapeutics Overview of therapeutic efficacy of mushrooms Mushrooms – a wealth of resources for prospective stem cell-based therapies Mushrooms as potential natural cytostatics

Natural products play crucial roles in modern drug development, and constitute a prolific source of novel lead compounds or pharmacophores for ongoing drug discovery programs. Chemistry and Pharmacology of Naturally Occurring Bioactive Compounds presents cutting-edge research in the chemistry of bioactive natural products and demonstrates how natural product research continues to make significant contributions in the discovery and development of new medicinal entities. In 21 chapters, this book highlights chemistry and pharmaceutical potential of natural products in modern drug discovery processes, and covers the synthesis and semi-synthesis of potentially bioactive natural products. Written for phytochemists, synthetic chemists, combinatorial chemists, as well as other practitioners and students in related fields, the book features chemical advances in naturally occurring organic compounds and describes their

chemical transformations and structure–activity relationships.

This new volume, *Promising Drug Molecules of Natural Origin*, explores potential beneficial drug substances derived from nature. It presents the general principles, characteristics, evaluation techniques, and applications involved in drug molecules from natural sources, such as plants and marine life. With chapters from renowned experts from around the world, the chapters in this volume address the challenges of standardization of herbal medicines, methods of characterization of natural medicines and phyto-constituents, and quality control methods for herbal medicines. Several chapters in the book focus on the evolution of phyto-constituents in cancer therapeutics, while others deal with applications for other diseases, such as diabetes and neuroinflammatory disorders. The volume also specifically reviews heterocyclic drugs from plants. This volume will be a valuable resource for faculty and advanced students in pharmaceuticals as well as researchers, scientists, and industry professionals in medicine and drug development.

Developing New Functional Food and Nutraceutical Products provides critical information from conceptualization of new products to marketing, aiming to present a solid understanding of the entire process through detailed coverage of key concepts, namely innovation, regulation, manufacturing, quality control, and marketing. Chapters provide insights into market and competitive analysis, product design and development, intellectual property, ingredient sourcing, cost control, and sales and marketing strategies. Examines key considerations in product development Provides a streamlined approach for product development Addresses manufacturing and quality control challenges Includes key lessons for a successful product launch and effective marketing

Functional foods (foods with known bioactive properties) have shown potential for preventive and therapeutic treatments. However, this potential must be safely determined before they enter the commercial market. At the same time, nutrition research is transforming into a data driven field with reference to the identification and development of functional food products due to the large number of variables affecting food biochemistry in the human body. This volume presents reviews of recent advances in food chemistry, food technology and nutraceutical research (for diet therapy and cosmetics). Chapters in this volume cover a broad spectrum of topics: - drug discovery and development in the modern nutraceutical industry, - recent developments in the extraction, identification and quantification of bioactive peptides in foods, - concepts of bioavailability, bioaccessibility, bioactivity, bioefficiency and bioconversion of bioactive foods, - synthetic routes for obtaining bioactive compounds, - the role of nutrigenomics to identify key cellular functions by specific genetic and epigenetic interactions with a nutrient, - anti-cancer properties of important bioactive components of medicinal plants, - the effect of a diet based on different bioactive foods on prevention and treatment of diabetes, - antioxidant effects on cardiovascular disease, - beneficial effects of bioactive foods on metabolic syndrome, - the potential of tauroursodeoxycholic acid on prevention and recovery of neurodegenerative diseases, - the effects of natural phytochemicals in prostate cancer, - the effects of methylxanthines (caffeine and others), and culinary methods on physiological and toxicological effects of the bioactive food constituents. The volume is an ideal reference for pharmacy students, nutritionists, healthcare providers and nutraceutical R&D specialists interested in functional foods. [Series Intro] *Frontiers in Bioactive Compounds* brings edited reviews on the analysis and characterization of natural compounds of medicinal interest. Each volume covers useful information on a variety of natural sources as well as analytical techniques. This series is essential reading for analytical and medicinal chemists as well as

professionals involved in natural and pharmaceutical product research and development. The book *Radioisotopes - Applications in Bio-Medical Science* contains two sections: *Radioisotopes and Radiations in Bioscience* and *Radioisotopes and Radiology in Medical Science*. Section I includes chapters on medical radioisotope production, radio-labeled nanoparticles, radioisotopes and nano-medicine, use of radiations in insects, drug research, medical radioisotopes and use of radioisotopes in interdisciplinary fields etc. In Section II, chapters related to production of metal PET (positron emission tomography) radioisotopes, 3-dimensional and CT (computed tomography) scan, SS nuclear medicine in imaging, cancer diagnose and treatments have been included. The subject matter will be highly useful to the medical and paramedical staff in hospitals, as well as researchers and scholars in the field of nuclear medicine, medical physics and nuclear bio-chemistry etc.

