

Iodine Value I V Palm Oil

This collection presents a broad selection of recent research on analytical chemistry, including methods of determination and analysis as applied to plants, pharmaceuticals, foods, proteins, and more. Analytical chemistry is the study of what chemicals are present and in what amount in natural and artificial materials. Because these understandings are fundamental in just about every chemical inquiry, analytical chemistry is used to obtain information, ensure safety, and solve problems in many different chemical areas, and is essential in both theoretical and applied chemistry. Analytical chemistry is driven by new and improved instrumentation.

Proceedings of the World Conference on Lauric Oils Sources, Processing, and Applications The American Oil Chemists Society

The edited volume presents the progress of first and second generation biofuel production technology in selected countries. Possibility of producing alternative fuels containing biocomponents and selected research methods of biofuels exploitation characteristics (also aviation fuels) was characterized. The book shows also some aspects of the environmental impact of the production and biofuels using, and describes perspectives of biofuel production technology development. It provides the review of biorefinery processes with a particular focus on pretreatment methods of selected primary and secondary raw materials. The discussion includes also a possibility of sustainable development of presented advanced biorefinery processes.

Oils and fats are almost ubiquitous in food processing, whether naturally occurring in foods or added as ingredients that bring functional benefits. Whilst levels of fat intake must be controlled in order to avoid obesity and other health problems, it remains the fact that fats (along with proteins and carbohydrates) are one of the three macronutrients and therefore an essential part of a healthy diet. The ability to process oils and fats to make them acceptable as part of our food supplies is a key component in our overall knowledge of them. Without this ability, the food that we consume would be totally different, and much of the flexibility available to us as a result of the application of processing techniques would be lost. Obviously we need to know how to process fatty oils, but we also need to know how best to use them once they have been processed. This second edition of Edible Oil Processing presents a valuable overview of the technology and applications behind the subject. It covers the latest technologies which address new environmental and nutritional requirements as well as the current state of world edible oil markets. This book is intended for food scientists and technologists who use oils and fats in food formulations, as well as chemists and technologists working in edible oils and fats processing.

Healthful Lipids addresses critical and current regulatory issues and emerging technologies, as well as the efforts made toward the production of healthier lipids. This book examines the latest technological advancements and the emerging technologies in processing and analysis, health-related concerns, and strategies used in the production and appl

Patent literature has always been a mine of information, but until recently, it was difficult to access. Now, with the Internet, access to all patent documents is almost instantaneous and free. However, interpreting the technical information provided by patent literature requires a certain skill. This monograph aims to provide that skill by explaining patent jargon and providing background information on patenting. Patents dealing with edible oil processing are used to explain various aspects of patenting. To make the explanations less impersonal, some have been larded with personal remarks and experiences. Accordingly, this monograph is intended for scientists and engineers dealing with edible oils and fats who want to extend their sources of technical information. Hopefully, it will inspire them to innovate, help them to avoid duplication, and provide them with some amusement.

These proceedings contain the text of plenary sessions and papers from poster sessions at the World Conference held in February 1994. In addition to sources, processing, and applications, the papers also address aspects of the marketing and economics of lauric oils. Among the specific topics: quality aspects of shipping and handling lauric oils and oleochemicals; the development and commercialization of high-lauric rapeseed oil; catalytic hydrogenation of lauric oils and fatty acids; and health effects of lauric oils compared to unsaturated vegetable oils. No index. Annotation copyright by Book News, Inc., Portland, OR

This book is a comprehensive reference for energy crops from the plant perspective with expert authors for each crop. Of particular importance are the chapters covering the sustainability aspects (social, economic and environmental), including food security.

This book contains edited and revised papers from a conference on 'Science and Technology for Managing Plant Genetic Diversity in the 21st Century' held in Malaysia in June 2000, organised by the International Plant Genetic Resources Institute (IPGRI). It includes keynote papers and some 40 additional ones, covering ten themes. The major scientific challenges to developing a global vision for the next century are identified and key research objectives are also discussed.

