Handbook Of Seafood And Seafood Products Analysis

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Nutriomics - Devarajan Thangadurai 2022-05-17
Implementation of robust omics technologies enables integrative and holistic interrogation related to nutrition by labeling biomarkers to empirically assess the dietary intake. Nutriomics: Well-being through Nutrition aims to enhance scientific evidence based on omics technologies and effectiveness of nutrition guidelines to promote well-being. It provides deep understanding towards nutrients and genotype effects on disease and health status. It also unveils the nutrient–health relation at the population and individual scale. This book helps to design the precise nutritional recommendations for prevention or treatment of nutrition-related syndromes. Nutriomics: Well-being through Nutrition focuses on: The impact of molecular approaches to revolutionize nutrition research for human well-being Various biomarkers for bioactive ingredient analysis in nutritional intervention research Potential of transcriptomic, genomic, proteomic, metabolomic, and epigenomic tools for nutrition care practices Recent updates on applications of omics technologies towards personalized nutrition Providing comprehensive reviews about omics technologies in nutritional science, Nutriomics: Well-being through Nutrition serves as an advanced source of reference for food developers, nutritionists, and dietary researchers to investigate and evaluate nutriomics tools for development of customized nutrition and food safety. It is also a useful source for clinicians and food industry officials who require intense knowledge about emerging dietary-related tools to revolutionize the nutrition industry. This is a volume in the Food Analysis and Properties series, a series designed to provide state-of-art coverage on topics to the understanding of physical, chemical, and functional properties of foods.
Multiresidue Methods for the Analysis of Pesticide Residues in Food - Horacio Heinzen 2017-10-10
In the last decades the public concern on the pesticide residues content in foods have been steadily rising. The global development of food trade implies that aliments from everywhere in the world can reach the consumer`s table. Therefore, the identification of agricultural practices that employ different pesticides combinations and application rates to protect produce must be characterized, as they left residues that could be noxious to human health. However, the possible number of pesticides (and its metabolites of toxicological relevance) to be found in a specific commodity is almost 1500, and the time needed to analyze them one by one, makes this analytical strategy a unrealistic task. To overcome this problem, the concept of Multi Residue Methods (MRM) for the analysis of

pesticide traces have been developed. The advent of new and highly sensitive instrumentation, based in hyphenatedchromatographic systems to coupled mass analyzers (XC (MS/MS) or MSn) permitted simultaneously the identification and the determination of up to hundreds of pesticide residues in a single chromatographic run. Multiresidue Methods for the Analysis of Pesticide Residues in Food presents the analytical procedures developed in the literature, as well as those currently employed in the most advanced laboratories that perform routinely Pesticide Residue Analysis in foods. In addition to these points, the regulations, guidelines and recommendations from the most important regulatory agencies of the world on the topic will be commented and contrasted.

Food Analysis by HPLC - Leo M.L. Nollet 2012-11-16

For food scientists, high-performance liquid chromatography (HPLC) is a powerful tool for product composition testing and assuring product quality. Since the last edition of this volume was published, great strides have been made in HPLC analysis techniques-with particular attention given to miniaturization, automatization, and green chemistry. Tho

Spectroscopic Methods in Food Analysis - Adriana S. Franca 2017-12-14

Given the inherent complexity of food products, most instrumental techniques employed for quality and authenticity evaluation (e.g., chromatographic methods) are time demanding, expensive, and involve a considerable amount of manual labor. Therefore, there has been an increasing interest in simpler, faster, and reliable analytical methods for assessing food quality attributes. Spectroscopic Methods in Food Analysis presents the basic concepts of spectroscopic methods, together with a discussion on the most important applications in food analysis. The determination of product quality and authenticity and the detection of adulteration are major issues in the food industry, causing concern among consumers and special attention among food manufacturers. As such, this book explains why spectroscopic methods have been extensively employed to the analysis of food products as they often require minimal or no sample preparation, provide rapid and on-line analysis, and have the potential to run multiple tests on a single sample (i.e., non-destructive). This book consists of concepts related to food quality and authenticity, that are quite broad, given the different demands of the manufacturer, the consumer, the surveillance and the legislative bodies that ultimately provide healthy and safe products.

Nanoemulsions in Food Technology - Javed Ahmad 2021-10-18

As of late, greater efforts are being made in the use of nanoemulsion techniques to encapsulate, protect, and deliver functional compounds for food applications, given their advantages over conventional emulsification techniques. In addition, delivery systems of nano-scale dimensions use low-energy emulsification methods and exclude the need of any solvent, heat, or sophisticated instruments in their production. Divided into three sections, Nanoemulsions in Food Technology: Development, Characterization, and Applications will provide in-depth information and comprehensive discussion over technologies, physical and nanostructural characterization, as well as applicability of the nanoemulsion technique in food sciences. It describes the techniques involved in nanoemulsion characterization, mainly dealing with interfacial and nanostructural characterization of nanoemulsions, different physical characterization techniques, as well as various imaging and separation techniques involved in its characterization. Key Features Provides a detailed discussion about the technology of nanoemulsion Explains how nanoemulsion technique is helpful in using essential oils of different biological sources Presents methods of preparation and recent advancements in manufacturing along with stability perspectives of this technique. Discusses recent advancements in manufacturing and reviews the stability perspectives of nanoemulsion techniques This book contains in-depth information on a technology overview, physical and nanostructural characterization, as well as applicability of the nanoemulsion technique in food sciences. It is a concise body of information that is beneficial to researchers, industries, and students alike. The contributing authors are drawn from a rich blend of experts in various

areas of scientific field exploring nanoemulsion techniques for wider applications. Also available in the Food Analysis and Properties Series: Sequencing Technologies in Microbial Food Safety and Quality, edited by Devarajan Thangardurai, Leo M.L. Nollet, Saher Islam, and Jeyabalan Sangeetha (ISBN: 9780367351182) Chiral Organic Pollutants: Monitoring and Characterization in Food and the Environment, edited by Edmond Sanganyado, Basil K. Munjanja, and Leo M.L. Nollet (ISBN: 9780367429232) Analysis of Nanoplastics and Microplastics in Food, edited by Leo. M.L. Nollet and Khwaja Salahuddin Siddiqi (ISBN: 9781138600188)

Seafood Enzymes - Norman F. Haard 2000-02-25

"Reviews specific enzymes and enzyme groups studied in recent years, delves into the relationship between enzymes and seafood quality, covers the application of enzymes as seafood processing aids, and focuses on the recovery of useful enzymes as by-products from seafood waste. Details the control of enzyme activity in seafood products."

