

**Title** Development of a rapid detection of *Listeria monocytogenes* in fresh-cut cantaloupe by Helicase Dependence Amplification (HDA) and fluorescence assay

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### Abstract

Food Safety quality control of fresh cut cantaloupe is essential to protect the health and safety of consumers. Conventional methods used for quality and safety monitoring, including plate counting, immunological methods. The conventional methods fully utilize on laboratory facilities and relatively slow due to time demanding with about 2-7 days to complete. Thus, a better quality and safety monitoring method to control risks associated with these products is needed. In this study, helicase-dependent amplification (HDA) with fluorescence binder had been developed to detect *hly* gene of *Listeria monocytogenes* in cantaloupe. The Detection processes were based on an enrichment procedure made directly in LB broth using cotton ball swapping technique on fresh-cut surface to enable specific DNA amplification of *hly* gene at 65°C isothermal temperature. HDA products were detected by fluorescence illumination using minor groove DNA binder. The method had a limit of detection at 100 copies of *L. monocytogenes* DNA per 50g of sample. No cross-reactivity was observed from samples contaminated with other bacteria. This developed method was simple and rapid, and less reliable on laboratory facilities, suitable for field safety monitoring of this fresh-cut products.