Quantitative Risk Assessments to Evaluate Food Safety Issues for Listeria Monocytogenes in Ready-to-eat Deli Meats

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Abstract

A systematic and quantitative evaluation of food safety, which could be achieved by utilizing quantitative risk assessments, is important to control the risk of foodborne diseases. Foodborne disease associated with consumption of ready-to-eat foods contaminated with Listeria monocytogenes represents a considerable public health concern. L. monocytogens is a foodborne pathogen that causes listeriosis, a rare but severe human disease. In this presentation, how quantitative risk assessment models were used to address food safety issues for L. monocytogenes in ready-to-eat deli meats will be discussed. Food industry and regulatory agencies have implemented various strategies including reformulation of products with growth inhibitors to control L. monocytogenes in ready-to-eat foods. We used quantitative risk assessment models to assess how reformulation of deli meats with L. monocytogenes growth inhibitors (i.e., lactate and diacetate) would impact the number of human listeriosis cases and deaths. Furthermore, we evaluated the contributions of L. monocytogenes contamination in deli meats, originating from manufacture and retail, to the risk of human listeriosis deaths. Our results indicate a critical need for further development and implementation of effective control strategies to reduce L. monocytogenes contamination at retail.

Keywords: Risk assessment; Food safety; Listeria monocytogenes; Ready-to-eat foods.

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