Emulsifiers, also known as surfactants, are often added to processed foods to improve stability, texture, or shelf life. These additives are regulated by national agencies, such as the FDA, or multi-national authorities, such as the EEC or WHO. The amphiphilic molecules function by assisting the dispersion of mutually insoluble phases and stabilizing the resulting colloids, emulsions, and foams. Emulsifiers can interact with other food components such as carbohydrates, proteins, water, and ions to produce complexes and mesophases. These interactions may enhance or disrupt structures and affect functional properties of finished foods. In dairy processing, small molecule emulsifiers may displace dairy proteins from oil/water and air/water interfaces, which affects stability and properties of the foams and emulsions. In baked products, emulsifiers contribute to secondary functionalities, such as dough strengthening and anti-staling. Synthetic food emulsifiers suffer from the stigma of chemical names on a product's ingredient statement. Modern consumers are seeking products that are "all natural." Fortunately, there are a number of natural ingredients that are surface-active, such as lecithin, milk proteins, and some protein-containing hydrocolloids. Mayonnaise, for example, is stabilized by egg yolk.

This book can serve as both a guide for professionals in the food industry to provide an understanding of emulsifier functionality, and a stimulus for further innovation. Students of food science will find this to be a valuable resource.

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

Wild crop relatives are now playing a significant part in the elucidation and improvement of the genomes of their cultivated counterparts. This work includes comprehensive examinations of the status, origin, distribution, morphology, cytology, genetic diversity and available genetic and genomic resources of numerous wild crop relatives, as well as of their evolution and phylogenetic relationship. Further topics include their role as model plants, genetic erosion and conservation efforts, and their domestication for the purposes of bioenergy, phytomedicines, nutraceuticals and phytoremediation. Wild Crop Relatives: Genomic and Breeding Resources comprises 10 volumes on Cereals, Millets and Grasses, Oilseeds, Legume Crops and Forages, Vegetables, Temperate Fruits, Tropical and Subtropical Fruits, Industrial Crops, Plantation and Ornamental Crops, and Forest Trees. It contains 125 chapters written by nearly 400 well-known authors from about 40 countries.

The book is designed to provide a review on the methods and current status of conservation of the tropical plant species. It will also provide the information on the richness of the tropical plant diversity, the need to conserve, and the potential utilization of the genetic resources. Future perspectives of conservation of tropical species will be discussed. Besides being useful to researchers and graduate students in the field, we hope to create a reference for a much wider audience who are interested in conservation of tropical plant diversity.

The fifth volume in the Advances in lipid methodology series is the first with new editor, Richard O. Adlof, but its objectives are still those of the previous editor, William W. Christie: 'To provide readable, up-to-date reviews of rapidly expanding areas of lipid analysis and practical examples which should be of immediate use to lipid analysts'. As in the previous volumes of Advances in lipid methodology, the editor has chosen leading international experts to write individual chapters. Volume 5 contains four chapters on specific methodologies of lipid analysis and three which describe specific applications or standardization of methods. The methodologies are different scanning calorimetry for the study of physical properties of fats and oils; silver ion chromatography; atmospheric-pressure chemical-ionization mass spectrometry (APCI-MS); and supercritical fluid chromatography (SFC). Chapters on specific applications cover the analysis of genetically modified oils and the use of fatty acid profiling in the characterization of metabolic diseases. A further chapter provides an overview of the official standard methods used for fats and oils analysis and gives extensive listings of information on standards organizations.

The book serves as a major source of information on all the cultivated oilseeds and major tree borne and minor oilseeds grown globally. Composition, characteristics, properties and utility of different oilseeds and their constituents, namely, oil, protein, carbohydrates, minerals, vitamins and Phytochemical in food and non-food sectors including medicine has been covered in detail. The book also deals with post-harvest technology and processing of oilseeds to obtain good quality products like vegetable oil and oilcakes. The processing aspects like ghani, expeller, extrusion, solvent, and SC-CO₂ extraction along with the refining of oils have been discussed. Oilseeds and their quality especially, the nutritional quality of oils, oilcakes, oleo-chemicals and preparation of edible products from groundnut, soybean sesame, sunflower, Niger and coconut have been discussed and presented in the book. Anti-nutrients, when present interfere with the digestion process as also the health of humans and animals. Hence methods of reduction/removal of anti-nutrients like phenolics, protease inhibitors, ricin, glucosinolates and aflatoxins etc. have also been covered in detail in the book. Evaluation of quality is important for understanding and utilization of any commodity. Keeping this aspect in view, methods of analysis of oil, protein, sugars, minerals, vitamins and anti-nutrients have been presented in the on procedures. This book is thus is a comprehensive coverage of all aspects of oilseeds and their quality. It will be highly useful to students, researchers, producers, processors and policy planners.

