

# Publication abstract

## Bacteriophage application to control *Listeria monocytogenes* in smoked rainbow trout

### Based upon:

*“Prevalence of Listeria spp. in Seafood Samples and Control of Listeria monocytogenes with Using LISTEX™ P100 Bacteriophage Applications in Smoked Rainbow Trout”*

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*Listeria monocytogenes* is a critical concern for ready-to-eat (RTE) smoked seafood due to its resilience in cold storage and ability to thrive under various environmental conditions. A study conducted by the Izmir Katip Celebi University in Turkey investigated the efficacy of the bacteriophage (phage) product [Phageguard L \(PGL\)](#) (also known as Listex), as a biocontrol strategy against *L. monocytogenes* in smoked seafood

## Trial setup

In this study, smoked trout fillets were inoculated with *L. monocytogenes* strains to evaluate the effects of Phageguard L bacteriophage on bacterial reduction. Four experimental groups were used: trout fillets treated with alginate film containing PGL, a control group with film lacking phage, and a group where PGL was directly applied, and an untreated control. The inoculated trout fillets were stored, and bacterial counts were measured at different intervals from 0 hours to up to 7 days. The bacteriophage-treated groups were designed to evaluate the efficacy of phage biocontrol methods in reducing *L. monocytogenes* counts under typical storage conditions.

## Conclusion

The results demonstrated that direct application of bacteriophage provided the most significant reduction of *L. monocytogenes*, with a 5 log decrease within 24 hours. The phage-infused films reduced *L. monocytogenes* levels by 1.67 log over 7 days. While the film containing phage demonstrated considerable bacterial inhibition, the direct application to the surface of the trout achieved the highest bacterial reduction over the 7-day storage period. This study indicates the efficacy of Phageguard L as a biocontrol agent for enhancing the safety of smoked seafood products, especially in ready-to-eat formats.

**5.0** log  
Reduction

### *Listeria* inactivation in smoked rainbow trout

Within the first 24 hours post-treatment, the direct application of Phageguard L resulted in up to a 5.0 log reduction of *L. monocytogenes* counts in the smoked rainbow trout.

