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A comparative study of the quality of yoghurt marketed in Southern Sri Lanka by large scale manufacturers and by rural households

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Yoghurt is an end product of controlled lactic fermentation by thermophilic lactic acid bacteria namely *Streptococcus thermophilus* and *Lactobacillus delbrueckii ssp. bulgaricus*. Apart from the commercial (C) dairies many small scale (SS) yoghurt producers are scattered through out the country and at present, yoghurt production is increasing as one of the major self employment ventures. Therefore, a study was conducted to compare the quality of yoghurt marketed by commercial dairies and small scale producers in Southern Province of Sri Lanka. The samples of yoghurts (from 2 batches) marketed by five C and five SS manufacturers were collected from retail shops in Matara District of Sri Lanka. Microbiological quality of the yoghurt samples were tested for coliforms, yeast and mould counts. Physico-chemical parameters such as pH, titratable acidity, MSNF%, fat% and protein% were also determined. Sensory evaluation was conducted for C and SS yoghurts by 30 panelists using 5 point hedonic scale. Complete Randomized Design was used and data were analyzed. Mean pH of the C yoghurts was 4.02 ± 0.19 while in SS yoghurts 4.13 ± 0.19 and were not significantly different ($p > 0.05$). Titratable acidity% (C 1.0 ± 0.13 , SS 1.0 ± 0.13), MSNF% (C 13.5 ± 1.83 , SS 14.08 ± 1.1) and fat% (C 3.15 ± 0.09 , SS 3.38 ± 0.40) were also had no significant differences ($p > 0.05$) and those values comply with Sri Lanka Standards. Further, CP% (C 3.57 ± 0.069 , SS 3.15 ± 0.48) showed no significant difference ($p > 0.05$). Coliforms were detected only in SS yoghurts. Yeast (C 0.62 ± 0.03 log cfu/g, SS 3.5 ± 0.37 log cfu/g) and mould (C 0.28 ± 0.06 log cfu/g, SS 2.52 ± 0.34 log cfu/g) counts were significantly higher ($p < 0.05$) in yoghurts produced by SS producers and the values exceeded the standards. Significant differences ($p < 0.05$) were observed in physico-chemical and microbiological parameters of the yoghurts among C as well as SS producers. A significant difference ($p < 0.05$) was observed only in flavour score in C and SS yoghurts while highest score for overall acceptability was obtained by a SS yoghurt even though it was not significant. However, based on the microbiological studies it can be concluded that, SS yoghurts were not according to the standards and hygienic conditions should be improved to market a quality product for consumer safety and satisfaction.

Keywords: commercial, small-scale, yoghurt, quality