

12th World Congress on

Biotechnology and Microbiology

June 28-29, 2018 | Amsterdam, Netherlands

Use of nanoplates for detection of pathogenic bacteria in water tubes

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Nanotechnology is an emerging field that covers a wide range of disciplines, including the frontiers of Chemistry, Materials, Medicine, Electronics, Optics, Sensors, Information Storage, Communication, Energy Conversion, Environmental Protection, Aerospace and more. It focuses on the design, synthesis, characterization and application of materials and devices at the nanoscale. Nanomaterials are the foundation of nanotechnology and are anticipated to open new avenues to numerous emerging technological applications. Nanotechnology has grown very fast in the past two decades because of the availability of new approaches and tools for the synthesis, characterization, and manipulation of nanomaterials. The purification of drinking water is a primary environmental application of nanotechnology. Upon contamination of freshwater resources, seawater is becoming a recognized source for drinking water, as freshwater becomes significantly scarce. We use the iron oxide nanoplates carried with specific virus that detect the pathogenic bacteria (*Escherichia coli*) in water tube as a indicator for the pathogenicity of the water tube and as method for choosing the suitable way for water purification.

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