

**TITLE:** INFLUENCE OF THE TYPE OF REFRIGERATION BULK MILK TANK ON THE BACTERIAL QUALITY OF MILK

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**ABSTRACT:**

The low microbiological quality of milk is related to multivariate factors, one of them is the type of tank used to refrigerate the product. Accordingly Brazilian rules three hours after milking, the milk must be up to a temperature equal to or less than 4 ° C at expansion tank, and at the immersion tank the refrigeration of the milk must be at least up to 7 ° C. This difference in temperature drop can influence the microbiological quality of milk. Thus, the objective of this study was to verify whether there was association of bacterial contamination of milk with the type of tank used in the property. In this way fourteen rural properties were studied. There were collected milk samples directly from the tanks and the total coliforms (TC) and *Salmonella* were screened in milk. The total coliforms were enumerated by Coliform Count Plate-Petrifilm™-3M and *Salmonella* was screened as recommended by Food and Drug Administration-Bacteriological Analytical Manual methodology. Descriptive statistics and correlation analyses were performed between the microbiological counts and the type of tank. The Mann-Whitney U test was utilized. All tests were considered significant when  $p < 0.05$ . All analyses were performed in the SPSS 20.0 program. From 14 tanks sampled, in 11 (79%) properties, the milk was refrigerated in expansion tank and in three (21%) worked with immersion type. The mean TC was 2.5 log<sub>10</sub> CFU/mL in the milk refrigerated in the expansion tank and 3.4 log<sub>10</sub> CFU/mL in the milk refrigerated in the immersion tank. There was not detected *Salmonella* at any sample. The properties that cooled milk in the expansion tank had a lower TC count, confirming the best efficiency in the conservation of milk than those cooled in the immersion tank. With the results found, it was possible to infer that the contamination by total coliforms of milk was influenced by the type of tank used to refrigerate the milk, although this condition may be affected by a multi factorial parameters, not only the bulk milk tank.

**Keywords:** Total coliforms, *Salmonella*, immersion tank, expansion tank