

Special Issue on

The Role of Chromatographic Technology in Enhancing Food Quality and Quality Control

CALL FOR PAPERS

Food quality is an important concern for consumers, food manufacturers, and regulatory bodies alike. As a society, we place increasing importance on the safety, authenticity, nutritional value, and sensory appeal of the foods we consume. Meeting these high expectations requires rigorous and precise methods of quality control throughout the food production and distribution process. An indispensable tool in this pursuit of food quality is chromatographic technology. Chromatography has the ability to separate components from complex mixtures and can help to evaluate the purity and nutritional content of food products, making it a versatile analytical technique that plays a pivotal role in the food industry as a powerful instrument for identifying, quantifying, and characterizing various components in food products. From monitoring nutritional content and detecting contaminants to evaluating flavor and aroma profiles, chromatography provides invaluable insights that underpin decisions made at every stage of food production, with many applications in enhancing food quality and quality control. With increasing consumer awareness and stricter regulations governing food products, there is an urgent need for a comprehensive understanding of the role of chromatography in food quality.

Enhancing food quality through chromatographic technology in quality control has various challenges. Food samples are intricate matrices, making it challenging to separate and quantify target analytes amidst complex interferences. The development of precise and sensitive chromatographic methods, especially for low-concentration contaminants, requires extensive and expert knowledge. Achieving selectivity to differentiate between similar compounds, efficient sample preparation, and high-throughput analyses, while ensuring regulatory compliance, adds to the complexity. Moreover, the cost-effectiveness and accessibility of chromatographic solutions, along with the need for interdisciplinary collaboration and environmental considerations, further contribute to the multifaceted landscape of food quality enhancement using chromatography. When chromatographic technology is used for food quality control, sustainability issues include waste production, resource consumption, chemical safety, long-term viability, accessibility, affordability, regulatory compliance, and education. Efficient resource use, waste reduction strategies, safer chemical handling, technological innovation, equitable access, education initiatives, and regulatory adaptation are necessary to ensure sustainable chromatographic practices, while balancing environmental responsibility, economic viability, and food safety.

This Special Issue aims to highlight the applications of chromatographic techniques in food analysis and quality control. It focuses on studies associated with the development, validation, and practical implementation of these techniques in various areas such as food safety, authenticity, nutritional analysis, mycotoxin detection, flavor profiling, and quality evaluation. We welcome both original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Development of portable chromatographic systems for on-site food quality control
- ▶ Development and validation of analytical methods for food products using chromatographic techniques
- ▶ Enhancing food allergen detection using chromatography
- ▶ Chromatographic analysis of food nutrients and functional compounds
- ▶ Untargeted or targeted metabolite profiles in food products
- ▶ Multicontaminant analysis in seafood using chromatography
- ▶ Optimizing chromatographic methods for mycotoxin detection in grains
- ▶ Chromatographic data analysis for real-time quality assurance
- ▶ Eco-friendly chromatographic practices for sustainable food quality control
- ▶ Chromatography in the dairy industry
- ▶ Chromatographic techniques for flavor profiling and quality assessment of beverages
- ▶ Real-time monitoring of food processing using chromatography
- ▶ Detection of bioactive components in bakery products using chromatography

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=738136>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Editor

Rabea Parveen, Jamia Hamdard, New Delhi, India
rabeaparveen@jamiahamdard.ac.in

Guest Editors

Sultan Zahiruddin, University of Mississippi, Oxford, USA
sultanpharma88@gmail.com

Sukhvinder Singh Purewal, Chandigarh University, Mohali, India
sukhvinder.e14148@cumail.in

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