

## Microbiological quality of cow's milk produced by small scale farmers in Lankapura, Polonnaruwa district, 2018

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At present, in Polonnaruwa, there is a tremendous development in dairy sector. Milk is a rich biological fluid which contains all necessary nutrients. But, milk quality issues were raised by the consumers and producers who collected milk from Lankapura. Although, measures have been taken to increase the milk production, the microbiological quality of milk has not been thoroughly evaluated in area. So, this study was carried out to compare and evaluate the microbiological quality of raw cow's milk collected from small scale farmers and bulk milk tanks in the study area. A total number of fifty milk samples were collected from eleven small scale dairy farmers (25 samples) and 11 bulk milk tanks (25 samples) of milk collecting centers in Lankapura. The study was carried out from March to May, 2018. All laboratory tests were done at Veterinary Investigation Center, Polonnaruwa. The microbiological quality evaluation was done based on Standard plate count (SPC) test, titratable acidity test, alcohol test and Resazurin test. Data were analyzed using SPSS version 22.0 software. According to O'Connor *et al* 1994, milk produced under hygienic conditions from healthy cow should not contain more than  $5 \times 10^5$  bacteria per ml. ( $5.699 \log_{10}$  CFU/ml). According to the study, average level of bacterial count of household milk production was  $6.193 \pm 0.311 \log_{10}$  CFU/ml. Average level of bacterial count of bulk milk production was  $6.6427 \pm 0.322 \log_{10}$  CFU/ml. According to the results, bacterial counts were not in acceptable level for both household and bulk milk samples. All milk samples collected from bulk milk tanks were likely to clot by alcohol test and 56% samples collected from households were clot. In Resazurin test, none of the bulk milk product performed in blue colour while few household milk productions (12%) performed in blue colour for resazurin test. According to the study, average level of acidity of household milk production was  $0.229 \pm 0.029\%$  and the average level of acidity of bulk milk production was  $0.294 \pm 0.020\%$ . According to O'Connor *et al*, 1995, normal fresh milk has an apparent acidity of 0.14% to 0.16% as lactic acid. Acidity levels of milk samples were higher than accepted level. As well as, there was a high statistical significance between the households and bulk milk samples. All the tests indicated that the microbiological quality of the study area was poor due to unhygienic practices. Acidity and microbial load of bulk milk samples were significantly higher than the households. It was understood that there were inadequate sanitary practices occurring among the groups. Hence, adequate sanitary measures should be taken at all stages from production to consumption such as proper handling of the cow, good personnel hygiene and improving milk handling environment. So, educating farmers on clean milk production and microbiological quality based payment systems are recommended.

**Keywords:** Milk, Microbiological, Bulk, Hygienic Practices

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