TECHNOLOGY OFFER

CONCENTRATION AND DETECTION OF MICROORGANISMS THROUGH A WATERTIGHT COMPARTMENT DEVICE AND PROCEDURE

BACKGROUND

There is a clear need to create new devices for the detection and control of certain microorganisms in different environments. The main market requirement is that new systems to be developed should be simple, portable , with low manufacturing cost, and that allow rapid detection (hours) in order to have an efficient control by monitoring microorganisms' proliferation.
Most of existing systems use the absorbent capacity of the cellulose for containing the reactants or biomolecules responsible for detection, therefore reducing the costs of reagent volumes.
Typically, the detection threshold is very high, so it is necessary to perform a concentration of samples previous to the measure, usually by mechanical filtration of the sample, due to its low cost, efficiency and speed, ensuring no contamination in the detection process.
Currently , there is a clear need to develop systems for detecting microorganisms in cooling water from air conditioners and the cooling towers of any scale that potentially could generate an outbreak of Legionella. In this case this microorganism can survive in aerosols and be released into the environment affecting people and causing pneumonia. In addition, there is also a need for this type of technology in other sectors such as food industry, environment and health.

TECHNOLOGY DESCRIPTION

A team of researchers from the CSIC, Institut D'Investigació Germans Trias I Pujol, CIBER and the Autonomous University of Barcelona have developed a filter-integrated system that allows, in one device, both concentration and detection of microorganisms. The system, that could be reusable or disposable, maintains tightness during concentration and detection, ensures a homogeneous distribution of the sample in the membrane, and the mixing of reagents though the reaction chamber and a peristaltic pump. The analytical device allows detection and measurement of said microorganisms by affinity methods using recognition proteins such as antibodies by immunological methods.

ADVANTAGES

- A very quick method for filtration and detection.
- Simple, includes reactive chamber.
- Possibility as reusable or disposable device.
- Possible to use with different filter membranes materials.
- Homogeneous distribution of samples though diffuser.
- Incubation with different solutions though all procedure without extracting the membrane (watertight compartment), ensuring no cross-contamination.
- Mixing of reagents though the reaction chamber and a peristaltic pump.

PATENT

Spanish patent application October 2015

GOAL

License agreements and/or co-development and commercialization agreements with Biotech companies for the development of products derived

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