Foreword

The present volume of the *Journal of Chromatography A* features a number of papers devoted to Food Science. These papers illustrate the variety and wealth of the research carried out in this field, attesting the importance of analytical methodologies to the future of food research. The role of mass spectrometry (MS) and related techniques is increasingly built up as an enabling tool in food analysis for quality control. Several contributions dealing with this subject are presented, and results obtained both for characterization and quantitation purposes, often by using tandem MS, are very impressive.

This issue addresses the contribution of the various separation techniques to the characterization of food-related compounds. Amongst these, the most innovative are comprehensive two-dimensional chromatography and field-flow fractionation (FFF). Comprehensive two-dimensional chromatography is capable of providing unprecedented separating capacity making the approach of choice when analysts are challenged with highly complex mixtures. FFF is a group of flow-assisted separation techniques able to fractionate and characterize macromolecular and supramolecular species from macromolecules to micron-sized particles, amongst which cells are included.

Applications of chromatographic techniques encompass methods for the determination of trace elements and compounds of nutritional interest (e.g. carotenoids, anthocyanins, flavonoids, tocopherols, phospholipids), and methods for the determination of xenobiotic and naturally occurring contaminants (e.g. pesticides, drug residues, mycotoxins, heterocyclic amines, N-nitrosamines, polycyclic aromatic hydrocarbons, polybrominated diphenyl ethers and polychlorinated naphthalenes).

Food nutrition research has given a major impulse to the development of methods for the characterization of proteins and other high-molecular-mass species. Different analytical strategies (LC coupled with on-line chemical vapour generation and atomic fluorescence spectrometric detection, LC–tandem MS, competitive indirect enzyme-linked immunosorbent assay, centrifugal precipitation chromatography) are presented in this issue for the analysis of peptides and proteins (metallothioneins, angiotensin-I-converting enzyme (ACE)-inhibitory peptides) and for carbohydrates with prebiotic properties (high-performance anion-exchange chromatography with pulsed amperometric detection and capillary zone electrophoresis).

The major developments in the application of MS to solve different problems in food technology, such as the assessment of quality and authenticity control of foods, are also considered.

We are confident that this special volume of the *Journal of Chromatography A* will greatly benefit the scientists working in the area of food science.

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