

NOVEL MACROMOLECULES IN FOOD SYSTEMS

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ELSEVIER

Novel Macromolecules In Food Systems

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Novel Macromolecules In Food Systems:

Novel Macromolecules in Food Systems G. Doxastakis,V. Kiosseoglou,2000-10-02 Applying recent advances in biological and physical sciences food scientists have created novel food ingredients enzymatically chemically or microbiologically Chief among these are novel proteins and polysaccharides which like the more established traditional macromolecules can perform multifunctional roles such as thickening stabilization gelation or encapsulation and in this way determine to a large extent the shelf life texture and nutritional value of natural and processed foods Featuring the latest advances on chemistry structure and functional properties of novel proteins and polysaccharides with an emphasis on fundamental structure function relationships this book will be valuable to all those working in product development and fundamental food research

Handbook of Food Science, Technology, and Engineering Yiu H. Hui,2006 *Food Polysaccharides and Their Applications* Alistair M. Stephen,Glyn O. Phillips,2016-04-19 Comprehensive in scope Food Polysaccharides and Their Applications Second Edition explains the production aspects and the chemical and physical properties of the main classes of polysaccharides consumed as food highlighting their nutritional value and their technological characteristics Chapters in this new edition detail the source **Chitosan-Based Systems for Biopharmaceuticals** Bruno Sarmento,Jose das Neves,2012-02-16 Chitosan is a linear polysaccharide commercially produced by the deacetylation of chitin It is non toxic biodegradable biocompatible and acts as a bioadhesive with otherwise unstable biomolecules making it a valuable component in the formulation of biopharmaceutical drugs Chitosan Based Systems for Biopharmaceuticals provides an extensive overview of the application of chitosan and its derivatives in the development and optimisation of biopharmaceuticals The book is divided in four different parts Part I discusses general aspects of chitosan and its derivatives with particular emphasis on issues related to the development of biopharmaceutical chitosan based systems Part II deals with the use of chitosan and derivatives in the formulation and delivery of biopharmaceuticals and focuses on the synergistic effects between chitosan and this particular subset of pharmaceuticals Part III discusses specific applications of chitosan and its derivatives for biopharmaceutical use Finally Part IV presents diverse viewpoints on different issues such as regulatory manufacturing and toxicological requirements of chitosan and its derivatives related to the development of biopharmaceutical products as well as their patent status and clinical application and potential Topics covered include chemical and technological advances in chitins and chitosans useful for the formulation of biopharmaceuticals physical properties of chitosan and derivatives in sol and gel states absorption promotion properties of chitosan and derivatives biocompatibility and biodegradation of chitosan and derivatives biological and pharmacological activity of chitosan and derivatives biological chemical and physical compatibility of chitosan and biopharmaceuticals approaches for functional modification or crosslinking of chitosan use of chitosan and derivatives in conventional biopharmaceutical dosage forms manufacture techniques of chitosan based microparticles and nanoparticles for biopharmaceuticals chitosan and derivatives for biopharmaceutical use mucoadhesive

properties chitosan based systems for mucosal delivery of biopharmaceuticals chitosan based delivery systems for mucosal vaccination chitosan based nanoparticulates for oral delivery of biopharmaceuticals chitosan based systems for ocular delivery of biopharmaceuticals chemical modification of chitosan for delivery of DNA and siRNA target specific chitosan based nanoparticle systems for nucleic acid delivery functional PEGylated chitosan systems for biopharmaceuticals stimuli sensitive chitosan based systems for biopharmaceuticals chitosan copolymers for biopharmaceuticals application of chitosan for anti cancer biopharmaceutical delivery chitosan based biopharmaceuticals scaffolds in tissue engineering and regenerative medicine wound healing properties of chitosan and its use in wound dressing biopharmaceuticals toxicological properties of chitosan and derivatives for biopharmaceutical applications regulatory status of chitosan and derivatives patentability and intellectual property issues quality control and good manufacturing practice preclinical and clinical use of chitosan and derivatives for biopharmaceuticals Chitosan Based Systems for Biopharmaceuticals is an important compendium of fundamental concepts practical tools and applications of chitosan based biopharmaceuticals for researchers in academia and industry working in drug formulation and delivery biopharmaceuticals medicinal chemistry pharmacy bioengineering and new materials development

