Chemistry Of Deep Fat Frying Oils Texas A M University

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Batters and Breadings in Food Processing Elsevier
Frying of Food is the first reference to examine frying of food from the point of view of changes occurring to biologically-active constituents and the effects of such changes on the stability, performance and nutritive value of frying oil. It focuses on the nature of the frying media and discusses changes to non-glyceride components, especially nutritive and non-utritive antioxidants. This important resource concentrates mainly on two factors that influence the deterioration of a fat at elevated temperatures: the nature of the heated fat and the presence of oxidation retardants, especially those naturally occurring in oils or obtained from natural sources. Discussions include important biologically active ingredients present in oils and fats (such as antioxidant vitamins and carotenoids) and minor constituents (such as phytosterols, phospholipids and hydrocarbons), which appear to affect the performance of a heated oil and/or may also be categorized as functional. Frying of Food also discusses olar phenolic compounds, which have an impact on the stability of oils at high temperatures. Food and lipid chemists, food technologists and product developers involved in the processing of foods by frying, and to those involved in fat and oil research, in quality assessment of heated fats, and in improving dietary fat intake profiles will find this book valuable.
Food Science, An Ecological Approach Springer
This book addresses a fundamental understanding of heat and mass (moisture and oil) transport mechanisms in the frying of foods and of the physical and chemical changes that occur in the product and oil during the process. Different types of fryers are described in detail, product quality attribute measurement on-line is assessed, modeling and simulation of batch and continuous frying systems are covered in detail, and process control application is described. Color plates.
Frying of Food Boom Koninklijke Uitgevers
Maintaining the high standards that made the previous editions such well-respected and widely used references, Food Lipids: Chemistry, Nutrition, and Biotechnology, Third Edition tightens its focus to emphasize lipids from the point of entry into the food supply and highlights recent findings regarding antioxidants and lipid oxidation. Always representative of the

current state of lipid science, this edition provides four new chapters reflecting the latest advances in antioxidant research. New chapters include: Polyunsaturated Lipid Oxidation in Aqueous Systems, Tocopherol Stability and the Prooxidant Mechanisms of Oxidized Tocopherols in Lipids, Effects and Mechanisms of Minor Compounds in Oil on Lipid Oxidation, and Total Antioxidant Evaluation and Synergism. The most comprehensive and relevant treatment of food lipids available, this book highlights the role of dietary fats in foods, human health, and disease. Divided into five parts, it begins with the chemistry and properties of food lipids covering nomenclature and classification, extraction and analysis, and chemistry and function. Part II addresses processing techniques including recovery, refining, converting, and stabilizing, as well as chemical interesterification. The third Part has been renamed and expanded to honor the growing data on oxidation and antioxidants. Part IV explores the myriad interactions of lipids in nutrition and health with information on heart disease, obesity, and cancer, and Part V continues with contributions on biotechnology and biochemistry including a chapter on the genetic engineering of crops that produce vegetable oil. Revised and updated with new information and references throughout the text, this third edition of a bestselling industry standard once again draws on the contributions of leading international experts to establish the latest benchmark in the field and provide the platform from which to further advance lipid science.

Lipid Oxidation Elsevier

Functional Dietary Lipids: Food Formulation, Consumer Issues and Innovation for Health discusses this important component of the human diet and the ways it plays an essential functional role in many foods. The book covers the functionality and nutritional benefits of dietary fat in food in terms of formulation, manufacturing, and innovation for health. After an introduction by the editor reviewing the role of fats in the human diet, the book discusses the chemistry of edible fats, manufacturing issues, including the replacement of trans-fatty acids in food, fat reformulation for calorie reduction, thermal stability of fats, and the flavor and functional texture and melting characteristics of fats in food. Subsequent chapters address the effect of dietary lipid intake on various health issues and the potential health benefits of bioactive compounds in dietary lipids, with final sections discussing issues that affect the consumer relationship with fat, such as regulation, marketing, and health claims. Comprehensively examines the functionality and nutritional benefits of dietary fat in food Discusses the chemistry of edible fats, manufacturing issues, including the replacement of trans fatty acids in food, fat reformulation for calorie reduction, thermal stability of fats, and more Considers manufacturing issues of dietary fat in foods Addresses issues affecting the consumer relationship with fat, such as regulation, marketing, and health claims