This book compiles the fundamental advances resulting from of oil-palm genome and transcriptome sequencing, and describes the challenges faced and strategies applied in sequencing, assembling and annotating oil palm genome sequences. The availability of genome and transcriptome data has made the mining of a high number of new molecular markers useful for genetic diversity as well as marker-trait association studies and the book presents high-throughput genotyping platforms, which allow the detection of QTL regions associated with interesting oil palm traits such as oil unsaturation and yield components using classical genetic and association mapping approaches. Lastly, it also presents the discovery of major genes governing economically important traits of the oil palm. Covering the history of oil palm expansion, classical and molecular cytogenetics, improvements based on wild and advanced genetic materials, and the science of oil palm breeding, the book is a valuable resource for scientists involved in plant genetic research.

Includes list of members, 1882-1902 and proceedings of the annual meetings and various supplements.

This book focuses on the developments in the field of lipid analysis, providing an up-to-date review of the analytical techniques available to chemists and technologists to identify complex molecules. The requisite theoretical background will be provided for individual techniques, together with their strengths and weaknesses, and a guide to the enormous range of commercial applications. It will be an invaluable reference source to all sectors of the oils and fats industry where accurate labeling of foods, food contamination and adulteration are issues of increasing interest and concern.

The oil palm is the world's most valuable oil crop. Its production has increased over the decades, reaching 56 million tons in 2013, and it gives the highest yields per hectare of all oil crops. Remarkably, oil palm has remained profitable through periods of low prices. Demand for palm oil is also expanding, with the edible demand now complemented by added demand from biodiesel producers. The Oil Palm is the definitive reference work on this important crop. This fifth edition features new topics - including the conversion of palm oil to biodiesel, and discussions about the impacts of palm oil production on the environment and effects of climate change ? alongside comprehensively revised chapters, with updated references throughout. The Oil Palm, Fifth Edition will be useful to researchers, plantation and mill managers who wish to understand the science underlying recommended practices. It is an indispensable reference for agriculture students and all those working in the oil palm industry worldwide.

While certain saturated and trans fats continue to face scrutiny as health hazards, new evidence indicates that, in addition to supplying foods with flavor and texture, fats also provide us with dietary

components that are absolutely critical to our well-being. The importance of essential fatty acids and fat-soluble vitamins and other minor components delivered by lipids is well known, as are the benefits and essentiality of long-chain omega-3 and omega-6 fatty acids. And now, with new research connecting lipids to heart health, mental health, and brain and retina development, the market has responded by providing health-conscious consumers with lipid foods, including spreads, breads, cereals, juices, and dairy products. Nutraceutical and Specialty Lipids and their Co-Products presents a thorough assessment of the current state of the chemistry, nutrition, and health aspects of specialty fats and oils. Fereidoon Shahidi, editor-in-chief of the Journal of Food Lipids and a past chair and co-founder of the Nutraceuticals and Functional Foods Division of the Institute of Food Technologists, brings together top researchers to address the potential application and delivery of lipids in functional foods. Sharing much of their own research, they offer an unparalleled view of the field that covers basic lipid chemistry, as well as the most progressive findings concerning the nutritional value of beneficial lipids. They include research on cereal grain, marine, fruit seed, and tree nut oils, as well as oilseed medicinals, fat replacers, and many other sources of lipids. They also consider stability issues and the latest tools being used for lipids purification. Covering the full range of these essential diet components, this cutting-edge volume serves to meet the needs of scientists and students in research and product development, as well as health and nutrition specialists.

