

**Identification of possible microbial contamination points
and sources in commercial tea blending process factory
in Kelaniya**

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ABSTRACT

Exporting quality deteriorated tea will degrade the brand reputation of “Ceylon tea”. Rejecting tea at point of export will cause 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. 09 control points including 06 swab collecting points (packing materials, blending floor, employees’ hands, stainless steel equipment used) and 03 tea samples (raw material feeding point, from conveyor belt, bag feeding point) have been examined for the enumeration of total aerobic mesophilic bacteria, *Coliforms*, *Escherichia coli*, Yeast and mold 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 mold were $1.63 \pm 0.42 \times 10^{12}$ cfu/g, $2.31 \pm 0.075 \times 10^{13}$ cfu/g and $9.33 \pm 5.50 \times 10^{11}$ cfu/g, $1.19 \pm 0.75 \times 10^{12}$ 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 fecal 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. As consequences, there is a requirement to initiate GMP for primary tea processing to select black tea with low initial microbial counts to the plant with more emphasis on processing in proper hygiene conditions with sufficient sanitary applications to eliminate remaining particles from initial blending to minimize cross contaminations.

Key Words: Black tea, Microbial contamination, SLS standards