

Total Phenolic And Total Flavonoids Content Of Pitaya

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.

Research in extracting colour from natural fruits has been actively conducted nowadays. In this research, red pitaya peels was selected as a raw material. Red pitaya peels was selected because of red pitaya easily find in local market and its can reduce waste production in the world, which is environmental friendly. This research is to analyze the total phenolic contents and total flavonoids from red pitaya peels. Its also analyze the effect of the different solvents to the production of natural color from red pitaya waste. Four different solvents: n-hexane, ethanol, propanol and acetone has been used in extracting total phenolic contents and total flavonoid from red pitaya waste. Three different parameter of ultrasonic extractor (25, 68, 132 kHz) were used in extracting red pitaya peels with four solvents respectively. The analysis was conducted in University Malaysia Pahang laboratory using the ultraviolet-visible spectrophotometry. Most important step in this research is the analysis of total phenolic and total flovonoid contents for twelve samples. Based on the result of this research, the best solvent for total phenolics and flavonoids from red pitaya waste is ethanol, followed by propanol and acetone. This is due to the highest polarity of ethanol. On the other hand, n-hexane extracts show the lowest total phenolic and flavonoids contents. 132kHz ultrasonic extractor extracts more total phenolic and flavonoids contents, follow by 68kHz and 25kHz ultrasonic extractor. As a conclusion, the highest polarity of the solvents and frequency extract more color pigments, total phenolic and flavonoids from red pitaya waste.

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.

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 ($IC_{50} 79.69$ μ g/ml) and lowest DPPH radical scavenging activity in *Gastrochilus acutifolius* leaf ($IC_{50} 341.79$ μ g/ml). However, none of the orchid extracts were as effective as quercetin – the reference compound – in radical scavenging activity ($IC_{50} 32.90$ μ g/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. [...]

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. 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.

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 antimutagenesis; and oncogenes.

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 working mainly with animal tissues. Thus, no simple guide to modern methods 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.

Encyclopedia of Agriculture and Food Systems, Second Edition addresses important issues by examining topics of global agriculture and food systems that are key to understanding the challenges we face. Questions it addresses include: Will we be able to produce enough food to meet the increasing dietary needs and wants of the additional two billion people expected to inhabit our planet by 2050? Will we be able to meet the need for so much more food while simultaneously reducing adverse environmental effects of today's agriculture practices? Will we be able to produce the additional food using less land and water than we use now? These are among the most important challenges that face our planet in the coming decades. The broad themes of food systems and people, agriculture and the environment, the science of agriculture, agricultural products, and agricultural production systems are covered in more than 200 separate chapters of this work. The book provides information that serves as the foundation for discussion of the food and environment challenges of the world. An international group of highly respected authors addresses these issues from a global perspective and provides the background, references, and linkages for further exploration of

each of topics of this comprehensive work. Addresses important challenges of sustainability and efficiency from a global perspective. Takes a detailed look at the important issues affecting the agricultural and food industries today. Full colour throughout.

ABSTRACT: Total phenolic content, total flavonoid content, and the antioxidant activity of the methanolic extracts of the leaves, stems, roots, and flowers of *Sesbania grandiflora* were evaluated. The presence of different classes of flavonoids was also analyzed using liquid chromatography-mass spectrometry (LC-MS). Phenolic compounds and flavonoids are of great importance due to their natural health promoting effects to the human body. The different vegetative and reproductive extracts of the plant did not exhibit extremely high levels of phenolic or flavonoid content with the leaves containing the maximum amounts. The flavonoid aglycone quercetin was found in all the organs whereas kaempferol was exclusively detected in the leaves. All the organs showed antioxidant activity with the flowers being the most potent despite having lower phenolic content and flavonoids compared to the leaves. The study did not find any correlation between phenolic content, flavonoid content, and antioxidant activity. The findings indicate that other classes of bioactive compounds present in the extracts may be playing a role in the antioxidant potential of the extracts. The results also point out to the fact that reproductive tissues may follow different trends in terms of phytochemicals synthesized and bioactivities.

This book is the direct outcome of the Mizoram Science Congress 2016, held on 13 and 14 November 2016.

