Evaluation of the EnviroLogix® DNAble® *Salmonella* DNA Detection Kit: Comparative Analysis against qPCR

DATA SUMMARY

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ABSTRACT

OBJECTIVE: To compare the performance of the DNAble® *Salmonella* DNA Detection Kit to qPCR for the detection of *Salmonella* in turkey spleen samples collected at slaughter.

METHODS: 75 Turkey spleen samples collected at slaughter were evaluated for the presence of *Salmonella* using the DNAble® methodology and qPCR. The DNAble *Salmonella* DNA Detection Kit utilizes an isothermal nucleic amplification technology enabling rapid amplification of a specific DNA target. After collection and processing, the samples are added to reaction buffer. The reaction buffer containing the sample is then transferred to the lyophilized master mix. Results are obtained in 15 minutes using the DNAble Reader.

Testing was performed at a poultry producer in the United States. Samples were enriched overnight and then tested for the presence of Salmonella using DNAble and qPCR (Dupont BAX system).

RESULTS: The DNAble performance compared favorably with qPCR with positive results showing a 100% correlation and negative results a greater than 95% correlation.

METHODS

The site analyzed samples submitted to their laboratory using qPCR and DNAble. Samples consisted of turkey spleens collected at slaughter.

Seventy-five (75) mashed turkey spleens collected from the slaughterhouse were diluted 1:10 in BPW and mBPW and incubated overnight. The mBPW samples were processed using DNAble. The BPW samples were further incubated for 5 hours at 42°C before being tested using BAX PCR.

RESULTS

The performance of the DNAble Salmonella DNA Detection Kit was compared to qPCR.

DNAble performance was favorable with positive results showing 100% correlation and negative results a greater than 95% correlation (See **Figure 1**). Subsequent analysis indicated qPCR false positives raising the resolved negative result correlation to 100% (See **Figures 2** and **3**).

Figure 1:

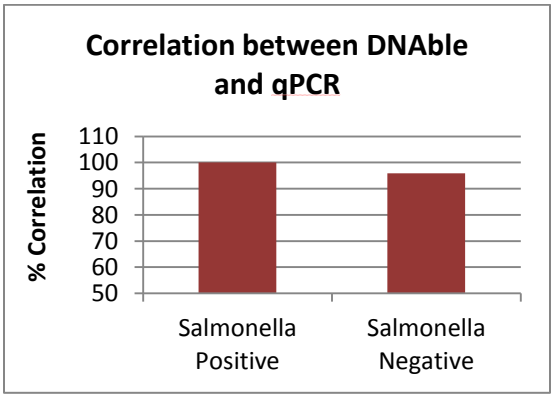


Figure 2:

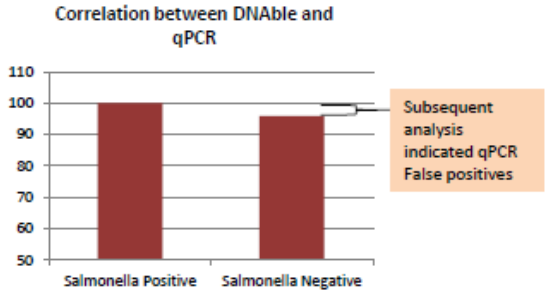
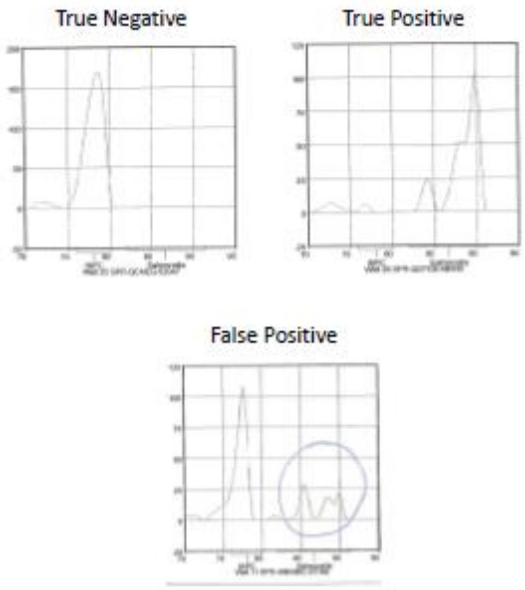


Figure 3:



CONCLUSION

The DNAble® kit described in this study provides rapid, sensitive, specific and accurate detection of *Salmonella* comparable to existing methods. The reader is simple to use, is portable and requires a minimal footprint. Sample preparation and assay time are minimal. Results are available 40 minutes after an overnight enrichment making turnaround time faster than qPCR.