The growth of Bacillus cereus and Clostridium perfringens spores under a variety of preparation and storage condition

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Abstract

The aim of this study was to evaluate the ability of Bacillus cereus and Clostridium perfringens spores to survived in different preparation temperature (25, 35, and 70°C for B. cereus and 25, 45, 70°C for C. perfringens) and modified storage condition (with 50 and 75% humidity; opened, closed and opened twice a day during period of observation) of powdered milk formula. The spores of B. cereus ATCC 13061 and C. perfringens CP-1 artificially contaminated to the milk formula. Results showed that B. cereus and C. perfringens spores were germinated and growth in reconstituted milk formula. Bacteria population increased ?1 log within 3 hours at room temperature (28-29°C). The spores of both bacteria survived from dry condition of powdered milk formula, like when aw of the formulas increased cause of storage condition.

Key words: Bacillus cereus, Clostridium perfringens, powdered milk formula, preparation temperature, storage condition.