Handbook of Seafood Quality, Safety and Health Applications - Cesarettin Alasalvar 2011-06-15

The global market for seafood products continues to increase year by year. Food safety considerations are as crucial as ever in this sector, and higher standards of quality are demanded even as products are shipped greater distances around the world. The current global focus on the connection between diet and health drives growth in the industry and offers commercial opportunities on a number of fronts. There is great interest in the beneficial effects of marine functional compounds such as omega-3 polyunsaturated fatty acids. Seafoods are well-known as low calorie foods, and research continues into the nutritional effects on, for example, obesity and heart disease. In addition, by-products of marine food processing can be used in nutraceutical applications. This book is a resource for those interested in the latest advances in the science and technology of seafood quality and safety as well as new developments in the nutritional effects and applications of marine foods. It includes chapters on the practical evaluation of seafood quality; novel approaches in preservation techniques; flavour chemistry and analysis; textural quality and measurement; packaging; the control of food-borne pathogens and seafood toxins. New research on the health-related aspects of marine food intake are covered, as well as the use of seafoods as sources of bioactives and nutraceuticals. The book is directed at scientists and technologists in academia, government laboratories and the seafood industries, including quality managers, processors and sensory scientists.

Mass Spectrometry in Food Analysis - Leo M. L. Nollet 2022-03-21

The quality and safety of food are crucial for human nutrition. However, evaluating the chemical composition of food is challenging for the analyst and requires powerful methods. Chromatography and mass spectrometry (MS) is the gold standard for analyzing complex food samples, including raw materials and intermediate and finished products. Mass Spectrometry in Food Analysis covers the MS-based analysis of different aspects of food quality, which include nutritional value, profile of macronutrients (proteins, lipids, and carbohydrates), micronutrients (vitamins), and nutraceutical active compounds. Additionally, sensory quality, flavor, food pigments, safety, and detection of pesticides, contact materials, veterinary drugs and pharmaceuticals, organic pollutants, and pathogens are covered. Key Features: Contains the basics of mass spectrometry and experimental strategies Explores determination of macro- and micronutrients Analyzes sensory and nutraceutical food quality Discusses detection of contaminants and proof of authenticity Presents emerging methods for food analysis This book contains an introductory section that explains the basics of MS and the difference between targeted and untargeted strategies for beginners. Further, it points out new analytical challenges, such as monitoring contaminants of emerging concern, and presents innovative techniques (e.g., ambient ionization MS and data mining). Also available in the Food Analysis & Properties Series: Nanoemulsions in Food Technology: Development, Characterization, and Applications, edited by Javed Ahmad and Leo M.L. Nollet (ISBN: 978-0-367-61492-8) Sequencing Technologies in Microbial Food

Safety and Quality, edited by Devarajan Thangadurai, Leo M.L. Nollet, Saher Islam, and Jeyabalan Sangeetha (ISBN: 978-0-367-35118-2) Chiral Organic Pollutants: Monitoring and Characterization in Food and the Environment, edited by Edmond Sanganyado, Basil K. Munjanja, and Leo M.L. Nollet (ISBN: 978-0-367-42923-2) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Handbook of Seafood and Seafood Products Analysis - Leo M.L. Nollet 2009-11-24

Seafood and seafood products represent some of the most important foods in almost all types of societies around the world. More intensive production of fish and shellfish to meet high demand has raised some concerns related to the nutritional and sensory qualities of these cultured fish in comparison to their wild-catch counterparts. In addition, the variety in processing, preservation, and storage methods from traditional to modern is contributing to an increase in variability in consumer products. Co-Edited by Fidel Toldra - Recipient of the 2010 Distinguished Research Award from the American Meat Science Association Handbook of Seafood and Seafood Products Analysis brings together the work of 75 experts who focus on the chemistry and biochemistry of postmortem seafood to offer the very latest methods for testing nutritional and sensory qualities, as well as safety aspects related to processing and preservation of seafood. After providing a general introduction, this handbook offers six sections that detail all areas of consequence to those concerned with delivering quality seafood products: Chemistry and Biochemistry focuses on the analysis of the main chemical and biochemical compounds of seafood Processing Control describes the analysis of technological quality and includes various methods to differentiate between farmed and wild seafood, to check freshness, and to evaluate smoke flavoring Nutritional Quality deals with the analysis of nutrients in muscle foods such as essential amino acids, omega fatty acids, antioxidants, vitamins, minerals, and trace elements Sensory Quality covers the main analytical tools to evaluate color, texture, and flavor Safety looks at tools used for the detection of pathogens, parasites, viruses, marine toxins, antibiotics, adulterations, and chemical toxic compounds from the environment generated during processing or intentionally added This cutting-edge work also deals with the analysis of genetically modified ingredients in fish feed. It essentially covers processes from all of the seven seas used to assure that consumers find safe, nutritionally beneficial, and appealing seafood products at their markets and restaurants.

