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Microfluidic Diagnostic Systems for the Detection of Pathogenic Microorganisms

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Microfluidics based analysis shows distinctive advantages for fast detection of pathogenic microorganisms. Microfluidic methods use for purification and detection of pathogenic microbes as well as their applications in food safety control, environmental monitoring and clinical diagnosis. Pathogenic microorganisms refer to any microorganisms capable of causing human or animal diseases, including viruses, bacteria, fungi, protozoa etc. They can be transferred from one host to another by air, body fluids, food, water, etc. causing public panic and economic losses. Rapid and accurate identification of pathogenic microorganisms is crucial in ensuring proper therapy. This current research directed towards developing microfluidic systems that are able to rapidly detect the presence of pathogens in environmental samples. Microfluidic systems is use to detect and estimate the concentration of pathogens within water samples. This can be achieved by the detection and quantification of any of the following by whole pathogen cells, secondary metabolites released, consumed by the pathogen, that are specific to the pathogen. The type of pathogen assayed for consequently forms the basis behind the classification of the wide varieties of microfluidic systems. However, irrespective of the actual target assayed for, the microfluidic systems have to overcome problems: that of low pathogen concentration and/or the presence of interferents. It is promising to make microfluidic chips as portable devices for ambient sampling to test environmental pollution, food contaminants, and body fluids.

Keywords: Microfluidic Diagnostic Systems, Detection, Pathogenic Microorganisms, Environmental monitoring.

Biography

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