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# Liquid chromatography-mass spectrometry for the determination of chemical contaminants in food

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## HIGHLIGHTS

- We describe mass analyzers for liquid chromatography-mass spectrometry (LC-MS)
- We review LC-MS technology used for the determination of contaminants in food
- We discuss advantages/disadvantages of LC-MS for targeted vs. non-targeted analyses
- We discuss advantages/disadvantages of LC-MS for quantification and identification

## ABSTRACT

As a result of the range and the variety of toxic and undesirable substances in food, which pose a potential hazard to human health, there is an ever-increasing demand for analytical methods that can reliably detect and quantify contaminants and residues in foods. This review presents the state-of-the-art technology used in the determination of trace residues and contaminants in food by liquid chromatography-mass spectrometry (LC-MS). LC-MS instruments utilize many different types of mass analyzer to improve selectivity and also confidence in assigning the identity of the contaminants detected and to offer different approaches to analysis. We discuss current analytical approaches together with the major benefits and the limitations of these technologies with respect to screening, quantification and identification of contaminants and residues in food.

### *Keywords:*

Chemical contaminant  
Determination  
Food  
High-resolution mass spectrometry  
Identification  
Liquid chromatography  
Mass spectrometry  
Quantification  
Residue  
Targeted analysis

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## 1. Introduction

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