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Validation of critical control points in HACCP system for broiler processing

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Processing is the final step in the production of broiler chicken and the quality of the final product is dependent on proper processing conditions. Internationally accepted food safety management tool, Hazard Analysis and Critical Control Point (HACCP) certification and Good Manufacturing Practices (GMP) are essential to achieve well recognized market standard. Therefore the presence study was conducted to validate Critical Control Points (CCPs) of existing HACCP system in one of the largest broiler processing company. Ante mortem Inspection, Evisceration, Post Mortem Inspection, Chilling of Carcass, Chilling of Giblets, Blast Freezing and Storage are the main CCPs in broiler processing. Although, evisceration is the most critical place which causes more hazards in manufacturing process. Hence validation was done only for evisceration process using swab sampling technique and visual observations from randomly selected carcasses. Swab samples were taken from 3 places of the surface of carcasses to estimate the *E. coli, Coliform* and Total Plate Count (TPC). Gut and organ damages, faecal and bile contaminations were selected as the visual observation parameters. In addition, the effect of distance (30, 30-60 and >60 km) and time of live bird transportation on carcass quality was assessed counting the number of physically damaged carcasses (hemorrhages, bruises, dislocations) from randomly selected carcasses from each farm. Microbiological analysis reveal that the *E. coli/ Coliform* and TPC have reduced after evisceration with compared to before evisceration. *E-coli, Coliform* and TPC values were log 3.48, log 3.9 and log 5 before evisceration and log 3, log 3.48 and log 4 after evisceration. Visual observations shown that there were significantly high level of gut damages (30%) and faecal contamination (20%) during processing and highest level of gut damages and faecal contamination were observed in 1st hour of production due to the instrument used for vent cutting. There were higher level of organ damages (40%) and bile contaminations (10%). It depended on skillness of labour for organ harvesting. Time of transportation had no effect on carcass quality parameters due to different practices. The high percentage of physical damages when transporting less than 30 km, would be due to the overcrowding of the crates to reduce the number of journeys. Effectiveness of existing carcass washing system is low in removing contaminations and evisceration methods adopted in present situation may cause higher contamination and gut damages. Therefore a Chlorinated water spray with a concentration of 5ppm after defeathering prior to the evisceration is recommended.

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