

BOOK REVIEWS

Nanoencapsulation technologies for the food and nutraceutical industries

S.M. JAFARI (Ed.)

Academic Press, Elsevier Science Publishing Co Inc., 2016, 125 London Wall, London EC2Y 5AS, United Kingdom, ISBN 978-0-12-809436-5, 610 pages

The editor, Seid Mahdi Jafari received his PhD degree in food process engineering at the University of Queensland (Australia). He has been working on the nanoemulsification and nano-encapsulation of food ingredients for the past decade. Now, as an associate professor, he is an academic member of Grogan University of Agricultural Sciences and Natural Resources (Grogan, Iran). He has published more than 75 papers in top-ranked international food science journals and 15 book chapters along with 4 books with LAP and Elsevier publishers.

This book focuses on the fabrication of nanoscale capsules (10–100 nm) encasing nutrients of solid, liquid, or gaseous states in matrices, to provide better opportunity for interaction, high bioavailability, solubility, and permeation due to their very large surface area. Also, nanoencapsulated ingredients enable targeting release plus high stability against harsh digestive processes and environment stresses. According to the issue that there is no comprehensive and clear classification of nanoencapsulation techniques applicable for food bioactive ingredients and nutraceuticals, the book classifies the nanoencapsulation technologies into five groups based on the main mechanism or ingredient employed to produce nanocapsules.

The book is divided into five parts. After giving an overview of nanoencapsulation techniques, Part I explains lipid formulation-based nanoencapsulation technologies including nanoemulsions, nanoliposomes, and nanostructured lipid carriers. Part II describes nanoencapsulation technologies based on natural nanocarriers like caseins, nanocrystals, and cyclodextrins. The fast and economical techniques for nanoencapsulation of bioactive compounds based on special equipment are described in Part III comprising electrospinning, electrospraying, and nanospray dryer. Part IV underlines nanoencapsulation technologies based on biopolymer complexation. In Part V, bioavailability, characterization, and safety of nanoencapsulated ingredients are discussed; particularly the fate and release profile of bioactive compounds, analytical and instrumental methods for characterizing nanocapsules, as well as the safety and regulatory issues of nanocapsules.

This book would be useful for a diverse group of scientists including food technologists, food engineers, nanotechnologists, nutritionists, food colloid experts, pharmacists, and biotechnologists interested in this novel area of food production. The classification of nanoencapsulation technologies can facilitate the study and research activities on nutraceutical-loaded nanocapsules and using them in food products and biological system with the aim of fortification.

Z. NAAR

Food safety in the 21st century: Public health perspective (1st ed.)

R. K. GUPTA, B. P. DUDEJA and A. S. MINHAS (Eds)

Academic Press is an imprint of Elsevier, 125 London Wall, London EC2Y 5AS, United Kingdom
ISBN: 978-0128017739, 624 pages

The book entitled “Food safety in the 21st century: Public health perspective” is an important reference for scientists, technologists, and members of the government working in any sector of agro-business, food industry, or trading. It provides fundamental, practical, and usable information on key aspects of food safety, including origin of accidental foodborne illnesses, contaminations, and adulterations. This book discusses the methods of risk assessment, epidemiological issues, and the regulatory context to improve food safety. Beside providing the latest research and developments in the field of food safety, the book also incorporates practical examples for risk reduction. The book entitled “Food safety in the 21st century: Public health perspective” is divided into 9 sections with 47 chapters, presenting critical applications for a sustainable and safe food supply with many specific examples.

Section 1 summarizes the epidemiological aspects of foodborne diseases, with special regard to the foodborne infectious diseases, to the outbreak investigation and surveillance of foodborne illnesses, and the role of risk analysis and risk communication in food safety management. Section 2 compares the food safety issues in contemporary society, as an ayurvedic perspective and conception of modern society. Section 3 delineates the most important food contaminations and adulterations principally in India, and pans out on food toxicology. Section 4 reviews the food safety issue from farm-to-fork, while mentioning the aspects of planting at farms, animal husbandry, and the production chain up to the plate. Section 5 underlines the shared responsibility of various stakeholders in implementing food safety, and summarizes the role of the different authorities, food business operators, food handlers, and consumers in food safety. Section 6 reveals the food safety issues in large eating establishments, while Section 7 summarizes the food safety in small eating establishments. Section 8 details the domestic regulatory scenario of food safety and food safety laws, standards, regulations, and policies at the international level concerning international food trade – imports and exports. Section 9 gives an overview of novel results in agriculture/food science/food processing (e.g. organic farming, genetically modified (GM) foods, frozen foods, ready to eat meals, food packaging, information technology, etc.) in context with food safety.

Summarizing, this book is recommended for food scientists, analytical chemists, food technologists, and for all, who are responsible for investigating and producing novel food products. The book is also important for food safety professionals; food handlers; government and policy makers.

