Identification of Possible Microbial Contamination Points and Sources in Commercial Tea Blending Process Factory in Kelaniya

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Exporting quality deteriorated tea will degrade the brand reputation of "Ceylon tea". Rejecting tea at point of export will result a loss of international tea market. Objective was to determine the major contamination sources during black tea blending processing in tea blending factory in Kelaniya, Sri Lanka. Nine control points including 06 swab collecting points (packing materials, blending floor, employees' hands, 3 stainless steel equipment used) and 03 tea samples (raw material feeding point, conveyor belt, bag feeding point) have been examined for the enumeration of total aerobic mesophilic bacteria, *Coliforms, Escherichia coli,* yeast and mould and *Salmonella.* Microbial count of raw and blended black tea was benchmarked with SLS black tea standards followed by Sri Lanka tea board. Microbial count of raw black tea and blended black tea for total aerobic bacteria and yeast and mould were log 12.2122 ± 0.6232 cfu /g, log 13.3636 ± 0.8751 cfu /g and log 11.9699 ± 0.7404 cfu/g, log 12.0755 ± 0.8751 cfu/g respectively and exceeded the acceptable level according to the Sri Lanka tea board. Employees' hands and blending floor were positive for *E.coli* and *Salmonella* tests indicating that high possibility to contaminate Black tea blending process through faecal matter. Control point examination identified, raw material as the primary contamination and personnel hands and blending floor as the secondary contamination sources. High microbial count of blending floor may be due to shoes of visitors and supervisors walking across the floor. In conclusion, there is a requirement to initiate GMP for primary tea processing to select black tea with low initial microbial counts to the plant. Initiation of proper hygiene conditions with sufficient sanitary applications is necessary to eliminate remaining particles from initial blending to minimize cross contaminations.

Keywords: Black tea, Microbial contamination, SLS standards