

## BACTERIOPHAGES AND BACTERICINS AS ANTI-CONTAMINANTS OF CHICKEN MEAT PRODUCTS

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### Abstract

When chicken meat processing and storage conditions are violated than there is a potential for contamination by microorganisms, affecting its quality and safety. The purpose of the work is to test commercial bacteriophages and bacteriocins to protect minced chicken from contamination.

Commercial bacteriophages (coliproteus; Intesti, pio-, staphylococcal) and dry bacteriocin nisin were used. Phage titration on phagesensitive: *Escherichia* spp., *Salmonella* spp., *Proteus* spp., *Pseudomonas* spp., and *Staphylococcus* spp. was performed by Appelman. The effectiveness of nisin in minced meat against microbes was evaluated by the growth inhibition of microorganisms in the nutrient media. Optical density (OD) of the mixtures was determined in a photocalorimeter. Lysis by bacteriophages in minced meat was determined twice: minced chicken (1 g) was added to 9 mL of broth, mixed with 1 mL of phages; 1 g of minced meat was mixed with 1 mL of phage. These mixtures were incubated for 2 h at 37 °C, then they were infected with microorganisms (10<sup>8</sup> cells/mL). Mixture 2 and intact minced meat (10 µL) were incubated overnight at 37 °C then were placed on agar with the mentioned microbes. Control titers on contaminants were 10<sup>-3</sup> - 10<sup>-7</sup>.

Lysis of cultures around infected minced meat with phage showed the effectiveness of the phage, but bacteria grew around phageless minced meat. Determination of OD in all test tubes of mixture1 demonstrated an increase in phage titers over 1 order, compared to the control. The experiments confirmed the propagation of phages and the destruction of bacteria in the minced meat. Treatment of products with nisin completely inhibited microbial growth within a week of observation.

In conclusion, further testing of phages and bacteriocins as anti-contaminants of chicken meat is experimentally substantiated.

**Key words:** Bacteriophages, Bacteriocin, Chicken meat, Contamination, Preservation.