

Molecular Imprinted Polymers and Their Role in Food Safety Assessment

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ABSTRACT

Foodborne diseases and chemical residues pose serious health threats to consumers. Various microbes particularly bacteria and fungi produce various toxins which need to be controlled to avoid health issues. Pesticide and drug residues in foods also are matter of concern so their assessment is very crucial to avoid food safety issues. Currently a technique, molecular imprinted polymers (MIPs) is promising technique that can present highly selective nature for assessing above mentioned contaminants. MIPs are actually denoted as synthetic templates which can then selectively attach to a particular toxin, residues or contaminant. They recognize target analytes by mimicking the analytes to be determined. Recently various innovations in MIPs have been carried out like clean up, separation and concentration gradient setting of analytes from food matrices. Sensors are used as main components for quality management systems in food industries so various food constituents i.e., nucleic acids, adulterants, pesticides, drug residues, mycotoxins, bacterial toxins and food contaminants can be easily detected using MIPs based electrochemical sensors. Although MIPs present a promising opportunity but needs critical understanding of analyte of interest and ligand design to have targeted assessment. Conclusively, MIPs if optimized can be good, precise and accurate option in food industry to sub due food safety related issues.

Keywords: Foodborne Diseases, Health Threats, Molecular Imprinted Polymers, Innovations, Promising Opportunity, Optimization.