
Optimisation Of Extraction Of Thymol From Plectranthus

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Essential Oils

Bioactive Natural products in Drug Discovery

Quality Control Methods for Medicinal Plant Materials

Metabolic Profiling

Handbook of Essential Oils

Comprehensive Foodomics

Encyclopedia of Analytical Science
Green Analytical Chemistry
Bacterial Adaptation to Co-resistance
Polyphenols in Plants
Application of Essential Oils in Food Systems
Phenolic Compounds
Chemical Composition and Biological Activities of Essential Oil
Lamiaceae Species
Extracting Bioactive Compounds for Food Products
Reformulation as a Strategy for Developing Healthier Food Products
Seaweed Polysaccharides
Handbook of Solid Phase Microextraction
Emerging Natural Hydrocolloids

*Optimisation Of Extraction Of Thymol
From Plectranthus*

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GRAHAM SANTOS

Biobased Products and Industries BoD - Books on Demand
Green Extraction in Separation Technology CRC Press
Sustainable Aquafeeds World Health Organization
This Special Issue Book entitled "Lamiaceae Species: Biology, Ecology and Practical Uses" contributes to the knowledge of selected Lamiaceae species from several perspectives, such as diversity and phytogeography, taxonomy, ethnobotany, and quantitative and qualitative composition, as well as the biological activity of secondary metabolites.
Green Extraction Techniques: Principles, Advances and Applications CRC Press

Subcritical water is a green extraction solvent compared to conventional extraction solvents. While experimental results on subcritical water extraction (SWE) technology have been published piecemeal, there has been no comprehensive review of the state of the art. *Green Extraction in Separation Technology* fills that gap, serving to cover extracting with subcritical water as an environmentally friendly solvent. **FEATURES** Presents new technologies for extracting natural compounds from plants and compares the advantages and disadvantages versus SWE Explains research on SWE over the last 15 years Offers an overview of the solubility of different compounds in SWE and related theoretical content Discusses modeling of SWE and describes the development of a new model for this process This monograph is aimed at researchers and advanced students in chemical and biochemical engineering.

Green Extraction in Separation Technology Springer Nature
Green Extraction Techniques: Principles, Advances and Applications, Volume 76, the first work to compile all the multiple green extraction techniques and applications currently available, provides the most recent analytical advances in the main green extraction techniques. This new release includes a variety of comprehensively presented topics, including chapters on Green Analytical Chemistry: The Role of Green Extraction Techniques, Bioactives Obtained From Plants, Seaweeds, Microalgae and Food By-Products Using Pressurized Liquid Extraction and Supercritical Fluid Extraction, Pressurized Hot Water Extraction of Bioactives, and Pressurized Liquid Extraction of Organic Contaminants in Environmental and Food Samples. In this ongoing serial, in-depth, emerging green extraction approaches are discussed, together with their miniaturization and combination, showing the newest technologies that have been developed in the last few years for each case and providing a picture of the most innovative applications with further insights into future trends. Compiles all the multiple green extraction techniques currently available, along with their applications Includes the most recent analytical advances in the main green extraction techniques, along with their working principles Covers emerging green extraction approaches, their miniaturization and combination and an insight into future trends

Microwave-assisted Extraction for Bioactive Compounds Humana
With a thorough exposition of the ancient practice of aromatics in China, India, Persia and Egypt and a modern scientific understanding of scent, this book provides a guide for mastering the use of essential oils.

Natural Products Isolation CRC Press

The relatively new technique of solid phase microextraction (SPME) is an important tool to prepare samples both in the lab and on-site. SPME is a "green" technology because it eliminates organic solvents from analytical laboratory and can be used in environmental, food and fragrance, and forensic and drug analysis. This handbook offers a thorough background of the theory and practical implementation of SPME. SPME protocols are presented outlining each stage of the method and providing useful tips and potential pitfalls. In addition, devices and fiber coatings, automated SPME systems, SPME method development, and In Vivo applications are discussed. This handbook is essential for its discussion of the latest SPME developments as well as its in depth information on the history, theory, and practical application of the method. Practical application of Solid Phase Microextraction methods including detailed steps Provides history of extraction methods to better understand the process Suitable for all levels, from beginning student to experienced practitioner
Green Sustainable Process for Chemical and Environmental Engineering and Science Elsevier Health Sciences
Biobased Products and Industries fills the gap between academia and industry by covering all the important aspects of biobased products and their relevant industries in one single reference. Highlighting different perspectives of the bioeconomy, EU relevant projects, as well as the environmental impact of biobased materials and sustainability, the book covers biobased polymers, plastics, nanocomposites, packaging materials, electric devices, biofuels, textiles, consumer goods, and biocatalysis for the decarboxylation and decarboxylation of biobased molecules,

including biobased products from alternative sources (algae) and the biobased production of chemicals through metabolic engineering. Focusing on the most recent advances in the field, the book also analyzes the potentiality of already commercialized processes and products. Highlights the important aspects of biobased products as well as their relevant industries in one single reference Focuses on the most recent advances in the field, analyzing the potentiality of already commercialized processes and products Provides an ideal resource for anyone dealing with bioresource technology, biomass valorization and new products development

