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Sommario/riassunto

Detection of Pathogens in Water Using Micro and Nano-Technology aims to promote the uptake of innovative micro and nano-technological approaches towards the development of an integrated, cost-effective nano-biological sensor useful for security and environmental assays. The book describes the concerted efforts of a large European research project and the achievements of additional leading research groups. The reported knowledge and expertise should support in the innovation and integration of often separated unitary processes. Sampling, cell lysis and DNA/RNA extraction, DNA hybridisation detection micro- and nanosensors, microfluidics, together also with computational modelling and risk assessment can be integrated in the framework of the current and evolving European regulations and needs. The development and uptake of molecular methods is revolutionizing the field of waterborne pathogens detection, commonly performed with time-consuming cultural methods. The molecular detection methods are enabling the development of integrated instruments based on biosensor that will ultimately automate the full pathway of the microbiological analysis of water.