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Evaluation of Environmental Samples from a Food Plant with the Atlas® Listeria Detection Assay Utilizing a Single 90 mL Enrichment Step

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Introduction: *Listeria monocytogenes* poses a significant food safety challenge due to the organism's ubiquitous nature and substantial public health risk. In order to prevent end-product contamination with the human pathogen *Listeria monocytogenes*, food processors employ environmental monitoring programs for *Listeria* spp. to verify the effectiveness of an establishment's food safety program. Taking into consideration the costs associated with environmental monitoring, a reduction in the media volume added to a sponge would be beneficial for reducing the costs of analysis.

Purpose: Utilizing environmental samples collected from a food processing plant, a study was performed to determine the acceptability of a single enrichment medium step with volume reduced from 190 mL to 90 mL, for testing by the Atlas® Listeria Detection Assay.

Methods: Each environmental sponge (n=200) was massaged in 90 mL Half-Fraser, and incubated overnight at 35°C. Enrichment samples (12 µL) were added to a Roka Sample Transfer Tube containing a proprietary lysis solution, and then tested on the Atlas System. Sample processing on the instrument included purification via Target Capture, amplification by Transcription Mediated Amplification, and detection by Hybridization Protection Assay. For culture confirmation, 100 µL of the enrichment was transferred to 10 mL Fraser and incubated 24 hr at 35°C, followed by streaking onto Modified Oxford agar. Discrepant assay results were confirmed by retesting another sample from the enrichment bag. Assay performance was analyzed by calculating the probability of detection (POD) at a 95% confidence interval.

Results: For environmental samples enriched in 90 mL Half-Fraser, no statistically significant difference compared to culture was observed at a 95% confidence interval based on the POD analysis.

Significance: This study demonstrated that a reduced enrichment media volume using 90 mL Half-Fraser with testing on the Atlas System was equivalent to culture for detection of *Listeria* in environmental samples.

For more information or to request the full poster of this abstract, please email: ***info@rokabio.com***

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