

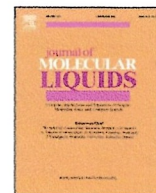


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Emerging optical and electrochemical biosensing approaches for detection of ciprofloxacin residues in food and environment samples: A comprehensive overview



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ABSTRACT

In today's world, despite the important role of antibiotics in human medicine, their accumulation in the human body through the food chain can pose serious health risks. The overuse of CFX (ciprofloxacin) as vital medicines to prevent and treat disease, improved feed conversion efficiency and preserve food has intensified in recent years. It is extremely urgent to progress a low-cost, rapid, and effective sensing technique for analyzing CFX residues in food and water resources. Till now, various analytical approaches have been proposed for CFX detection. (Bio)sensors have a hopeful viewpoint for rapid and on-site detection of CFX residues. This study focused on the recent progress and technical breakthroughs comprising electrochemical, optical nanoprobe for CFX detection in diverse matrices and proved how nanoprobe could enhance the performance of traditional sensing platforms. Well-known sensing platforms, working strategies, advantages and limitations of the research are also discussed, followed by prospects and challenges.