Total Phenolic And Total Flavonoids Content Of Pitaya

What's New About Crop PlantsOxidative Damage to PlantsPhytochemicals in CitrusIssues in General Food Research: 2011 EditionMedically Important Plant Biomes: Source of Secondary MetabolitesPhenolic Compounds in Food and Their Effects on HealthFood Factors for Cancer PreventionFlavonoids and Other PolyphenolsPhenolic CompoundsPhytochemical Screening, Antioxidant Activity, Total Phenolic and Total Flavonoid Contents of Seven Local Varieties of Rosa Indica L.Handbook of Chemical and Biological Plant Analytical Methods, 3 Volume SetChocolate Science and TechnologyValue-added Products from BeekeepingOxidative Stress and Chronic Degenerative DiseasesGrapes and WinesPhenolics in Food and NutraceuticalsThe FlavonoidsFree Radicals in Biology and MedicineNatural AntioxidantsFlavonoidsAntioxidant Activity of Selected Wild Orchids of NepalPhenolic CompoundsAnalysis of Phenolic Plant MetabolitesSuperfood and Functional FoodPhytochemical MethodsCharacteristics of Three Typical Chinese Highland Barley Varieties: Phenolic Compounds and Antioxidant ActivitiesPhytochemical DictionaryMagnetic Resonance in Food ScienceFood Oxidants and AntioxidantsPhenolic Compound BiochemistryOxidative StressOxidative Stress and Oxygen RadicalsLavenderFunctional FoodAntioxidants in Foods and Its ApplicationsNatural Products from Plants, Second EditionNatural

Antioxidants and Anticarcinogens in Nutrition, Health and DiseaseSorghum and MilletsAntimutagenesis and Anticarcinogenesis Mechanisms IIIndian Medicinal Plants

What's New About Crop Plants

Plants and plant-derived compounds and drugs are becoming moreand more popular with increasing numbers of scientists researchingplant analysis. The quality control of herbal drugs is alsobecoming essential to avoid severe health problems, and in thefuture many more new drugs will be developed from plantsources. This three-volume Handbook, featuring 47 detailed review articles,is unique as it deals with chemical and biological methodologiesfor plant analysis. It presents the most important and mostaccurate methods which are available for plant analysis. This comprehensive work is divided into six sections asfollows: Sample preparation and identification – discussingplant selection and collection, followed by extraction and samplepreparation methodologies. Extraction and sample preparation methodologies Instrumentation for chemical analysis - severalinstrumentations for chemical plant analysis are presented with anemphasis on hyphenated techniques, e.g. the coupling between HPLCand mass spectroscometry, and HPLC with NMR. Strategies for selective classes of compounds –coverage of the most interesting classes of compounds such

aspolysaccharides, saponins, cardiotonic glycosides, alkaloids,terpenoids, lipids, volatile compounds and polyphenols (flavonoids, xanthones, coumarins, naphthoquinones, anthraquinones,proanthocyanidins, etc.). Biological Analysis - includes phenotyping, DNA barcodingtechniques, transcriptome analysis , microarray, metabolomics andproteomics. Drugs from Plants – covers the screening of plantextracts and strategies for the quick discovery of novelbioactive natural products. Safety assessment of herbal drugs ishighly dependent on outstanding chromatographic and spectroscopicmethods which are also featured here. This Handbook introduces to scientists involved in plant studiesthe current knowledge of methodologies in various fields ofchemically- and biochemically-related topics in plantresearch. The content from this Handbook will publish online within theEncyclopedia of Analytical Chemistry via Wiley Online Library: ahref="htt p://www.wileyonlinelibrary.com/ref/eac"http://www.wileyonlinelibrary.com/ref/eac/a Benefit from the introductory offer, valid until 30 November2014! Introductory price: £425.00 / $695.00 /€550.00 List price thereafter: £495.00 / $795.00 / €640.00

Oxidative Damage to Plants

The papers are arranged in eight sections, addressing: antimutagens in food; antimutagens and anticarcinogens in environmental toxicology; free radicals; antitumor initiators; antitumor promoters; aspects of mammalian and human

genetics; molecular aspects of mutagenesis and antimutageneis; and oncog

Phytochemicals in Citrus

Phenolic compounds comprise a broad class of natural products formed mainly by plants, but also microorganisms and marine organisms that have the capacity to form them. Nowadays the interest in these compounds has increased mainly due to their diverse chemical structure and wide biological activity valuable in the prevention of some chronic or degenerative diseases. The functional foods are a rich source of these phytochemicals, and this is the starting point for this book, which shows the state of the art of the phenolic compounds and their biological activity. This book integrates eleven chapters that show the state of the art of diverse biological activity of the phenolic compounds, present in some crops or fruits.