Microbial Production of Food Ingredients, Enzymes and Nutraceuticals Brian McNeil, David Archer, Ioannis Giavasis, Linda Harvey, 2013-03-21 Bacteria yeast fungi and microalgae can act as producers or catalysts for the production of food ingredients enzymes and nutraceuticals With the current trend towards the use of natural ingredients in foods there is renewed interest in microbial flavours and colours food bioprocessing using enzymes and food biopreservation using bacteriocins Microbial production of substances such as organic acids and hydrocolloids also remains an important and fast changing area of research Microbial production of food ingredients enzymes and nutraceuticals provides a comprehensive overview of microbial production of food ingredients enzymes and nutraceuticals Part one reviews developments in the metabolic engineering of industrial microorganisms and advances in fermentation technology in the production of fungi yeasts enzymes and nutraceuticals Part two discusses the production and application in food processing of substances such as carotenoids flavonoids and terpenoids enzymes probiotics and prebiotics bacteriocins microbial polysaccharides polyols and polyunsaturated fatty acids Microbial production of food ingredients enzymes and nutraceuticals is an invaluable guide for professionals in the fermentation industry as well as researchers and practitioners in the areas of biotechnology microbiology chemical engineering and food processing Provides a comprehensive overview of microbial flavours and colours food bioprocessing using enzymes and food biopreservation using bacteriocins Begins with a review of key areas of systems biology and metabolic engineering including methods and developments for filamentous fungi Analyses the use of microorganisms for the production of natural molecules for use in foods including microbial production of food flavours and carotenoids

Food Hydrocolloids as Encapsulating Agents in Delivery Systems Adil Gani, F.A. Masoodi, Umar Shah, Shah Asima, 2019-06-07 This book addresses the use of food hydrocolloids as

agents for encapsulating biological active ingredients It details the challenges of poorly controlled rate of hydration thickness decrease in viscosity upon storage and susceptibility to microbial contamination Food Hydrocolloids as Encapsulating Agents in Delivery Systems briefly describes various emerging biomaterials including food gums starches beta glucans and proteins for their potential role as wall material in the development of nutraceutical delivery systems Further it describes different techniques of fabrication of nanodelivery systems Features Provides an introduction to food hydrocolloids as encapsulating agents Covers starches and their derivatives as delivery systems Includes gum based delivery systems Discusses the classification isolation and purification of protein delivery systems This book would be helpful to food scientists and pharmaceutical scientists working in areas including nanotechnology polymer chemistry and nutraceutical delivery as well as regulators and government researchers in US FDA USDA and UK FSA regulatory agencies *Handbook of Food Proteins* Glyn O. Phillips, Peter A. Williams, 2011-09-09 Traditionally a source of nutrition proteins are also added to foods for their ability to form gels and stabilise emulsions among other properties The range of specialised protein ingredients used in foods is increasing Handbook of food proteins provides an authoritative overview of the characteristics functionalities and applications of different proteins of importance to the food industry in one convenient volume The introductory chapter provides an overview of proteins and their uses in foods The following chapters each focus on a particular protein ingredient or group of ingredients covering their origins production properties and applications The proteins discussed are caseins whey proteins gelatin and other meat derived protein ingredients seafood proteins egg proteins soy proteins pea and other legume proteins mycoprotein wheat gluten canola and other oilseed proteins algal proteins and potato protein A chapter on texturised vegetable proteins completes the volume Innovative products and potential methods for improving nutrition and diet using these proteins are described With its distinguished editors and international team of expert contributors Handbook of food proteins is an invaluable reference tool for professionals using food protein ingredients for both food and other applications An authoritative overview of the characteristics functionalities and applications of different proteins of importance to the food industry Chapters each focus on a particular protein ingredient or group of ingredients Innovative products and potential methods for improving nutrition and diet using proteins is also described Marine Proteins and Peptides Se-Kwon Kim, 2013-03-18 Food proteins and bioactive peptides play a vital role in the growth and development of the body's structural integrity and regulation as well as having a variety of other functional properties Land animal derived food proteins such as collagen and gelatine carry risks of contamination such as BSE Marine derived proteins which can provide equivalents to collagen and gelatin without the associated risks are becoming more popular among consumers because of their numerous health beneficial effects Most marine derived bioactive peptides are currently underutilized While fish and shellfish are perhaps the most obvious sources of such proteins and peptides there is also the potential for further development of proteins and peptides from sources like algae sea cucumber and molluscs Marine derived proteins and

