Identification of the Critical Control Points (CCPs) of a Commercially Established Pasteurized Milk Factory in Colombo

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HACCP is a systematic method of identifying, evaluating and controlling all possible hazards associated with a food chain. Implementation of HACCP system has become a necessity for dairy processors to assure the safety and quality of their products. This study was designed to identify CCPs in pasteurized vanilla milk processing line in a commercially established pasteurized milk plant. Preliminary study was carried out to familiarize with the production process while identifying the sample collecting points as raw milk receiving, mixing tank, filling unit and storage. Samples were collected from raw ingredients receiving to the final product. Collected samples were analyzed for physical, chemical and biological hazards. To determine biological hazards, total plate count (TPC), Coliform and yeast and mould tests were done. Adulteration tests for chemical hazards and visual observation for physical hazards were done. According to analysis, physical contaminants were present in raw milk samples. However, no chemical contaminants were detected. Microbiological hazard analysis revealed that TPC and coliform count were high in raw milk samples from bowser. TPC counts of raw milk samples from different milk collecting centers were 7.39±0.31, 7.43±0.27, 7.37±0.31, 7.01±0.20 and 7.40±0.26 log cfu ml^{-1} respectively while Coliform counts were 5.27±0.48, 5.18±0.55, 5.19±0.31, 5.32±0.37 and 5.23±0.42 log cfu ml^{-1}, respectively. All samples collected before pasteurization were positive for coliform. Post pasteurization contamination was observed in few batches while samples collected after pasteurization were positive for coliform. Post pasteurization contamination was not observed in the rest of the batches. Therefore, receiving of raw milk and the storage tanks of pasteurized milk were identified as the CCPs in the production process. Monitoring and controlling the identified CCPs are really essential to ensure the safety of the final product for the consumers.

Keywords: HACCP, Coliform, Pasteurization, Total plate count