Issues in General Food Research: 2011 Edition

Natural antioxidants and anticarcinogens in nutrition, health and disease represents the most recent information and state-of-the-art knowledge on the role of antioxidative vitamins, carotenoids and flavonoids in ageing, atherosclerosis, and diabetes, as well as the role of natural anticarcinogenic compounds,

particularly lignans and isoflavonoids, and cancer prevention. It is highly interdisciplinary, and will be of importance to all scientists working in the medical, biomedical, nutritional and food sciences as well as the academics.

Medically Important Plant Biomes: Source of Secondary Metabolites

Phenolics in Food and Nutraceuticals is the first single-source compendium of essential information concerning food phenolics. This unique book reports the classification and nomenclature of phenolics, their occurrence in food and nutraceuticals, chemistry and applications, and nutritional and health effects. In addition, it describes antioxidant activity of phenolics in food and nutraceuticals as well as methods for analysis and quantification. Each chapter concludes with an extensive bibliography for further reading. Food scientists, nutritionists, chemists, biochemists, and health professionals will find this book valuable.

Phenolic Compounds in Food and Their Effects on Health

This book is a printed edition of the Special Issue "Oxidative Stress and Oxygen Radicals" that was published in Biomolecules

Food Factors for Cancer Prevention

Until recently, breeding efforts in mass produced food crops centered on high yield production, yet sacrificed flavor, taste, and other qualities. Now, more emphasis is being placed on the enhancement of nutritional and medicinal properties as well as from an environmental impact and sustainability standpoint. This volume looks at the use of crops

Flavonoids and Other Polyphenols

Abstract: The objective of this study was to determine the phytochemical profiles and antioxidant activities of three highland barley varieties. The free, bound, and total phenolic content of highland barley, respectively ranged from 44.52 to 178.37 mg gallic acid equivalents (GAE)/100 g dry weight (D. W.), 121.69–302.55 mg GAE/100 g D. W., and 166.21–480.92 mg GAE/100 g D. W. Besides, the free, bound, and total flavonoid content, respectively, ranged from 15.71 to 35.18 mg rutin equivalents (RE)/100 g D. W., 39.37–86.93 mg RE/100 g D. W., and 59.13–102.64 mg RE/100 g D. W. The 2, 2-diphenyl-1-picrylhydrazyl radical scavenging abilities, oxygen radical absorbance capacities, ferric reducing antioxidant power values, and cellular antioxidant activities of the bound extractions of highland barley were higher than those of the free extractions.

However, the free polyphenol extracts had stronger inhibitory effects on HepG2 cell proliferation than the bound extracts. Practical applications: Highland barley is a principal food crop that is widely cultivated in the west and southwest regions of China. Highland barley is usually rich in phenolic compounds, however, the phenolic compounds content and antioxidant activities of highland barley were underestimated because the bound phytochemical fraction was not included in the analysis. In this study, three highland barleys from different region of China were used to analysis the free and bound total phenolics and total flavonoids, as well as the antioxidant activities.

Phenolic Compounds

This second edition provides information on recent advances in the science and technology of chocolate manufacture and the entire international cocoa industry. It provides detailed review on a wide range of topics including cocoa production, cocoa and chocolate manufacturing operations, sensory perception of chocolate quality, flavour release and perception, sugar replacement and alternative sweetening solutions in chocolate production, industrial manufacture of sugar-free chocolates as well as the nutrition and health benefits of cocoa and chocolate consumption. The topics cover modern cocoa cultivation and production practices with special attention on cocoa bean composition, genotypic variations in the bean, post-harvest pre-treatments, fermentation and drying processes, and the

biochemical basis of these operations. The scientific principles behind industrial chocolate manufacture are outlined with detailed explanations of the various stages of chocolate manufacturing including mixing, refining, conching and tempering. Other topics covered include the chemistry of flavour formation and development during cocoa processing and chocolate manufacture; volatile flavour compounds and their characteristics and identification; sensory descriptions and character; and flavour release and perception in chocolate. The nutritional and health benefits of cocoa and chocolate consumption as well as the application of HACCP and other food safety management systems such as ISO 22,000 in the chocolate processing industry are also addressed. Additionally, detailed research on the influence of different raw materials and processing operations on the flavour and other quality characteristics of chocolates have been provided with scope for process optimization and improvement. The book is intended to be a desk reference for all those engaged in the business of making and using chocolate worldwide; confectionery and chocolate scientists in industry and academia; students and practising food scientists and technologists; nutritionists and other health professionals; and libraries of institutions where agriculture, food science and nutrition is studied and researched.