peptides also have potential uses in novel products with the possibility of wide commercialization in the food beverage pharmaceutical and cosmetic industries as well as in other fields such as photography textiles leather electronics medicine and biotechnology *Marine Proteins and Peptides Biological Activities and Applications* presents an overview of the current status future industrial perspectives and commercial trends of bioactive marine derived proteins and peptides Many of the industrial perspectives are drawn from the food industry but the book also refers to the pharmaceutical and cosmetics industries There have recently been significant advances in isolating functional ingredients from marine bio resources and seafood by products for use in these industries but little has been published creating a knowledge gap particularly with regard to the isolation and purification processes This book is the first to fill that gap *Marine Proteins and Peptides Biological Activities and Applications* is a valuable resource for researchers in marine biochemistry field as well as food industry managers interested in exploring novel techniques and knowledge on alternative food protein sources It will become a standard reference book for researchers involved in developing marine bio resources and seafood by products for novel nutraceutical cosmetics and pharmaceutical applications It will also appeal to managers and product developers in the food pharmaceutical and cosmetics industries particularly those looking to use marine derived proteins and peptides as substitutes or replacements for unfashionable or outdated food components

Insects as Food and Food Ingredients Marco Garcia-Vaquero, Carlos Álvarez García, 2023-11-30 *Insects as Food and Food Ingredients Technological Improvements Sustainability and Safety Aspects* addresses the use of insects as food by following a farm to fork approach and covering general aspects concerning farming processing and the main applications of insects and insect derived ingredients in the food sector Broken into three sections this book addresses insect farming the challenges of processing whole insects or their fractionation into insect ingredients by the means of conventional and innovative technologies as well as the biological properties application safety functionality and nutritional value of both insects and their ingredients for food applications Nutrition researchers nutritionists food scientists health professionals agricultural researchers biosystem engineers and those working in or studying related disciplines will benefit from this reference Outlines general concepts related to insect rearing nutritional value safety and sustainability of production for food applications Highlights current and recent advances in full insect and insect ingredients processing using innovative technologies Presents the main applications of insects and their compounds including functional and biological properties when used as food and other promising applications and prospects of insects in the agri food sector

Handbook of Hydrocolloids Glyn O. Phillips, Peter A. Williams, 2009-05-28 Hydrocolloids are among the most widely used ingredients in the food industry They function as thickening and gelling agents texturizers stabilisers and emulsifiers and in addition have application in areas such as edible coatings and flavour release Products reformulated for fat reduction are particularly dependent on hydrocolloids for satisfactory sensory quality They now also find increasing applications in the health area as dietary fibre of low calorific value The first edition of

Handbook of Hydrocolloids provided professionals in the food industry with relevant practical information about the range of hydrocolloid ingredients readily and at the same time authoritatively. It was exceptionally well received and has subsequently been used as the substantive reference on these food ingredients. Extensively revised and expanded and containing eight new chapters, this major new edition strengthens that reputation. Edited by two leading international authorities in the field, the second edition reviews over twenty-five hydrocolloids covering structure and properties, processing, functionality, applications, and regulatory status. Since there is now greater emphasis on the protein hydrocolloids, new chapters on vegetable proteins and egg protein have been added. Coverage of microbial polysaccharides has also been increased and the developing role of the exudate gums recognised with a new chapter on Gum Ghatti. Protein polysaccharide complexes are finding increased application in food products and a new chapter on this topic has been added. Two additional chapters reviewing the role of hydrocolloids in emulsification and their role as dietary fibre and subsequent health benefits are also included. The second edition of Handbook of hydrocolloids is an essential reference for postgraduate students, research scientists, and food manufacturers. Extensively revised and expanded, second edition, edited by two leading international authorities. Provides an introduction to food hydrocolloids considering regulatory aspects and thickening characteristics. Comprehensively examines the manufacture, structure, function, and applications of over twenty-five hydrocolloids. *Innovative and Emerging*

