Anticancer Activity Of Carica Papaya Extracts In And

This book provides a single source of information on three major bioengineering areas: engineering at the cellular and molecular level; biomedical devices / instrument engineering; and data engineering. It explores the latest strategies that are essential to advancing our understanding of the mechanisms of human diseases, the development of new enzyme-based technologies, diagnostics, prosthetics, high-performance computing platforms for managing huge amounts of biological data, and the use of deep learning methods to create predictive models. The book also highlights the growing importance of integrating chemistry into life sciences research, most notably concerning the development and evaluation of nanomaterials and nanoparticles and their interactions with biological material. The underlying interdisciplinary theme of bioengineering is addressed in a range of multifaceted applications and worked out examples provided in each chapter.

The use of biological sources such as microbes and plants can help in synthesizing nanoparticles in a reliable and eco-friendly way. The synthesis of nanoparticles by these natural sources is characterized by processes that take place near to ambient temperature and pressures and also near neutral pH. This

edited volume authored by subject specialists, provides all the latest research and builds a database of bioreduction agents to various metal nanoparticles using different precursor systems. The book also highlights the different strategies such as simplicity, cost-effectiveness, environment-friendly and easily scalable, and includes parameters for controlling the size and shape of the materials developed from the various greener methods. In order to exploit the utmost potential metal nanoparticles synthesis from the different sources such as agricultural waste, flora and fauna, food waste, microbes and biopolymer systems, it is also crucial to recognize the biochemical and molecular mechanisms of production of nanoparticles and their characterization.

Herbal Medicine: Back to the Future compiles expert reviews on the application of herbal medicines (including Ayurveda, Chinese traditional medicines and alternative therapies) to treat different ailments. The book series demonstrates the use of sophisticated methods to understand traditional medicine, while providing readers a glimpse into the future of herbal medicine. This volume presents reviews of traditional Chinese medicine and other plant based therapies useful for treating different cancers. The topics included in this volume are: Herbal extracts from Carica papaya and Azadirachta Natural antimutagens Encapsulated polyphenols and other anticancer compounds derived from plants

Traditional Chinese medicine treatments for cancer related fatigue Indirubins Ayurvedic anticancer herbal medicines Melanocyte regeneration through herbal medicine This volume is essential reading for all researchers in the field of natural product chemistry and pharmacology. Medical professionals involved in oncology who seek to improve their knowledge about herbal medicine and alternative therapies will also benefit from the contents of the volume. Medicinal and Poisonous Plants of India Abrus Precatorius L. Abrus Precatorius L. (Black seed variety) Abrus Precatorius L. (Red seed variety) Abrus Precatorius L. (White seed variety) Abrus Precatorius L. (Yellow seed variety) Alangium Salvifolium (L.f.) Wangerin. Annona Squamosa L. Argemone Mexicana L. Calotropis Gigentia (L.) R.Br. Calotropis Procera (Aiton) W.T. Aiton Cannabis Sativa L. Carica Papaya L. Cascabela Thevetia (L.) Lippold Cassia Occidentalis L. Catharanthus Roseus (L.) Don Cleistanthus Collinus (Roxb.) Benth. ex Hook. f Cryptostegia Grandiflora R.Br. Cuscuta Reflexa (Roxb.) Datura Metel L. Datura Stramonium L. Dioscorea Bulbifera L. Euphorbia Antiquorum L. Euphorbia Cyathophora L. Euphorbia Hirta L. Euphorbia Milii L. Euphorbia Neriifolia L. Euphorbia Nivulia Buch-Ham. Euphorbia Pulcherrima Willd. Euphorbia Tirucalli L. Excoecarica Agallocha L. Gloriosa Superba L. Jatropha Curcas L. Jatropha Gossypifolia L. Lantana Camara L. Melia Azedarach L. Momordica Charantia L.