Handbook of Seafood and Seafood Products Analysis - Leo M.L. Nollet 2009-11-24

Seafood and seafood products represent some of the most important foods in almost all types of societies around the world. More intensive production of fish and shellfish to meet high demand has raised some concerns related to the nutritional and sensory qualities of these cultured fish in comparison to their wild-catch counterparts. In addition, t

Chromatographic Analysis of the Environment - Leo M.L. Nollet 2017-03-03

This detailed handbook covers different chromatographic analysis techniques and chromatographic data for compounds found in air, water, and soil, and sludge. The new edition outlines developments relevant to environmental analysis, especially when using chromatographic mass spectrometric techniques. It addresses new issues, new lines of discussion, and new findings, and develops in greater detail the aspects related to chromatographic analysis in the environment. It also includes different analytical methodologies, addresses instrumental aspects, and outlines conclusions and perspectives for the future.

Safety Analysis of Foods of Animal Origin - Leo M.L. Nollet 2016-04-19

We cannot control how every chef, packer, and food handler might safeguard or compromise the purity of our food, but thanks to the tools developed through physics and nanotech and the scientific rigor of modern chemistry, food industry and government safety regulators should never need to plead ignorance when it comes to safety assurance. Compiled

Phenolic Compounds in Food - Leo M.L. Nollet 2018-01-29

Phenolic compounds, one of the most widely distributed groups of secondary metabolites in plants, have received a lot of attention in the last

few years since the consumption of vegetables and beverages with a high level of such compounds may reduce risks of the development of several diseases. This is partially due to their antioxidant power since other interactions with cell functions have been discovered. What's more, phenolic compounds are involved in many functions in plants, such as sensorial properties, structure, pollination, resistance to pests and predators, germination, processes of seed, development, and reproduction. Phenolic compounds can be classified in different ways, ranging from simple molecules to highly polymerized compounds. Phenolic Compounds in Food: Characterization and Analysis deals with all aspects of phenolic compounds in food. In five sections, the 21 chapters of this book address the classification and occurrence of phenolic compounds in nature and foodstuffs; discuss all major aspects of analysis of phenolic compounds in foods, such as extraction, clean-up, separation, and detection; detail specific analysis methods of a number of classes of phenolic compounds, from simple molecules to complex compounds; describe the antioxidant power of phenolic compounds; and discuss specific analysis methods in different foodstuffs.

Fish Canning Handbook - Les Bratt 2010-09-29

Canning continues to be an extremely important form of food preservation commercially, and canned fish represents a source of relatively inexpensive, nutritious and healthy food which is stable at ambient temperatures, has long shelf life and in consequence is eminently suitable for worldwide distribution. It is vitally important that all canning operations are undertaken in keeping with the rigorous application of good manufacturing practices if the food is to be safe at the point of consumption. This demands that all personnel involved in the management and operation of cannery operations have a competent understanding of the technologies involved, including the basic requirements for container integrity and safe heat sterilisation. This book provides a source of up to date and detailed technical information for all those involved in the production of canned fish, from students thinking of entering the industry, to regulatory authorities with responsibility for official inspection, trading companies and retail organisations who purchase canned fish, as well as the manufacturers themselves. An exhaustive range of topics are covered in 15 chapters, including: the current global market; processing, packaging and storage operations; food safety and quality assurance; international legal requirements and laboratory analysis.

Marine Microorganisms - Leo M.L. Nollet 2016-09-19

The marine environment covers 70% of the earth's surface and accounts for 98% of the potentially habitable space. The bioactives from marine microorganisms include antibiotic compounds, polysaccharides, inhibitors, enzymes, peptides, and pigments. These are used in various fields of biology that range from nutraceuticals to cosmeceuticals. Recent scientific investigations have revealed that marine microbial compounds exhibit various beneficial biological effects, such as anti-inflammatory, anti-cancer, anti-HIV, anti-hypertensive, and anti-diabetic. Marine Microorganisms: Extraction and Analysis of Bioactive Compounds sheds light on the extraction, clean-up, and detection methods of major compounds from marine organisms. The book includes information on the different classes of marine microorganisms and the different bioactives that can be extracted from bacteria, fungi and microalgae. Divided into 7 chapters, the book covers bioactive marine natural products, such as marine microbes, seaweeds, and marine sponges as potential sources of drug discovery, and focuses on analysis methods of the biocomponents from marine microorganisms. A useful reference tool for researchers and students, this book provides current knowledge about isolation and analysis methods of the bioactives and provides insight into the various bioactives of marine microbes toward nutraceutical and pharmaceutical development.

Bioactive Peptides from Food - Leo M.L. Nollet 2022-03-29

A growing body of scientific evidence has revealed that many food peptides exhibit specific biological activities in addition to their established nutritional value. Bioactive peptides present in foods may help reduce the worldwide epidemic of chronic diseases that account for a great number of premature deaths annually.

Bioactive peptides can be defined as isolated small fragments of proteins which provide some physiological health benefits. They act as potential modifiers reducing the risk of many chronic diseases. Bioactive Peptides from Food: Sources, Analysis, and Functions considers fundamental concepts, sources, hydrolysis, fractionation, purification, analysis, chemical synthesis, functions, and regulatory status of nutraceutical bioactive peptides. Methods of isolation of these peptides from different protein sources with their in vitro and vivo physiological effects are addressed. Divided into seven sections, this book delves into how these peptides play a major role in the development of various functional foods. Numerous bioactive peptides have been reported in recent years as naturally present or generated from food proteins of different origins like milk, eggs, soya, fish, and meat. Key Features: Includes a detailed study of the different sources of bioactive peptides Discusses the health benefits, such as antimicrobial, antiallergic, antihypertensive, antitumor, and immunomodulatory properties of peptides Explorates the state of the art analysis methods of peptides Discovers the bioinformatics of possible bioactive peptides Written by experts in their field from around the world, Bioactive Peptides from Food reveals the world of databases of peptides. It is a great resource for food scientists, technologists, chemists, nutrition researchers, producers, and processors working in the whole food science and technology field as well as those who are interested in the development of innovative functional products.

