

## Preface

### Development in Food Industry: Innovative Functional Food and Food Technology Strategies

In the new millennium, innovative functional food (*i.e.* nutraceuticals) has aroused the attention of the scientific community, food manufacturers and consumers. The era of these products is rapidly expanding and new research in this area is constantly being conducted. Apart from the nutritional value of nutraceuticals, their addition into food matrices may have a significant impact on health conditions (including physiological benefits or disease-preventing properties). Based on these considerations, several technological food approaches have been explored and even applied to enhance food proprieties (*e.g.* polyphenols, vitamins, antioxidants), to preserve the product freshness and safety (*e.g.* new types of food packaging, prevention of food allergenic reactions) and to guarantee the authenticity of food products (*e.g.* traceability).

The aim of this issue is to collect and update the state of the art of the scientific perspective and technological innovations for nutraceutical processing and technology available to guarantee food safety and reliability. Therefore, a multidisciplinary team of international experts discuss the most relevant topics in this area. After a peer-review process following the standard of the journal, six manuscripts were accepted for publication.

An important food safety issue is related to allergenic food ingredients. In this special issue, Barros and Cosme identified the allergenic components of the most important causes of food allergies. The main methods that comprise both precision and sensitivity, used to detect and quantify allergenicity in food products, have also been explored and are being normally used to protect allergic consumers.

Polyphenols are ubiquitous natural food compounds that present important beneficial health activities (*e.g.* chemopreventive, cytostatic, immunomodulatory, bacteriostatic/bactericidal, antifungal, anti-inflammatory, and antioxidant). Propolis, wine and many medicinal plants used in everyday life as functional food represent rich sources of polyphenols. Based on these considerations, Medić-Šarić *et al.* gave an overview on the authenticity and geographical traceability based on polyphenolic profile of Croatia propolis and wine.

Favaro-Trindade *et al.* addressed the state of the art of the application of spray chilling method to encapsulate different nutraceuticals (*e.g.* vitamins, minerals, proteins) and demonstrated several advantages of this approach: hygroscopicity reduction, taste and odour masking, solubility change, physical protection, and controlled release of food ingredients.

Nanotechnology applied to the agro-food sector involves, nowadays, a significant number of researchers worldwide. Lopes *et al.* reviewed the major concepts linked to nanostructures and nano-based instruments used in the food sector, as well as their applications in agro-food products. Consumers' apprehension regarding food stability and safety issues is also considered.

The traceability of food products is a major concern for consumers and producers in order to guarantee fair trade and the option to select the food products more consciously. The use of molecular markers is a procedure that can accurately identify the species/varieties/breeds present in the food products. Martins-Lopes *et al.* reviewed the use of PCR-based molecular markers, and explored some applications in different areas: detection of genetically modified organisms, denomination of origin protection, and the detection of allergenic and intolerance reactions in the meat sector.

The resource of new molecular tools in order to enhance food proprieties is reviewed by Martinelli *et al.* The authors addressed the research based on gene transfer applied to several food crops and animal production. The gene modulation (*i.e.* gene knock-down and knock-out) was also extensively examined considering exogenous RNA-based gene regulation and RNAi technology in both plant and animals.

We would like to thank all the authors of this special issue for contributing with high quality manuscripts. We are also very grateful to all the reviewers, who had the kindness of critically evaluating the articles in a timely manner. We are thankful to the Editor-in-Chief of the journal *Food Technology and Biotechnology*, Professor Vladimir Mrša, for giving us the opportunity of organizing this special issue. We express our very special thanks and high appreciation to Zrinka and Iva and the entire editorial team of the journal for their high capacity in coordinating the communication and the editorial process.

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