



### Full Paper

# Phage-mediated Biocontrol of *Salmonella enterica* ser. Typhimurium in Bacon

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Foodborne illnesses caused by *Salmonella* have long been a global public health concern. Whether through contaminated meat or water, or undercooked food, this poses a problem to countries like the Philippines that consume pork and chicken frequently. This study isolated three *Salmonella enterica* ser. Typhimurium phages (svBEATS-5, -6, and -9) from sewage samples to assess their potential biocontrol use against *Salmonella* Typhimurium in commercially bought bacon. The phages were characterized based on pH and thermal stability, and host range. Ideal conditions for the phages were identified at pH 7 and 37°C, with the most stable phages, svBEATS-5 and svBEATS-6, exhibiting similar lytic activity at all pH levels and temperatures. To evaluate their efficacy as biocontrol agents, a phage cocktail comprising the three phages was applied over bacon spiked with *S. enterica* Typhimurium at 4°C and 30°C. Results showed that at both temperatures, the concentration of *Salmonella* Typhimurium decreased in vitro and meat samples, with a more significant reduction under refrigerated conditions. In addition, the phages could maintain viable concentrations at temperatures, 4°C and 30°C. The results suggest that the phages can be employed to control *Salmonella* Typhimurium in bacon and can be a viable alternative to using antimicrobials in bacon and other meat products.

