

TITLE: EFFECT OF THE TOTAL BACTERIAL COUNT OF THE RAW MILK ON THE MINAS FRESCAL CHEESE QUALITY.

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ABSTRACT

The present study aimed to evaluate the effects of different levels of the total bacterial count (TBC) of the raw milk on the physical, chemical and microbiological characteristics of Minas Frescal cheese. Milk samples with two levels of TBC were used to manufacture the cheeses: low TBC (<50.000 CFU/mL, average of 18.400 CFU/mL) and high TBC (\geq 50.000 and <100.000 CFU/mL, average of 74.160 CFU/mL). The manufacture of cheeses included: pasteurization of the milk (72°C, 15 seconds), addition of ingredients (calcium chloride, sodium chloride and rennet), coagulation, mass cutting, desorption, forming and packaging of the products. The cheeses were packed in plastic bags and analyzed on days 1, 7, 14 and 21 after manufacture and during that period were kept in a cold chamber at 6°C. The sequence of elaboration of the Minas cheeses was repeated 3 times, for each level of TBC, totaling 60 units per TBC level. Five cheese units were analyzed per day, the physical-chemical parameters evaluated were: percentages of fat, humidity, protein, pH, titratable acidity and extent of lipolysis, and the micro-organisms evaluated were: thermotolerant coliforms, coagulase-positive staphylococci, *Salmonella* spp. and *Listeria monocytogenes*. In the Minas Fresch cheese there were no interaction between TBC levels and storage days for humidity, protein and fat contents, however, there was a significant effect ($P<0.01$) between the percentage of humidity for high TBC group (60.77%) and low CBT (63.47%). For the characteristics pH and titratable acidity there were a significant interaction ($P<0.01$) between TBC and storage days, for pH the low TBC group did not present expressive variation (6.59-6.49), while the high TBC group presented a decrease from 6.72 to 6.15, the increase of acidity was observed in both treatments, but to a greater extent in the high TBC group. The extent of lipolysis showed interaction ($P<0.05$) between TBC and storage days, on day 21. *Salmonella* spp. and *Listeria monocytogenes* were not found in the cheeses, 5.2% of the samples presented thermotolerant coliforms, but in quantity allowed by the brazilian legislation, however, on the 14th day after the manufacture, 4.35% of the samples presented coagulase-positive staphylococci above the legal standards. The results of the study indicated that the milk destined to the manufacture of Minas Frescal cheeses should have low levels of TBC in order to avoid changes in product quality throughout the period of storage.

Keywords: milk quality, microbiological evaluation, physico-chemical evaluation.