OMICS International

conferenceseries.com

International Conference on

Smart Materials & Structures

June 15 -17, 2015   Las Vegas, USA

Immunomagnetic separation combined with enzyme linked immunosorbent assay for quick detection of *Salmonella* in raw eggs

Shiquan Tao[1], Cole Guyer[1] and **Maya Alex[2]**
[1]West Texas A&M University,USA
[2]University of Texas at El Paso, USA

An immunomagnetic separation (IMS) method was developed for separating Salmonella bacteria from large-volume samples of raw eggs.An egg was homogenized with a blender.The homogenized egg material was diluted with a 0.05% Triton X-100 solution to make a 200 mL sample mixture.Anti-Salmonella typhimurium antibody coated magnetic micro particles (MMP) were used to trap *Salmonellatyphimurium* bacteria in the sample mixture.The Salmonella-trapped MMP were separated from the egg sample mixture by using a large magnet.An enzyme-linked immunosorbent assay method was adopted and revised for detecting the bacteria trapped onto the MMP.Horseradish peroxidase labeled anti-*Salmonellatyphimurium* antibody was used to label the trapped bacteria, and a SureblueTM solution was used as a substrate.The color compound resulted from horseradish peroxidase catalyzed reaction was detected with UV/Vis absorption spectrometry using a 1 cm sample cell.This simple method can detect 1.4×10^7 *Salmonellatyphimurium* cells in one raw egg (7.0×10^4 Salmonella cells/mL in a sample mixture) without any pre-enrichment.The method is quick, can obtain test results within 5 hours. The results presented in this poster demonstrate the feasibility of using IMS for separating bacteria from large volume complex samples, which could be adopted for detecting bacteria in other type samples in food safety inspection.

Biography

Shiquan Tao completed his PhD in Chemistry from Hiroshima University, Japan. He is an Associate Professor of Chemistry at West Texas A&M University with research interest in the development of fiber optic chemical/biochemical sensors for monitoring industrial processes, environmental monitoring as well as for quick detecting foodborne pathogens. Before joining the faculty at WTAMU, he was a research faculty at the Diagnostic Instrumentation and Analysis Laboratory of Mississippi State University in charge of the institute's fiber optic sensor research program for US DOE' Office of Science's Environmental Management Program.

stao@mail.wtamu.edu

Notes:

J Material Sci Eng

ISSN: 2169-0022 JME an open access journal

Smart Materials-2015
June 15 -17, 2015

Volume 4, Issue 3

Page 50