Polyphenols in Human Health and Disease documents antioxidant actions of polyphenols in protection of cells and cell organelles, critical for understanding their health-promoting actions to help the dietary supplement industry. The book begins by describing the fundamentals of absorption, metabolism and bioavailability of polyphenols, as well as the effect of microbes on polyphenol structure and function and toxicity. It then examines the role of polyphenols in the treatment of chronic disease, including vascular and cardiac health, obesity and diabetes therapy, cancer treatment and prevention, and more. Explores neuronal protection by polyphenol metabolites and their application to medical care. Defines modulation of enzyme actions to help researchers see and study polyphenols' mechanisms of action, leading to clinical applications. Includes insights on polyphenols in brain and neurological functions to apply them to the wide range of aging diseases.

Large scale cultivation of macrofungi is possible with fermentation, using easily accessible lignocellulosic agricultural residues utilising economical methods to generate substantial biomass, food and biofuels. Bioconversion of lignocellulosic wastes by macrofungi generates value-added fungal nutritional biomass for humans and livestock. Besides commercial cultivation techniques, other topics covered include healing potential of mushrooms, industrial opportunities, mycelium-based products, forest wild mushrooms and industrial applications of white rot fungi. This book addresses the various applications of macrofungi. It encourages readers to explore non-conventional sources of nutrition as well as bioactive metabolites to serve as nutraceuticals. The volume emphasizes the significance of macrofungi as source of bioactive compounds to remedy human lifestyle diseases especially cancers and cardiovascular ailments along with immunostimulation potential by *Cordyceps*. This book also emphasises on the role of mushrooms as a source of cosmeceuticals, source of flavors, essence, scents and perfumes.

The first of two related books that kick off the Food Biotechnology series, *Functional Foods and Biotechnology: Sources of Functional Foods and Ingredients*, focuses on the recent advances in the understanding of the role of cellular, metabolic, and biochemical concepts and processing that are important and relevant to improve functional foods and food ingredients targeting human health benefits. This volume explores sources of ecologically-based diversity of functional foods and food ingredients that are available to enhance diverse nutritional values and functional benefits of foods for better human health outcomes, especially focusing on emerging diet and lifestyle-linked non-communicable chronic disease (NCDs) challenges. The contributors with expertise in the field of Food Biotechnology and Functional Food Ingredients have integrated the recent advances in some common as well as novel sources of functional foods and ingredients from diverse ecological and cultural origins. Further, these chapters also highlight human health relevant bioactive profiles and associated functionalities of these health-promoting compounds, including preventative functional roles for common NCD-linked health benefits. **FEATURES:** Provides ecological and metabolic rationale to integrate novel functional food and functional ingredient sources in wider health-focused food system innovations.

Examines the value-added role of select functional foods and food ingredients to improve NCD-linked health benefits such as type-2 diabetes, cardiovascular disease, and human gut improvement. Includes insights on system-based solutions to advance climate resilient and health focused food diversity based on diverse biotechnological approaches to design and integrate functional food and food ingredient sources. Overall, the rationale of this book series is focused on Metabolic-Driven Rationale to Advance Biotechnological Approaches for Functional Foods, the synopsis of which is presented as the Introduction chapter, which is followed by a chapter on current understanding about regulatory guidelines for health claims of functional foods and food ingredients. Special topics on nonnutritive sweeteners, caroteneprotein from seafood waste, and Xylooligosaccharides as functional food ingredients for health-focused dietary applications are integrated in this book. Additionally, ecologically and metabolically-driven functional roles of common food sources such as corn, and barley and some novel food sources, such as ancient emmer wheat, black soybean, fava bean, herbs from Lamiaceae and functional protein ingredients and minerals from Lemnaceae are also highlighted in this volume. The overall goal is to provide insights on role of these functional food and ingredient sources for their integration in wider health-focused food systems, which will help food scientists, food industry personnel, nutritionists, crop science researchers, public health professionals, and policy makers to make appropriate decisions and to formulate strategies for improving health and well-being. A related book focuses on biological and metabolically driven mobilization of functional bioactives and ingredients and their analysis that is relevant in health and wellness.