Food Lipids The American Oil Chemists Society

Chemical changes that occur in foods during processing and storage are manifold and might be both desirable and undesirable in nature. While many of the processes are carried out intentionally, there are also certain unwanted changes that naturally occur in food and might have to be controlled. Therefore, efforts are made to devise processing technologies in which desirable attributes of foods are retained and their deleterious ef fects are minimized. While proteins, lipids and carbohydrates are the main nutrients of food that are affected by processing, it is their interaction with one another, as well as in volvement oflow-molecular-weight constituents that affects their flavor, color and overall acceptability. Thus, generation of aroma via thermal processing and bioconversion is of utmost importance in food preparation. Furthermore, processing operations must be opti mized in order to eliminate or reduce the content of antinutrients that are present in foods and retain their bioactive components. Therefore, while novel processing technologies such as freezing, irradiation, microwaving, high pressure treatment and fermentation might be employed, control process conditions in a manner that both the desirable sensory attributes and wholesomeness of foods are safeguarded is essential. Obviously, method ologies should also be established to quantitate the changes that occur in foods as a result of processing. This volume was developed from contributions provided by a group of internation ally-recognized lead scientists.

Frying Technology and Practices Jones & Bartlett Publishers

Oxidative Stability and Shelf Life of Foods Containing Oils and Fats focuses on food stability and shelf life, both important factors in the improvement and development of food products. This book, relevant for professionals in the food and pet food industries, presents an evaluation of methods for studies on the oxidative stability and shelf life of bulk oils/fats, fried oils and foods, food emulsions, dried foods, meat and meat products, and seafood in food and pet food. Focuses on the application of various evaluation methods to studies of oxidative stability and shelf life in oils and fats and oils and fats-containing foods in the food and pet food industries Discusses oxidative stability and shelf life of low-moisture (dry) food, including dry pet food Discusses lipid co-oxidation with protein because a number of food products contain both lipids and proteins Directed mainly toward readers working in the food and pet food industries

At the Annual Meeting of the Institute of Food Technologists ; Anaheim, Calif., June 16 - 20, 1990 Academic Press

In this second edition, Edwin Frankel has updated and extended his now well-known book Lipid oxidation which has come to be regarded as the standard work on the subject since the publication of the first edition seven years previously. His main objective is to develop the background necessary for a better understanding of what factors should be considered, and what methods and lipid systems should be employed, to achieve suitable evaluation and control of lipid oxidation in complex foods and biological systems. The oxidation of unsaturated fatty acids is one of the most fundamental reactions in lipid chemistry. When unsaturated lipids are exposed to air, the complex, volatile oxidation compounds that are formed cause rancidity. This decreases the quality of foods that contain natural lipid components as well as foods in which oils are used as ingredients. Furthermore, products of lipid oxidation have been implicated in many vital biological reactions, and evidence has accumulated to show that free radicals and reactive oxygen species participate in tissue injuries and in degenerative disease. Although there have been many significant advances in this challenging field, many important problems remain unsolved. This second edition of Lipid oxidation follows the example of the first edition in offering a summary of the many unsolved problems that need further research. The need to understand lipid oxidation is greater than ever with the increased interest in long-chain polyunsaturated fatty acids, the reformulation of oils to avoid hydrogenation and trans fatty acids, and the enormous attention given to natural phenolic antioxidants, including flavonoids and other phytochemicals.