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

Read Free Total Phenolic And Total Flavonoids Content Of Pitaya

Total Phenolic and Total Flavonoids Content of Pitaya Peelss by Water Extraction

This guide covers classes of natural products in medicine, whether derived from plants, micro-organisms or animals. Structured according to biosynthetic pathway, it is written from a chemistry-based approach.

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

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.

Decades of firsthand study of the ethnobotanical riches of Nepal's flora and the human uses thereof, including field research in all 75 districts of Nepal.

During the last few decades, research into natural products has advanced tremendously thanks to contributions from the fields of chemistry, life sciences, food science and material sciences. Comparisons of natural products from microorganisms, lower eukaryotes, animals, higher plants and marine organisms are now well documented. This book provides an easy-to-read overview of natural products. It includes twelve chapters covering most of the aspects of natural products chemistry. Each chapter covers general introduction, nomenclature, occurrence, isolation, detection, structure elucidation both by degradation and spectroscopic techniques, biosynthesis, synthesis, biological activity and commercial applications, if any, of the compounds mentioned in each topic. Therefore it will be useful for students, other researchers and industry. The introduction to each chapter is brief and attempts only to supply general knowledge in the particular field. Furthermore, at the end of each chapter there is a list of recommended books for additional study and a list of relevant questions for practice.

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.

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 book offers 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.

This comprehensive reference consolidates current information on the antioxidant properties of wheat, their beneficial effects, the mechanisms involved, factors affecting availability/bioavailability, and the methods used to measure them. It discusses antioxidant properties of wheat grains and fractions and their phytochemical compositions and covers the effects of genotype, growing conditions, post-harvest treatment, storage, and food formulation and processing on availability/bioavailability. *Wheat Antioxidants* will help cereal chemists, food technologists, food processors, nutritionists, and others maximize the health benefits of wheat-based foods.

Known for their ease of use, artful presentation of scientific information, and evidence-based approach, James Duke's comprehensive handbooks are the cornerstone in the library of almost every alternative and complementary medicine practitioner and ethnobotanist. Using the successful format of these bestselling handbooks, *Duke's Handbook of Medicinal Plants of the Bible* covers 150 herbs that scholars speculate, based on citations, were used in Biblical times.

In the last few decades, Spectroscopy and its application dramatically diverted science in the direction of brand new era. This book reports on recent progress in spectroscopic technologies, theory and applications of advanced spectroscopy. In this book, we (INTECH publisher, editor and authors) have invested a lot of effort to include 20 most advanced spectroscopy chapters. We would like to invite all spectroscopy scientists to read and share the knowledge and contents of this book. The textbook is written by international scientists with expertise in Chemistry, Biochemistry, Physics, Biology and Nanotechnology many of which are active in research. We hope that the textbook will enhance the knowledge of scientists in the complexities of some spectroscopic approaches; it will stimulate both professionals and students to dedicate part of their future research in understanding relevant mechanisms and applications of chemistry, physics and material sciences.

With a focus on food safety, this book highlights the importance of microbes in sustainable agriculture. Plants, sessile