Many herbs and spices, in addition to their culinary use for taste, contain chemical compounds which have medicinal uses. For this reason, herbs and spices have been used for treating various ailments since ancient times. Modern scientific methods have enabled researchers to isolate bioactive compounds from herbs and spices and perform chemical analyses, which can be used to develop medicines to treat different diseases. This book series is a compilation of current reviews on studies performed on herbs and spices. Science of Spices and Culinary Herbs is essential reading for medicinal chemists, herbalists and biomedical researchers interested in the science of natural herbs and spices that are common part of regional diets and folk medicine. The second volume of this series features 6 reviews of unique herbs and seeds: 1. Tamarind (*Tamarindus indica* L.): A Review of its Use as a Spice, a Culinary Herb and Medicinal Applications 2. *Piper nigrum* (Black pepper): A Flavor for Health 3. Coriander Seeds – Ethno-medicinal, Phytochemical and Pharmacological Profile 4. The Fenugreek Seed: Therapeutic Properties and Applications 5. Biological Activities of *Foeniculum vulgare* Mill 6. Exploration of Dill Seeds (*Anethum graveolens*): An Ayurpharmacologic Approach

Diabetes mellitus is a disease with tremendous health and economic burden. A better understanding of how normal glucose homeostasis is maintained and the pathogenesis is important to identify new ways for diabetes treatment. This book addresses multiple aspects of this area of research. Written by experts in the field. Informs on important topics related to the regulation of glucose homeostasis and the pathogenesis of diabetes mellitus, a field of intense research interest.

While there is talk of the Fourth Industrial Revolution, old and new challenges bedevil the world – climate change, nutrition, and health poverty being at the top of the list. In seeking solutions to these and other problems which afflict the modern era, it is worthwhile to look into our collective past, to the traditions and knowledges of our ancestors. Such knowledge continues to exist in many parts of the world, though now marginalized by homogenous, Eurocentric ontology and epistemology. This book presents a compilation of reviews, case studies, and primary research attempting to locate the utility of traditional and Indigenous Knowledges in an increasingly complex world. It assembles chapter authors from across the world to tackle topics ranging from traditional knowledge-based innovations and commercialization, traditional

medicine systems as practiced around the world, ethnoveterinary practices, and food innovation to traditional governance and leadership systems, among others. This book is an important resource for policymakers; scholars and researchers of cultural studies, leadership, governance, ethnobotany, anthropology, plant genetic resources and technology innovation; and readers interested in the history of knowledge and culture, as well as cultural activists and political scientists. Features: Unique combination of social science and anthropological aspects with natural science perspectives Includes summaries aimed at policymakers to immediately see what would be relevant to their work Combines case studies illuminating important lessons learned with reviews and primary data Multidisciplinary in the scope of the topics tackled and assemblage of contributors Global footprint with contributions from Africa, Europe, North America, Asia, and the West Indies David R. Katerere, Department of Pharmaceutical Sciences, Tshwane University of Technology, South Africa Wendy Applequist, William L. Brown Center, Missouri Botanical Garden, St Louis, Missouri Oluwaseyi M. Aboyade, Department of Pharmaceutical Sciences, Tshwane University of Technology, South Africa and Nutritica SA, The Innovation Hub, Pretoria, South Africa Chamunorwa Togo, The Innovation Hub, Pretoria, South Africa

