Publication abstract

Listeria inactivation on various food contact surfaces and in ready-to-eat dry-cured ham

Based upon:
"Applicability of commercial phage-based products against Listeria monocytogenes for improvement of food safety in Spanish dry-cured ham and food contact surfaces"

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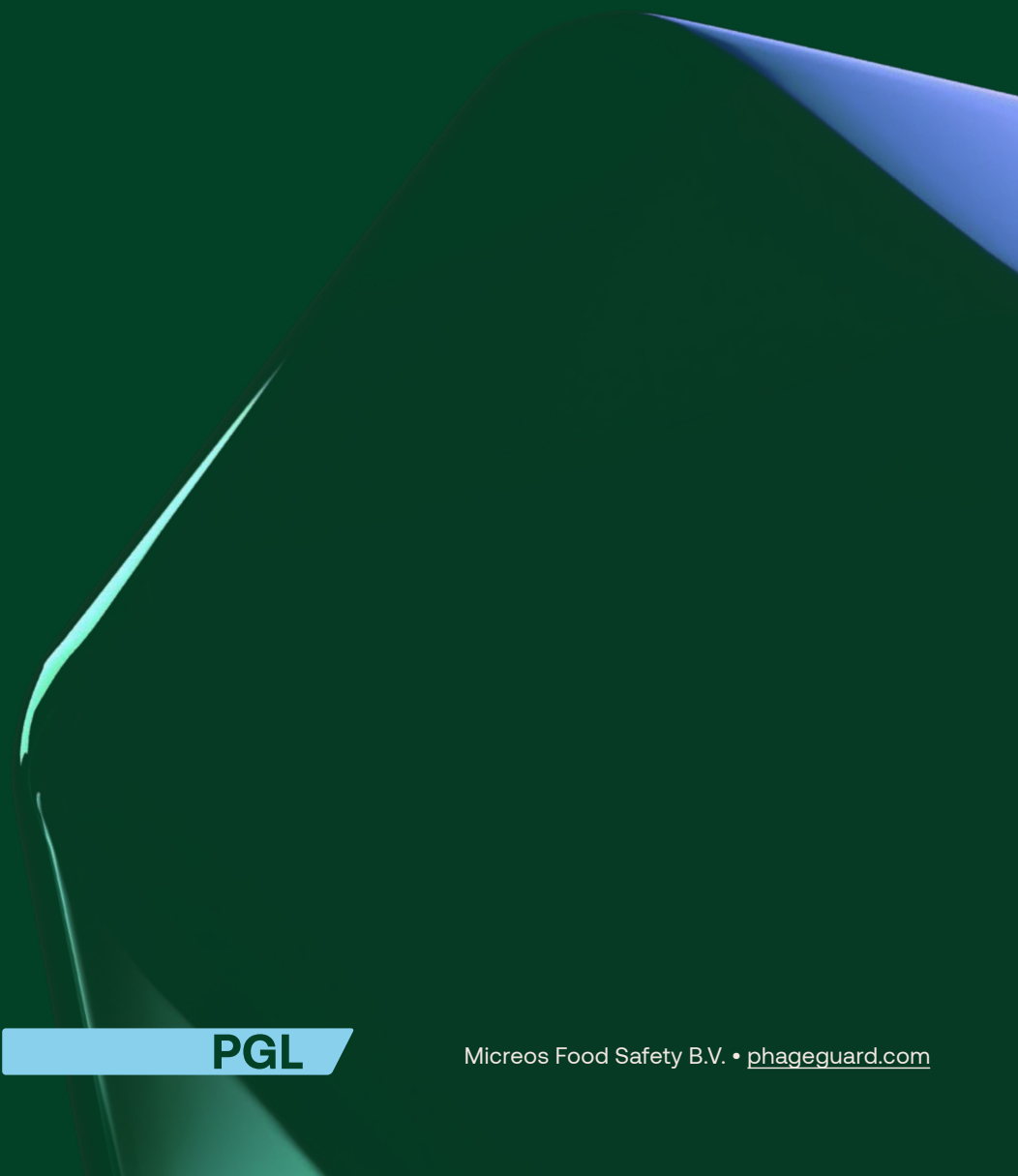

The suitable environmental conditions for *Listeria monocytogenes* in the production processes of various types of RTE meats, such as dry-cured ham, can pose a risk for producers. A study conducted by the Research Institute IPLA-CSIC, Spain, analyzed the effectiveness of bacteriophage (phage) product Phageguard L (PGL) (also known as Listex) in removing *Listeria monocytogenes* biofilms on food contact surfaces and inactivating *Listeria* on Spanish dry-cured ham.

Trial setup

Production circumstances are mimicked in a laboratory setup to evaluate whether an intervention is suitable for inactivating *Listeria* in industrial practices. Biofilm formation is artificially induced on stainless-steel coupons and polystyrene by inoculation with different *Listeria* cultures. After biofilm formation, the coupons and polystyrene were treated with Phageguard L. The dry-cured ham pieces were contaminated with three different concentrations of a *Listeria* cocktail. Following contamination, the samples were treated with Phageguard L and incubated at two different temperatures. Temperature is a parameter directly bearing on effectiveness.

Conclusion

The study results show that Phageguard L is effective against *Listeria* biofilms tested on the stainless-steel coupons and polystyrene. On polystyrene, Phageguard L application resulted in significant *Listeria* reductions ranging from 4.5 to 6.9 log. On stainless-steel, reductions in *Listeria* cell counts were measured ranging from 2.7 to 4.9 log. After 24 hours of treatment, Phageguard L reduced the viable cell count on Spanish dry-cured ham below the detection limit at all three inoculum levels. These results substantiate the efficacy of Phageguard L against several *Listeria monocytogenes* strains on both stainless-steel and polystyrene food contact surfaces, as well as in Spanish dry-cured ham.

6.9 log Reduction

Listeria biofilm removal on food contact surfaces

Phageguard L treatment reduced *Listeria monocytogenes* biofilm formations by up to 6.9 log on polystyrene (below the detection level). On stainless steel, Phageguard L treatment resulted in up to 4.9 log *Listeria* reduction.

Below Detection

Listeria inactivation in Spanish dry-cured ham

After 24 hours post-treatment, Phageguard L inactivated *Listeria monocytogenes* on the Spanish dry-cured ham below the detection level.

Discover more about phage technology for *Listeria* control in our Phageguard Knowledge Center

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