Food Safety

Detection of *Campylobacter* from Raw Milk and Raw Pork Matrices Using the SureTect PCR Workflow

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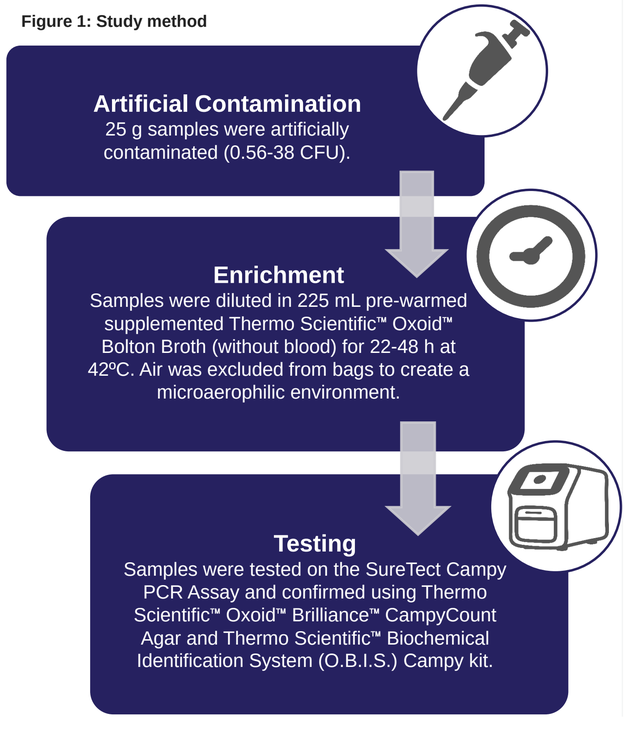
Introduction

Campylobacter, a leading cause of foodborne illness worldwide[1], is commonly associated with poultry products, and has also been implicated with raw milk and raw pork. The Thermo Scientific™ SureTect™ Campylobacter jejuni, C.coli and C. lari PCR Assay (SureTect Campy PCR Assay workflow) is used for the detection of the three *Campylobacter* species most commonly associated with gastrointestinal disease. The assay has been validated with poultry products and holds AOAC *Performance Tested Methods*℠ approval. This study sought to verify the performance of the PCR assay for the detection of the three target species (*Campylobacter jejuni, Campylobacter coli* and *Campylobacter lari*) from raw pork and raw milk matrices.

Methods

A total of 62 samples were tested, according to Figure 1, consisting of raw ground pork, raw pork trim, and raw milk matrices across two studies. Raw pork and raw milk samples in Study 1 (Figure 3a) were diluted and incubated immediately after artificial contamination. Raw pork samples in Study 2 (Figure 3b) were artificially contaminated then stored at 2-8ºC for 24 hours prior to enrichment.

Figure 1: Study method

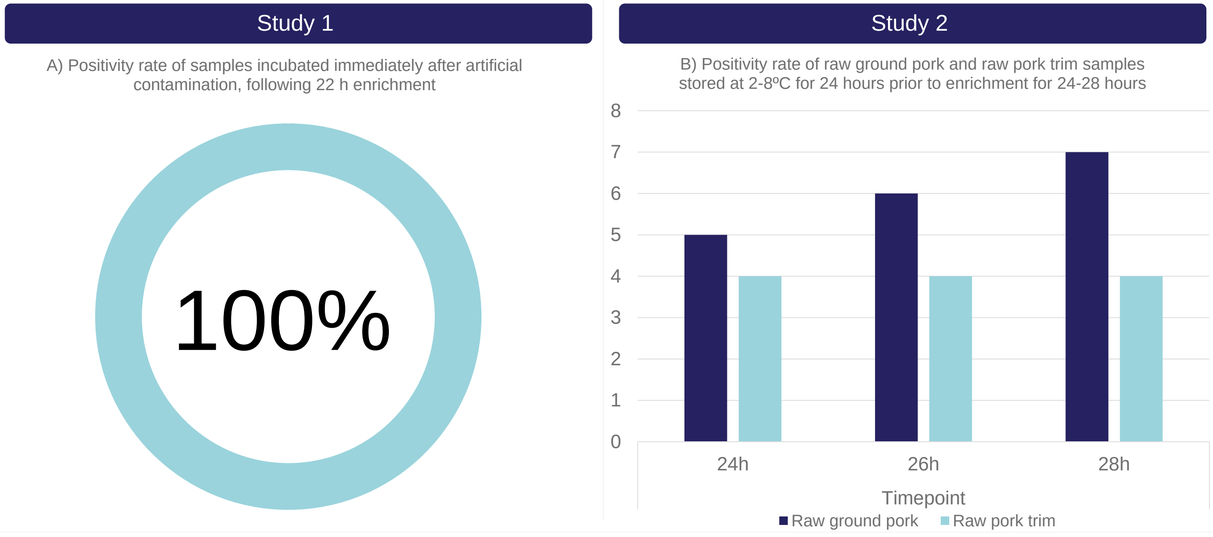


Method Highlights

Figure 2: Materials required for enrichment using the ISO 10272-1:2017 workflow (upper) and the SureTect Campy PCR Assay workflow (lower)

Results

Figure 3: a) Study 1 results, b) Study 2



Discussion

All SureTect Campy PCR Assay results matched culture confirmation results at the enrichment time points tested. Elevated levels of background flora were observed on *Brilliance* CampyCount Agar from raw ground pork samples compared to raw pork trim samples. This likely caused a lag effect on the recovery of *Campylobacter* in ground pork compared to pork trim, resulting in a higher number of positives detected following longer enrichment (Figure 3b).

Conclusions

Easy-to-use

- The SureTect workflow successfully detects *Campylobacter* species from raw pork and raw milk samples without the use of atmospheric generating systems.

Study design

- Verification study design and artificial contamination method is critical for assessing performance of alternative workflows for diverse matrices.

References

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2. World Health Organisation (May 2020) Campylobacter, https://www.who.int/news-room/fact-sheets/detail/campylobacter (Accessed May 2024)
3. ISO 10272-1:2017 Microbiology of the food chain — Horizontal method for detection and enumeration of Campylobacter spp., Part 1: Detection method, https://www.iso.org/standard/63225.html (Accessed May 2024)

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