EVALUATION OF QUALITY OF RAW MILK AT SELECTED CHILLING CENTERS IN ANURADHAPURA DISTRICT

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Milk is a rich biological fluid which contains all necessary nutrients for animals,thus it easily undergoes microbial contamination and spoilage. This study was carried out to evaluate the microbiological and physiochemical quality of cow milk at different sampling points; selected chilling centers, milk transportation vessels and farmers in Anuradhapura district. A total of 11 chilling centers were selected for the study and classified as low and high risk centers. Totally 80 samples were tested for total bacterial count (TBC) and total coliform count (TCC) and analyzed by poisson regression in SAS. In total of 79 samples were tested for predicted probabilities of alcohol test, clot on boiling test and organoleptic characteristics (appearance, smell, and colour) and analyzed by logistic regression in SAS and Kruskal Wallis test using Minitab, respectively. Altogether of 78 samples were measured for titratable acidity, pH, density, freezing point, fat, solid-non-fat (SNF), proteins, lactose and added water content and analyzed by one sample t-test using Minitab. Results revealed that there were no significant differences ($p>0.05$) observed in organoleptic characteristics and predicted probabilities of alcohol and clot on boiling test between, low and high risk chilling centers, low and high risk farmers, farmers and chilling centers and chilling centers and transportation vessels. Higher microbial counts for TBC and TCC were observed in chilling centers, transportation vessels and farmers with compared to the standards. The TBC and TCC showed a significant difference ($p<0.05$) between low and high risk chilling centers, low and high risk farmers, chilling centers and transportation vessels and chilling centers and farmers. Milk titratable acidity, pH, density, fat, SNF, proteins, lactose and added water content were significantly differed ($p<0.05$) with acceptable values and milk freezing point did not show any significant difference ($p>0.05$) in all tested samples. In conclusions, microbial contamination occurs at every point of milk handling as expected. The contamination of milk is started at the farmer level and leads to poor quality milk. Thus, proper awareness programs should be carried out effectively to educate dairy farmers on clean milk production.

Keywords: Bacterial count, Coliform count, Organoleptic characteristics, Raw milk