Moringa Oleifera Lam. Mucuna Pruriens (L) DC Nerium Oleander L. Nicotiana Tabacum L. Oxalis Corniculata L. Parthenium Hysterophors L. Pedilanthus Tithymaloides (L.) Poit Plumbago Zeylanica L. Plumeria Rubra L. Punica Granatum L. Rauvolfia Serpentina (L.) Benth. ex. Kurz. Ricinus Communis L. Solanum Nigrum L. Solanum Virginianum L. Strychnos Nux-vomica L. Urginea Indica (Roxb.) Kunth

Cancer is one of the leading death cause of human population increasingly seen in recent times. Plants have been used for medicinal purposes since immemorial times. Though, several synthetic medicines are useful in treating cancer, they are inefficient and unsafe. However, plants have proved to be useful in cancer cure. Moreover, natural compounds from plants and their derivatives are safe and effective in treatment and management of several cancer types. The anticancer plants such as Catharanthus roseus, Podophyllum peltatum, Taxus brevifolia, Camptotheca acuminate, Andrographis paniculata, Crateva nurvala, Croton tonkinensis, Oplopanax horridus etc., are important source of chemotherapeutic compounds. These plants have proven their significance in the treatment of cancer and various other infectious diseases. Nowadays, several well-known anticancer compounds such as taxol, podophyllotoxins, camptothecin, vinblastine, vincristine, homoharringtonine etc. have been isolated and purified

from these medicinal plants. Many of them are used effectively to combat cancer and other related diseases. The herbal medicine and their products are the most suitable and safe to be used as an alternative medicine. Based on their traditional uses and experimental evidences, the anticancer products or compounds are isolated or extracted from the medicinally important plants. Many of these anticancer plants have become endangered due to ruthless harvesting in nature. Hence, there is a need to conserve these species and to propagate them in large scale using plant tissue culture. Alternatively, plant cell tissue and organ culture biotechnology can be adopted to produce these anticancer compounds without cultivation. The proper knowledge and exploration of these isolated molecules or products could provide an alternative source to reduce cancer risk, anti-tumorigenic properties, and suppression of carcinogen activities. Anticancer plants: Volume 1, Properties and Application is a very timely effort in this direction. Discussing the various types of anticancer plants as a source of curative agent, their pharmacological and neutraceutical properties, cryo-preservations and recent trends to understand the basic cause and consequences involved in the diseases diagnosis. We acknowledge the publisher, Springer for their continuous inspiration and valuable suggestions to improvise the content of this book. We further extend our heartfelt gratitude to all

our book contributors for their support, and assistance to complete this assignment. I am sure that these books will benefit the scientific communities including academics, pharmaceuticals, nutraceuticals and medical practitioners.
Issues in Food and Health: 2013 EditionScholarlyEditions
This book provides detailed information on the various types of cancer, etiology, effects, and challenges associated with current cancer treatment regimes. The present edition has been written to reflect recent developments, success rates and lacunae in herbal and modern cancer therapies. It also describes the use of several herbal formulations to boost patients' immunity, in order to prevent or help them cope with several cancers. The book highlights several herbs/shrubs/trees that have been reported to possess anti-cancer properties, paving the way for in-depth research into the dose standardization and efficacy of plant-based bioactive molecules. It also focuses on the sustainable conservation of medicinal flora, so that, in future, novel biomolecules be extracted and made available for the treatment of various cancers. Given its highly relevant content, the book will benefit the entire cancer research community (students, scientists, pharmacists, herbalists and lecturers) at universities, research institutions and industry in the areas of oncology, herbal cancer therapy, biotechnology, drug discovery, pharmaceuticals, agriculture, and various disciplines of the biomedical

sciences.

This contributed volume, “Multifaceted Protocols in Biotechnology, Volume 2”, consists of multidisciplinary methods and techniques commonly used in biotechnology studies. There are two sections covered in this book – Ionic Liquid Related Techniques & Evergreen Biotechnology Techniques. A brief introduction supports each protocol to allow easy learning and implementation. The first section consists of three chapters covering studies in modern biotechnology focusing on the role of ionic liquid techniques in extracting secondary metabolites, enzyme stabilization and biomass processing. The second section covers evergreen methodologies. It comprises five chapters covering topics on microcarrier technology for cell culture; Polymerase Chain Reaction for non-halal sources detection in food; ELISA for biomarker identification; gamma ray-induced mutagenesis for enhancing microbial fuel cells; and the effect of temperature on antibacterial activity of Carica papaya seed extract. This book will be useful to graduate students, researchers, academics, and industry practitioners working in the area of biotechnology

Focusing on phytochemicals and their potential for drug discovery, this book offers a comprehensive resource on poisonous plants and their applications in chemistry and in pharmacology. Provides a comprehensive resource on phytotoxins, covering historical

perspectives, modern applications, and their potential in drug discovery - Covers the mechanisms, benefits, risks and management protocols of phytotoxins in a scientific laboratory and the usefulness in drug discovery - Written and edited by leading researchers in phytochemistry, medicinal chemistry, analytical chemistry, toxicology, and more - Presents chapters in a carefully designed, clear order, making it an ideal resource for the academic researcher or the industry professional at any stage in their career Provides a comprehensive resource on phytotoxins, covering historical perspectives, modern applications, and their potential in drug discovery Covers the mechanisms, benefits, risks and management protocols of phytotoxins in a scientific laboratory and the usefulness in drug discovery Presents chapters in a carefully designed, clear order, making it an ideal resource for the academic researcher or the industry professional at any stage in their career

