

Publication abstract

Bacteriophage treatment for reduction of *Listeria monocytogenes* on tuna sashimi

Based upon:

“Efficacy of LISTEX P100 at Different Concentrations for Reduction of Listeria monocytogenes Inoculated in Sashimi”

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Due to the expanded consumption of sashimi, interest in intervention methods for pathogenic bacteria on fish, such as *Listeria monocytogenes*, has increased. Because of its psychrotrophic growth and widespread prevalence, *L. monocytogenes* poses a challenge to food safety management systems in controlling its presence and multiplication. A study conducted by the School of Agrarian and Veterinary Sciences and the Animal and Veterinary Research Centre at the University of Trás-os-Montes e Alto Douro, Portugal, researched the effectiveness of bacteriophage (phage) product [Phageguard L \(PGL\)](#) (also known as Listex) to inactivate *Listeria* on tuna sashimi.

Trial setup

It is important to replicate the circumstances of the processing environment to assess whether an intervention is successful in inactivating *Listeria* in industrial processes. In this study, a laboratory setup was used to mimic the industrial process. Inoculation of the tuna slices was performed at two different contamination levels. Phages were added at two different concentrations. Two different incubation temperatures were used: one to mimic room temperature and one to mimic storage temperature. Phage concentration and temperature are parameters directly related to efficacy.

Conclusion

The study results showed that at both temperature conditions, high *Listeria* reductions were observed on the tuna slices. The method using low temperature and a high phage dose was effective in reducing *Listeria monocytogenes* to near-zero counts within the first 24 hours, with a maximum reduction of 3.33 log. At room temperature, both phage doses showed even higher log reductions. These findings demonstrate the effectiveness of Phageguard L for *Listeria* control on tuna used for sashimi.

3.3 log
Reduction

Maximum reduction of *Listeria* on tuna sashimi

Study results showed a maximum *Listeria* reduction of 3.33 log on the tuna slices. Within 24 hours after treatment, reductions up to near-zero counts of *Listeria* were achieved. These results indicate the efficacy of Phageguard L for *Listeria* control on tuna for sashimi products.

