

TITLE: DEVELOPMENT OF PSYCHROTROPHIC MICROORGANISMS WITH PROTEOLYTIC ACTIVITY IN RAW MILK SUBMITTED TO DIFFERENT TIME AND STORAGE TEMPERATURE CONDITIONS

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ABSTRACT

Milk quality is directly related to milking and storage conditions, thus influencing the quantity and characteristics of the microorganisms found in the product. Proteolytic psychrotrophic bacteria multiply at low temperatures and synthesize, during their development, thermostable enzymes that can cause changes in milk through protein degradation. This microbiological condition can influence processing, yield and acceptability due to taste and odor changes in dairy products. Thus, this study aimed to verify the influence of different time and storage temperature conditions on proteolytic activity in raw milk. Samples of raw milk from 10 different rural properties in Palotina-PR region were analyzed. The samples were processed in LACOMA / UFPR and were submitted to proteolytic psychrotrophic count on 10% milk agar at zero time (immediately after collection) and after five storage simulations: 25°C and 35°C for 2h, and 7°C for 24, 48 and 60h. In all tested storage conditions, an increase in proteolytic psychrotrophic multiplication was observed. The binomials time x temperature of 2h at 25°C and 2h at 35°C showed an increase in the microbial counting of 0.40 and 0.16 log CFU/mL in relation to time zero, respectively. In 24h, 48h and 60h the multiplication was 1.19, 3.28 and 3.11 log CFU/mL, respectively. Therefore, it can be concluded that the binomials time x temperature used in this study were not sufficient for the control of the studied microbiota, mainly, the temperature of 7°C was not able to control the multiplication of the proteolytic psychrotrophic microorganisms studied. In addition, it is important to associate the correct milk storage with a hygienic production, guaranteeing a low initial microbial load and, consequently, lower rates of microorganism multiplication.

Keywords: microbiology, proteolytic psychrotrophic, microbial identification, milk quality

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