Fruits and vegetables are one of the richest sources of ascorbic acid, other antioxidants and produce-specific bioactive compounds. A general consensus from health experts has confirmed that an increased dietary intake of antioxidant compounds found in most fresh produce types may protect against oxidative damage caused by free radicals and reduce the incidence of certain cancers and chronic diseases. Currently there is no book available which collectively discusses and reviews empirical data on health-promoting properties of all fresh produce types. This book will provide detailed information on identity, nature, bioavailablity, chemopreventative effects, and

postharvest stability of specific chemical classes with known bioactive properties. In addition, chapters discuss the various methodologies for extraction, isolation, characterization and quantification of bioactive compounds and the in-vitro and in-vivo anticancer assays. It will be an essential resource for researchers and students in food science, nutrition and fruit and vegetable production.

This book is perfectly timed for the worldwide explosion of interest in mycorrhizal research. With a strong emphasis on the latest findings in genetics and molecular biology, it contains all current information and speculation on the structure, function and biotechnological applications of mycorrhizas.

This book discusses the latest developments in plant-mediated fabrication of metal and metal-oxide nanoparticles, and their characterization by using a variety of modern techniques. It explores in detail the application of nanoparticles in drug delivery, cancer treatment, catalysis, and as antimicrobial agent, antioxidant and the promoter of plant production and protection. Application of these nanoparticles in plant systems has started only recently and information is still scanty about their possible effects on plant growth and development. Accumulation and translocation of nanoparticles in plants, and the consequent growth response and stress modulation are not well understood. Plants exposed to these particles exhibit both positive and negative effects, depending on the concentration, size, and shape of the nanoparticles. The impact on plant growth and yield is often positive at lower concentrations and negative at higher ones.

Exposure to some nanoparticles may improve the free-radical scavenging potential and antioxidant enzymatic activities in plants and alter the micro-RNAs expression that regulate the different morphological, physiological and metabolic processes in plant system, leading to improved plant growth and yields. The nanoparticles also carry out genetic reforms by efficient transfer of DNA or complete plastid genome into the respective plant genome due to their miniscule size and improved site-specific penetration. Moreover, controlled application of nanomaterials in the form of nanofertilizer offers a more synchronized nutrient fluidity with the uptake by the plant exposed, ensuring an increased nutrient availability. This book addresses these issues and many more. It covers fabrication of different/specific nanomaterials and their wide-range application in agriculture sector, encompassing the controlled release of nutrients, nutrient-use efficiency, genetic exchange, production of secondary metabolites, defense mechanisms, and the growth and productivity of plants exposed to different manufactured nanomaterials. The role of nanofertilizers and nano-biosensors for improving plant production and protection and the possible toxicities caused by certain nanomaterials, the aspects that are little explored by now, have also been generously elucidated.

Fruits are botanically diverse, perishable, seasonal andpredominantly regional in production. They come in many varieties,shapes and size, colors, flavors and textures and are an importantpart of a healthy diet and the global economy. Besides

vitamins,minerals, fibers and other nutrients, fruits contain phenoliccompounds that have pharmacological potential. Consumed as a partof a regular diet, these naturally occurring plant constituents arebelieved to provide a wide range of physiological benefits throughtheir antioxidant, anti-allergic, anti-carcinogenic, andanti-inflammatory properties. Handbook of Fruits and Fruit Processing distils thelatest developments and research efforts in this field that areaimed at improving production methods, post-harvest storage andprocessing, safety, quality and developing new processes andproducts. This revised and updated second edition expands andimproves upon the coverage of the original book. Some highlightsinclude chapters on the physiology and classification of fruits,horticultural biochemistry, microbiology and food safety (includingHACCP, safety and the regulation of fruits in the global market),sensory and flavor characteristics, nutrition, naturally presentbioactive phenolics, postharvest physiology, storage,transportation and packaging, processing and preservationtechnologies. Information on the major fruits includes tropical andsuper fruits, frozen fruits, canned fruit, jelly, jam andpreserves, fruit juices, dried fruits and wines. The 35 chaptersare organized into five parts: Part I: Fruit physiology, biochemistry, microbiology, nutritionand health Part II: Postharvest handling and preservation offruits Part III: Product manufacturing and packaging Part IV: Processing plant, waste management, safety andregulations Part V: Production, quality and processing aspects ofmajor fruits and fruit products Each chapter has been contributed

by professionals from aroundthe globe representing academia, government institutions andindustry. The book is designed to be a valuable source andreference book for scientists, product developers, students and allprofessionals with an interest in this field.

