



Book reviews

Genetically Modified Food Sources – Safety Assessment and Control, V.A. Tutelyan (Ed.). Academic Press/Elsevier, San Diego, CA, USA (2013). (xxiii + 338 pp., £75-99, ISBN: 978-0-12-405878-1)

There is an ongoing battle to overcome the worldwide problems of hunger and malnutrition that are faced by an ever-increasing population. Research aimed at maximisation of the output from natural food sources has focused on the wide use of novel biotechnological techniques, which has resulted in requirements for the development of necessary and reliable safety assessment measures for products developed using such methods. Establishing robust safety assessment systems for genetically modified (GM) sources of food and monitoring their use are therefore essential for ensuring a safe and sustainable global food supply.

Genetic engineering developments have facilitated the replacement of previously employed empirical searches for favourable mutations by the targeted modification of genome to obtain desired traits. Such techniques are utilised in plant cultivation and production of GM plants with increased yield, extended shelf life, and increased tolerance to various environmental factors and disease resistance. Food derived from transgenic plants, an important product of genetic engineering, significantly contributes to the current global food supply.

Genetically Modified Food Sources was originally published in Russian, by the Russian Academy of Medical Sciences. This English translation has been completely revised and updated to include the latest developments in biotechnology regulations and assessment practices. This volume begins with two introductory chapters, which cover the fundamental concepts of development of genetically engineered plants and the world production of genetically engineered crops, respectively. The following two chapters cover the legislation and regulation of production and sales of food derived from GM plants, and the principles of human health safety assessment of GM plants, in the Russian Federation. The next chapter, which comprises over three quarters of the volume, details the human and animal health safety assessment of GM plants, conducted for over a decade on 15 varieties of agricultural crops, which confirm their safety and support conclusions reached by international regulatory agencies. Varieties of soybean, maize, rice and potato are covered in this comprehensive chapter. The penultimate chapter discusses the monitoring of food products derived from GM organisms of plant origin, whilst the final chapter briefly presents information services for the use of novel biotechnologies in the food industry.

In conclusion, this informative volume is highly recommended for students, academics and industrial researchers working in various fields of food science, plant genetics, biotechnology and food safety.

Charles J. Knill

John F. Kennedy*

Chembiotech Laboratories, Kyrewood House,
Tenbury Wells, Worcestershire WR15 8SG, UK

* Corresponding reviewer.

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Food Industry Wastes – Assessment of Recuperation of Commodities, M.R. Kosseva, C. Webb (Eds.). Academic Press/Elsevier, San Diego, CA, USA (2013). xxvi + 312 pp., Price: £79-99, ISBN: 978-0-12-391921-2

Food industry waste is an important worldwide issue, with economical, ethical, environmental and food security implications. There is the obvious ethical concern of the continual wasting of food in the developed world whilst millions of people in other parts of the world continue to suffer from hunger. Food security concerns stem from this wasteful use of natural resources, not just foodstuffs themselves, but also water, energy and land, all of which have serious long-term environmental impacts, such as the pollution effects of ever-increasing landfill sites. However, there is growing interest and increasing research and development activities into the recovery and recycling of food waste, which has the potential not only to reduce greenhouse gases, but also to provide energy and resources for other purposes, thereby providing the potential for both short term and long term economical gains.

This volume presents emerging food waste management techniques and processing technologies for the treatment of food wastes, the reduction of water footprint and the creation of sustainable food systems. It is divided into five sections, the first of which deals with problems and opportunities, highlighting recent European legislation, the development of green production strategies, and the sources, characterisation and composition of food wastes. The second section is devoted to the treatment of solid food wastes, covering fermentation products from waste bread, solid-state fermentation, derived functional foods and nutraceuticals, and anaerobic digestion for biogas and fertiliser production. The third section focuses upon biocatalysts and bioreactors for enhanced bioprocessing of liquid food wastes. The valorisation of whey lactose, hydrogen generation from food industry and biodiesel wastes, thermophilic aerobic bioprocessing technologies, and modelling, monitoring and process control, are discussed in this section. The penultimate section presents the assessment of water and carbon footprints and rehabilitation of wastewater. Accounting for the impact of food waste on water resources and climate change, and electricity generation from wastewater using microbial fuel cells,

with particular focus on wineries, is detailed. The final section is concerned with the assessment of the environmental impact of food production and consumption. This involves life cycle assessments, and food system sustainability, culminating with some concluding remarks and discussion of future prospects by the volume editors.

In summary, this informative, and highly recommended, volume highlights current research as well as future opportunities for the reprocessing and reuse of food wastes, providing important guidance on the implementation of bioprocessing techniques to individuals in both academia and industry with interests in areas of waste reduction and utilisation.

John F. Kennedy*

Charles J. Knill

*Chembiotech Laboratories, Kyrewood House,
Tenbury Wells, Worcestershire WR15 8SG, UK*

*Corresponding reviewer.

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J.B. Marcus, Culinary Nutrition – The Science and Practice of Healthy Cooking Academic Press/Elsevier, San Diego, CA, USA, 2013. xii + 648 pp., £54–99, ISBN: 978-0-12-391882-6

In the relatively opulent west, foods and beverages must first taste good to be consumed for health and well-being, unlike in the relatively impoverished third world where having sufficient food for survival is far too often the primary concern. Thus modern cooking must deliver far more than simply sustenance. The application of basic cookery skills must therefore ultimately result in dishes that appeal to all the senses, providing an integrated approach in terms of desirable appearance, aroma, taste and texture. This unique volume is the first textbook that from the outset aims to provide a complete teaching experience by integrating the usually segregated areas of nutrition, food science and the culinary arts. A blend of real-life applications, recipes and photographs of real dishes is successfully utilised to emphasise the increasing importance of delivering sustainable, healthy and tasty foods and beverages.

The volume begins with an overview, which presents the connection and integration of nutrition, food science and the culinary arts, information on how to use the book and its layout. Each of the twelve chapters begins with a 'chapter menu' that functions as a mini table of contents, providing a taste of each topic. The first three chapters cover the basics of nutrition, food science, and the culinary arts, respectively. These chapters cover food composition and function, and guidelines regarding healthy nutrition and healthy cooking. The next four chapters deal with the basics about carbohydrates, proteins, lipids, and vitamins and minerals, with respect to food and health. Phytonutrients and functional foods are also covered in the latter chapter. The next three chapters focus upon fluids, diet and disease, and weight management, respectively. The final chapters discuss life cycle nutrition, and global food, health and the environment, respectively.

This volume explores foods and beverages with optimal nutritional values for dietary needs, including information on food production, alternative production methods and the impact of preparation on nutritional value and consumer acceptability. Specific dietary requirements for general and specialised needs throughout the life cycle, and the rapidly changing effects of global food and nutrition developments are covered. Such topics are of particular importance as the west aims to tackle the dramatic rise in health problems associated with poor diet and nutrition and the rising levels of obesity.

In conclusion, this informative textbook is highly recommended to both undergraduate and postgraduate students in all areas of food science, nutrition, and the culinary arts. It will also be of use to professionals, both in academia and the food services industries, such as those involved in new product development and menu design.

John F. Kennedy*

Charles J. Knill

*Chembiotech Laboratories, Kyrewood House,
Tenbury Wells, Worcestershire WR15 8SG, UK*

*Corresponding reviewer.

E-mail address: journal@chembiotech.co.uk
(J.F. Kennedy)

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