

Book review

Advanced mass spectrometry for food safety and quality

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Food safety and quality in food production and processing has come to the forefront during the last decades. Along with stricter food safety measures and analysis of food contaminants, the determination of different components of special behaviour and impact (e.g. bioactive compounds, vitamins, colorants, etc.) gained increased importance. However, the distinctive characteristics of food, especially their extreme complexity, present awesome challenges. The widespread applications of mass spectrometry-based techniques provide efficient tools for food safety and quality, also covering the major challenges associated with implementing these technologies for more effective identification of unknown compounds, food profiling, or candidate biomarker discovery.

The book entitled "Advanced mass spectrometry for food safety and quality" presents critical applications for sustainable, affordable, and safe food supply with many specific examples. The book is divided into two parts with thirteen chapters, as mentioned hereinafter.

Part I, "Advanced mass spectrometry approaches and platforms" summarizes the characteristics, advantages, and limitations of mass spectrometry and the current strategies in method development and validation. Beside the overview of the current application status of mass spectrometry in food quality and safety, special attention is paid for advanced mass spectrometric techniques, elemental and isotopic MS, ambient ionization techniques, and high performance ion mobility spectrometry.

In Part II, "Mass spectrometry applications within food safety and quality", special fields of application are detailed. The adaptation of different analytical techniques applying MS detection is studied for the identification of food proteins and peptides, for enhanced food allergen research, even for lipidomics. The advanced MS techniques have prominent role in exploring food forensics, emerging contaminants, moreover, monitoring the engineered nanomaterials and food pathogens. The advanced foodomics approach based on MS is also introduced.

This book is a useful guide for food scientists, analytical chemists, microbiologists, toxicologists, and all those who use mass spectrometry for evaluating food quality and safety or interested in high throughput screening strategies and technology platforms.

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