organisms that are considered as primary producers in the ecosystem and communicate with above- and below-ground communities that consist of microbes, insects, and other vertebrate and invertebrate animals, are subjected to various kinds of stress. Broadly speaking, these can be subdivided into abiotic and biotic stresses. Plants have evolved to develop elaborate mechanisms for coping with and adapting to the environmental stresses. Among other stresses, habitat-imposed biotic stress is one serious condition causing major problems for crop productivity. Most plants employ plant-growth-promoting microorganisms (PGPMs) to combat and protect themselves from stresses and also for better growth. PGPMs are bacteria associated with plant roots and they augment plant productivity and immunity. They are also defined as root-colonizing bacteria that have beneficial effects on plant growth and development. Remarkably, PGPMs including mycorrhizae, rhizobia, and rhizobacteria (*Acinetobacter*, *Agrobacterium*, *Arthrobacter*, *Azospirillum*, *Bacillus*, *Bradyrhizobium*, *Frankia*, *Pseudomonas*, *Rhizobium*, *Serratia*, *Thiobacillus*) form associations with plant roots and can promote plant growth by increasing plants' access to soil minerals and protecting them against pathogens. To combat the pathogens causing different diseases and other biotic stresses, PGPMs produce a higher level of resistance in addition to plants' indigenous immune systems in the form of induced systemic resistance (ISR). The ISR elicited by PGPMs has suppressed plant diseases caused by a range of pathogens in both the greenhouse and field. As such, the role of these microbes can no longer be ignored for sustainable agriculture. Today, PGPMs are also utilized in the form of bio-fertilizers to increase plant productivity. However, the use of PGPMs requires a precise understanding of the interactions between plants and microbes, between microbes and microbiota, and how biotic factors influence these relationships. Consequently, continued research is needed to develop new approaches to boost the efficiency of PGPMs and to understand the ecological, genetic and biochemical relationships in their habitat. The book focuses on recent research concerning interactions between PGPMs and plants under biotic stress. It addresses key concerns such as – 1. The response of benign microbes that benefit plants under biotic stress 2. The physiological changes incurred in plants under harsh conditions 3. The role of microbial determinants in promoting plant growth under biotic stress The book focuses on a range of aspects related to PGPMs such as their mode of action, priming of plant defence and plant growth in disease challenged crops, multifunctional bio-fertilizers, PGPM-mediated disease suppression, and the effect of PGPMs on secondary metabolites etc. The book will be a valuable asset to researchers and professionals working in the area of microbial-mediated support of plants under biotic stress.

Contributed papers presented at the National Seminar on Sustainable Use of Biological Resources, organized by Ecological Society in collaboration with Institute of Forestry and Prithwi Narayan Campus at Pokhara on April 22-23, 2007.

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This thesis examines the total phenolics compounds (TPC), total flavonoids compounds (TFC), reducing potential, free radical scavenging, protein, percent carbon, pH, color, and percent sugar of 15 cultivars of sweet potato. Three cultivars of sweet potato fries were also examined for total phenolics, flavonoids, antioxidant capacity, and lipid oxidation during the process. Overall, the results show that TFC is significantly correlated with the free radical scavenging ability (DPPH) and TFC but TPC is not. The baking procedure made sweet potato pulp greener. The pH of 15 cultivars of sweet potato ranged from 5.75 to 6.73 and the percent sugar ranged from 16% to 30%. Considering its total phenolic compounds, total flavonoids compounds and antioxidant capacity, cultivar 538347 is the best cultivar for planting in the Athens, Ohio region.

Mango seeds contain high content of antioxidants, phenolic and flavonoid. The usage of mangoes can convert the waste into a bountiful harvest. The aim of this study was to analyze the phytochemicals properties in Perlis SunShine mango. In addition, the objective of this study was to investigate the antioxidant activity of the extract of Perlis SunShine mango. Perlis SunShine mango is dried and crushed before they are mixed with a variety of organic solvents (methanol, ethanol, acetone and distilled water). After that, the Perlis SunShine mango seed extract was analyzed and tested to determine the phytochemicals, antioxidant activity, total flavonoids and phenolic content. After the phytochemical analysis is conducted, the results show methanol gave the highest of phytochemical constituent. Next, by using Ultra-Violet Spectrophotometer, the antioxidant activity, total phenolic and flavonoid content are determined. It is found that the methanol gives the highest yield for antioxidant activity and total flavonoid content and total phenolic content. But in order to be commercial in the food, pharmaceutical, nutraceutical or cosmetic industries, the Perlis SunShine mango seed that extracted with distilled water is chosen since it is preferable, chemical-free and safe.

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 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.

Residues from the processing of fruits and vegetables which are traditionally considered an environmental problem is now widely recognized for obtaining high-phenolic products. This paper was designed to study the total phenolic and total flavonoids contents in the pitaya peels. The total phenolic content was determined by using the Folin-Ciocalteu assay while the total flavonoids was measured using aluminum chloride colorimetric assay by UV-visible spectrometer. The result showed that the highest total phenolic content in pitaya peels was extracted at the optimum dose of aluminum sulfate concentration of 25 mg/L (3.32 mg gallic acid equivalents (GAE)/ 25 g at 80oC, 3.21 mg GAE/25g at 60oC and 1.73 mg GAE/25g at 40oC). The greatest total flavonoids content in pitaya peels was extracted (2.24 mg catechin equivalents (CE)/25 g at 60oC, 1.79 mg CE/25g at 80oC and 1.60 mg CE/25g at 40oC) at the concentration of aluminum sulfate of 30 mg/L. The results showed that the value of the total phenolic content decreased when the concentration of aluminum sulfate of 25 mg/L due to the fact that the high concentration of aluminum sulfate (more than 25 mg/L) could have reacted with the phenolic compound of the pitaya peels to form another compound. The total flavonoid was found to be extracted with the highest value at temperature of 60oC and the lowest at 80oC. This shows that the flavonoids compound was somehow destroyed at temperature of 80oC. -Author-