Phytochemical Screening, Antioxidant Activity, Total Phenolic and Total Flavonoid Contents of Seven Local Varieties of Rosa

Indica L.

Citrus fruits have long been popular around the world due to their good flavor, taste, high nutritional value, and their healthy properties. Citrus is well known as a rich source of vitamin C. Citrus fruits also contain many other functional bioactive phytochemicals including terpenoids, triterpenes, flavonoids, amino acids, phenolic acids, mineral constituents, and polysaccharides, which are beneficial to human health. Citrus fruits are generally recognized as an outstanding source of biologically active compounds related to both nutritional and nutraceutical values. Phytochemicals in Citrus: Applications in Functional Foods focuses on up-to-date information on chemical properties of citrus fruits, citrus food products, and their health benefits. The 16 chapters in the book provide a knowledge base on the chemical composition, bioactive components, biochemical properties, food use, and health benefits of citrus fruits. The information in this book will help readers to better understand the health benefits of citrus fruits and products and their dietary applications. The book is a unique reference for food science professionals engaged in functional foods and nutritional dietary management. The book can also serve as a handy reference for college and university students majoring in food science, nutrition, pharmaceutical science, and horticultural science.

Handbook of Chemical and Biological Plant Analytical Methods,

3 Volume Set

The book "Grapes and Wines: Advances in Production, Processing, Analysis, and Valorization" intends to provide to the reader a comprehensive overview of the current state-of-the-art and different perspectives regarding the most recent knowledge related to grape and wine production. Thus, this book is composed of three different general sections: (1) Viticulture and Environmental Conditions, (2) Wine Production and Characterization, and (3) Economic Analysis and Valorization of Wine Products. Inside these 3 general sections, 16 different chapters provide current research on different topics of recent advances on production, processing, analysis, and valorization of grapes and wines. All chapters are written by a group of international researchers, in order to provide up-to-date reviews, overviews, and summaries of current research on the different dimensions of grape and wine production. This book is not only intended for technicians actively engaged in the field but also for students attending technical schools and/or universities and other professionals that might be interested in reading and learning about some fascinating areas of grape and wine research.

Chocolate Science and Technology

With contributions that review research on this topic throughout the world,

Oxidative Damage to Plants covers key areas of discovery, from the generation of reactive oxygen species (ROSs), their mechanisms, quenching of these ROSs through enzymatic and non-enzymatic antioxidants, and detailed aspects of such antioxidants as SOD and CAT. Environmental stress is responsible for the generation of oxidative stress, which causes oxidative damage to biomolecules and hence reduces crop yield. To cope up with these problems, scientists have to fully understand the generation of reactive oxygen species, its impact on plants and how plants will be able to withstand these stresses. Provides invaluable information about the role of antioxidants in alleviating oxidative stress Examines both the negative effects (senescence, impaired photosynthesis and necrosis) and positive effects (crucial role that superoxide plays against invading microbes) of ROS on plants Features contributors from a variety of regions globally

Value-added Products from Beekeeping

Abstract: Rosa indica symbol of godness and beauty known for various healing power, has astringent, sedative, anti-inflammatory and antidepressant qualities. Standard methods were used for qualitative detection of phyto-compounds, and quantitative detection of antioxidants was done using DPPH radical scavenging assay, total phenolics and total flavonoids content were expressed in mg GAE/g dry weight and mg QE/g dry weight. Results revealed phyto-compounds presence in all varieties under study however maximum % inhibition was observed by R. indica

var pink perfume (94±0.6) with IC50 value 0.3376±0.01mg/mL. Highest phenolic and flavonoid content was observed in the leaves extract of R. indica var cardinal red, i.e.3.3553±0.11 (ethanol) mg of Gallic acid equivalents (GAE)/g dry weight and3.736±0.001 (ethanol) mg of quercetin equivalents (QE)/g dry weight, respectively, at conc. 0.125mg/mL. Our finding provides evidence that all varieties of rose contain medicinally important bioactive compounds and justifies their use for treatment of different diseases. Abstract :

