

Title : Effects of Sodium Hypochlorite Soaking Time on the Microbiological Quality of Fresh Vegetables
Prepared by the Airline Catering

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ABSTRACT

Fresh vegetables are considered high-risk ingredients for microbial contamination due to exposure during cultivation, harvesting, transportation, and trimming processes, which may affect the food safety. This concern is particularly critical in foods prepared by the airline catering, where strict sanitary standards are required. Chlorine-based sanitizers, such as sodium hypochlorite, are therefore commonly used in vegetable washing processes. However, inappropriate soaking times may influence both microbial reduction efficiency and production performance. This study investigated the impact of sodium hypochlorite immersion time on the microbiological quality of fresh Chinese cabbage. Samples were assigned to four groups: an untreated control and three treatment groups immersed in 50 ppm sodium hypochlorite for 3, 5, and 7 minutes. After treatment, samples were rinsed with sterile water for 30 seconds. Microbial analysis for *Escherichia coli*, *Salmonella* spp., and *Listeria monocytogenes* was conducted, and results were expressed as CFU/plate.

The results showed that the control group had very high microbial counts for all three microorganisms. Soaking for 3 minutes resulted in *E. coli* counts of 60.33 ± 26.11 CFU/plate, while *Salmonella* spp. and *L. monocytogenes* were not detected in all treated samples. Increasing the soaking time to 5 minutes reduced *E. coli* counts to 2.00 ± 3.46 CFU/plate. Soaking for 7 minutes further reduced *E. coli* counts to 0.33 ± 0.58 CFU/plate, with no detection of *Salmonella* spp. and *L. monocytogenes* in any treated group. It can be concluded from this study that soaking the fresh Chinese cabbage in 50 ppm sodium hypochlorite solution for 7 minutes revealed the highest efficiency in microbial reduction and is appropriate for controlling microbiological quality of fresh vegetables prepared by the Catering Department of Thai Airways International Public Company Limited.