Principles, Changes, New Approaches Elsevier

Based on years of academic and industrial research by an international panel of experts, Chemical, Biological, and Functional Properties of Food Lipids, Second Edition provides a concise, yet well-documented presentation of the current state of knowledge on lipids. Under the editorial guidance of globally recognized food scientists Zdzisław E. Sikorski and Anna Kołakowska, this completely revised and updated edition presents eight entirely new chapters. Originally titled Chemical and Functional Properties of Food Lipids, this edition adds Biological to the title to reflect a far greater emphasis on the biological aspects of lipids. Among a wealth of ongoing and current topics, this essential resource: Familiarizes readers with the standard chemical nomenclature and properties of a large variety of lipids Examines the contents of lipids in plants, fish, milk, meat, and eggs Describes advances in methods of physical, chemical, and biochemical analyses Offers new information on phospholipids, sterols, and fat-soluble vitamins in foods Provides a biochemist’s view of lipid oxidation and antioxidants—crucial for the sensory and nutritive aspects of food quality Discusses modified lipids and fat mimetics, as well as those of special biological and physico-chemical activity Considers the importance of frying fats, lipid-proteins and lipid-saccharides interactions, and lipid contaminants in relation to food quality Chemical, Biological, and Functional Properties of Food Lipids, Second Edition is an ideal reference for both professional and aspiring food scientists in both industry and academia. It contains all of the necessary information needed to control the rate of undesirable reactions in foods and select optimum storage and processing parameters for these delicate fats.

Chemistry and Safety of Acrylamide in Food CRC Press

Flavor Chemistry of Lipid FoodsThe American Oil Chemists SocietyDeep FryingChemistry, Nutrition, and Practical ApplicationsElsevier

EU Food Law CRC Press

For the first time in over twenty-five years, this unique and popular textbook on food chemistry mechanism and theory has received a full update. Emphasizing the underlying chemical reactions and interactions that occur in foods during processing and storage, this book unifies the themes of "what", "how" and "why" in the language of equations, reactions and mechanisms. This book is the only work which provides in-depth focus on aspects of reaction mechanisms and theories in the chemistry of food and food systems. With more than 500 chemical equations and figures, this book provides unusual clarity and relevance, and fills a significant gap in food chemistry literature. It is a definitive source to consult regarding the important mechanisms that make food components and reactions tick. Mechanism and Theory in Food Chemistry has been a popular resource for students and researchers alike since its publication in 1989. This important new edition contains updates on the original text encompassing a quarter century of advances in food chemistry. Many parts of the original chapters are revised to make for smoother navigation through the subjects, to better explain the underlying chemistry concepts and to fulfill the need of adding topics of emerging importance. New sections on fatty acids, lipid oxidation, meat, milk, soybean and wheat proteins, starch and many more have been incorporated throughout the revision. This updated edition provides an excellent source of all the important chemical mechanisms and theories involved with food science.

Oxidative Stability and Shelf Life of Foods Containing Oils and Fats CRC Press

A New York Times Bestseller Winner of the James Beard Award for General Cooking and the IACP Cookbook of the Year Award "The one book you must have, no matter what you’re planning to cook or where your skill level falls."—New York Times Book Review Ever wondered how to pan-fry a steak with a charred crust and an interior that's perfectly medium-rare from edge to edge when you cut into it? How to make homemade mac 'n' cheese that is as satisfyingly gooey and velvety-smooth as the blue box stuff, but far tastier? How to roast a succulent, moist turkey (forget about brining!)—and use a foolproof method that works every time? As Serious Eats's culinary nerd-in-residence, J. Kenji López-Alt has pondered all these questions and more. In The Food Lab, Kenji focuses on the science behind beloved American dishes, delving into the interactions between heat, energy, and molecules that create great food. Kenji shows that often, conventional methods don’t work that well, and home cooks can achieve far better results using new—but simple—techniques. In hundreds of easy-to-make recipes with over 1,000 full-color images, you will find out how to make foolproof Hollandaise sauce in just two minutes, how to transform one simple tomato sauce into a half dozen dishes, how to make the crispiest, creamiest potato casserole ever conceived, and much more.