Includes reports of activities of: National Institute of Science and Technology, Philippine Atomic Energy Commission, Philippine Coconut Research Institute, Philippine Textile Research Institute, Philippine Inventors Commmission and Forest Products Research and Industries Development Commission.

The safety and microbiological quality of fermented foods covers complementary aspects of such products. Food fermentation is primary intended to improve food preservation, thereby modifying food properties. However, the management of chemical and microbiological hazards is a leading aspect for innovative processing in this domain. Similarly, microbiological quality in fermented foods is of peculiar importance: all microorganisms with a positive effect, including probiotic bacteria, fermentative bacteria, Saccharomyces and non-Saccharomyces yeasts, can be relevant. The fitness of pro-technological microorganisms impacts nutritional quality, but also sensory properties and processing reliability. This book provides a broad view of factors which determine the safety and microbiological quality of fermented foods. A focus is made on the interconnection between starter properties and the expectations related to a probiotic effect. All chapters underline the involvement of fermented foods towards

better resource management and increasing food and nutritional security, especially in developing countries.

Increased world population, decreased water supply, and climate change all put stresses on the global food supply. An exploration of the challenges and possible solutions to improve yields of the main crops, such as cereals, roots, tubers, and grasses, Omics Technologies and Crop Improvement reviews data on food sciences and omics. The book covers

Thin layer chromatography (TLC) is increasingly used in the fields of plant chemistry, biochemistry, and molecular biology. Advantages such as speed, versatility, and low cost make it one of the leading techniques used for locating and analyzing bioactive components in plants. Thin Layer Chromatography in Phytochemistry is the first source devoted to supplying state-of-the-art information on TLC as it applies to the separation, identification, quantification, and isolation of medicinal plant components. Renowned scientists working with laboratories around the world demonstrate the applicability of TLC to a remarkable diversity of fields including plant genetics, drug discovery, nutraceuticals, and toxicology. Elucidates the role of plant materials in the pharmaceutical industry... Part I provides a practical review of techniques, relevant materials, and the particular demands for using TLC in phytochemical applications. The text explains how to determine the biological activity of metabolites and assess the effectiveness of herbal medicines and nutritional supplements. Part II concentrates on

TLC methods used to analyze specific plant-based metabolite classes such as carbohydrates, proteins, alkaloids, flavonoids, terpenes, etc. Organized by compound type, each chapter discusses key topics such as sample preparation, plate development, zone detection, densitometry, and biodetection. Demonstrates practical methods that can be applied to a wide range of disciplines... From identification to commercial scale production and quality control, Thin Layer Chromatography in Phytochemistry is an essential bench-top companion and reference on using TLC for the study of plant-based bioactive compounds.

Ivan Ross takes advantage of the significant growth in the amount of new data available to update and expand his much acclaimed Medicinal Plants of the World: Chemical Constituents, Traditional and Modern Medicinal Uses, Volume 1. This considerably enhanced second edition contains new research and references on the immunomodulatory activity present in Allium sativum, Mangifera indica, and Punica granatum, the antidiabetic effects of Momoridica charantia and Mucuna pruriens, the antiinflammatory activity found in Mangifera indica and Arbus precatorius, the cholesterol lowering effect of Allium sativum and Moringa pterygosperma, and the antitumor effect of Arbus precatorius and Moringa pterygosperma. There are also important new findings concerning the antiherpes simplex virus activity of Mangifera indica, the anti-Parkinson's activity of Mucuna pruriens, the antiviral activity in Phyllanthus niruri and Jatropha curcas, the hyperthyroid regulation properties of

Moringa pterygosperma, and the antioxidant activity of Mangifera indica, Punica granatum, Psidium guajava, and Allium sativum. Allium sativum is highlighted for its treatment of unstable angina pectoris, sickle red blood cell dehydration inhibition, senescence ameliorative, chemoprotective, cardiovascular, antineoplastic, anticarcinogenic, and antiatherogenic effects. This revised and enhanced edition provides details on traditional medicinal uses, chemical constituents, pharmacological activities, clinical trials, color illustrations, Latin names, botanical descriptions, as well as providing an index and extensive bibliographies. Authoritative and exhaustively compiled, Medicinal Plants of the World: Chemical Constituents, Traditional and Modern Medicinal Uses, Volume 1, 2nd Edition offers pharmacists, physicians, medicinal chemists, toxicologists, and phytochemists a universal reference on twenty-six of the most widely used medicinal plants in the world.

