ABSTRACT

Quantitative Risk Assessment Model for *Salmonella* on Chilled Whole Broiler Chicken Carcasses from Large-Scale Processors in the Republic of Trinidad and Tobago

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Broiler chickens are a natural reservoir for *Salmonella* and high numbers may be ingested during the consumption of undercooked or re-contaminated cooked broiler chicken meat. The broiler chicken industry is amongst the leading agro-industries in the Republic of Trinidad and Tobago and *Salmonella* infections can pose serious challenges to consumer health, international trade and social stability. A quantitative risk assessment model was used to assess the risk of human salmonellosis from the consumption of fried, baked, boiled and grilled broiler chicken meat, processed by large-scale operators and retailed as chilled whole broiler chicken carcasses in the Republic of Trinidad and Tobago. The model was constructed on a Microsoft Excel™ spreadsheet and run in @risk computer add-in software, version 4.0, using 100,000 iterations and Latin hypercube sampling. The quantitative risk assessment model expected value (0.001%) was similar for each method of cooking. Therefore, the risk of salmonellosis for consumers of broiler chickens, processed by large-scale operators and retailed as chilled broiler chicken carcasses, in the Republic of Trinidad and Tobago is 10 cases per annum. The incidence of salmonellosis was predicted based on re-contamination of cooked chicken and is a function of initial contamination and changes due to process and retail conditions. Thermal death of *Salmonella* occurred in all broiler chicken carcasses cooked by frying, baking and boiling; and the pathogen survived only in 11 out of 100,000 grilled broiler chicken carcasses modelled.

Keywords: Mark Mahadeo Dookeran; Quantitative Risk Assessment Model; Salmonella; Broiler chicken.