Oxidative Stress and Chronic Degenerative Diseases

Phenolic plant secondary metabolites have assumed an important position in the examination of the impact of plant chemistry on a wide range of ecological interactions. This book outlines the various classes of phenolic compounds likely to be encountered by biologists, our present knowledge of their role(s), and deals in detail with methods for their quantitation, isolation and identification. Methods of quantitative analyses include detailed descriptions of both chemical and biochemical techniques, and discussion of problems with the interpretation of results. This volume differs from other recent publications on plant phenolics in that it is witten primarily for biologists, both as a non-technical introduction to the chemistry of phenolic compounds and as a practical aid to their analysis by the non-specialist

Grapes and Wines

The critically acclaimed laboratory standard for more than forty years, Methods in Enzymology is one of the most highly respected publications in the field of biochemistry. Since 1955, each volume has been eagerly awaited, frequently consulted, and praised by researchers and reviewers alike. Now with more than 300 volumes (all of them still in print), the series contains much material still relevant today-truly an essential publication for researchers in all fields of life sciences. This volume presents an extensive collection of new methodologies to aid progress in solving unanswered questions concerning the bioavailability and metabolism of flavonoids and polyphenols, their biochemical and molecular biological effects on cell regulation, and their effects on health. Major topics in this volume include sources, characterization, analytical methods, bioavailability, antioxidant action, and biological activity.

Phenolics in Food and Nutraceuticals

Food antioxidants are of primary importance for the preservation of food quality during processing and storage. However, the status of food depends on a balance of antioxidants and prooxidants occurring in food. Food Oxidants and Antioxidants: Chemical, Biological, and Functional Properties provides a single-volume reference

on the effects of naturally occurring and process-generated prooxidants and antioxidants on various aspects of food quality. The book begins with a general introduction to oxidation in food and then characterizes the main oxidants present in food, including enzymatic oxidants. Chapters cover oxidation potential, mechanisms of oxidation of the main food components (proteins and lipids), addition of exogenous oxidants during food processing, and the effects of physical agents such as irradiation, freeze-thawing, and high hydrostatic pressure during processing. The book also discusses the effects of oxidation on sensory characteristics of food components and analyzes how oxidation and antioxidants affect the nutritive and health-promoting features of food components. The text examines natural antioxidants in food, including lesser-known ones such as amino acids and polysaccharides, antioxidants generated in food as a result of processing, mechanisms of antioxidant activity, and measurement of antioxidant activity of food components. It explores the bioavailability of curcuminoid and carotenoids antioxidants and presents case studies on natural food antioxidants, presenting novel extraction methods for preservation of antioxidant activity. The final chapters address functional antioxidant foods and beverages as well as general ideas on the effects of food on the redox homeostasis of the organism.

The Flavonoids

Lavandula species are mainly grown for their essential oils, which are used in

perfumery, cosmetics, food processing and aromatherapy products, and for their use as ornamental plants and ingredients in numerous cottage industry products. Certain types of lavender oil have also been shown to have antimicrobial and antifungal properties. The dried fl

Free Radicals in Biology and Medicine

Ideal for graduates and researchers in the field this book provides an up-to-date, global perspective of the latest developments in the field.

Natural Antioxidants

"Oxidative stress and inflammatory cell death / tissue damage have been implicated in a wide array of human diseases, including cancer, neurodegenerative diseases, diabetes, inflammatory joint diseases,; cardiovascular dysfunctions as well as ageing. Oxidative stress mediates the activation of transcription factors such as NF?B that, in turn, induce the transcription of certain genes promoting cytokine production. Release of these cytokines results in the enhancement of inflammatory responses and activation of endothelial cells in distant organs. The inflammatory cascade is then triggered by the induction of adhesion molecules and the generation of cytokines and other inflammatory mediators. Given that reactive