Banana is one of the most important food crops all over the world. There are around 365 varieties of bananas available throughout the world. Banana is a traditional medicine for diabetes, cancer, diarrhoea and also highly nutritional food crop. In this study, commonly used varieties of banana are taken for characterization by morphology and genotype which is based on International Plant Genetic Resources Institute and RAPD analysis. Five varieties were morphologically similar in parameters such as leaf habit, pseudo stem appearance and peel color. RAPD analysis proved that these varieties of banana are closely related which coincides with the morphological

characterization. Also, this study is aimed at examining the anticancer activity of Musa acuminata variety of banana which is commonly consumed in southern part of India. Anticancer examination of the sample was performed for the hexane extract using DLA and MG-63 cell lines which showed a high degree of anticancer activity which was proved by the cytotoxic effect on the tumor cell lines. Phytochemicals present in the plant concentrate provoked cell apoptosis and smoother cell expansion to quickly partitioning malignancy cell lines. Among the five varieties analysed, Musa accuminata Colla variety shows increased level of anticancer activity in both cell lines. So it is anticipated that this variety can be used as medicine orally for cancer treatment.

This book presents a review of recent advances in ZnO-based nanomaterials and devices. ZnO as a nanomaterial has gained substantial interest in the research area of wide bandgap semiconductors and is considered to be one of the major candidates for electronic and photonic applications. ZnO has distinguished and interesting electrical and optical properties and is considered to be a potential material in optoelectronic applications such as solar cells, surface acoustic wave devices, and UV emitters. ZnO's unique properties have attracted several researchers to study its electrical and optical properties. As a nanostructured material, ZnO exhibits many advantages for nanodevices. Moreover, it has the ability to absorb the UV radiation.

While everyone knows fruits and vegetables are beneficial to good health, it's increasingly seen as important to know which ones can be effective in treating specific

illnesses. For example, which are good for cardiac care? Which can help combat and treat asthma? What are the safety concerns to be aware of when using herbs in combination with traditional medicines? Diet and nutrition are vital keys to controlling or promoting morbidity and mortality from chronic diseases, and the multitude of biomolecules in dietary fruits and vegetables play a crucial role in health maintenance. They may, therefore, be more effective and certainly could have different actions beyond nutrients however this science is still evolving. This book brings together experts working on the different aspects of supplementation, foods, and plant extracts, in health promotion and disease prevention. Their expertise and experience provide the most current knowledge to promote future research. Dietary habits need to be altered, for most people and the conclusions and recommendations from the various chapters in this book will provide a basis for that change. The overall goal of this book is to provide the most current, concise, scientific appraisal of the efficacy of key foods and constituents medicines in dietary plants in preventing disease and improving the quality of life. While vegetables have traditionally been seen to be good sources of vitamins, the roles of other constituents have only recently become more widely recognized. This book reviews and often presents new hypotheses and conclusions on the effects of different bioactive components of the diet, derived particularly from vegetables, to prevent disease and improve the health of various populations. * Identify bioactive fruit and vegetable options for prevention or treatment of illness * Moves from general

overview to disease specific applications providing a framework for further research and deeper understanding * Includes discussion of issues and challenges, permitting critical analysis and evaluation

Issues in Food and Health / 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Food Safety. The editors have built Issues in Food and Health: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Food Safety in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Food and Health / 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Volume 10 is part of a multi compendium Edible Medicinal and Non-Medicinal Plants. This work is of significant interest to medical practitioners, pharmacologists, ethnobotanists, horticulturists, food nutritionists, botanists, agriculturists, conservationists and general public. 59 plant species with edible modified stems, roots and bulbs in the families Amaranthaceae, Cannaceae, Cibotiaceae, Convolvulaceae,

Cyperaceae, Dioscoreaceae, Euphorbiaceae, Fabaceae, Iridaceae, Lamiaceae, Marantaceae, Nelumbonaceae, Nyctaginaceae, Nymphaeaceae, Orchidaceae, Oxalidaceae, Piperaceae, Poaceae, Rubiaceae, Simaroubaceae, Solanaceae, Tropaeolaceae, Typhaceae and Zingiberaceae. Topics covered include: taxonomy; common/ vernacular names; origin/ distribution; agroecology; edible plant parts/uses; botany; nutritive/medicinal properties, nonedible uses and selected references.

