EXPLORING METHODS FOR DETECTING POLLUTANTS IN MILK

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Abstract

    Contamination of milk with pollutants is a major concern in food safety, due to the ability of these compounds to accumulate in the lipid fraction of foods and persist throughout the food chain. This study aimed to evaluate the potential for identifying and quantifying such contaminants in milk using modern physicochemical methods, with a focus on chromatographic and spectrometric techniques. Based on an analysis of the literature and current analytical protocols, various extraction methods-including solid phase extraction (SPE), ultrasound-assisted extraction, and the QuEChERS method-were compared, alongside reference analytical techniques such as liquid chromatography-mass spectrometry (LC-MS) and gas chromatography–mass spectrometry (GC-MS). The findings confirmed the effectiveness of these methods in detecting contaminants at trace levels, while underscoring the role of sample preparation and the need to tailor protocols to the complex milk matrix. Overall, the study highlights the importance of continuous monitoring of milk quality in light of potential contamination from both environmental and technological sources.

Key words: *food safety, contamination, detection, persistent pollutant*