Overview of CFSE

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October 27-28, 2009

Center Goals

- The purpose of the CFSE at Purdue University is to "develop new knowledge, technologies, and systems to detect and prevent microbial and chemical contamination of foods."
- Primary goal of detection is to build technology platforms to detect:
  - Low numbers
  - Accurate and specific
  - Viable vs. non-viable
  - Infectious vs. non-infectious
  - Manageable costs
- *L. monocytogenes, Salmonella, Campylobacter, E. coli*

Center Structure/Involvement

- Purdue (5 Schools)
  - Agriculture (Home – AGAD)
  - Engineering
  - Consumer and Family Sciences
  - Veterinary Sciences
- Industry
  - Food production and manufacturing
  - Testing
- Regulatory/Government
  - USDA-ARS Cooperative Agreement

Overall Research Objectives

1. Development of diagnostic tools for rapid identification of biological and chemical foodborne contaminants
2. Development of models to predict and track foodborne contaminants
3. Identification, design and evaluation of alternative processing, handling, packaging, transport, and storage systems to minimize and/or reduce food contaminants
4. Development of technology transfer of information and knowledge related to food safety for the food industry, government agencies, academia, and the public

Overall Goals

- Sample Processing/ Separations
- Detection/ ID
- Data Analysis/ Results

Core Project Objectives

- To develop:
  - Microbiological procedures that can be used to effectively concentrate viable cells from food matrices in a self-validating subsystem.
  - Novel biosensor-based solutions for rapid concentration, identification, detection and quantification of live microorganisms from fluid samples.
  - Optical light scattering instrument for detection of bacterial pathogens, known as BARDOT (Bacterial Rapid Detection using Optical light scattering Technology) to rapidly detect bacteria.
  - Multiplexed detection platforms for detection of foodborne pathogens using a Fluorescence Resonance Energy Transfer Spatial Detection Format.
  - Fourier-transform infrared spectroscopy techniques and sensors for identification and detection of foodborne pathogens.
CFSE WEBSITE
(www.cfse.purdue.edu)

- Annual Research Report
- Current CFSE News
- Information about food safety and detection

ACKNOWLEDGEMENTS..