

Summary

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Poultry products are known as a source of common pathogens between humans and livestock, especially *Salmonella* species with multidrug resistance. Salmonellosis disease in humans and livestock is considered an important global problem, which is accompanied by heavy economic losses in the poultry industry and threats to the health of human societies. It is necessary to use alternative methods of antibiotic therapy to control *salmonella* infection, especially the *Typhimurium* serotype, which has a widespread worldwide. One of these methods is the use of lytic bacteriophages, which has been investigated to identify and confirm *Salmonella Typhimurium* contamination from turkey poult samples. bacterial culture, biochemical tests, and polymerase chain molecular test were performed and antibiotic sensitivity and drug resistance pattern of the isolates were determined. Bacteriophage was identified, purified, amplified and titrated after isolation from septic samples of poultry slaughterhouse using Spot Test and Double Layer Agar method. By determining the morphological characteristics of the resulting plaque, the specificity and host range of phage was studied on *Salmonella Typhimurium* isolates. aluated as the main goal in this research. 22 suspected *salmonella* isolates were biochemically positive in the sample culture. 9 of these isolates (40.9%) were identified as *Salmonella typhimurium* by polymerase chain reaction. All isolates (100%) were resistant to chloramphenicol, doxycycline, kanamycin, florfenicol, rifampin and erythromycin. Seven isolates (77.7%) were resistant to amoxicillin and nalidixic acid. The full sensitivity of all isolates (100%) to ciprofloxacin and gentamicin was confirmed. Plaques with a diameter of 3 ± 0.22 mm were created on the culture of 6 out of 9 isolates (66.6%) of *Salmonella typhimurium* on B.H.I broth medium by double-layer agar method. In the host range test, the phage isolate was completely specific for *Salmonella typhimurium*. The phage titer value was 7.6×10^7 pfu/mL and its MOI was calculated as 5.06×10^{-2} based on the obtained results. The effect of oral gavage of bacteriophage isolates with two different volumes in reducing *salmonella* infection was compared with ciprofloxacin antibiotic in six groups of turkey poult during experimental challenge with *salmonella typhimurium* isolate. At the end of the experiments, no contamination with this bacterium was observed in the negative control and phage control groups. The amount of infection with *Salmonella typhimurium* in the positive control group 2.86×10^8 CFU/ml in dilution 10^{-4} , in the group treated with antibiotics 4.3×10^5 , in the group treated with 100 μ L Phage with titer 7.6×10^7 PFU/ml in 10^{-2} dilution, very little and in the group treated with 50 μ L phage with the same titer, 5.7×10^5 CFU/ml in 10^{-2} dilution counted. In the group treated with a larger volume of phage, better results were obtained than the group treated with antibiotics ($P < 0.05$). According to the results obtained in this study in laboratory conditions as well as *in vivo* conditions, administration of lytic phage by oral gavage method and with appropriate dosage can be effective and promising in controlling *Salmonella Typhimurium* contamination in turkey farms.

Key words: *Salmonella typhimurium*, Bacteriophage, Turkey poult