This new volume provides a plethora of new information about potential medicinal herbs and their usefulness in treating diabetes and neurological diseases. Most large multinational companies are interested and engaged in the commercialization of herb-based formulations, and consumers continue to seek natural-based therapies. Herbs for Diabetes and Neurological Disease Management provides insight into plant-based novel molecules targeted for diabetes and neurological disorders. It looks at a selection of herbs that have proven effective in the management of diabetes and neurological disorders, including migraine, epilepsy, memory disorders, depression, and more. Divided into ten chapters focusing on diabetes and its macro- and microvascular complications (migraine, epilepsy, memory disorders, depression and other neuropsychiatric disorders), this book is structured to provide a source of reliable information and enrich the knowledge of readers. Each chapter briefly explains the epidemiology and pathophysiology of the disease state and the possible role of herbal drugs in the prevention of the particular disease. The reported pharmacological activities and possible mechanism of action of herbal drugs are also discussed in detail, which makes this book informative and unique. This new volume will be a reliable reference complementing the substantial information on the use of herbal drugs in diabetes and neurological disorders that serve as the pillars of drug discovery and development.

The Practice of Medicinal Chemistry fills a gap in the list of available medicinal chemistry literature. It is a single-volume source on the practical aspects of medicinal chemistry. Considered "the Bible" by medicinal chemists, the book emphasizes the methods that chemists use to conduct their research and design new drug entities. It serves as a practical handbook about the drug discovery process, from conception of the molecules to drug production. The first part of the book covers the background of the subject matter, which includes the definition and history of medicinal chemistry, the measurement of biological activities, and the main phases of drug activity. The second part of the book presents the road to discovering a new lead compound and creating a working hypothesis. The main parts of the book discuss the optimization of the lead compound in terms of potency, selectivity, and safety. The Practice of Medicinal Chemistry can be considered a "first-read" or "bedside book" for readers who are embarking on a career in medicinal chemistry. NEW TO THIS EDITION: * Focus on chemoinformatics and drug discovery * Enhanced pedagogical features * New chapters including: - Drug absorption and transport - Multi-target drugs * Updates on hot new areas: NEW! Drug discovery and the latest techniques NEW! How potential drugs can move through the drug discovery/ development phases more quickly NEW! Chemoinformatics The genus *Phyllanthus* has over 1,000 species distributed worldwide, many of which have

been used indigenously for the treatment of a variety of ailments for generations. Researchers have developed ways to analyze the potential of these plants and demonstrated the pharmacological action and various chemical entities present in each of them. They have validated the folklore claims and used this knowledge to design cost-effective and reliable sources of medicine. The first book to exclusively examine the genus *Phyllanthus*, *Phyllanthus Species: Scientific Evaluation and Medicinal Applications* begins with a systematic classification and identification manual for various plants in the genus, followed by the scientific evaluation of the species for modern medicinal use. This reference compiles cutting edge research from countries around the world, including the UK, Malaysia, India, Indonesia, Spain, Cuba, and China. Topics covered include phylogenetic analysis of *Phyllanthus*, chemistry of the genus, anti-cancer, anti-diabetic and chemo-protective effects, genotoxicity, clinical trials involving *Phyllanthus*, and various formulations containing different plants from the genus *Phyllanthus*. *Phyllanthus Species: Scientific Evaluation and Medicinal Applications* describes in detail the taxonomy, cultivation, and marketing, identification of geographic and genetic hot spots, chemistry, scientific evaluation, and clinical trials of various species of *Phyllanthus*. Written for researchers and educators in academia, industry, agriculture, and the interested general public, this book's up-to-date references make it a powerful resource providing first-hand information on *Phyllanthus*.

The first contribution summarizes current trends in research on medicinal plants in Mexico with emphasis on work carried out at the authors' laboratories. The most relevant phytochemical and pharmacological profiles of a selected group of plants used widely for treating major national health problems are described. The second contribution provides a detailed survey of the so far reported literature data on the capacities of selected oxyprenylated phenylpropanoids and polyketides to trigger receptors, enzymes, and other types of cellular factors for which they exhibit a high degree of affinity and therefore evoke specific responses. And the third contribution discusses aspects of endophytic actinobacterial biology and chemistry, including biosynthesis and total synthesis of secondary metabolites produced in culture. It also presents perspectives for the future of microbial biodiscovery, with emphasis on the secondary metabolism of endophytic actinobacteria.

[Copyright: dd5a6d0a69be6e1406e3b05a68a0763a](#)