Deep Frying CRC Press

For more than two decades, this work has remained the leading advanced textbook and easy-to-use reference on food chemistry and technology. Its fourth edition has been extensively re-written and enlarged, now also covering topics such as BSE detection or acrylamide. Food allergies, alcoholic drinks, or phystosterols are now treated more extensively. Proven features of the prior editions are maintained: Contains more than 600 tables, almost 500 figures, and about 1100 structural formulae of food components - Logically organized according to food constituents and commodities - Comprehensive subject index. These features provide students and researchers in food science, food technology, agricultural chemistry and nutrition with in-depth insight into food chemistry and technology. They also make the book a valuable on-the-job reference for chemists, food chemists, food technologists, engineers, biochemists, nutritionists, and analytical chemists in food and agricultural research, food industry, nutrition, food control, and service laboratories. From reviews of the first edition "Few books on food chemistry treat the subject as exhaustively...researchers will find it to be a useful source of information. It is easy to read and the material is systematically presented." JACS

Chemistry, Nutrition, and Biotechnology, Third Edition CRC Press

Given its fragmented development, EU food law can be seen as both complex and confusing. With its distinguished team of contributors, EU food law highlights the key issues so those non-specialists can understand the legislation and what it means for them. It is designed to help readers ask the right questions when developing and marketing products in the European Union, and to provide answers to those questions. The book begins with an overview of the development of EU food law, and then describes the main institutions involved in framing food legislation and the legislative process. This discussion is designed to provide a context for the chapters on specific aspects of EU food law that follow. Part one there are a series of chapters on legislation controlling food safety, ranging from the way food products are manufactured (hygiene and the control of contaminants) to food composition and packaging (additives and food contact materials). Part two considers how EU food law ensures that consumers are properly informed about the food products they buy. There are chapters on labelling, nutrition information, the increasingly important area of health

claims, and the handling of foods for particular nutritional purposes. Part three of the book contains two case studies illustrating how these various strands of EU food law impact in practice on a particular food product, looking at both an established food ingredient and the emerging area of functional foods. EU food law provides an authoritative introduction and guide to a complex subject. It will be widely welcomed by all those designing food products for and selling food products in the European Union.

Deep-fat Frying Springer Science & Business Media

Fruits and fruit based products are, in most cases, associated with very good sensory characteristics, health, well-being, perishability, relatively easy to mix with food products of diverse origin, amenable to be processed by conventional and novel technologies. Given the multiplicity of aspects whenever fruit preservation is considered, the editors took the challenge of covering in a thorough, comprehensive manner most aspects dealing with this topic. To accomplish these goals, the editors invited well known colleagues with expertise in specific disciplines associated with fruit preservation to contribute chapters to this book. Eighteen chapters were assembled in a sequence that would facilitate, like building blocks, to have at the same time, a birds-eye view and an in-depth coverage of traditional and novel technologies to preserve fruits. Even though processing took center stage in this book, ample space was dedicated to other relevant and timely topics on fruit preservation such as safety, consumer perception, sensory and health aspects. FEATURES: Traditional and Novel Technologies to Process Fruits Microwaves Ohmic Heating UV-C light Irradiation High Pressure Pulsed Electric Fields Ultrasound Vacuum Impregnation Membranes Ozone Hurdle Technology Topics Associated with Fruit Preservation Safety Nutrition and Health Consumer Perception Sensory Minimal Processing Packaging Unit Operations for Fruit Processing Cooling and Freezing Dehydration Frying