Ambient Mass Spectroscopy Techniques in Food and the Environment - Leo M.L. Nollet 2019-01-30

Ambient mass spectrometry—that is the use of mass spec but in the atmospheric environment—has been widely employed in food and environmental analysis. Ambient Mass Spectroscopy Techniques in Food and the Environment presents the theoretical underpinnings of mass spectrometry, and the benefits and pitfalls of ambient mass spectrometry, as well as the latest developments of the technique, in the analysis of food and environmental parameters. It describes methods that enable the detection of surface materials like waxes, alkaloids, flavors, or pesticides by plainly exposing the corresponding items to the ionization region of the interface, without harm to samples. Features: Explains the theoretical aspects of ambient mass spectrometry Describes how to use ambient MS techniques for food safety, authenticity, and traceability screening Lists the benefits of ambient MS in analysis of food and environmental parameters Covers recent developments of ambient MS in analysis of food and environmental parameters The specialized work provides insight to professionals practicing in food and the environment, including food scientists, food engineers, food biotechnologists, chemical engineers, and those working in research labs, universities, and government regulatory agencies.

Handbook of Seafood - İsmail Yüksel ç 2016-09

Seafood and related products have an important place in the human diet; it provides for the protein needed and has a nutritional composition that has favorable health impacts on human beings. Considering the rapid increase in the world population and the demand in terms of protein needs that are provided by seafood, the necessary need to assure the quality and safety of seafood products has been prioritised. Due to nutritional composition, neutral pH, high moisture content, weak connective tissue and living environment (fresh and seawater), seafood is very perishable. Maintaining the quality and safety of seafood needs higher attention compared to other food products. This handbook compiles recent methods and applications, as well as technologies utilised to guarantee the quality and safety of various types of seafood from harvesting to the retail level. The status of emerging and hurdle technology applications, genomic, mathematical and computer-based methods, quality economics together with chemical, sensory and microbiological changes, and quality/safety of seafood products are reviewed and discussed in this book. The emphasis on less-known or under-valued species from different locales was intentional. This handbook is an abridged, streamlined but relatively comprehensive reference for food engineers and technologists, producers from the industry, and undergraduate and graduate students studying this field of academia.

Handbook of Frozen Foods - Y. H. Hui 2004-03-29

Hui, a technology consultant, presents material on frozen food science, technology, and engineering, describing the manufacture, processing, inspection, and safety of frozen foods. He outlines basic procedures for optimizing the quality and texture of frozen foods and includes and tables and examples that illustrate the effects of various chemical and biochemical reactions on the quality of frozen food. The book details methods for selecting the most appropriate packaging materials for frozen foods, and provides guidelines on ensuring product safety.

Handbook of Meat, Poultry and Seafood Quality - Leo M. L. Nollet 2012-05-29

A great need exists for valuable information on factors affectingthe quality of animal related products. The second edition ofHandbook of Meat, Poultry and Seafood Quality, focusesexclusively on quality aspects of products of animal origin, indepth discussions and recent developments in beef, pork, poultry,and seafood quality, updated sensory evaluation of different meatproducts, revised microbiological aspects of different meatproducts. Also, included are new chapters on packaging, newchapters and discussion of fresh and frozen products, new aspectsof shelf life and recent developments in research of meattainting. This second edition is a single source forup-to-date and key information on all aspects of quality parametersof muscle foods is a must have. The reader will have at hand in onefocused volume covering key information on muscle foods quality.

Food Allergens - Leo M.L. Nollet 2016-04-19

While there are many books about various aspects of food allergy and allergens, not many comprehensively review the wide range of instrumentation and methods used in this analysis. Covering all of the major recognized food allergens in the US and EU, Food Allergens: Analysis Instrumentation and Methods begins with an introduction to the problem and prevalence of food allergens. It discusses health issues and the presence of allergens in various food products, examines methodologies for analysis and detection, and details specific methods for each food type. Maintaining a consistent structure and format, each chapter describes the properties of the allergen, and demonstrates the appropriate sample extraction and clean-up, separation and analysis, and detection and quantification techniques. With discussions of health implications and the presence of plant food and animal-derived allergens in different foodstuffs, the book covers allergens in: Peanut, soybean, and lupin Tree nuts, sesame seeds, mustard, and celery Milk and eggs Cereals Fish, crustaceans, and mollusks A compilation of information about the instrumentation and methods of analyzing allergens, the book provides insight into the extent of problems caused by food allergens. Concise and compact, it provides guidance on how to choose quantitative analyses in order to detect threshold values properly.

Flow Injection Analysis of Food Additives - Claudia Ruiz-Capillas 2015-12-01

Flow Injection Analysis of Food Additives gives you the tools you need to analyze food and beverage additives using FIA. This sets it apart from other books that simply focus on the theoretical basis and principles of FIA or on the design of equipment, instrumentation, manifold, and setting mechanism. Truly unprecedented in its scope, this book rep

Fish and Fishery Products - Barry Leonard 2011-08

This guidance will assist processors of fish and fishery products in the development of their Hazard Analysis Critical Control Point (HACCP) plans. Processors of fish and fishery products will find info. that will help them identify hazards that are associated with their products, and help them formulate control strategies. It will help consumers understand commercial seafood safety in terms of hazards and their controls. It does not specifically address safe handling practices by consumers or by retail estab., although the concepts contained in this guidance are applicable to both. This guidance will serve as a tool to be used by fed. and state regulatory officials in the evaluation of HACCP plans for fish and fishery products. Illustrations. This is a print on demand report.