FOOD PRESERVATION TECHNIQUES WITH PLANT ESSENTIAL OILS John Wiley & Sons

Comprehensive Foodomics offers a definitive collection of over 150 articles that provide researchers with innovative answers to crucial questions relating to food quality, safety and its vital and complex links to our health. Topics covered include transcriptomics, proteomics, metabolomics, genomics, green foodomics, epigenetics and noncoding RNA, food safety, food bioactivity and health, food quality and traceability, data treatment and systems biology. Logically structured into 10 focused sections, each article is authored by world leading scientists who cover the whole breadth of Omics and related technologies, including the latest advances and applications. By bringing all this information together in an easily navigable reference, food scientists and nutritionists in both academia and industry will find it the perfect, modern day compendium for frequent reference. List of sections and Section Editors: Genomics - Olivia McAuliffe, Dept of Food Biosciences, Moorepark, Fermoy,

Co. Cork, Ireland Epigenetics & Noncoding RNA - Juan Cui, Department of Computer Science & Engineering, University of Nebraska-Lincoln, Lincoln, NE Transcriptomics - Robert Henry, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, St Lucia, Australia Proteomics - Jens Brockmeyer, Institute of Biochemistry and Technical Biochemistry, University Stuttgart, Germany Metabolomics - Philippe Schmitt-Kopplin, Research Unit Analytical BioGeoChemistry, Neuherberg, Germany Omics data treatment, System Biology and Foodomics - Carlos Leon Canseco, Visiting Professor, Biomedical Engineering, Universidad Carlos III de Madrid Green Foodomics - Elena Ibanez, Foodomics Lab, CIAL, CSIC, Madrid, Spain Food safety and Foodomics - Djuro Josić, Professor Medicine (Research) Warren Alpert Medical School, Brown University, Providence, RI, USA & Sandra Kraljević Pavelić, University of Rijeka, Department of Biotechnology, Rijeka, Croatia Food Quality, Traceability and Foodomics - Daniel Cozzolino, Centre for Nutrition and Food Sciences, The University of Queensland, Queensland, Australia Food Bioactivity, Health and Foodomics - Miguel Herrero, Department of Bioactivity and Food Analysis, Foodomics Lab, CIAL, CSIC, Madrid, Spain Brings all relevant foodomics information together in one place, offering readers a 'one-stop,' comprehensive resource for access to a wealth of information Includes articles written by academics and practitioners from various fields and regions Provides an ideal resource for students, researchers and professionals who need to find relevant information quickly and easily Includes content from high quality authors from across the globe
Natural Product Extraction Springer Nature

Application of Essential Oils in Food Systems.
Separation, Extraction and Concentration Processes in the Food, Beverage and Nutraceutical Industries BoD – Books on Demand

With increasing energy prices and the drive to reduce CO₂ emissions, food industries are challenged to find new technologies in order to reduce energy consumption, to meet legal requirements on emissions, product/process safety and control, and for cost reduction and increased quality as well as functionality. Extraction is one of the promising innovation themes that could contribute to sustainable growth in the chemical and food industries. For example, existing extraction technologies have considerable technological and scientific bottlenecks to overcome, such as often requiring up to 50% of investments in a new plant and more than 70% of total process energy used in food, fine chemicals and pharmaceutical industries. These shortcomings have led to the consideration of the use of new "green" techniques in extraction, which typically use less solvent and energy, such as microwave extraction. Extraction under extreme or non-classical conditions is currently a dynamically developing area in applied research and industry. Using microwaves, extraction and distillation can now be completed in minutes instead of hours with high reproducibility, reducing the consumption of solvent, simplifying manipulation and work-up, giving higher purity of the final product, eliminating post-treatment of waste water and consuming only a fraction of the energy normally needed for a conventional extraction method. Several classes of compounds such as essential oils, aromas, anti-oxidants, pigments, colours, fats and oils, carbohydrates, and other bioactive compounds have been

extracted efficiently from a variety of matrices (mainly animal tissues, food, and plant materials). The advantages of using microwave energy, which is a non-contact heat source, includes more effective heating, faster energy transfer, reduced thermal gradients, selective heating, reduced equipment size, faster response to process heating control, faster start-up, increased production, and elimination of process steps. This book will present a complete picture of the current knowledge on microwave-assisted extraction (MAE) of bioactive compounds from food and natural products. It will provide the necessary theoretical background and details about extraction by microwaves, including information on the technique, the mechanism, protocols, industrial applications, safety precautions, and environmental impacts.

