

MICROBIOLOGICAL ANALYSIS OF PASTERURIZED AND STERILIZED MILK WITH EMPHASIS ON THE IMPACT OF STORAGE TIME AND TEMPERATURE ON THE GROWTH AND DEVELOPMENT OF MICROORGANISMS

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Abstract

Milk is an excellent breeding ground for bacteria and a large number of different species of fungi and other microorganisms. It represents food that easily and commonly gets contaminated with non-pathogenic and pathogenic microorganisms. The aim of this research was to determine the microbiological quality of sterilized and pasteurized milk immediately after opening the product, and to investigate the influence of temperature and storage time on the growth and development of microorganisms in the milk.

Randomly taken 30 samples of commercially available milk were analyzed on presence of *Escherichia coli*, coagulase-positive staphylococci, *Salmonella* sp., sulphite reducing clostridia, and the total number of bacteria. The samples were microbiologically tested immediately after opening the products, afterwards then they were left at 25 °C and 4 °C for 72 hours. Microbial analysis was performed according to the standard ISO methods. Statistical method was performed according to Student t-test.

This study concluded out that pasteurized milk is more susceptible to deterioration at room temperature than sterilized milk. Presence of all tested bacterial strains except *E. coli* and sulphite reducing clostridia was recorded. Comparison of the number of microorganisms grown from samples stored at different temperatures showed statistically significant differences at the level of 0.05. Temperature as an important factor for the growth and development of microorganisms affected and the microbiota, stored at temperature of 25 °C.

Study results indicates that there is a difference in the presence of all bacterial species in sterilized and pasteurized milk after 72 hours storage at refrigerator and room temperature.

Key words: Milk, Sterilization, Pasteurization, Total number of bacteria, Time and storage temperature.