Handbook of Food Analysis - Two Volume Set - Leo M.L. Nollet 2015-06-10

Updated to reflect changes in the industry during the last ten years, The Handbook of Food

Analysis, Third Edition covers the new analysis systems, optimization of existing techniques, and automation and miniaturization methods. Under the editorial guidance of food science pioneer Leo M.L. Nollet and new editor Fidel Toldra, the chapters take an in

The Seafood Industry - Linda Ankenman Granata 2012-02-08

The Seafood Industry: Species, Products, Processing, and Safety, Second Edition is a completely updated and contemporary revision of Flick and Martin's classic publication, The Seafood Industry. Covering all aspects of the commercial fish and shellfish industries – from harvest through consumption – the book thoroughly describes the commercial fishery of the western hemisphere. The international audience will also find the coverage accessible because, although species and regulations may differ, the techniques described are similar worldwide,. The second edition contains a significant expansion of the material included in the first edition. Examples include: high pressure processing; inclusion of additional major crustacean species of commerce; fishery centers and development programs; handling methods on fishing vessels; and new chapters on Toxins, Allergies, and Sensitivities; Composition and Quality; and Risk Management and HACCP; and Processing Fin Fish. The Seafood Industry: Species, Products, Processing, and Safety, comprehensive in scope and current with today's issues, will prove to be a great asset to any industry professional or seafood technologist working in the field.

Proteomics for Food Authentication - Leo M.L. Nollet 2020-05-28

Consumers have the right to know what is in the food they are eating, and accordingly, a number of global food regulations require that the provenance of the food can be guaranteed from farm to fork. Many different instrumental techniques have been proposed for food authentication. Although traditional methods are still being used, new approaches such as genomics, proteomics, and metabolomics are helping to complement existing methodologies for verifying the claims made about certain food products. During the last decade, proteomics (the largescale analysis of proteins in a particular biological system at a particular time) has been applied to different research areas within food technology. Since proteins can be used as markers for many properties of a food, even indicating processes to which the food has been subjected, they can provide further evidence of the foods labeling claim. Proteomics for Food Authentication, a volume in the Food Analysis and Properties Series, is a comprehensive and updated overview of the applications, drawbacks, advantages, and challenges of proteomics for food authentication. Features: Provides a comprehensive and critical overview of the application of proteomics in food Helps food scientists determine the authenticity of several food products Provides applied techniques for both laboratory and industrial environments Describes workflows, technologies, and tools that are being assessed in proteomics-related studies Workflows, technologies, and tools that are being assessed in proteomics-related studies are described, followed by a review of the specific applications regarding food authenticity and, now and then, food quality. The book will provide a comprehensive and critical overview of the application of proteomics approaches to determine the authenticity of several food products updating the performances and current limitations of the applied techniques in both laboratory and industrial environments. As such it is well suited to food scientist, chemical engineers, food engineers, research labs, universities, governments, related food industries. Also available in the Food Analysis and Properties Series: Food Aroma Evolution: During Food Processing, Cooking, and Aging, edited by Matteo Bordiga and Leo M.L. Nollet (ISBN: 9781138338241) Ambient Mass Spectroscopy Techniques in Food and the Environment, edited by Leo M.L. Nollet and Basil K. Munjanja (ISBN: 9781138505568) Hyperspectral Imaging Analysis and Applications for Food Quality, edited by N.C. Basantia, Leo M.L. Nollet, and Mohammed Kamruzzaman (ISBN: 9781138630796) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Food Protected Designation of Origin - 2013-06-11

Protected designation of origin (PDO) taken

together with other geographical indicators, such as protected geographical indication (PGI) and traditional specialty guaranteed (TSG), offer the consumer additional guarantees on the quality and authentication of foods. They are important tools that protect the names of regional foods, such as wines, cheeses, hams, sausages and olives, so that only foods that genuinely originate in a particular region are allowed to be identified as such. The economic value of these regional foods, as well as the increased interest from consumers and the food industry about the traceability and origin of food, mean that it has become necessary to establish methods for PDO and PGI authentication based on the specific characteristics and chemical markers of these kinds of products. This book offers a complete guide of the methods available to authenticate food PDO, beginning with an explanation of the analytical and chemometric methods available for PDO authentication, before looking at the main foods covered, PGI labels and the social and legal framework for food PGIs. It will be of interest to people engaged in the fields of food production, commercialization and consumption, as well as policymakers and control laboratories. Offers a complete guide to the methods available for food Protected Designation of Origin (PDO) authentication Explains the analytical and chemometric methods Focuses on the various food products covered by authentication labels

Hyperspectral Imaging Analysis and Applications for Food Quality - N.C. Basantia 2018-11-16

In processing food, hyperspectral imaging, combined with intelligent software, enables digital sorters (or optical sorters) to identify and remove defects and foreign material that are invisible to traditional camera and laser sorters. Hyperspectral Imaging Analysis and Applications for Food Quality explores the theoretical and practical issues associated with the development, analysis, and application of essential image processing algorithms in order to exploit hyperspectral imaging for food quality evaluations. It outlines strategies and essential image processing routines that are necessary for making the appropriate decision during detection, classification, identification, quantification, and/or prediction processes. Features Covers practical issues associated with the development, analysis, and application of essential image processing for food quality applications Surveys the breadth of different image processing approaches adopted over the years in attempting to implement hyperspectral imaging for food quality monitoring Explains the working principles of hyperspectral systems as well as the basic concept and structure of hyperspectral data Describes the different approaches used during image acquisition, data collection, and visualization The book is divided into three sections. Section I discusses the fundamentals of Imaging Systems: How can hyperspectral image cube acquisition be optimized? Also, two chapters deal with image segmentation, data extraction, and treatment. Seven chapters comprise Section II, which deals with Chemometrics. One explains the fundamentals of multivariate analysis and techniques while in six other chapters the reader will find information on and applications of a number of chemometric techniques: principal component analysis, partial least squares analysis, linear discriminant model, support vector machines, decision trees, and artificial neural networks. In the last section, Applications, numerous examples are given of applications of hyperspectral imaging systems in fish, meat, fruits, vegetables, medicinal herbs, dairy products, beverages, and food additives.