Antioxidant Properties of Spices, Herbs and Other Sources John Wiley & Sons

Essential oils extracted by the distillation or hydrodistillation of aromatic plants are a complex mixture of volatile compounds with several biological activities. Their efficacy as antimicrobial agents is related to the activity of several natural compounds belonging to different chemical families that can act both in synergy with each other and with other antibiotics. The antibiotic resistance detected among pathogens has been quickly increasing in recent years, and the control of some of these microorganisms is becoming a planetary emergency for human and animal health. The control of the microbial growth is a problem of great importance also for the food industry (food deterioration and shelf life extension) and for the world of cultural heritage (indoor and outdoor phenomena of biodeterioration).

Essential oils can play an important role in this scenario, due their recognized broad-spectrum antimicrobial activity. Therefore, the main subject of this Special Issue includes an essential oil-based approach to control microorganisms in areas such as human and veterinary medicine, entomology, food industry and agriculture. In addition, the chemical composition of essential oils from endemic and rare medicinal/aromatic plants, nanoformulations of essential oils, applications in human and veterinary medicine and its use as animal feeding supplements are topics covered in this Special Issue

Plant Physiological Aspects of Phenolic Compounds Mdpi AG

Extraction processes are essential steps in numerous industrial applications from perfume over pharmaceutical to fine chemical industry. Nowadays, there are three key aspects in industrial extraction processes: economy and quality, as well as environmental considerations. This book presents a complete picture of current knowledge on green extraction in terms of innovative processes, original methods, alternative solvents and safe products, and provides the necessary theoretical background as well as industrial application examples and environmental impacts. Each chapter is written by experts in the field and the strong focus on green chemistry throughout the book makes this book a unique reference source. This book is intended to be a first step towards a future cooperation in a new extraction of natural products, built to improve both fundamental and green parameters of the techniques and to increase the amount of extracts obtained from renewable resources with a minimum consumption of energy and solvents, and the maximum

safety for operators and the environment.

Recent Advances in Redox Active Plant and Microbial Products CRC Press

Water Extraction of Bioactive Compounds: From Plants to Drug Development draws together the expert knowledge of researchers from around the world to outline the essential knowledge and techniques required to successfully extract bioactive compounds for further study. The book is a practical tool for medicinal chemists, biochemists, pharmaceutical scientists and academics working in the discovery and development of drugs from natural sources. The discovery and extraction of bioactive plant compounds from natural sources is of growing interest to drug developers, adding greater fuel to a simultaneous search for efficient, green technologies to support this. Particularly promising are aqueous based methods, as water is a cheap, safe and abundant solvent. The book is a detailed guide to the fundamental concepts and necessary equipment needed to successfully undertake such processes, supported by application examples and highlighting the most influential variables. Part 1 begins with a thorough introduction to plants as sources of drugs, highlighting strategies for the discovery of novel bioactive constituents of botanicals, the need for standardization and a move toward more rational and greener techniques in the field, the development of plant-based extraction processes and pretreatments for the efficient extraction. Part 2 then reviews a broad range of available techniques, including sections on conventional hot water extraction and pressurized hot water extraction in a range of settings. Intensified processes are then discussed in detail,

including sections on microwave-assisted processes, ultrasound-assisted processes and enzyme assisted extraction. Covers the theoretical background and range of techniques available to researchers, helping them to select the most appropriate extraction method for their needs Presents up-to-date and cutting edge applications by international experts Highlights current use and future potential for industrial scale applications Offers a thorough introduction to plants as sources of drugs, highlighting strategies for the discovery of novel bioactive constituents of botanicals

Green Extraction of Natural Products Inner Traditions / Bear & Co
The first guide devoted to the functions, structures, and applications of natural hydrocolloids In today's health-conscious climate, the demand for natural food products is growing all the time. Natural hydrocolloids, therefore, have never been more popular. With their thickening, stabilizing, gelling, fat replacing, and binding qualities, these naturally occurring, plant-based polymers can fulfil many of the same functions as commercial ingredients like xanthan, guar, gum Arabic, pectin, and starch. Moreover, certain health benefits have been linked with their often biological active compounds and high-fiber compositions, including potential prebiotic effects and the reduction of blood cholesterol levels. Application of these novel hydrocolloids is, however, still underexplored. *Emerging Natural Hydrocolloids* aims to remedy this by providing a thorough overview of their structure-function relationships, rheological aspects, and potential utility in mainly the food and pharmaceutical industries. This accessible, quick-reference guide features: A comprehensive and up-to-date survey of the most significant research currently

available on natural hydrocolloids Examinations of the major functions and rheological aspects of novel hydrocolloids Information on the potential applications of biopolymers within both foods and pharmaceutical systems Collaborations from an international team of food scientists *Emerging Natural Hydrocolloids: Rheology and Functions* offers scientists, engineers, technologists, and researchers alike a unique and in-depth account of the uncharted world of novel hydrocolloids, their uses, properties, and potential benefits.