Phytotherapy has the potential to give patients long term benefits with less or no side effects. This is the second volume of the series. This volume brings 11 chapters that cover updates on general phytotherapy, traditional Chinese medicine as well as information on anti-diabetic and antihypertensive herbs (including Senna spp., Curcumin, Carum carvi, Premna serratifolia, Eugenia jambolana and more). The monographs presented within this volume give several details necessary for pharmacopoeial data for quality assurance of pharmaceutical products derived from these specific plant sources: botanical features, distribution, identity tests, purity requirements, chemical assays, active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. Hence academic and professional pharmacologists or clinicians will find comprehensive information on a variety of therapeutic agents along with guidelines for applying them in practical phytotherapy of diabetes and hypertension.

Frontiers in Clinical Drug Research – Anti infectives is a book series that brings updated reviews to readers interested in learning about advances in the development of pharmaceutical agents for the treatment of infectious diseases. The scope of the book series covers a range of topics including the chemistry, pharmacology, molecular biology and biochemistry of natural and synthetic drugs employed in the treatment of infectious diseases. Reviews in this series also include research on multi drug resistance and pre-clinical / clinical findings on novel antibiotics, vaccines, antifungal agents and antitubercular agents. Frontiers in Clinical Drug Research – Anti infectives is a valuable resource for pharmaceutical scientists and postgraduate students seeking updated and critically important information for developing clinical trials and devising research plans in the field of anti infective drug discovery and epidemiology. The sixth volume of this series features these interesting reviews: - Direct-acting antiviral drugs for treatment of Hepatitis C virus infection - Plant lattices as anti-infective compounds - Antimicrobial materials and devices for biomedical applications - Recent advances in the treatment of toxoplasmosis - Antimicrobial immunoglobulin prophylaxis and therapy - Targeting Magnesium Homeostasis as Potential Anti-Infective Strategy Against Mycobacteria

This book is a printed edition of the Special Issue "Dietary and Non-Dietary Phytochemicals and Cancer" that was published in Toxins

Nanotechnology is expected to bring revolutionary changes in a variety of fields. This volume describes nanoparticles and their biomedical applications, and covers metal nanoparticles, metal oxide nanoparticles, rare earth based nanoparticles and graphene oxide nanoparticles. It elaborates on a number of biomedical applications, including therapeutic applications. It

addresses the topic of green synthesis, in view of increasing health and environmental concerns.

Trees that are indispensably supportive to human life pose a formidable challenge to breed them to suit to human needs. From soft drinks to breweries to beverages to oil to tires, the value added products from trees give a spectrum of products to human kind. While attempts to tap these resources through conventional breeding are underway, the quick and elegant way of manipulating the genetic systems at the genome level is an essential chapter of modern science. Books featuring genomics of tree crops are few, and genomics is such a science that changes rapidly. Genomics of Tree Crops is an earnest attempt towards compiling genomics of tree crops. Plant genomics has made monumental strides in the last decade providing insights into intra-genomic phenomena such as heterosis, epistasis, pleiotropy and other interactions between loci and alleles within the genome. In contrast, the investigation of the roles and functions of single genes is a primary focus of molecular biology and is a common topic of modern genetic research. A genome is the sum total of all of an individual organism's genes. Thus, genomics is the study of all the genes of a cell, or tissue, at the DNA (genotype), mRNA (transcriptome), or protein (proteome) levels. The complete sequencing of the three billion base pair human genome with 25,000 genes identified and the invention of DNA microarrays ushered in a new era in the science of genomics leading to explosive advancements in oncology diagnostics. This impetus into the genomics era lead the way toward advances in plant genomics which started with Arabidopsis thaliana and went through an array of crops such as rice, maize, papaya, various cereals and legumes, with pigeon pea added to the list towards the end of 2011. Trees, on the other hand, are the least attended taxa with regard to

genomic research. Some of the areas that attained attention of the scientists are: DNA sequencing, bioinformatics, genomics of flowering, gene flow, spatial structure, local adaptation and assisted migration in trees, transformation of fruit trees, genomics of tropical and temperate fruit trees, genomics of Hevea rubber, genomics of papaya and genomics of palms. Genomics of Tree Crops compiles this information with chapters authored by experts on these crops.