Bringing several disparate aspects of food science and analysis together in one place, Applications of Vibrational Spectroscopy to Food Science provides a comprehensive, state-of-the-art text presenting the fundamentals of the methodology, as well as underlying current areas of research in food science analysis. All of the major spectroscopic techniques are also covered – showing how each one can be used beneficially and in a complementary approach for certain applications. Case studies illustrate the many applications in vibrational spectroscopy to the analysis of foodstuffs.

This book acknowledges the importance of fats and oils and surveys today's state-of-the-art technology. To pursue food technology without knowing the raw material would mean working in a vacuum. This book describes the raw materials predominantly employed and the spectrum of processes used today. It is the updated and revised English version of Nahrungsfette und Ole, originally printed in German. It contains 283 tables, 647+ figures, and over 850 references. "If you can afford only one book on oils and fats, their composition, processing and use, then this should probably be the one!" Presents details on the composition, chemistry, and processes of the major fats and oils used today Includes hundreds of illustrations and tables, making the concepts easier to read and grasp Acknowledges the importance of fats and oils offers details on relevant technologies

Thermally oxidized oil such as recycled cooking oil and repeatedly used oil were reported to impose deleterious effect to health. In light of the presence of those oils in the market and food preparation process, this study was carried out to differentiate between fresh and thermally oxidized oil and propose parameter that can replace total polar compounds (TPC), the international standard in determining oil degradation status but it is time consuming. In this study, samples were fresh oil, oil subjected to controlled heating and frying in the laboratory at 180 °C to 200 °C for 6 hr and waste oils collected from various food outlets. The differences between fresh and thermally oxidized oil were evaluated based on several parameters; total polar compounds (TPC), fatty acids composition, short chain fatty acids, trans fatty acid, iodine value (IV), free fatty acids (FFA) content, adsorption at 233 and 269 nm under ultra violet (UV) spectrum and oil color. Results showed that fresh and thermally oxidized samples had significantly different level of total polar compound. Color index or absorption at 420 nm showed good correlation ($r= 0.848$) to TPC but depended on frying parameter especially the food medium. Thermally oxidized oil had decrease in unsaturated fatty acids and increase in saturated fatty acids content. No trans fatty acid was detected in all samples. Short chain fatty acid, the octanoic acid (C8:0) only present in thermally oxidized oil, with correlation of $r= 0.750$ to TPC. Free fatty acids level showed good correlation ($r= 0.863$) to TPC but depended on frying parameter especially the moisture content. Iodine value showed acceptable correlation ($r = 0.5602$) to TPC, however no significant difference between fresh and thermally treated oil. Absorption at 233 and 269 nm, showed correlation of $r= 0.8469$ and $r= 0.8295$ to TPC respectively. The presence of octanoic acid (C8:0) was proposed to be used as marker component to differentiate between fresh and thermally oxidized oil as it only present in the later, with simple analytical procedure to be applied as routine analysis and showed good correlation with total polar compounds ($r= 0.750$).

This book considers the raw materials used to build the polyurethane polymeric architecture. It covers the chemistry and technology of oligo-polyol fabrication, the characteristics of the various oligo-polyol families and the effects of the oligo-polyol structure on the properties of the resulting polyurethane. It presents the details of oligo-polyol synthesis, and explains the chemical and physico-chemical subtleties of oligo-polyol fabrication. This book will be of interest to all specialists working with polyols for the manufacture of polyurethanes and to all researchers that would like to know more about polyol chemistry. The three major macronutrients are proteins, carbohydrates, and lipids (oils and fats). This book is devoted to lipids, which are an important part of life for all of us. What are these materials in molecular terms? Where do they come from? What happens to them between the harvesting of crops and the appearance of the oils and fats in different products in the supermarket? How does nature reproduce these molecules and can we act on nature to modify them to increase their beneficial properties? How important are the minor products present in the fats that we consume? Since oils and fats vary, how can we analyse them? What are their physical, chemical and nutritional properties? How do the fats that we consume affect our health and well-being in both quantitative and qualitative terms? What are their major food and non-food uses? This book provides a broad source of reference on oils and fats chemistry for graduates entering the food and oleochemical industries, postgraduate researchers and nutritionists. It offers a point of entry to the detailed literature.