oxygen and nitrogen species (ROS and RNS respectively) generated by infiltrated neutrophils into distant organs act directly as noxious agents reacting with molecular components, thereby enhancing inflammatory processes and therefore influencing cell viability, ROS and RNS have become potential therapeutic targets for prophylactic biofactors. Whilst their production by phagocytic cells is, of course, essential for the eradication of invading pathogens, and the capacity of selected chemotherapeutic agents to generate such species in specific `target' cells is well known in cancer research, the novel therapeutic actions and potential mechanisms of action of ozone as a microbicidal agent in clinical dentistry are now being advocated. The focus of this publication prominently encompasses the pivotal roles of ROS and RNS in the pathogenesis of many clinical conditions (together with their involvement in the ageing process of lower (yeast) cells, and higher organisms including plants), and discusses the potential applications of dietary-derived antioxidants to interfere with the biomolecular mechanisms of these processes and hence offer realistic therapeutic or prophylactic potentials."

Flavonoids

2008 NOMINEE The Council on Botanical and Horticultural Libraries Annual Award for a Significant Work in Botanical or Horticultural Literature From medicinal, industrial, and culinary uses to cutting-edge laboratory techniques in modern research and plant conservation strategies, Natural Products from Plants, Second

Edition reveals a vastly expanded understanding of the natural products that plants produce. In a single volume, this bookoffers a thorough inventory of the various types of plant-derived compounds. It covers their chemical composition, structure, and properties alongside the most effective ways to identify, extract, analyze, and characterize new plant-derived compounds. The authors examine new information on the chemical mechanisms plants use to deter predators and pathogens, attract symbiotic organisms, and defend themselves against environmental stress—insights which are key for adapting such mechanisms to human health. Along with updated and revised information from the highly acclaimed first edition, the second edition presents seven new chapters and features more than 50% new material relating to plant constituents, natural product biochemistry, and molecular biology. The book incorporates in-depth treatment of natural product biosynthesis with new collection and extraction protocols, advanced separation and analytical techniques, up-to-date bioassays, as well as modern molecular biology and plant biotechnology for the production of natural products. Unique in its breadth and coverage, Natural Products from Plants, Second Edition belongs on the shelf of interested researchers, policymakers, and consumers— particularly those involved in disease prevention, treatment, and pharmaceutical applications—who need a complete guide to the properties, uses, and study of plant natural products.

Antioxidant Activity of Selected Wild Orchids of Nepal

Sorghum and Millets: Chemistry, Technology and Nutritional Attributes, Second Edition, is a new, fully revised edition of this widely read book published by AACC International. With an internationally recognized editorial team, this new edition covers, in detail, the history, breeding, production, grain chemistry, nutritional quality and handling of sorghum and millets. Chapters focus on biotechnology, grain structure and chemistry, nutritional properties, traditional and modern usage in foods and beverages, and industrial and non-food applications. The book will be of interest to academics researching all aspects of sorghum and millets, from breeding to usage. In addition, it is essential reading for those in the food industry who are tasked with the development of new products using the grains. Updated version of the go-to title in sorghum and millets with coverage of developments from the last two decades of research Brings together leading experts from across the field via a world leading editorial team Published in partnership with the AACCI - advancing the science and technology of cereals and grains

Phenolic Compounds

Chemoprevention is currently regarded as one of the most promising avenues for the control of cancer, with human epidemiological and animal studies indicating that the risk of cancer may be modified by changes in diet. Over 100 papers are collected in this volume, the proceedings of the International Conference on Food

Factors: Chemistry and Cancer Prevention, held in Hamamatsu, Japan, in December 1995. Special emphasis is placed on chemical, biological, and molecular properties of phytochemicals in teas, fruit, vegetables, herbs, and spices, and on their potential for cancer prevention. Also discussed are the cancer-preventive effects of vitamins, lipids, carotenoids, flavonoids, and other components of diet. The findings presented here will be invaluable to all who are interested in diet and cancer prevention, and especially to biochemists, pharmacologists, food scientists, and nutritionists.

Analysis of Phenolic Plant Metabolites

This book provides state-of-the-art discussion of natural antioxidants from dietary sources, their occurrence, health effects, chemistry, and methodologies. The book summarizes data on the occurrence of antioxidative compounds in cereals and legumes, oilseeds, herbs and spices, vegetables, teas, muscle foods, and other commodities. The antioxidant vitamins and enzymes also are thoroughly discussed. The potential beneficial effects of dietary antioxidants, the chemistry of food antioxidants, and methodologies to assess lipid oxidation and antioxidant activity also have been covered.

