

عنوان مقاله:

Evaluation of Specific Bacteriophage Against *Salmonella infantis* and Its Antibacterial Effects Compared to Ciprofloxacin in In Vitro Conditions

محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان، دوره 30، شماره 139 (سال: 1400)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Background and Objective: Phage therapy could be used as an alternative method to antibiotic treatments. The purpose of this study was to evaluate the antibacterial activities of isolated lytic bacteriophage against ciprofloxacin-resistant strain of *Salmonella infantis* in vitro conditions. **Materials and Methods:** The standard strain of *Salmonella infantis* and its specific bacteriophage was isolated by soft agar method. Phage susceptibility to heat and pH was evaluated by the Double-Layer Agar method. In vitro assay was carried out on human epithelial type ۲ (HEp-۲) cells to investigate the effect of bacteriophage on the cytotoxic and invasion of *Salmonella infantis* to human epithelial cells. **Results:** Head and tail morphology of bacteriophages against *Salmonella infantis* were identified by transmission electron microscopy and assigned to the Myoviridae family. The results of the double-layer agar assay showed that the titer of bacteriophages was 1.8×10^7 PFU/ml. bacteriophage was stable at ۴ °C and the best quantification of

bacteriophage was determined at pH=8. The isolated bacteriophage was specific for Salmonella infantis and had no lytic activity against other pathogenic bacteria. In the evaluation of the binding and invasion of Salmonella infantis to the HEP-2 cell line, as expected, the lytic activity of specific bacteriophage was observed following inoculation. Conclusion: Additional studies are needed for better understanding of the interaction between phage, microorganisms and human host before applying phage therapy on a large scale.

کلمات کلیدی:

Salmonella, Salmonellosis, Lytic bacteriophage, Ciprofloxacin

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