Publication abstract

Salmonella control in minced beef using bacteriophage application

Based upon:
"Biocontrol of salmonella Typhimurium in minced meat using its assigned Bacteriophage"

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Salmonella **remains a significant foodborne pathogen, especially in minced meat products like beef, which are highly susceptible to contamination. Bacteriophage treatments offer a natural and environmentally friendly method for controlling *Salmonella*. A study conducted by the Animal Health Research Institute in Egypt evaluated the effectiveness of bacteriophage (phage) product Phageguard S (PGS) in reducing *Salmonella Typhimurium* in minced beef during storage.**

Trial setup

Fresh minced beef was inoculated with *Salmonella Typhimurium* and treated with Phageguard S. Samples were divided into two groups for storage at 4 °C (39.2 °F) and 12 °C (53.6 °F). Microbiological analysis was conducted after 1 hour and daily for up to 5 days for the lower temperature, and up to 2 days for the higher temperature, to measure the reduction in *Salmonella* populations.

Conclusion

The bacteriophage treatment effectively reduced *Salmonella Typhimurium* populations in minced beef during storage, achieving a reduction of up to 2.9 log at 4 °C (39.2 °F) after 5 days, and 1.6 log at 12 °C (53.6 °F) after 2 days. Sensory evaluation showed no significant differences between the treated and control samples, both before and after cooking. These results suggest that bacteriophage treatments can be applied in the meat industry to control *Salmonella* without compromising meat quality.

2.9 log Reduction

Salmonella reduction after 5 days at 4 °C (39.2 °F)

After 5 days of storage at 12 °C (39.2 °F), bacteriophage treatment reduced *Salmonella Typhimurium* populations by up to 2.9 log.

1.6 log Reduction

Salmonella reduction after 2 days at 12 °C (53.6 °F)

After 2 days of storage at 4 °C (53.6 °F), bacteriophage treatment reduced *Salmonella Typhimurium* populations by up to 1.6 log.

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