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# Molecular based technology for the rapid detection and identification of food borne pathogens in complex food systems

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## Editorial Note

Human illness and mortality are becoming increasingly concerned as a result of food-borne pathogens. The need for a healthy food supply is growing. Methods for the rapid and reliable detection of food-borne pathogens are constantly being created. Food testing techniques have improved significantly since the advent of biotechnology. Immunology, molecular biology, robotics, and computer technology advancements continue to have a positive impact on the creation of quicker, more sensitive, and more convenient food microbiology methods.

Furthermore, the development of on-line microbiology, such as ATP bioluminescence and cell counting methods, is essential for HACCP programme cleanliness monitoring. Sample preparation is one of the most difficult issues to solve. More research is required on techniques for extracting microorganisms from food matrixes and concentrating them before detection by immunological or nucleic acid-based assays in order to ensure food safety.

The potential for integrating various rapid methods, such as immunological and DNA-based methods, should be explored further. Further advances in immunoassays and PCR protocols could lead to quantitative microorganism identification as well as simultaneous detection of multiple pathogens or toxins.

Finally, with technology progressing at a rapid rate, the next generation of assays currently being developed could be capable of tracking multiple pathogens in near real time and online. Modern methods are focused on molecular biology techniques such as PCR, RFLP, and DNA microarray assays, immunological techniques such as ELISA, biophysical and biochemical principles with the use of biosensers such as bioluminescence sensors, bio-analytical sensors using enzymes, electrical impedometry, and flow cytometry, and biophysical and biochemical principles with the application of biosensers such as bioluminescence sensors, bio-ana . In this study, we attempted to summarise both traditional and newly developed rapid pathogen detection strategies, as well as the need for newer and faster methods.

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