N. ADÁNYI

Molecular methods for the detection and characterization of foodborne and environmental pathogens

R.K. GUPTA, B. P. DUDEJA and A. S. MINHAS (Eds)

DEStech Publications, Inc. 439 North Duke Street, Lancaster, Pennsylvania 17602 U.S.A.
ISBN No. 978-1-60595-079-2, 156 pages

Though traditional microbiological methods, as for example culture media-based techniques, are still essential in the detection, enumeration, and characterisation of microbes, there is a growing demand for methods based on molecular biology. Today, students acquire the skills to perform molecular analyses through independent laboratory research, but textbooks providing step-by-step protocols for these molecular methods are rare. The book “Molecular methods for the detection and characterization of foodborne and environmental pathogens” attempts to fill this gap.

The book contains six chapters: “Microorganisms: Detection and characterization”, “Microbial DNA extraction, purification, and quantification”, “Introduction to PCR amplification”, “DNA fingerprinting”, “Microbial RNA extraction, purification, and quantification”, and “Gene expression using real-time PCR assay”. As a very useful feature, all chapters have a “Laboratory experiments” section, where detailed protocols and instructions are presented for the everyday laboratory work.

Based on a graduate level course titled “Molecular methods of microbial detection and characterisation” that Professor Pillai teaches at Texas A&M University, the book targets senior undergraduate and graduate-level students, lecturers, instructors, and all microbiologists who want to keep up with the progress of new technologies.

I. BATA-VIDÁCS

Foodborne diseases **3rd edition**

C.E.R. DODD, T. ALDSWORTH, R.A. STEIN, D.O. CLIVER and H.P. RIEMANN (Eds)

Academic Press is an imprint of Elsevier, London, UK, San Diego, USA, Cambridge, USA, Oxford, UK, 2016,
ISBN: 978-0-12-385007-2 (print), 576 pages

This third edition of *Foodborne diseases* deals with four aspects of this topic: the principles of this subject, pathogen infections, intoxications, and finally the food sensitivities, intolerances. It contains a cohesive and well-organized presentation of the foodborne pathogens as well as the history of their discoveries, and current information about their roles, risks in nutrition, and the process of disease.

The first part gives an overall discussion about the epidemiology and risk analysis of these foodborne diseases, the transmission routes in the food chain, and the problems of the antibiotic resistance in food animal production system. The chapters in the second part introduce the most important pathogens, like bacteria (*Salmonella*, *Shigella*, *Escherichia*, *Campylobacter*, etc.), viruses (Hepatitis, Norovirus, etc.), and parasites, which are responsible for the infectious diseases. The last part refers to diseases caused by immune deficiency disorder. It discusses the science of biochemistry, genetics, chemistry of food allergy and food intolerance, and also reviews the diagnostic possibilities. *Foodborne diseases* includes new topics, such as risk-based control measures; virulence factors of microbial pathogens that cause disease; nanotechnology; bioterrorism; the use of foodborne pathogens; antimicrobial resistance; and antibiotic resistance.

The study of this complex content is highly recommended for students, instructors, researchers, and professionals alike. The chapters are richly illustrated, the edition contains a large number of diagrams and tables, giving us a more global view.

R. TÖMÖSKÖZI-FARKAS

The vitamins: Fundamental aspects in nutrition and health**5th edition**

G.F. COMBS and J.P. McCLUNG (Eds)

Academic Press is an imprint of Elsevier, London, UK, San Diego, USA, Cambridge, USA, Oxford, UK, 2016,
ISBN: 978-0-12-802965-7, 628 pages

The vitamins: Fundamental aspects in nutrition and health edited by Gerald F. Combs and James P. McClung is a bestseller for scientist and students, which proved by the fact that it is the fifth, revised and expanded edition. It contains the newest researches, coverages of the biochemistry and physiology of vitamins and vitamin like substances. The book summarized the knowledge of the vitamins, as well the history, the roles in nutrition and in health in well-designed and readable presentation.

The vitamins is divided into three big part: the first describe the discovery and the general properties of the vitamins. The second part introduces the individual vitamins, emphasize their roles not only in the general nutritional balance, but also as a factor in the prevention and/or treatment of specific health issues, such as overall immunity, inflammatory diseases, obesity, and anaemia. The using of current knowledge of the vitamins, like sources and assessing vitamin status are the main subjects of the last chapters.

Each chapter contains a list of concepts, objectives and vocabulary and concludes with illustrative case studies, questions and exercises for students, so the book is supportive for effective teaching and learning. This cohesive, well-organized presentation of each vitamin includes key words, case studies, and coverage of the metabolic functions of appropriate vitamins.

The vitamins serves as a tool for students and health professionals as a text and major reference in human and animal nutrition and in clinical medicine. It will also be valuable to all researchers in food science, veterinary science and the animal sciences. I think this book is a good and synthetic work which will inspire scientists and help to understand the vitamins, which are – as the editors mentioned – the key of the nutrition.

R. TÖMÖSKÖZI-FARKAS