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Use of Oxyrase® enzyme for rapid enumeration of coliforms in conjunction with TEMPO® (bioMerieux) automated system

Yousef S Alsaadi and Daniel Y C Fung
Kansas State University, USA

In the food industry, coliform testing is used by time consuming and a labor intensive plate count method or tube enumeration methods. The TEMPO system (bioMerieux) was developed to improve laboratory efficiency and to replace traditional methods. It uses a miniaturization of the Most Probable Number (MPN) method with an ingenius 16 tubes with 3 dilution in one single disposable card. It utilizes two stations: TEMPO Preparation station and TEMPO Reading station. In this study, Oxyrase (Oxyrase, Inc.) enzyme was added to TEMPO TC (Total Coliforms) method. Water samples of 1 ml with 0.1 ml of Oxyrase enzyme were compared with samples without Oxyrase enzyme using TEMPO system. Samples were spiked with different levels of coliforms (10, 102, 103 and 104 CFU/ml), stomached (20 sec), and pipetted into the TEMPO TC media reagent (4 ml) in duplicate then automatically transferred into the TEMPO TC card by the TEMPO Preparation station. Coliforms counts were obtained using TEMPO Reading station every 6 hours for 24-hour incubation period at 35°C. Results from 15 replicates of samples were compared statistically. Regression analysis of log counts demonstrates that TEMPO TC with Oxyrase enzyme gives results in 12±3 hours compared to TEMPO TC without Oxyrase enzyme gives results in 24 hours. The Oxyrase enzyme with TEMPO method for total coliforms enumeration is a valuable rapid method.

Biography

Yousef S Alsaadi is a Certified Food Scientist (CFS) and a Food Science PhD Candidate at Food Science Institute, Kansas State University, in Manhattan Kansas. He is Head of Special Microbiology Unit at Abu Dhabi Food Control Authority in United Arab Emirates. His major research interest is in rapid methods and automation in food microbiology and food safety.

yalsaadi@ksu.edu