This book provides researchers and advanced students associated with plant and pharmaceutical sciences with comprehensive information on medicinal trees, including their identification, morphological characteristics, traditional and economic uses, along with the latest research on their medicinal compounds. The text covers the ecological distribution of over 150 trees, which are characterized mainly on the basis of their unique properties and phytochemicals of medicinal importance (i.e., anti-allergic, anti-diabetic, anti-carcinogenic, anti-microbial, and possible anti-HIV compounds). Due to the incredibly large diversity of medicinal trees, it is not possible to cover all within one publication, so trees with unique medicinal properties that are relatively more common in many countries are discussed here in order to make it most informative for a global audience. With over 100 illustrations taken at different stages of plant development, this reference work serves as a tool for tree identification and provides morphological explanations. It includes the latest botanical research, including biochemical advancements in phytochemistry techniques such as chromatographic and spectrometric techniques. In addition, the end of each chapter presents the most up-to-date references for further sources of exploration.

While superfoods have entered the health food conversation in recent years, most people are

unaware that many of the most powerful foods on the planet hail from the Andes region—and now, for the first time ever, they are now widely available in the United States. Not only are these foods teeming with healing effects, they are also packed with flavor, transforming ordinary, everyday healthy meals into something extraordinary. Peruvian Power Foods introduces the top superfoods and their myriad health benefits, with more than 75 recipes from the Andes to the Amazon, a growing gastronomical hotspot for chefs and gourmands the world over. With recipes for breakfasts and smoothies, on the fly snacks, plus sublime suppers and decadent desserts, anyone from the fitness-minded to foodies can easily incorporate these nutrient- and antioxidant-rich foods into their daily lives. Tempt your taste buds without ruining your waistline with: Weekend waffles with maca, an anti-inflammatory, antioxidant that can be likened to natural Viagra as it helps potency in men. Breakfast granola with lucuma, a tangy tropical fruit that helps balance high blood pressure. Savory white bean hummus made with sacha inchi, a powerful omega-3s for heart health and brain power. Muffins made with pichuberry, a glucose controller, sugar regulator, and accelerant for flushing fat around the middle. Sinful yet slimmed-down brownies with cacao, an amazing antioxidant and chocolate substitute in everything from smoothies to cakes. From Peru to your plate, this Amazon-inspired health makeover will allow you to enjoy optimal health and optimal flavor one meal at a time.

One of the most important issues, when a nanomaterial is designed, is to control the synthetic pathways to ensure the final desired product. A combination of dry and wet procedures, as well as chemical and physical methodologies, it is possible to successfully prepare new multifunctional nanomaterials, often as a result of multidisciplinary cooperation between

chemists, physics, biologist, physicians, material engineers, etc. Drug delivery, environmental detection of contaminants, and many industrial applications directly rely on properties such as water solubility, permeability, cell penetration, shape control, and size of the monodispersed nanoparticle, among others. Functionalized nanomaterials play a crucial role in modern research areas because of their unique physical and chemical properties, explored in many different fields including medicine and biology, new materials, pharmacology as drug delivery systems, and in environmental analysis for sensing new contaminants, among other technical and industrial applications. For future technological applications, the rational design of these multifunctional nanomaterials is critical, and often depends on the excellent control of the organic and inorganic chemical reactions involved during production. The success of their applications relies directly on the photophysical properties created in the final material, including the emission of light or colorimetric responses, water solubility, selectivity, sensitivity, stability, etc. For example, from an analytical point of view, the detection and quantification of emerging analytes is directly dependent on the selectivity and sensitivity showed by the material in a complex media.

"Global papaya production has grown significantly over the last few years, mainly as a result of increased production in India. This is the first comprehensive book authored by an international team of experts at the forefront of research and covers botany, biotechnology, production, postharvest physiology and processing"--

Ayurveda is widely considered to be one of the oldest health care traditions still in practice today. Originating in India over 3,000 years ago, it is now increasingly recognized and practiced globally including in many European countries and the United

States. Food and nutrition play a crucial role in the health care wisdom of Ayurveda. The Ayurvedic Science of Food and Nutrition discusses the various principles of healthy eating as prescribed by Ayurveda. Divided into three sections, it addresses the fundamentals, the clinical applications, and the future challenges of Ayurveda. Specifically, the book discusses issues such as the concept of diet, the use of food as medicine, especially to treat diabetes and cancer, convalescent food practices, and fasting therapy. The Ayurvedic Science of Food and Nutrition is unique in that it is one of the only books to investigate the scientific rationale behind Ayurveda, enabling this health care tradition to potentially be incorporated into a Western clinical practice model when this latter conventional therapy is found to be ineffective.