Aulton's Pharmaceuticals Springer Science & Business Media
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.

Black cumin (*Nigella sativa*) seeds: Chemistry, Technology, Functionality, and Applications Springer Nature

"Pharmaceutics is the art of pharmaceutical preparations. It encompasses design of drugs, their manufacture and the elimination of micro-organisms from the products. This book encompasses all of these areas."--Provided by publisher.

Water Extraction of Bioactive Compounds Elsevier
Seaweed Polysaccharides: Isolation, Biological, and Biomedical

Applications examines the isolation and characterization of algal biopolymers, including a range of new biological and biomedical applications. In recent years, significant developments have been made in algae-based polymers (commonly called polysaccharides), and in biomedical applications such as drug delivery, wound dressings, and tissue engineering. Demand for algae-based polymers is increasing and represent a potential—very inexpensive—resource for these applications. The structure and chemical modification of algal polymers are covered, as well as the biological properties of these materials – including antithrombic, anti-inflammatory, anticoagulant, and antiviral aspects. Toxicity of algal biopolymers is also covered. Finally, the book introduces and explains real world applications of algal-based biopolymers in biomedical applications, including tissue engineering, drug delivery, and biosensors. This is the first book to cover the extraction techniques, biomedical applications, and the economic perspective of seaweed polysaccharides. It is an essential text for researchers and industry professionals looking to work with this renewable resource. Provides comprehensive coverage of the research currently taking place in biomedical applications of algae biopolymers Includes practical guidance on the isolation, extraction, and characterization of polysaccharides from sustainable marine sources Covers the extraction techniques, biomedical applications, and economic outlook of seaweed polysaccharides

Encapsulation and Controlled Release of Food Ingredients Amer Chemical Society

The proposed book aims to understand the mechanism of survival of microorganisms in response to chemical stress in

various ecological niches that suffer direct human intervention, more so the agricultural, domestic and hospital settings. Microbicides (e.g. disinfectants, antiseptics, fungicides, algacides, insecticides and pesticides) are used rampantly to control undesirable microbes. Insecticides and pesticides are routinely used in agriculture which directly affect the microbial population in farms, orchards and fields. Health care environments are always stressed with disinfectants and antibiotics. It is always probable that microbicide-stressed microorganisms are in a dynamic state, displaced from one niche to the other. Some soil and water borne bacteria or their resistance determinants are also getting prominence in hospital settings after suffering selective pressure from agricides. In order to reveal the survival strategies of microbicidal-resistant microbes, it is of prime importance to know the mode of action of these complete range of microbicides (agricides to antibiotics). The present book intends to address these issues. There will be several chapters dealing with tolerance and cross resistance in microbes and bacteria in particular, dwelling in various niches. Till date, there is no consensus among scientists in theorizing molecular mechanisms to explain bacterial tolerance and their cross resistance to agricides and antibiotics.

Essentials of Botanical Extraction Elsevier

Green Sustainable Process for Chemical and Environmental Engineering and Science: Plant-Derived Green Solvents: Properties and Applications provide a comprehensive review on the green solvents such as bio solvents, terpenes, neem, alkyl phenols, cyrene, limenone, and ethyl lactate, etc. which are derived from plant sources. Chapters discuss introduction,

properties, and advantages to the practical use of plant-derived solvents. Plants-derived solvents are an excellent choice for real-world applications to reduce the environmental and health safety considerations. This book is the result of commitments by top researchers in the field of biosolvents from various backgrounds and fields of expertise. This book is a one-stop reference for plant solvents and overviews up-to-date accounts in the field of modern applications and the first book in this research community. Introduces properties and application of green solvents from plants Gives an in-depth accounts on plant-derived solvents for various applications Outlines the benefits and possibilities of plant-derived solvents vs conventional solvents Outlines eco-friendly green solvents synthesis, properties and applications Key references to obtain great results in plant-derived green solvents

Aromatherapy: Scent and Psyche CRC Press

Natural products are sought after by the food, pharmaceutical and cosmetics industries, and research continues into their potential for new applications. Extraction of natural products in an economic and environmentally-friendly way is of high importance to all industries involved. This book presents a holistic and in-depth view of the techniques available for extracting natural products, with modern and more environmentally-benign methods, such as ultrasound and supercritical fluids discussed alongside conventional methods. Examples and case studies are presented, along with the decision-making process needed to determine the most appropriate method. Where appropriate, scale-up and process integration is discussed. Relevant to researchers in academia and industry, and students aiming for either career path, Natural Product Extraction presents a handy digest of the current trends and latest developments in the field with concepts of Green Chemistry in mind.