Technologies in the Bio-marine Food Sector Marco Garcia-Vaquero, Gaurav Rajauria, 2021-11-30. *Innovative and Emerging Technologies in the Bio-marine Food Sector: Applications, Regulations, and Prospects* presents the use of technologies and recent advances in the emerging marine food industry. Written by renowned scientists in the field, the book focuses primarily on the principles of application and the main technological developments achieved in recent years. It includes technological design, equipment, and applications of these technologies in multiple processes. Extraction, preservation, microbiology, and processing of food are extensively covered in the wide context of marine food products, including fish, crustaceans, seafood, processing waste, seaweed, microalgae, and other derived products. This is an interdisciplinary resource that highlights the potential of technology for multiple purposes in the marine food industry, as these technological approaches represent a future alternative to develop more efficient industrial processes. Researchers and scientists in the areas of food microbiology, food chemistry, new product development, food processing, food technology, bio-process engineers in marine-based industries, and scientists in marine-related areas will all find this a novel resource. Presents novel innovative technologies in the Bio-marine food sector, including principles, equipment, advantages, disadvantages, and future technological prospects. Explores multi-purpose uses of technologies for extraction, functional food, generation, food preservation, food microbiology, and food processing. Provides industrial applications tailored for the marine biological market to foster new innovative applications and regulatory requirements. **Innovative Food Science and Emerging Technologies** Sabu Thomas, Rajendran

Rajakumari, Anne George, Nandakumar Kalarikkal, 2018-09-03. This volume covers many new trends and developments in food

science including preparation characterization morphology properties and recyclability The volume considers food quality shelf life and manufacturing in conjunction with human nutrition diet and health as well as the ever growing demand for the supply and production of healthier foods Distinguished scientists specializing in various disciplines discuss basic studies applications recent advances difficulties and breakthroughs in the field The volume includes informative discussions and new research on food formulations manufacturing techniques biodegradably flexible packaging packaged foods beverages fruits and vegetable processing fisheries milk and milk products frozen food and thermo processing grain processing meat and poultry processing rheological characteristics of foods heat exchangers in the food industry food and health including natural cures and food supplements spice and spice processing and more Improving and Tailoring Enzymes for Food Quality and Functionality Rickey Y. Yada,Derek R. Dee,2024-03-21 Improving and Tailoring Enzymes for Food Quality and Functionality Second Edition covers the most relevant information demanded in the production engineering and application of enzymes The title is very detailed and is in the important cross field of academia and industry This totally revised new edition covers a broad range of topics related to enzymes and their use in food presenting both the fundamental theory and practical application updated with interesting novel information on biosensors waste valorization up cycling and engineering perspectives besides an increased focus on sustainability Thoroughly updated revision covering a broad range of topics related to enzymes and their use in the food industry Presents both the fundamental theory and recent examples from the literature including the fundamentals of protein folding and enzyme catalysis the preparation of enzymes from natural and recombinant sources immobilizing enzymes and a range of specific food applications Covers new research directions in enzymes thus helping those trying to solve a technical issue or develop a new product **Protein Byproducts** Gurpreet Singh Dhillon,2016-08-13 Protein Byproducts Transformation from Environmental Burden into Value Added Products deals with the added value of proteinaceous waste byproducts discussing in detail the different sources of protein rich byproducts their extraction recovery and characterization The book provides thorough insights into different protein modification techniques to extend the product portfolio using these waste byproducts Divided between three main sections the book covers various feedstock resources such as animal derived plant derived proteins marine waste derived proteins protein extraction and recovery methods and related technical issues including modification and conversion technologies for the production of high value bioproducts It contains contributions from experts in the fields of applied industrial microbiology engineering bioprocess technology protein chemistry food chemistry agriculture plant sciences environmental science and waste management serving as a comprehensive reference for students and research scientists in the food and agriculture industries Covers various feedstock resources protein extraction recovery methods and related technical issues Presents modification and conversion technologies for the production of high value bioproducts Exhibits case studies and examples to illustrate both driving forces and constraints in the utilization of these proteinaceous materials Contains contributions from