Sensory Analysis of Foods of Animal Origin - Leo M.L. Nollet 2010-09-15

When it comes to food selection, consumers are very reliant on their senses. No matter the date on a carton of milk or the seal on the package of meat, how that milk smells and the color of that meat are just as critical as any official factors. And when it comes to meal time, all the senses must conspire to agree that taste, smell, color, and texture are appealing. Fidel Toldrá was named 2010 American Meat Science Association Distinguished Research Award recipient Compiled by two of the most esteemed researchers in the food science industry, Leo M.L. Nollet and Fidel Toldrá, Sensory Analysis of Foods of Animal Origin identifies and quantifies the quality attributes to help those in the industry understand the importance of perceived sensory quality. This book is divided into four parts: meat; processed meats and poultry; fish and seafood products; and milk and dairy

products. In all four parts, the authors – Describe the analysis of color and texture of the different foods of animal origin, as well as recent advances in texture measurement Discuss techniques for sampling and identifying volatile compounds Detail and quantify a number of sensory aspects including descriptors, perception, and aroma Include subjective quality index methods that have recently been developed Each chapter starts with a discussion of the parameter in question, and as necessary, sample preparation methods are reviewed in depth. This is followed by a discussion and assessment of the sensory qualities, or a detailed overview of different detection methods. Finally, a brief summary covers the presence of these parameters in different end products, regions, and countries. With all the chapters written by experts in their fields, only the most recent techniques and related literature is included.

Mass Spectrometry Imaging in Food Analysis - Leo M.L. Nollet 2020-04-29

Food contains various compounds and many technologies exist to analyze those molecules of interest. However, the analysis of the spatial distribution of those compounds using conventional technology, such as liquid chromatography-mass spectrometry or gas chromatography-mass spectrometry is difficult. Mass spectrometry imaging (MSI) is a mass spectrometry technique to visualize the spatial distribution of molecules, as biomarkers, metabolites, peptides or proteins by their molecular masses. Despite the fact that MSI has been generally considered a qualitative method, the signal generated by this technique is proportional to the relative abundance of the analyte and so quantification is possible. Mass Spectrometry Imaging in Food Analysis, a volume in the Food Analysis and Properties Series, explains how the novel use of matrix-assisted laser desorption/ionization mass spectrometry imaging (MALDI-MSI) will be an ideal complementary approach. MALDI-MSI is a two-dimensional MALDI-MS technology that can detect compounds in a tissue section without extraction, purification, separation, or labeling. It can be used to visualize the spatial distribution of biomolecules in foods. Features: Explains the novel use of matrix-assisted laser desorption/ionization mass spectrometry imaging in food analysis Describes how MALDI-MSI will be a useful technique for optical quality assurance. Shows how MALDI-MSI detects food contaminants and residues Covers the historical development of the technology While there are a multitude of books on mass spectrometry, none focus on food applications and thus this book is ideally suited to food scientists, food industry personnel engaged in product development, research institutions, and universities active in food analysis or chemical analysis. Also available in the Food Analysis and Properties Series: Food Aroma Evolution: During Food Processing, Cooking, and Aging, edited by Matteo Bordiga and Leo M.L. Nollet (ISBN: 9781138338241) Ambient Mass Spectroscopy Techniques in Food and the Environment, edited by Leo M.L. Nollet and Basil K. Munjanja (ISBN: 9781138505568) Hyperspectral Imaging Analysis and Applications for Food Quality, edited by N.C. Basantia, Leo M.L. Nollet, and Mohammed Kamruzzaman (ISBN: 9781138630796) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Fingerprinting Techniques in Food Authentication and Traceability - K. S. Siddiqi 2018-10-08

There is an increasing interest by consumers for high-quality food products with a clear geographical origin. With these products in demand, suitable analytical techniques are needed for the quality control. Current analytical approaches are mass spectrometry techniques, spectroscopic techniques, separation techniques, and others. Fingerprinting Techniques in Food Authentication and Traceability discusses the principles of the techniques together with their advantages and drawbacks, and reported applications concerning geographical authenticity. A combination of methods analyzing different types of food compounds seems to be the most promising approach to establish the geographical origin. The abundant acquired data are analyzed by chemometrics. Producing safe and high-quality food is a prerequisite to ensure consumer health and successful domestic and international trade, and is critical to the sustainable development of national agricultural resources. Systems to trace food or feed products through specified stages of

production, processing, and distribution play a key role in assuring food safety. Analytical techniques that enable the provenance of food to be determined provide an independent means of verifying traceability systems and also help to prove product authenticity, to combat fraudulent practices and to control adulteration, which are important issues for economic, religious, or cultural reasons. Proof of provenance has become an important topic in the context of food safety, food quality, and consumer protection in accordance with national legislation and international standards and guidelines.

Seafood Processing - Ioannis S. Boziaris 2014-02-03

Part of the new IFST Advances in Food Science Series, Seafood Processing: Technology, Quality and Safety covers the whole range of current processes which are applied to seafood, as well as quality and safety aspects. The first part of the book ('Processing Technologies') covers primary processing, heating, chilling, freezing, irradiation, traditional preservation methods (salting, drying, smoking, fermentation, etc), frozen surimi and packaging. The subjects of waste management and sustainability issues of fish processing are also covered. In the second part ('Quality and Safety Issues'), quality and safety analysis, fish and seafood authenticity and risk assessment are included.

