

ANIMAL HEALTH & VETERINARY MEDICINE

October 20-21, 2017 | Toronto, Canada

Investigation of microbial quality, somatic cell count and lipolytic activity of raw milk collected from Galaha and Thalathuoya veterinary ranges in Sri Lanka

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The objective of this study was to investigate the quality of raw milk by aerobic plate count (APC), psychrotrophic bacterial count (PBC), free fatty acids (FFA), somatic cell count (SCC) and occurrence of antibiotic residues in milk collected from Galaha and Thalathuoya Veterinary Ranges (VR). The values of APC and PBC were determined according to the standard culture methods. FFA was determined by extraction–titration method and SCC was determined by using a DeLaval cell counter. Occurrence of antibiotic residues in milk was detected by Beta Star Combo Rapid Test. The above mentioned parameters were determined in bulk milk samples (n=50) collected from Farmer Managed Societies (FMS). SCC were determined in all individual farmer milk samples (n=176). The data were evaluated by regression methods. Mean APC and PBC in both VR exceeded the acceptable levels of 1×10^5 CFU/mL and 5×10^4 CFU/mL, respectively. Strong correlation was warranted between APC and PBC ($P < 0.05$; $r = 0.77$), whereas, FFA was more closely correlated with PBC ($P < 0.05$; $r = 0.34$). The acceptable FFA content (0.5-1.2 mmol/100 g) was exceeded in 48% and 52% of raw milk in Thalathuoya and Galaha VR, respectively. Except for milk collected from three FMS, milk collected from all other selected FMS exceeded the limit of SCC (200,000 SCC/mL) for good quality milk. Fifteen percent of samples showed positive results for antibiotic residues, whereas five percent was strongly positive. Results from the current study suggest that microbiological quality of raw milk collected from two VR is below the acceptable levels.

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