experts in the fields of applied industrial microbiology engineering bioprocess technology protein chemistry food chemistry agriculture plant sciences environmental science and waste management Serves as a comprehensive reference for students and research scientists in the food and agriculture industries *Gums and Stabilisers for the Food Industry 11* Peter A Williams, Glyn O Phillips, 2007-10-31 The breadth and depth of knowledge of gums and stabilisers has increased tremendously over the last two decades with researchers in industry and academia collaborating to accelerate the growth *Gums and Stabilisers for the Food Industry 11* presents the latest research in the field of hydrocolloids used in food Bringing together contributions from international experts the first section of the book investigates the advances in structure determination and characterisation of hydrocolloids including the use of capillary electrophoresis Later sections deal with rheological aspects of hydrocolloids in solutions and gels the application of hydrocolloids in real food systems and the interfacial behaviour and gelation of proteins A discussion of the influence of hydrocolloids on human health is also included Researchers and other professionals in industry and academia particularly those involved directly with food science will welcome this title as a source of the very latest information **Kirk-Othmer Encyclopedia of Chemical Technology, Volume 20** Kirk-Othmer, 2006-04-07 The fifth edition of the Kirk Othmer Encyclopedia of Chemical Technology builds upon the solid foundation of the previous editions which have proven to be a mainstay for chemists biochemists and engineers at academic industrial and government institutions since publication of the first edition in 1949 The new edition includes necessary adjustments and modernisation of the content to reflect changes and developments in chemical technology Presenting a wide scope of articles on chemical substances properties manufacturing and uses on industrial processes unit operations in chemical engineering and on fundamentals and scientific subjects related to the field The Encyclopedia describes established technology along with cutting edge topics of interest in the wide field of chemical technology whilst uniquely providing the necessary perspective and insight into pertinent aspects rather than merely presenting information Set began publication in January 2004 Over 1 000 articles More than 600 new or updated articles 27 volumes

Engineering Aspects of Food Emulsification and Homogenization Marilyn Rayner, Petr Dejmek, 2015-04-24 Emulsions are found in a wide variety of food products pharmaceuticals paints and cosmetics thus emulsification is a truly multidisciplinary phenomenon Therefore understanding of the process must evolve from the combination of at least three different scientific specializations **Engineering Aspects of Food Emulsification and Homogenization d Food biopolymers: Structural, functional and nutraceutical properties** Adil Gani, Bilal Ahmad Ashwar, 2021-02-11 Food biopolymers Structural functional and nutraceutical properties provides valuable coverage of all major food biopolymers from plant animal and marine sources The text focuses on the structural characteristics of biopolymers including starch non starch polysaccharides proteins and fats A full section is dedicated to the nutraceutical potential and applications of these polymers Further sections provide comprehensive overviews of the development of functional food products and important data on

biopolymer behavior and nutraceutical potential during processing Researchers hoping to gain a basic understanding of the techno functional nutraceutical potential and applications of food biopolymers will find a singular source with this text The first section of this work focuses on the the structure functions bioactivity and applications of starches The next chapters cover non starch polysaccharides Further sections are dedicated to proteins lipids and oils A detailed overview is provided for each followed by application procedures specifics on individual types proteins and enzymes and nutraceutical properties This work can be used as a singular source for all relevant information on food biopolymers and their structural and functional properties including their potential to increase food quality improve shelf life and reduce pollution and waste in the food industry

Marine Polysaccharides Vazhiyil Venugopal, 2016-04-19 Increased public awareness of the importance of healthy living presents new challenges for the commercial food processing sector The industry is always on the hunt for novel and safe additives with functional properties that can be used to impart healthy and appealing properties to foods

While the ocean is known as a conventional source of fish p **More Efficient Utilization of Fish and Fisheries Products** M. Sakaguchi, 2004-05-18 This international symposium allowed many researchers and industrial representatives to meet and discuss a broad spectrum of information such as zero emission resources availability sustainable utilization of resources bioactive and functional components in aquatic organisms utilization of wastes seafood quality surimi technologies and processing and safety The book aims To provide a current record presented in the international symposium More Efficient Utilization of Fish and Fisheries Products 7 10 October 2001 Kyoto Japan To provide a stimulus to researchers in this area to cross fertilize ideas and demonstrate examples of success To enhance values and returns to fisheries fields in national and international terms by providing descriptions of better techniques and methods for utilizing the catch reducing waste and providing valuable by products

Unveiling the Power of Verbal Artistry: An Mental Sojourn through **Novel Macromolecules In Food Systems**

In a world inundated with displays and the cacophony of quick connection, the profound energy and psychological resonance of verbal art usually disappear into obscurity, eclipsed by the regular barrage of sound and distractions. However, located within the musical pages of **Novel Macromolecules In Food Systems**, a charming perform of literary beauty that impulses with raw feelings, lies an remarkable journey waiting to be embarked upon. Written by a virtuoso wordsmith, this magical opus instructions visitors on a mental odyssey, softly exposing the latent potential and profound influence stuck within the elaborate web of language. Within the heart-wrenching expanse of this evocative evaluation, we will embark upon an introspective exploration of the book is main themes, dissect its captivating writing model, and immerse ourselves in the indelible effect it leaves upon the depths of readers souls.

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