Margarine, Second Revised Edition provides a comprehensive exposition of the chemistry, production, and nutritional aspects of margarine. The book surveys the invention of margarine and the development of the margarine industry, as well as its nutritional and statistical features. The raw materials, ingredients, and chemical nature of fats and oils needed for production are presented; the step-by-step processing and the biochemical interactions are described in detail; and the bacteriological processes during the preparation of milk and storage and preservation are discussed. This edition contains new information but still retains the general layout of the first edition. Food technologists, chemists, production engineers, and those curious about the production of margarine will find this book interesting.

Oils and fats are almost ubiquitous in food processing – whether naturally occurring in foods or added as ingredients for functional benefits and, despite the impression given by several sources to the contrary, they remain an essential part of the human diet. However, it is increasingly apparent that both the quantity and the quality of the fat consumed are vital to achieving a balanced diet. Health concerns regarding high-fat diets continue to have a high profile, and still represent a pressing issue for food manufacturers. This volume provides a concise and easy-to-use reference on the nature of oils and fats for those working in the food industry and for those in the media seeking to advise the public on consumption. Written in a style that makes the concepts and information contained easily accessible, and using a minimum of chemical structures, the nature and composition of the constituents of oils and fats are explained. The major sources of food lipids (vegetable and animal fats) are outlined, along with their physical characteristics. The book also focuses on the current main concerns of the food industry regarding oils and fats use, including: the nutritional properties of fats and oils and their various components; links between chemical structure and physiological properties; and the role of lipids in some of the more important disease conditions such as obesity, diabetes, coronary heart disease and cancer. The final chapter is devoted to a description of the most common food uses of oils and fats. The book will be of interest to food industry professionals, students or others who require a working knowledge of oils and fats in the food industry.

Our dietary intake comprises three macronutrients (protein, carbohydrate and lipid) and a large but unknown number of micronutrients (vitamins, minerals, antioxidants, etc). Good health rests, in part, on an adequate and balanced supply of these components. This book is concerned with the major sources of lipids and the micronutrients that they contain. Now in an extensively updated second edition, the volume provides a source of concentrated and accessible information on the composition, properties and food applications of the vegetable oils commonly used in the food industry. Chapters are devoted to each type of oil, and an introductory chapter by the Editor provides an overview of the current production and trade picture globally. The book includes coverage of the modifications of these oils that are commercially available by means of partial hydrogenation, fractionation and seed breeding. The major food applications are linked, wherever possible, to the composition and properties of the oils. This new edition widens the range of oils covered, addresses issues related to trans fats reduction, and new composition data is included throughout. The book is an essential resource for food scientists and technologists who use vegetable oils in food processing; chemists and technologists working in oils and fats processing; and analytical chemists and quality assurance personnel. Praise for the first edition: "This excellent book consists of 337 pages in 11 chapters, written by 13 experts from six countries...the important vegetable oils are dealt with in great detail. With obesity on all our lips...this book also rightly defends itself and its content - namely, that all vegetable oils, when used correctly and of course in moderation, are indeed necessary to all of us." –Food & Beverage Reporter "Overall, the book covers all of the major oils which the potential reader is likely to approach it for... covers a wide range of topics from production, through composition to nutritional aspects... The volume is well indexed, particularly for the individual subject oils, and it is easy to find specific topics within its chapters." –Food Science and Technology "This latest book edited by Professor Gunstone belongs to the kind of books where the reader rapidly knows it will bring him a wealth of updated information concentrated in one book. The goal to 'serve as a rich source of data' on the thirteen major oils and their important minor components has been attained. There is a need for books of such quality." –European Journal of Lipid Science and Technology

Differential Scanning Calorimetry: Applications in Fat and Oil Technology provides a complete summary of the scientific literature about differential scanning calorimetry (DSC), a well-known thermo-analytical technique that currently has a large set of applications covering several aspects of lipid technology. The book is divided into three major sections. The first section covers the applications of DSC to study cooling and heating profiles of the main source of oils and fats. The second is more theoretical, discussing the application of DSC coupled to related thermal techniques and other physical measurements. And the third covers specific applications of DSC in the field of quality evaluation of palm, palm kernel, and coconut oils and their fractions as well as of some other important aspects of lipid technology such as shortening and margarine functionality, chocolate technology, and food emulsion stability. This book is a helpful resource for academicians, food scientists, food engineers and technologists, food industry operators, government researchers, and regulatory agencies.

