EFFECT OF MILKING TIME AND STORAGE TEMPERATURE ON THE MICROBIOLOGICAL QUALITY OF RAW MILK

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Farmers tend to chill the evening milk using domestic refrigerators and mix with the morning fresh milk in the following day due to the inadequacy of evening milk collecting facilities. The objectives of the current study were (1) to evaluate whether the Total Plate Counts (TPC) differ in milk samples obtained from different milking times (2) whether the chilled evening milk at farmer refrigerators affect the TPC levels. The data were analyzed as randomized block design for objective one and complete randomized design for objective two. Milk samples (N=180) were collected from 15 dairy farmers in the Anuradhapura District, Sri Lanka. Milk samples were collected from each farmer for three (3) consecutive days. In the first study milk samples were collected as evening (a), morning (b), evening chilled (c) and the mixture of evening chilled with the following day morning fresh milk (d). In the second study, evening fresh milk samples were chilled under laboratory conditions at 4°C, 6°C and 8°C and also at the farmer's refrigerators. All these samples were cultured and evaluated for TPC. The average TPC values obtained for a, b, c and d samples in the first study varied between $\log_{10}$ 8.13 $CFUmL^{-1}$ and $\log_{10}$8.18 $CFUmL^{-1}$ respectively. These TPC values didn't show any significant difference but they were higher than standard TPC level ($\log_{10}$5.0 $CFUmL^{-1}$) for raw milk. In the second study the lowest TPC values ($\log_{10}$8.13) were resulted from samples stored at 4°C compared to 6°C, 8°C and farmer's refrigerator. This study concludes that milk stored at the domestic refrigerators fail to maintain the optimum chilling temperature (4°C) and milking time has no effect on the microbiological quality of raw milk.

Keywords: Microbiological quality, Raw milk, Storage temperature