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BOOK REVIEWS

High throughput screening for food safety assessment

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Woodhead Publishing is an imprint of Elsevier, 80 High Street, Sawston, Cambridge, CB22 3HJ, UK

ISBN 978-0-85709-801-6 (print), 523 pages

In the recent years, high throughput screening systems have a significant impact on areas as food safety assessment, public health, and food defence. Different biosensors, array-based detectors, imaging technologies, or other techniques that can detect multiple contaminants at the same time, are playing important roles in establishing on-line monitoring systems and also in high throughput screening of food.

The book entitled "High throughput screening for food safety assessment" summarizes the novel investigations and applications of sensor technologies. The book is divided into twenty chapters. The book introduces high throughput screening strategies and technology platforms, and discusses key issues in sample collection and preparation.

The subsequent chapters are grouped into four sections:

Part I "Biorecognition techniques" summarizes the antibody, enzyme and nucleic acid based sensors, bacteriophage technology, and mammalian cell-based sensors for screening of microbes, chemical residues, and toxins in food.

In Part II the "Optical transducers and hyperspectral imaging techniques" are discussed, as label-free light scattering sensors, Raman scattering, infrared absorption spectroscopy, flow cytometry, fluorescence-based real-time quantitative polymerase chain reaction (qPCR) technologies, or fibre optic sensors for high throughput screening of pathogens.

Part III deals with "electrochemical and mass-based transducers", like electronic noses and tongues, impedance microbiology, microbial screening strategies, immunological biosensing using electrochemical and light-addressable potentiometric sensor (LAPS) detection platforms, conductometric biosensors, microfluidic biosensors, and magnetoelastic sensors for high throughput screening of pathogens in food.

In Part IV the readers are introduced to different "Specific applications", as total internal reflection fluorescence (TIRF) array biosensors for biothreat agents, on-line screening of meat and poultry products or of fruit and vegetables using hyperspectral imaging, and high-throughput screening of seafood for foodborne pathogens.

This book is a useful guide for R&D and quality control managers in the food and biosensors industries, for food engineers, and for microbiologists and regulatory agencies.

N. Adányi

Handbook of food allergen detection and control

S. Flanagan (Ed.)

Woodhead Publishing Series in Food Science, Technology and Nutrition: Number 264

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ISBN 978-1-78242-012-5, 424 pages

Food allergy is an impaired immune response to food and affects susceptible people who are sensitive or sensitized to a specific food allergen, which would otherwise normally be well tolerated by the rest of the population. For those, who are affected by food allergy, consumption of the allergen containing food, even in small quantities, can produce life threatening adverse reaction. Therefore, food allergy has now emerged as a growing public health challenge and food safety issue. There is an increasing expectation for accurate, reliable allergen information for foods and urgent need for capable analytical tools to support and assure food industry risk management programs, allergen labelling and claims, and regulatory authority monitoring and control.

This book of 424 pages from Woodhead Publishing Series in Food Science, Technology and Nutrition is much-awaited in the field of food allergen risk management, detection and control of specific food allergens in complex food matrices. Contributors to the book are well-recognized scientists coming from 7 countries all over the world: UK (16), USA (8), China (7), Germany (5), The Netherlands (4), Japan (3), and France (1).

The book gives an introduction to food allergy including the understanding of food allergy and other food intolerances, data on food allergy prevalence and patterns, challenges of and considerations on the food allergen risk management and food analysis. The contributors summarize the recent knowledge on this field in 3 main parts and 21 chapters.

Managing allergens in the food chain is the most important part of this book. Regarding the traceability of allergenic foods in the food chain, a review is compiled on the currently available and applicable legislation, standards, and guidance on food traceability and views on the key characteristics and requirements of traceability systems used in food industry. Key elements of food allergen risk assessment and subsequent management of the allergen risk by ensuring accurate allergen declaration through labelling and managing unintended presence of specific allergens are summarized. Beside the common best practices for the various stakeholders across the food chain, providing criteria to classify foodstuffs according to their allergen risk status and agreed quantitative reference doses to base risk management decisions on are discussed. The importance of hygienic design, cleaning as an allergen control measure, effective allergen management practices to reduce allergens in food, and consumer attitudes to allergens in food are also underlined. Knowledge on assessing and managing allergenicity of genetically modified food is summarized as well. A general review on detecting allergens in food supported by validated analytical methods able to detect food allergens at levels

relevant to real risk in a wide range of complex food matrices and common calibrators to support comparison of data are emphatic parts of this book. Sampling for food allergens and different analytical designs as ELISA, lateral flow device, SPR, PCR optical thin film biochips, and IgE antibody based analysis are described. Information on validation, standardization, harmonization of analytical methods, and test kits for detecting allergens is available as well. The third part of the book is devoted to case studies on detection and control of specific food allergens, as eggs, soybean, fish, shellfish and molluscs, mustard, and sesame, and also on gluten toxicity.

É. GELENCSÉR

Advances in microbial food safety: Volume 2

J. SOPHOS (Ed.)

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ISBN 978-1-78242-107-8 (print), 416 pages

Food safety is a major issue for manufacturers and for consumers alike. Providing safe food is a joint cooperation of those who manufacture the food, deliver it to retailers, sell the food on the market, and of the consumer, who purchases the food, cooks it, and eats it.

"Advances in microbial food safety: Volume 1" summarised the key trends in this area for the food industry. In this recently published book, entitled "Advances in microbial food safety: Volume 2", new studies and achievements are presented on the major topics of the field discussed in the first volume.

The book is divided into fifteen chapters, which are grouped around three main topics, namely Hazards, Hazard management and control, and Particular foods.

Part I (Hazards) presents updates on non-O157 Shiga toxin-producing *E. coli*, pathogen *Yersinia*, parasite *Toxoplasma gondii*, free-living protozoa protecting foodborne pathogens, foodborne viruses – sampling and detection methods, and *Listeria monocytogenes* in food retail operations.

Part II (Hazard management and control) discusses the developments in food disease surveillance using source attribution and of validation and verification methods for hazard analysis of critical control points (HACCP) and other food safety systems. It also presents a chapter on the modelling of the spread of pathogen contamination in fresh produce with case studies of *Listeria*, *E. coli*, and *Salmonella* on lettuce and *Listeria monocytogenes* contamination of minced tuna.

Part III (Particular foods) reviews the developments in sampling and test methods for pathogens in fresh meat, the current US and EU methods of sample testing, their principles and limitations. Presents developments of *Salmonella* control in eggs, the role of animal manure in the contamination of fresh produce, the possibilities to improve safety of sprouts, and also discusses the advantages and disadvantages of food safety standards in the fresh produce supply chain.

This book gives an important and thorough update on the most pressing issues of food safety.

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