

Reduction of the Microbial Load of Biocontaminated Bovine Milk Using Grounding with Copper Wire

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Abstract : With the aim of evaluating the effects of grounding with copper wire on the reduction of the microbial load of biocontaminated milk samples and on their acidification over time, two complementary experiments were carried out. In the first, the treatments consisted of: i) raw milk sample (control), ii) slow pasteurization, iii) grounding with copper wire and, iv) contact with copper ring. Analyzes of total, thermoresistant and mesophilic coliforms were performed 30 minutes after the application of these treatments. In the second experiment, under the same conditions as the first, measurements of pH and Dornic acidity were performed at 0, 0.5, 2, 4, 8, 12, and 24 h from the installation of the experiment. Pasteurization eliminated almost all groups of bacteria present in the milk samples while grounding only allowed reductions in the population of thermotolerant coliforms and mesophiles, both greater than 95%, maintaining, however, unchanged the amounts of total coliforms. The copper ring, in turn, had no effect on the microbiological parameters studied. The reduction in the population of mesophiles in grounded milk samples, contrary to what happened with pasteurized milk, was not enough to inhibit the acidification process over the experimental period.

Keywords : pasteurization, low frequency electric current, thermotolerant coliforms, mesophiles in bovine milk

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