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DETERMINATION OF PATHOGENS IN FOOD: BIOSENSOR TECHNOLOGIES

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Over the past decade many improvements have been seen in both conventional and modern methods for the detection of pathogenic bacteria in foods. Pathogenic bacteria can enter foods at any point during production, processing, transport, retailing, domestic storage or meal preparation. The microbiological analysis of foods for the presence of both pathogenic and spoilage bacteria is a standard practice for ensuring food safety and quality. Modifications of conventional methods in food microbiology include sample preparation, plating techniques, counting and identification test kits. Recently, there have been important developments the realization of rapid, sensitive and specific methods to detect foodborne pathogenic bacteria. These methods which are molecular biological techniques such as PCR-based nucleic acid amplification and hybridization have become available for many of the known pathogens with their major advantages being rapidness, high sensitivity and specificity. Depending on the basic transducer principles, recent advances in biosensing technologies that are used electrochemical, piezoelectric, optical, acoustic and thermal biosensors for detection of pathogenic bacteria. However, this type of assays is still quite labor and cost intensive and mostly cannot be operated directly in the field. In the present review the application of biosensors-based methods and their usefulness in detecting, comparison with traditional microbiological analysis and identifying food borne bacterial pathogens besides ultimately of the food industry in order to protect consumers' health are overviewed.

Keywords: Biosensors, pathogenic bacteria, food safety

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