Improving Quality Springer

Computational modeling is an important tool for understanding and improving food processing and manufacturing. It is used for many different purposes, including process design and process optimization. However, modeling goes beyond the process and can include applications to understand and optimize food storage and the food supply chain, and to perform a life cycle analysis. Modeling Food Processing Operations provides a comprehensive overview of the various applications of modeling in conventional food processing. The needs of industry, current practices, and state-of-the-art technologies are examined, and case studies are provided. Part One provides an introduction to the topic, with a particular focus on modeling and simulation strategies in food processing operations. Part Two reviews the modeling of various food processes involving heating and cooling. These processes include: thermal inactivation; sterilization and pasteurization; drying; baking; frying; and chilled and frozen food processing, storage and display. Part Three examines the modeling of multiphase unit operations such as membrane separation, extrusion processes and food digestion, and reviews models used to optimize food distribution. Comprehensively reviews the various applications of modeling in conventional food processing Examines the modeling of multiphase unit operations and various food processes involving heating and cooling Analyzes the models used to optimize food distribution

Standards for Fats & Oils CRC Press

Issues in Eating Disorders, Nutrition, and Digestive Medicine: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Additional Research. The editors have built Issues in Eating Disorders, Nutrition, and Digestive Medicine: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Additional Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Eating Disorders, Nutrition, and Digestive Medicine: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Chemistry, Nutrition, and Biotechnology, Second Edition Elsevier

Methods for identification and measurement of existing and newly discovered contaminants are required, especially those that are cheap, simple and rapid, so that testing may be more frequent within the food supply chain. This book examines the formation of toxic compounds during the processing of food and strategies to mitigate their creation. Modification of process conditions can reduce the health risks posed by these compounds to consumers. This new volume will update knowledge on current methods for mitigation of these process contaminants and is aimed at industrialists in food processing, academic researchers and graduate students studying food science and technology or food engineering.

Modeling Food Processing Operations CRC Press

A textbook at the forefront of a global movement toward sustainability Food Science, An Ecological Approach presents food science and food preparation in the context of current environmental world conditions. Throughout the text readers will examine the scientific basis of the dietetics profession and thoroughly explore food chemistry, preparation, safety, regulations, and cultural significance. The science of food is discussed within the broader context of the world's food supply. Food Science, An Ecological Approach explores the idea of global sustainability and examines the ecological problems that challenge our food supply and raise increasing concerns among consumers. Each chapter sets out clear objectives and integrates helpful sidebars, illustrations and discussion questions to increase concept retention. Chapter summaries and special sections found throughout the text engage students and enhance the learning experience. Additional resources are available online which complement the text.

Novel and Conventional Technologies W. W. Norton & Company

This book is a unique compilation of theoretical discussions on oil chemistry, the mechanism of oil breakdown, and the practical aspects related to frying. Topics include basic frying oil chemistry and the techniques for the protection of the frying oil; frying techniques for coated foods; food safety and regulatory aspects related to frying; package issues; and the proper techniques required for the day-to-day operation of a frying process.

Cooking for Geeks Elsevier

Battered fried foods consistently remain in high demand despite concerns about their health aspects, prompting food processors to develop new methods and alternative oils and batters in the name of healthy, tasty fried foods and high-performance, cost-effective frying oil. With contributions from an international panel of food technology authorities, Advances in Deep-Fat Frying of Foods provides straightforward background on the

engineering aspects of deep-fat frying, discusses flavor acquisition during frying, and delineates novel frying technologies employed to make fried foods healthier. With the aid of numerous tables and illustrations, this concise reference examines changes in fried products both at the macroscopic and microscopic levels. It reviews heat and mass transfer and variations found in the physical properties of food during frying. The book discusses information about the rheological properties of batters and the effects of batters on product quality in addition to alternative techniques such as microwave and vacuum frying used to improve the nutritional aspects of fried foods. The text also covers the formation of acrylamide – a potential carcinogen formed during frying – collects existing literature on this newly discovered health risk, and considers how to reduce it. As long as they are in demand, food processors will continue to produce fried foods. Advances in Deep-Fat Frying of Foods demonstrates how to keep up with demand while ideally making fried foods healthier, tastier, and economically more viable.