Analysis of Naturally Occurring Food Toxins of Plant Origin - Leo M.L. Nollet 2022-12-02

Natural toxins are toxic compounds that are naturally produced by living organisms. These toxins are not harmful to the organisms themselves, but they may be toxic to other creatures, including humans, when eaten. These chemical compounds have diverse structures and differ in biological function and toxicity. Some toxins are produced by plants as a natural defense mechanism against predators, insects, or microorganisms, or as a consequence of infestation with microorganisms, such as mold, in response to climate stress (such as drought or extreme humidity). Well-known groups of natural toxins of plant origin are: cyanogenic glycosides, pyrrolizidine alkaloids, furocoumarins, lectins, and glycoalkaloids. These plant-origin natural toxins can cause a variety of adverse health effects and pose a serious health threat to both humans and livestock. Analysis of Naturally Occurring Food Toxins of Plant Origin is divided into three sections that provide a detailed overview of different classes of food toxins that are naturally found in plants, including various analytical techniques used for their structural characterization, identification, detection, and quantification. This book provides in-depth information and comprehensive discussion over quantitative and qualitative analysis of natural toxins in plant-based foods. Key Features: • Provides a detailed overview of different classes of natural toxins found in plants. • Explains how IR, NMR, and mass spectrometry are utilized in characterization and identification. • Describes applicability of HPLC, LC-MS, GC-MS, and HPTLC techniques for detection and quantification. • Discusses progress in the field related to capillary electrophoresis, ELISA, and biosensors for quantitative application of these techniques. Also available in the Food Analysis and Properties Series: Nutriomics: Well-being through Nutrition, edited by Devarajan Thangadurai,Saher Islam,Leo M.L. Nollet, Juliana Bunmi Adetunji (ISBN: 9780367695415) Bioactive Peptides from Food: Sources, Analysis, and Functions, edited by Leo M.L. Nollet and Semih Ötleş (ISBN: 9780367608538) Mass Spectrometry in Food Analysis, edited by Leo M.L. Nollet and Robert Winkler (ISBN: 9780367548797) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Advanced Technologies for Meat Processing - Fidel Toldrá 2017-10-10

As with the first edition, the main goal of Advanced Technologies for Meat Processing is to provide the reader with recent developments in new advanced technologies for the full meat-processing chain. This book is written by distinguished international contributors with recognized expertise and excellent reputations, and brings together all the advances in a wide and varied number of technologies that are applied in different stages of meat processing. This second edition contains 21 chapters, combining updated and revised versions of several chapters with entirely new chapters that deal with new online monitoring techniques like hyperspectral imaging and Raman spectroscopy,

the use of nanotechnology for sensor devices or new packaging materials and the application of omics technologies like nutrigenomics and proteomics for meat quality and nutrition. The book starts with the control and traceability of genetically modified farm animals, followed by four chapters reporting the use of online non-destructive monitoring techniques like hyperspectral imaging and Raman spectroscopy, real-time PCR for pathogens detection, and nanotechnology-based sensors. Then, five chapters describe different advanced technologies for meat decontamination, such as irradiation, hydrostatic and hydrodynamic pressure processing, other non-thermal technologies, and the reduction in contaminants generation. Nutrigenomics in animal nutrition and production is the object of a chapter that is followed by five chapters dealing with nutritional-related issues like bioactive peptides, functional meats, fat and salt reduction, processing of nitrite-free products, and the use of proteomics for the improved processing of dry-cured meats. The last four chapters are reporting the latest developments in bacteriocins against meat-borne pathogens, the functionality of bacterial starters, modified atmosphere packaging and the use of new nanotechnology-based materials for intelligent and edible packaging.

Seafood and Aquaculture Marketing Handbook - Carole R. Engle 2016-09-26

Aquaculture, the farming of aquatic animals and plants, and other seafood businesses continue to grow rapidly around the world. However, many of these businesses fail due to the lack of sufficient attention to marketing. The Seafood and Aquaculture Marketing Handbook provides the reader with a comprehensive, yet user-friendly presentation of key concepts and tools necessary for aquaculture and seafood businesses to evaluate and adapt to changing market conditions. Markets for aquaculture and seafood products are diverse, dynamic, and complex. The Seafood and Aquaculture Marketing Handbook presents fundamental principles of marketing, specific discussion of aquaculture and seafood market channels and supply chains from around the world, and builds towards a step-by-step approach to strategic market planning for successful aquaculture and seafood businesses. This book is an essential reference for all aquaculture and seafood businesses as well as students of aquaculture. The volume contains a series of synopses of specific markets, an extensive annotated bibliography, and webliography for additional sources of information. Written by authors with vast experience in international marketing of aquaculture and seafood products, this volume is a valuable source of guidance for those seeking to identify profitable markets for their aquaculture and seafood products.

Chiral Organic Pollutants - Edmond Sanganyado 2020-12-30

Chiral Organic Pollutants introduces readers to the growing challenges of chirality in synthetic chemicals. In this volume, contributors brilliantly summarize the characteristics of chiral pollutants to provide tools and techniques for effectively assessing their environmental and human health risks. Chapters cover recent research on the physicochemical properties, sources, exposure pathways, environmental fate, toxicity, and enantioselective analysis of chiral organic pollutants. Chiral Organic Pollutants also provides comprehensive discussions on the current trends in the synthesis and legislation of chiral chemicals. Key Features: Includes sampling and analytical methods for the enantioselective analysis of a wide array of chiral organic pollutants in food and the environment Summarizes recent research on the sources, fate, transport, and toxicity of chiral organic pollutants in the environment Critically examines the sources and pathways of chiral organic pollutants such as pesticides, pharmaceuticals, and flame retardants in food Includes a comprehensive discussion on current trends in the enantioselective synthesis and chiral switching of pesticides and pharmaceuticals Provides analysis of current national and international regulations of chiral synthetic chemicals The use of chiral synthetic chemicals such as pesticides, pharmaceuticals, personal care products, and halogenated flame retardants has significantly grown in the past 60 years. Hence, understanding the human and environmental health effects of chiral organic pollutants is crucial in the industry, academia, and policymaking. Chiral Organic Pollutants is an excellent textbook and reference for students,

scientists, engineers, and policymakers interested in food quality, environmental pollution, chemical analysis, organic synthesis, and toxicology. Also available in the Food Analysis and Properties Series: Analysis of Nanoplastics and Microplastics in Food, edited by Leo. M.L. Nollet and Khwaja Salahuddin Siddiqi (ISBN: 9781138600188) Proteomics for Food Authentication, edited by Leo M.L. Nollet, and Semih Ötleş (ISBN: 9780367205058) Mass Spectrometry Imaging in Food Analysis, edited by Leo M.L. Nollet (ISBN: 9781138370692) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Analysis of Nanoplastics and Microplastics in Food - Leo M.L. Nollet 2020-12-02

