

## *Collaborative Validation of a Rapid PCR Method for the Detection of Salmonella in Peanut Butter*

### **Introduction**

A recent outbreak of *Salmonella* in peanut butter has highlighted the need for validation of rapid detection methods. A collaborative study for detecting *Salmonella* in peanut butter was conducted as part of the AOAC Research Institute Emergency Response Validation (ERV) Program for methods that detect outbreak threats to food safety.

### **Materials and Methods**

Three sites tested spiked samples from the same master mix according to the FDA-BAM method and the BAX® System method. *Salmonella typhimurium* (ATCC 14028) was grown in BHI for 24 hrs at 37°C, then diluted to appropriate levels for sample inoculation. Master samples of peanut butter were spiked at high and low target levels, mixed, and allowed to equilibrate at room temperature for two weeks. Spike levels were low (0.4 MPN/25 g), high (10.75 MPN/25 g,) and unspiked (< 0.06 MPN/25g) as negative controls. Each master sample was divided into 25-g portions and coded to blind the samples. Twenty portions of each spiked master sample and 5 portions of the unspiked sample were tested at each site.

At each testing site, samples were blended in 25-g portions with 225 mL pre-warmed Lactose Broth (LB) until thoroughly homogenized, then allowed to sit at room temperature for 55-65 minutes. Samples were adjusted to a pH of  $6.8 \pm 0.2$ , if necessary, and incubated for 22-26 hours at 35°C.

### **Results and Discussion**

Across the three reporting laboratories, the test method detected 10/60 low-spike samples and 58/60 high-spike samples. The reference FDA-BAM method yielded positive results for 11/60 low-spike and 58/60 high-spike samples. Neither method demonstrated false positive results for any of the 15 unspiked samples.

### **Conclusion**

The test PCR method validated in this study is a reproducible and effective method for next-day detection of *Salmonella* in peanut butter.

F. Morgan Wallace, DuPont Qualicon, ESL Bldg 400, PO Box 80400, Rt 141 & Henry Clay Rd, Wilmington, DE, 19880, morgan.wallace@usa.dupont.com;  
Bridget Andaloro, DuPont Qualicon; Erin Crowley, Q-Laboratories, Inc.; Amy C. Remes, retch Laboratories