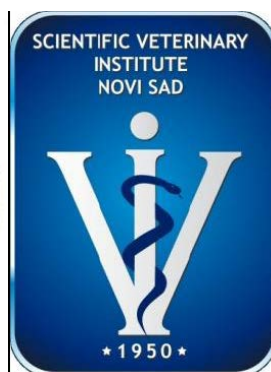


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GROWTH OF HEAT-RESISTANT MICROORGANISMS ISOLATED FROM MILK AT STORAGE TEMPERATURES FOR DAIRY PRODUCTS

Milijana Babić, Radoslava Savić Radovanović, Aleksandra Nikolić, Silvana Stajković

Abstract: In the dairy industry temperatures of pasteurisation are applied to destroy pathogen microorganisms and reduce the number of saprophytic microorganisms. Among saprophyte microorganisms there are microorganisms that survive pasteurization temperatures and it can be spore-forming, or non-sporeforming gram-positive bacteria. Heat-resistant microorganisms are defined as microorganisms that survive temperature of low pasteurization (at 63–65°C for 30 minutes). Some mesophilic microorganisms possess heat-resistant spores that survive high heat regimes, and after completed heat treatment there is possibility for spore germination, which then may propagate under conditions of room temperature or in conditions for cheese ripening.

The aim of this study was to determine the ability of heat-resistant microorganisms to grow at storage temperatures for milk and cheese ripening.

Material represented 20 isolates of heat-resistant microorganisms from milk. The isolates of heat-resistant microorganisms from slant were seeded into nutrient broth, which was incubated at 30°C for 24h, and then from prepared serial decimal solutions inoculated 1 ml from corresponding decimal dilution into sterile Petri-dish, which was overflowed with nutrient agar. Inoculated Petri-dishes were incubated at 30°C/72h, then at room temperature (20±2°C/72h), because these are conditions for storage of products such as sterilized milk, whereas temperature of 10°C±1°C/10 days, because it is temperature for storage of pasteurized milk, and temperature for cheese ripening as well. Standard SRPS ISO 4883 was used for the enumeration of microorganisms.

The results showed that 20 isolates grew at 30°C/72h and room temperature (20±2°C/72h), and there is no deviation between average values for number of heat-resistant microorganisms (\log_{10} cfu/mL), but it was observed that interval between minimal and maximal number (\log_{10} cfu/mL) was higher for isolates incubated at room temperature. At temperature for cheese ripening 10°C±1°C, 9 isolates of heat-resistant microorganisms did not show growth and remaining 11 isolates grew and the number ranged from 6,32 to 4,10 \log_{10} cfu/mL (\bar{x} =5,26).

Key words: *heat-resistant microorganisms, growth, storage temperatures*

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