This substantially revised and updated classic reference offers a valuable overview and myriad details on current chemical processes, products, and practices. No other source offers as much data on the chemistry, engineering, economics, and infrastructure of the industry. The two volume Handbook serves a spectrum of individuals, from those who are directly involved in the chemical industry to others in related industries and activities. Industrial processes and products can be much enhanced through observing the tenets and applying the methodologies found in the book's new chapters.

Experts are predicting that demand for marine fish oil will soon outstrip supply, creating extreme urgency within the global aquafeed industry to find viable alternatives. Fish Oil Replacement and Alternative Lipid Sources in Aquaculture Feeds is the first comprehensive review of this multifaceted, complex issue. It also addresses the crucial questions about whether or not the industry will be able to meet increasing worldwide demand for fisheries products. The First & Only Book Specifically Addressing this Issue With contributions from more than 30 international experts, the book provides a global perspective on the production, rationale, and use of fish oils, vegetable oils, and animal fats in relation to the aquaculture and aquafeed industries. After a detailed discussion on alternative lipid sources, the book discusses groundbreaking research on the use of these lipid sources as fish oil substitutes, as well as their potential advantages and challenges for use in aquafeeds. Written by Leading Scientists & Industry Authorities Rounding out its solid coverage, the book then explores the important physiological effects of various lipid sources and their components on growth, lipid metabolism, health, and postharvest qualities of the farmed fish. Both timely and pertinent, Fish Oil Replacement and Alternative Lipid Sources in Aquaculture Feeds is the most authoritative and comprehensive review on the substitution of fish oil in aquaculture feeds addressing the issues, science, and future directions of using sustainable alternatives.

Ranging from studies on the structure and function of the skin to research on a wide array of cosmetic compounds, this Second Edition updates readers on the latest regulatory guidelines, new cosmetic ingredients, state-of-the-art safety assessment technologies, and anticipated trends in the market-keeping pace with rapid advancements in chemistry, physics, biology, cosmetology, and toxicology to stand alone as the foremost guide to the subject.

"Provides a comprehensive review of the major technologies and applications of lipids in food and nonfood uses, including current and future trends. Discusses the nature of lipids, their major sources, and role in nutrition."

Annotation The crystallization and solidification properties of lipids influence their functional properties in biological systems, foods, personal care products, pharmaceuticals, and oleo chemicals. To help its members and others optimize products or systems containing lipids, the American Oil Chemists Society devoted its 2000 conference, held in Toronto, to the fundamental principles of lipid crystallization. The resulting 20 papers discuss phase behavior and polymorphism, lipid crystallization kinetics, microstructure and rheology, and crystallization in emulsions. They also consider applications to dairy systems, manufacturing chocolate confection, and the texture of fats. Annotation c. Book News, Inc., Portland, OR (booknews.com).

A low quality palm mid fraction (PMF1; iodine value = 38.8) and sal fat - Shorea robusta -, (SL1:IV = 38.0) were used as raw materials in the preparation of cocoa butter extender (CBE). Parts of PMF1 and SL1 were refractionated individually at 5 C and at acetone:oil ratio of 2:1 to produce PMF1s and SL1 s. These fats were blended at the ratio of 1:1 to

produce m CBE. The other parts of PMF1 and SL1 were blended at the ratios of 3:7, 1:1 and 7:3. Each blend was fractionated using the same solvent:oil ratio at the temperatures of 5 C, 9 C and 13 C to produce f CBEs. The effectiveness of fractionations and the physico-chemical characteristics of the fCBEs were monitored from the yield percentage and the solid fat and triacylglycerols contents, iodine value and jensen cooling curve (JCC).

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