Superfood and Functional Food

Flavonoids are abundant secondary metabolites found in plants and fungi that have various roles in these organisms, including pigmentation, cell signalling, plant defence and inter-organism communication. Due to their abundance in nature, flavonoids are also important components of the human diet, and the last four decades have seen an intense study focused on the structure characterization of flavonoids and on their roles in mammal metabolism. This book reviews most of the well-established activities of flavonoids, and we also present more recent research studies on the area of flavonoids, including the chemical aspects of structure characterization of flavonoids, the biosynthesis of flavonoids in model plants as well as their role in abiotic stress situations and in agriculture, the role of flavonoids in metabolism and health and their importance in foods, from consumption to their use as bioactive components.

Phytochemical Methods

Free radicals are atoms or molecules containing unpaired electrons. Damage occurs when the free radical encounters another molecule and seeks to find another electron to pair its unpaired electron. Free radicals can cause mutation in different biological compounds such as protein, nucleic acids, and lipids, and the damage caused by the free radicals lead to various diseases (cancer, cardiovascular disease, aging, etc.). Antioxidants are helpful in reducing and preventing damage from free radical reactions because of their ability to donate

electrons, which neutralize the radical without forming another. Ascorbic acid, for example, can lose an electron to a free radical and remain stable itself by passing its unstable electron around the antioxidant molecule. Unfortunately, new data indicate that the synthetic antioxidants used in the industry could have carcinogenic effects on human cells, thus fueling an intense search for new, natural, and efficient antioxidants. Therefore, the current book discusses the role and source of antioxidant compounds in nutrition and diets. Also, the current book includes nine chapters contributed by experts around the world, and the chapters are categorized into two sections: "Antioxidant Compounds and Biological Activities" and "Natural Antioxidants and Applications."

Characteristics of Three Typical Chinese Highland Barley Varieties: Phenolic Compounds and Antioxidant Activities

The purpose of this bulletin is to introduce beekeepers, people considering keeping bees and those interested in processing and marketing to the large diversity of products that can be derived from beekeeping for income generation. Each product category, includinng cosmetics, derived from basic bee products such as honey, pollen, wax, propolis, royal jelly, venom, adult and larval honeybees, is presented in this publication, providing history, description, product quality, marketing aspects and a few selected recipes. A detailed bibliography, a list of suppliers of

equipment, conversion of weights and Codex Alimentarius Standards for Honey are given in the Annexes.

Phytochemical Dictionary

A vast array of natural organic compounds, the products of primary and secondary metabolism, occur in plants. This dictionary provides basic information, including structural formulae, on plant constituents. It profiles over 3000 substances from phenolics and alkaloids through carbohydrates and plant glycosides to oils and triterpenoids. For each s

Magnetic Resonance in Food Science

While there are many books available on methods of organic and biochemical analysis, the majority are either primarily concerned with the application of a particular technique (e.g. paper chromatography) or have been written for an audience of chemists or for biochemists work ing mainly with animaltissues. Thus, no simple guide to modern metho ds of plant analysis exists and the purpose of the present volume is to fill this gap. It is primarily intended for students in the plant sciences, who have a botanical or a general biological background. It should also be of value to students in biochemistry, pharmacognosy, food science and

'natural products' organic chemistry. Most books on chromatography, while admirably covering the needs of research workers, tend to overwhelm the student with long lists of solvent systems and spray reagents that can be applied to each class of organic constituent. The intention here is to simplify the situation by listing only a few specially recommended techniques that have wide currency in phytochemical laboratories. Sufficient details are provided to allow the student to use the techniques for themselves and most sections contain some introductory practical experiments which can be used in classwork.

Food Oxidants and Antioxidants

Phenolic compounds as a large class of metabolites found in plants have attracted attention since long time ago due to their properties and the hope that they will show beneficial health effects when taken as dietary supplements. This book presents the state of the art of some of the natural sources of phenolic compounds, for example, medicinal plants, grapes or blue maize, as well as the modern methods of extraction, quantification, and identification, and there is a special section discussing the treatment, removal, and degradation of phenols, an important issue in those phenols derived from the pharmaceutical or petrochemical industries.

