



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.

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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,