Public Abstract
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Title:HIGH RESOLUTION MELTCURVE PCR ASSAY FOR DETECTION OF SALMONELLA AND ESCHERICHIA COLI O157:H7 IN FOODS

Foodborne illnesses associated with Salmonella and Escherichia coli O157:H7 have become world-wide public-health problems. Conventional methods for the identification of foodborne pathogens are tedious, expensive, and time-consuming. Alternatively, real-time PCR (RT-PCR) as a promising method to detect pathogens in food samples, has recently been widely applied in food safety areas.
High Resolution Meltcurve (HRM) analysis, performed immediately at the end of a real-time PCR, is able to yield a higher resolution plot compared with SYBR® Green I PCR. HRM dyes completely saturate all amplicons without showing preferential bindings, making the results more clear and distinct.
In this research, a multiplex real-time PCR targeting the invA, fimA and stn genes were developed to efficiently detect Salmonella in foods. Furthermore, HRM analysis is sensitive to any single mutation in PCR products, thus it was also applied in this study to distinguish E. coli O157 from other serogroups of E. coli by targeting the uidA gene. The specificity of primers used in this study was checked using many different strains. Results of artificially contaminated foods presented a high sensitivity of the HRM detection methods.
Due to its low cost, simplicity of the approach and rapidness, HRM technology is highly competitive with relaxed-condition PCR and probe-based PCR. Besides, an HRM assay can be performed on generic real-time PCR instrumentations found in many laboratories. In conclusion, HRM-based PCR assay are proved to be efficient methods in foodborne pathogen detections.