Phenolic Compound Biochemistry

In recent years, the concern of society about how food influences the health status of people has increased. Consumers are increasingly aware that food can prevent the development of certain diseases, so in recent years, the food industry is developing new, healthier products taking into account aspects such as trans fats, lower caloric intake, less salt, etc. However, there are bioactive compounds that can improve the beneficial effect of these foods and go beyond the nutritional value. This book provides information on impact of bioactive ingredients (vitamins, antioxidants, compounds of the pulses, etc.) on nutrition through food, how functional foods can prevent disease, and tools to evaluate the effects of bioactive ingredients, functional foods, and diet.

Oxidative Stress

Master's Thesis from the year 2015 in the subject Biology - Botany, grade: -, , language: English, abstract: The inhibitory or delaying action of both the synthetic chemicals and naturally occurring phytochemicals against oxidative damage to tissues by free radicals produced in biological system of living organisms is known as antioxidant activity. Since some phytochemicals are responsible for biological as well as medicinal activities, nine wild orchids of Nepal were assessed for total

polyphenolics and flavonoids content along with the antioxidant activity. The ethanolic extract of Eria graminifolia pseudobulbs, Gastrochilus acutifolius leaf and root, G. distichus whole plant, Luisia trichorhiza leaf and root, Otochilus albus pseudobulbs, Papillionanthe uniflora whole plant, Pholidota articulata leaf and pseudobulbs, Rhynchostylis retusa leaf, and Trudelia cristata leaf and stem were prepared by Soxhlet extraction. Phytochemicals were detected by previously established protocols with minor modifications. The total flavonoids were estimated with aluminium chloride method and total polyphenolics content with Folin-Ciocalteu phenol reagent method. Antioxidant activity was assessed by DPPH (2, 2-diphenyl-1-picryl hydrazyl) free radical scavenging assay. There was significant variation of total flavonoids, total polyphenolics content and antioxidant activity among the orchid extracts at $P = 0.05$. The total flavonoids varied with highest in Rhynchostylis retusa leaf (110.68 ± 4.52 mg QE/g) and lowest content in Gastrochilus acutifolius root (22.32 ± 1.10 mg QE/g); total polyphenolics with highest in Trudelia cristata stem (69.68±2.78 mg GAE/g) and lowest content in Gastrochilus acutifolius leaves (11.89±0.64 mg GAE/g). Also, the antioxidant activity varied with highest in Trudelia cristata stem (IC50 79.69 µg/ml) and lowest DPPH radical scavenging activity in Gastrochilus acutifolius leaf (IC50 341.79 µg/ml). However, none of the orchid extracts were as effective as quercetin – the reference compound – in radical scavenging activity (IC50 32.90 µg/ml). Total polyphenolics and flavonoids content and antioxidant activity of selected orchid extracts in this study were higher or lower than medicinal plant and orchid extracts

of previous studies with considerable margin. Again, their antioxidant activity was positively associated with total flavonoids and total polyphenolics content. []

Oxidative Stress and Oxygen Radicals

This book provides a comprehensive overview of the oxidative stress related mechanisms in biological systems and the involvement of reactive oxygen and nitrogen species (ROS and RNS), the damage of DNA, proteins, and lipids caused by oxidative stress, the protection of cells and tissues against free radicals, the relation of the oxidative stress to aging and human diseases including cancer and neurological disorders, and the development of new therapeutic approaches to modulate oxidative stress. The current state-of-the-art methodologies including the development of sensors and biosensors for the detection of ROS/RNS and of biomarkers of oxidative stress are also discussed. The book is organized in three overlapping parts, starting with general considerations of the oxidative stress, homeostasis pathways, and ROS mechanisms, followed by chapters discussing the involvement of ROS in particular diseases and concluding with analytical aspects of oxidative stress monitoring. The book provides a solid background on oxidative stress and ROS/RNS generation for novice learners while also offering scientists and practitioners already involved in this field a wealth of information covering the most recent developments in the study of oxidative stress, the role of radical species, novel antioxidant therapies, and methods for assessing free radicals and

oxidative stress.

