

Title : Microbiological Safety Assessment of Cooked Foods After Portioning in Airline Catering Under Cold Chain Systems at Different Storage Durations

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ABSTRACT

Airline catering operations involve large-scale cooked food production which requires strictly quality control under cold chain systems at 4°C, with a regulatory requirement to deliver meals on board within 24 hours. However, variations in storage duration may promote microbial growth, which may lead to a direct risk of food safety and passenger meal standards.

This study aimed to evaluate the relationship between storage duration and microbial counts in cooked foods following the portioning process at 4°C, at storage intervals of 0, 24, and 36 hours. The results revealed that total microbial counts increased progressively over time, from 1.2×10^3 CFU/g at 0 hour to 4.5×10^4 and 1.8×10^5 CFU/g at 24 and 36 hours, respectively. Despite this increase, all counts remained within established food safety standards. No contamination of *Escherichia coli* or *Listeria monocytogenes* was detected at any time point, while *Bacillus cereus* was found only in trace amounts at 36 hours, which was below the hazardous thresholds.

In conclusion, using the cold chain system at 4°C effectively maintained microbiological safety of cooked foods prepared by the Catering Department of Thai Airways International Public Company Limited for up to 36 hours, which exceeded the standard 24-hour requirement. Therefore, results from this research can be used to apply for a risk management and guideline planning for a more food safety storage.

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