Identification of the critical control points of a newly established commercial Spray Dried Milk Factory

L.R. Rajapaksha, A.L.Y.H. Aruppala, E.D.N.S. Abeyrathne*

Department of Animal Science, Uva Wellassa University, Badulla 90000, Sri Lanka

Food industries maintain number of quality assurance systems to produce safe and quality product. Among them HACCP focus on food production, storage and distribution monitory system for identification and control of associated health hazards. Study was carried out for identification of critical control points (CCPs) for an newly established spray dried milk factory as an initiation to develop the HACCP plan. Preliminary studies were carried out to identify the processing steps and sample collection points. Samples were collected from all processing steps, raw materials to the final finished products. Hazard analysis and the quality of the product were assessed using microbiological (total plate count and coliform) properties and chemical adulterations. According to the preliminary analysis, total plate count (TPC) of the samples taken from raw milk silos was significantly higher than the standard ($p<0.05$) which range from 6.72±0.65 log cfu while coliform results were positive. Adulterations were also positive at this stage in milk. Samples taken after pasteurization (80°C, 15 seconds) and balance tank (before evaporate) were not contaminated from the coliform, but TPC of pasteurized milk vat 4.99±0.43 log cfu/ml) and balance tank before evaporator (4.84±0.45 log cfu $m1^{-1}$) was significantly higher than the standard value ($p<0.05$). However TPC count after the evaporation step (4.08±0.36 log cfu ml^{-1}) and final packed samples (2.68±0.23 log cfu $m1^{-1}$) were less than the standard value ($p>0.05$) and coliform were negative in both conditions. According to the analysis; raw milk silos, pasteurized milk vats and the balance tank (before evaporator) were identified as the three CCPs and evaporate milk vats and the fluid bed identified as the critical points. Therefore more attention need to be given to control the three CCPs of the process line of spray dried milk factory.

Keywords: Critical control point, Microbial contamination, Hazard analysis, HACCP