Lavender

These are just a few examples that illustrate the chemical diversity and use of phenolic compounds, the topic of 'Phenolic Compound Biochemistry'. This book is written for researchers, instructors, advanced undergraduate students and beginning graduate students in the life sciences who wish to become more familiar with these and many other intriguing aspects of phenolic compounds. Topics covered include nomenclature, chemical properties, biosynthesis, including an up-to-date overview of the genetics controlling phenolic metabolism, isolation and characterization of phenolic compounds, phenolics used in plant defense, and the impact of phenolics on human health. The book is written in an accessible style, and assumes only basic knowledge of organic chemistry, biochemistry and cell physiology. More than 300 chemical structures and reaction schemes illustrate the text. Wilfred Vermerris is Associate Professor of Agronomy at the University of Florida Genetics Institute in Gainesville, FL. His research focuses on the genetic control of phenolic compounds that impact agro-industrial processing of crop plants. Ralph Nicholson is Professor of Botany and Plant Pathology at Purdue University in West Lafayette, IN. He is an expert on phenolic compounds involved in the plant's defense against pathogenic fungi and bacteria.

Functional Food

This work responds to the need to find, in a sole document, the affect of oxidative stress at different levels, as well as treatment with antioxidants to revert and diminish the damage. Oxidative Stress and Chronic Degenerative Diseases - a Role for Antioxidants is written for health professionals by researchers at diverse educative institutions (Mexico, Brazil, USA, Spain, Australia, and Slovenia). I would like to underscore that of the 19 chapters, 14 are by Mexican researchers, which demonstrates the commitment of Mexican institutions to academic life and to the prevention and treatment of chronic degenerative diseases.

Antioxidants in Foods and Its Applications

This book focuses on the usage and application of plant- and animal-based food products with significant functional properties and health benefits as well as their development into processed food. Many chapters in this book contain overviews on superfood and functional food from South America. Details on the functional properties of apiculture products are also included herein. Additionally, an area that is not widely discussed in academia - pet food with functional properties - is also covered. It is hoped that this book will serve as a source of knowledge and information to make better choices in food consumption and alterations to dietary

patterns. It is also recommended for readers to take a look at a related book, Superfood and Functional Food - The Development of Superfoods and Their Roles as Medicine.

Natural Products from Plants, Second Edition

This book provides insights into various aspects of medicinal plant-associated microbes, known to be a unique source of biological active compounds, including their biotechnological uses and their potential in pharmaceutical, agricultural and industrial applications. Featuring review papers and original research by leading experts in the field, it discusses medicinal plants and their interactions with the environment; medicinal plants as a source of biologically active compounds; medicinal plant-associated microbes (diversity and metabolites); their pharmaceutical, agricultural and industrial applications as well as their potential applications as plant growth stimulators and biocontrol agents. As such the book offers a valuable, up-to-date overview of the current research on medicinal plants, their ecology, biochemistry and associated biomes.

Natural Antioxidants and Anticarcinogens in Nutrition, Health and Disease

The flavonoids, one of the most numerous and widespread groups of natural constituents, are important to man not only because they contribute to plant colour but also because many members (e.g. coumestrol, phloridzin, rotenone) are physiologically active. Nearly two thousand substances have been described and as a group they are universally distributed among vascular plants. Although the anthocyanins have an undisputed function as plant pigments, the raison d'etre for the more widely distributed colourless flavones and flavonols still remains a mystery. It is perhaps the challenge of discovering these yet undisc10sed functions which has caused the considerable resurgence of interest in flavonoids during the last decade. This book attempts to summarize progress that has been made in the study of these constituents since the first comprehensive monograph on the chemistry of the flavonoid compounds was published, under the editorship of T. A. Geissman, in 1962. The present volume is divided into three parts. The first section (Chapters 1-4) deals with advances in chemistry, the main emphasis being on spectral techniques to take into account the re cent successful applications of NMR and mass spectral measurements to structural identifications. Recent developments in isolation techniques and in synthesis are also covered in this section. Advances in chemical knowledge of individual c1asses of flavonoid are mentioned inter aha in later chapters of the book.

Sorghum and Millets

In an easy to use dictionary style of A–Z presentation, this volume lists the taxonomy and medicinal usage of Indian plants. Also given are both traditional Indian and international synonyms along with details of the habitats of the plants. This book, illustrated by over 200 full-color figures, is aimed at bringing out an updated Acute Study Dictionary of plant sources of Indian medicine. The text is based on authentic treatises which are the outcome of scientific screening and critical evaluation by eminent scholars. The Dictionary is presented in a user-friendly format, as a compact, handy, easy to use and one-volume reference work.

Antimutagenesis and Anticarcinogenesis Mechanisms II

Indian Medicinal Plants

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