Publication abstract

Salmonella Typhimurium control in raw chicken breast with bacteriophage application

Based upon:
"Salmonella Typhimurium DT 104 response to Lytic bacteriophage and Lactobionic acid on raw chicken breast"

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phageguard PGS

Ensuring the microbial safety of poultry is critical, particularly in the control of *Salmonella Typhimurium*, a prevalent foodborne pathogen in poultry products. Traditional methods have proven insufficient in combating outbreaks, making non-antibiotic interventions essential. A study conducted by several research groups at California Polytechnic State University in the United States evaluated the effectiveness of bacteriophage (phage) product Phageguard S (PGS) for the inactivation of *Salmonella Typhimurium* in raw poultry products.

Trial setup

The study used raw chicken breasts inoculated with *Salmonella Typhimurium* and stored at 4 °C. Seven treatment groups were created, including control, water-treated, and bacteriophage-treated samples with varying phage concentrations. The raw chicken breast samples were swabbed at 0, 1, 24, and 48 hours post-treatment to measure *S. Typhimurium* reductions. The impact on meat weight due to phage treatment was also assessed, as chicken is sold by weight and weight loss would result in lower profit for sellers.

Conclusion

The study observed that both phage treatments were effective in reducing the pathogen. However, the higher dose phage treatment showed slightly greater numerical reductions of *Salmonella Typhimurium* counts, resulting in a significant 2.17 log reduction compared to control treatments. Importantly, was that test results showed that the phage treatments applied to the chicken samples did not have a significant impact on the post-treatment weight of the meat, a key quality indicator. These results underscore the efficacy of bacteriophages as a natural biocontrol tool in reducing *Salmonella* contamination in raw poultry products.

2.17 log Reduction

Salmonella reduction in raw chicken breast

Phage treatment applied at a higher dose significantly reduced *Salmonella Typhimurium* by 2.17 log in the raw chicken breasts, without affecting the meat's weight.

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

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