The world's ever increasing use of plastics has created large areas of floating plastic waste in the oceans—so-called plastic soup. This floating plastic debris is gradually fragmenting into smaller particles which eventually become microplastics, and even nanoplastics. Analysis of Nanoplastics and Microplastics in Food compiles data on nanoplastics and microplastics in food. To date, there is some data on this, particularly for the marine environment. Fish show high concentrations, but because microplastics are mostly present in the stomach and intestines, they are usually removed and consumers are not exposed. But in crustaceans and bivalve molluscs like oysters and mussels, the digestive tract is consumed, so there is some exposure. Microplastics have also been reported in honey, beer, and table salt. Key Features: Discusses sampling and analysis of nano- and microplastics Details the impacts of plastic residues in diverse compartments of the environment Includes a discussion of microplastics in freshwater Discusses interactions of microplastics and POPs This book brings to light the reality—and dangers—of microplastics in food. Pollutants like polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) can accumulate in microplastics. Some studies suggest that, after consuming microplastics in food, these substances may transfer into tissues. So, it is important to estimate the average intake. Since engineered nanoparticles (from different types of nanomaterials) can enter human cells, this reality can pose consequences for human health. Also available in the Food Analysis and Properties Series: Mass Spectrometry Imaging in Food Analysis, edited by Leo M. L. Nollet (ISBN: 978-1-138-37069-2) Proteomics for Food Authentication, edited by Leo M. L. Nollet and Semih Ötleş (ISBN: 978-0-367-20505-8) Food Aroma Evolution: During Food Processing, Cooking, and Aging, edited by Matteo Bordiga and Leo M. L. Nollet (ISBN: 978-1-138-33824-1) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Testing and Analysis of GMO-containing Foods and Feed - Salah E. O. Mahgoub 2019-01-15

An increasing number of genetically modified organisms (GMOs) continues to be produced every day. In response to the concerns raised by the development of GMOs and their incorporation in foods and feed, guidelines and regulations to govern and control the use of GMOs and their products have been enacted. These regulations necessitated the design of methods to detect and analyse the presence of GMOs or their products in agriculture produce, food and feed production chains. Design of techniques and instruments that would detect, identify, and quantify GM ingredients in food and feed will help inspection authorities to relay reliable information to consumers who might be concerned about the presence of GM ingredients. Information generated by detection of GMOs in food and feed would be helpful for setting regulations that govern the use of GM components as well as for labeling purposes. Qualitative detection methods of GM-DNA sequences in foods and feeds have evolved fast during the past few years. There is continuous need for the development of more advanced multi-detection systems and for periodic updates of the databases related to these systems. Testing and Analysis of GMO-containing Foods and Feed presents updates and comprehensive views on the various methods and techniques in use today for the detection, identification and quantification of GMOs in foods and feed. The eleven book chapters cover recent developments on sample preparation techniques, immunoassays methods and the PCR technique

used in GMO analysis, the use of biosensors in relation to GMO analysis, the application of nucleic acid microarrays for the detection of GMOs, validation and standardization methods for GMO testing, in addition to the type of reference material and reference methods used in GMO testing and analysis. Some of the ISO standards designed for identifying and detecting the presence of GM material in foods are also presented in the book.

Food Aroma Evolution - Matteo Bordiga 2019-11-15

Of the five senses, smell is the most direct and food aromas are the key drivers of our flavor experience. They are crucial for the synergy of food and drinks. Up to 80% of what we call taste is actually aroma. Food Aroma Evolution: During Food Processing, Cooking, and Aging focuses on the description of the aroma evolution in several food matrices. Not only cooking, but also processing (such as fermentation) and aging are responsible for food aroma evolution. A comprehensive evaluation of foods requires that analytical techniques keep pace with the available technology. As a result, a major objective in the chemistry of food aroma is concerned with the application and continual development of analytical methods. This particularly important aspect is discussed in depth in a dedicated section of the book. Features Covers aromatic evolution of food as it is affected by treatment Focuses on food processing, cooking, and aging Describes both classic and new analytical techniques Explains how the flavor perception results are influenced by other food constituents The book comprises a good mix of referenced research with practical applications, also reporting case studies of these various applications of novel technologies. This text represents a comprehensive reference book for students, educators, researchers, food processors, and food industry personnel providing an up-to-date insight. The range of techniques and materials covered provides engineers and scientists working in the food industry with a valuable resource for their work. Also available in the Food Analysis & Properties Series: Ambient Mass Spectroscopy Techniques in Food and the Environment, edited by Leo M.L. Nollet and Basil K. Munjanja (ISBN: 9781138505568) Hyperspectral Imaging Analysis and Applications for Food Quality, edited by N.C. Basantia, Leo M.L. Nollet, and Mohammed Kamruzzaman (ISBN: 9781138630796) Fingerprinting Techniques in Food Authentication and Traceability, edited by Khwaja Salahuddin Siddiqi and Leo M.L. Nollet (ISBN: 9781138197671) For a complete list of books in this series, please visit our website at: www.crcpress.com/Food-Analysis--Properties/book-series/CRCFOODANPRO

Handbook of Analysis of Active Compounds in Functional Foods - Leo M.L. Nollet 2012-01-18

Functional foods offer specific benefits that enhance life and promote longevity, and the active compounds responsible for these favorable effects can be analyzed through a range of techniques. Handbook of Analysis of Active Compounds in Functional Foods presents a full overview of the analytical tools available for the analysis of active ingredien