This text presents the technological and physiological properties of pectin in an educational approach that encompasses all of the essential information a researcher needs to fully understand their function and use in foods. Utilizing basic information on pectin as well as recent technological advances, this book is designed to be the primary resource for individuals seeking out an up to date reference work covering all the necessary informational and functional aspects of pectin. Pectin: technological and physiological properties is the first book to fully focus on the introductory concepts on pectin. Individual chapters cover localization and function, the structural aspects of pectin, pectinases, isolation and characterization and recovery from agricultural wastes. Important current advances such as emulsions, films, digestion, metabolism and

bioactive properties are also focused on. With its combination of vital basic information and technological advances, this book presents full and up to date coverage on this pectin and its many forms and uses in foods. .

This multi-compendium is a comprehensive, illustrated and scientifically up-to-date work covering more than a thousand species of edible medicinal and non-medicinal plants. This work will be of significant interest to scientists, researchers, medical practitioners, pharmacologists, ethnobotanists, horticulturists, food nutritionists, agriculturists, botanists, herbalogists, conservationists, teachers, lecturers, students and the general public. Topics covered include: taxonomy (botanical name and synonyms); common English and vernacular names; origin and distribution; agro-ecological requirements; edible plant part and uses; botany; nutritive and medicinal/pharmacological properties, medicinal uses and current research findings; non-edible uses; and selected/cited references. Each volume covers about a hundred species arranged according to families and species. Each volume has separate scientific and common names indices and separate scientific and medical glossaries.

It is very important for scientists all over the globe to enhance drug discovery research for better human health. This book demonstrates that various expertise are essential for drug discovery including synthetic or natural drugs, clinical pharmacology, receptor identification, drug metabolism, pharmacodynamic and pharmacokinetic research. The following 5 sections cover diverse chapter topics in drug discovery: Natural Products as

Sources of Leading Molecules in Drug Discovery; Oncology and Drug Discovery; Receptors Involvement in Drug Discovery; Management and Development of Drugs against Infectious Diseases; Advanced Methodology.

This book describes various strategies for the synthesis of green nanoparticles using plant extracts and microbes, including the advantages and disadvantages of different methods and their applications. After discussing strategies for and the potential of green synthesis of noble metal nanoparticles, it highlights the role of the solvent system. The book then explores the stability/toxicity of nanoparticles and the associated-surface engineering techniques for achieving biocompatibility, and examines the antimicrobial efficacy of green nanoparticles with regard to various bacterial pathogens, as well as the underlying cytotoxicity mechanisms. Lastly, the book addresses the potential applications of various green nanoparticles in cancer theranostics, and reviews a number of plant-mediated nanoparticles as potential pharmaceutical agents. Given its scope, the book will be of interest to all scientists and students wanting to learn more about the synthesis and applications of green nanoparticles.

The book provides a thorough survey of current research in quantum dots synthesis, properties, and applications. The unique properties of these new nanomaterials offer multifunctional applications in such fields as photovoltaics, light-emitting diodes, field-effect transistors, lasers, photodetectors, solar cells, biomedical diagnostics and quantum computing. Keywords: Quantum Dots (QD), Photovoltaics, Light-emitting

Diodes, Field-effect Transistors, Lasers, Photodetectors, Solar Cells, Biomedical Diagnostics, Quantum Computing, QD Synthesis, Carbon QDs, Graphene QDs, QD Sensors, Supercapacitors, Magnetic Quantum Dots, Cellular/Molecular Separation, Chromatographic Separation Column, Photostability, Luminescence of Carbon QDs, QD Materials for Water Treatment, Semiconductor Quantum Dots, QD Drug Delivery, Antibacterial Quantum Dots.

Renewed attention is being given to global agricultural productivity such as food security, food prices, financial viability of farm businesses under rising costs, declining availability and affordability of critical inputs including suitable land, etc.Thus, farming systems need to combine space maintenance and food herds in rural areas. Facing these new challenges, interest in grasses and grasslands as important forage systems has increased over the past 30 years, due to their economic, environmental, and ecological properties. A better use of economic and ecological potentials requires an understanding of their functions, and the development of tools for feeding herds, managing space, maintaining biodiversity, and limiting pollution.This book intends to provide the reader with the latest aspects on grasses and grassland for the well-being of farming systems.