BioDetection Instruments™

The Aegis 1000 has the potential to be a breakthrough product for improving food and water safety world over.

Market Need

Current practices for combating food- and waterborne pathogens rely on rapid and sensitive detection of specific pathogens in production and processing. Since current processing and distribution systems operate at very high speed and infectious dosages of some food- and waterborne pathogens are very low, it is extremely important to find new, rapid, and sensitive methods for the detection of pathogens in both food and water products, thereby ensuring the safety of our supplies.

Aegis 1000

The Aegis 1000 is a patent-pending, cartridge-based assay device utilizing unique, highly efficient capillary bioseparators/bioreactors that specifically capture and separate target biological and/or chemical agents (including bacteria, viruses, proteins, toxins, pesticides, antibiotics, etc.) from food, water, environmental, or clinical samples and quickly generate quantitative optical signals. The cartridge is designed to be self-contained, easy to use, and cost-effective for mass production and disposable use. Compared to competing detection systems, the Aegis 1000 system offers multiple advantages; among them are:

- High sample throughput
- Increased sensitivity

Rapid result
No cross-contamination
Automated testing

Aegis 1000 Flyer

To initiate a test, the user only needs to snap the cartridge on the instrument, load a sample, and then click the "RUN" button on the touch-screen. The device eliminates the necessity of multiple manual preparation and process steps that are required in conventional tests, and its operation does not require extensive training of personnel. The device can be used to detect food and water pathogens on the processing line or on site. It is also applicable to point-of-process and point-of-care testing for different biological and chemical targets.

BioDetection Instrument's innovative Aegis 1000 biosensor system has been demonstrated for rapid detection of pathogenic bacteria (including Escherichia coli 0157:H7, Salmonella Typhimurium and Listeria monocytogenes) in various foods, pathogens and pesticide residues in water and beverages, and other applications. The key features of BioDetection Instrument's biosensor include simultaneous quantitative analyses of multiple samples/agents in less than one hour, inexpensive cost per test, automated operation, and device portability for on-site use. Thus, the Aegis 1000 has the potential to be a breakthrough product for improving food and water safety across the world.

Technology

A high-efficiency capillary or microfluidic bio-separator/reactor comprises the heart of this technology. The bio-separator/reactor captures target pathogens from a sample and hosts the immunological and enzymatic reaction, which is followed by an optical or electrochemical measurement. Both the optical and electrochemical modes can detect Escherichia coli O157:H7 down to 10-100 cells/ml in 1-2 hours without any sample pre-enrichment.

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BioDetection Instruments, Inc. is a VIC portfolio company.