

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.