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."

Consumers are advised to increase fruit and vegetable consumption, but the health effects of increased intake are not fully understood. This important collection brings together information on the health-promoting properties of fruit and vegetables. Introductory chapters provide an overview of fruit and vegetable bioactives and consumer attitudes towards fruit and vegetables. Part two discusses the health effects of fruit and vegetables in relation to specific diseases, including cancer, cardiovascular disease, diabetes, obesity and neurodegenerative diseases. The focus in Part three is on understanding fruit and vegetable phytochemicals. Chapters cover physiological and ecological functions and biosynthesis of health-promoting compounds in fruit and vegetables, rapid analysis of phytochemicals in fruit and vegetables and clinical evidence for biological activity of fruit and vegetable phytochemicals. Part four chapters review the effect of pre- and post-harvest technologies on the health-promoting properties of fruit and vegetables. Topics covered include traditional breeding and modern processing techniques and their effect on fruit and vegetable phytochemicals; genetic manipulation of vegetable crops to alleviate diet-related diseases; agronomy and the nutritional quality of fruit; storage and handling of fruit and vegetables for optimal health-related quality and postharvest enhancement of bioactive compounds in fresh produce using abiotic stresses. The final chapters in Part five look at the nutritional quality of particular fruit and vegetable products, such as fresh-cut fruit and vegetables and organic fruit and vegetables. Improving the health-promoting properties of fruit and vegetable products is a valuable reference for those working in the fresh and processed fruit and vegetable sector of the food industry. Provides an overview of fruit and vegetable bioactives Discusses the health effects of fruit and vegetables in relation to specific diseases Reviews the impact of agronomy, post-harvest treatments and processing on the nutritional quality of fresh fruit and vegetables

Plants have been an important source of medicine for thousands of years. Plants are rich source of natural antioxidant i.e. tocopherols, vitamin C, flavonoids and phenolic compounds. Whole plant samples of *Swertia chirata* were purchased from the local market of Faisalabad, Pakistan. The dried and ground sample subjected for extraction by shaking method with different solvents i.e. 75% methanol and ethanol. In the present study antioxidant activity of plant *Swertia chirata* was investigated by measuring total phenolics (TPC), total flavonoids (TFC), DPPH (2, 2-Diphenyl-1-picrylhydrazyl) and Percent inhibition of linoleic acid peroxidation. The total phenolics (TPC) obtained from methanol 2.565g / 100g from ethanol 1.612g / 100g gallic acid equivalents. TFC obtained from methanol 13.247g / 100g from ethanol 10.948g / 100g catechin equivalents, inhibition of linoleic acid peroxidation obtained from methanol 94.04% from ethanol 93.05% and Percentages scavenging of plant *Swertia chirata* obtained from methanol extract 84.32% from ethanol extract 82.54%.

Global dietary recommendations emphasize the consumption of plant-based foods for the prevention and management of chronic diseases.

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Plants contain many biologically active compounds referred to as phytochemicals or functional ingredients. These compounds play an important role in human health. Prior to establishing the safety and health benefits of these compounds, they must first be isolated, purified, and their physico-chemical properties established. Once identified, their mechanisms of actions are studied. The chapters are arranged in the order from isolation, purification and identification to in vivo and clinical studies, there by covering not only the analytical procedures used but also their nutraceutical and therapeutic properties.

Since earliest times scented plants have been amongst man's most prized possessions. He has depended on them for flavouring food and drink, as perfume, for fumigation and to sweeten clothes and bedding. This book contains the most interesting facts about the scented flora of the world.

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

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