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Small Molecule Detection by LIBS using Rapid Paper Based Detection

A portable, rapid, and cost-effective laser spectroscopy method provides high-accuracy screening for COVID-19 indicators and reliable food product fingerprinting to ensure purity.

Purdue University researchers have developed a laser-induced breakdown spectroscopy (LIBS) method for characterizing both cytokines, molecules that are released in an immune response, and food contaminants. Food fraud has severe health-related consequences; in 2007-2008, a dairy contaminant added to raise nitrogen content had an estimated 300,000 human victims. Cytokine detection can be used as an indicator for COVID-19 infection. However, cytokine tests for COVID-19 require extensive processing time and are expensive. The Purdue technology showed an acceptable detection limit using a portable unit, and it showed high accuracy in food product fingerprinting. Finally, this technology is portable, avoiding the need for sending the food/biological samples to an established laboratory.

Technology Validation: The technology showed a higher detection limit than conventional cytokine detection tools, and it showed high accuracy in food product fingerprinting.

Advantages

- Versatile

- Portable

- Cheap

- Rapid

Applications

- Food purity

- COVID-19 screening

TRL: 5

Technology ID
2022-ROBI-69589

Category
Agriculture, Nutrition, & AgTech/Food Safety & Traceability
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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Intellectual Property:

Provisional-Gov. Funding, 2021-09-27, United States | PCT-Gov. Funding, 2022-09-27, WO | Utility-Gov. Funding, 2022-09-27, United States | NATL-Patent, N/A, United States

Keywords: Laser-induced breakdown spectroscopy, LIBS, cytokine detection, food contaminant characterization, food purity screening, COVID-19 screening, rapid detection, portable spectroscopy, cheap diagnostic, versatile analysis, Authentication, Cytokine, Cytokine Storm, Food and Nutrition, IL10, IL6, LIBS, Rapid Detection