

A Bacteriophage Infecting a Foodborne Pathogen *Salmonella enterica* Serovar Thompson

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Salmonella is one of the most common foodborne bacterial pathogens throughout the world. In the United States, Salmonella causes over one million foodborne illnesses and billions of dollar loss to the society yearly. *Salmonella enterica* serovar Thompson is one of the common serovars causing Salmonellosis. Effective control of *S*. Thompson as well as other *Salmonella* serivars is essential to public health. Using bacteriophages (phages) to control foodborne bacterial pathogens, especially those antibiotic resistant *Salmonella*, is a promising novel biocontrol method. The objectives of this study were to isolate and to characterize the isolated phage infecting *Salmonella enterica* Thompson. A phage (designated as ΦEnt) infecting *S*. Thompson was isolated from turkey. The phage forms medium-size clear plaques on its host bacterial lawn. Transmission electron microscopy revealed that ΦEnt belongs to *Siphoviridae* family. One-step growth kinetics study (at a multiplicity of infection of 0.02) showed that the latent period of ΦEnt was about 40 min (including 10 min for adsorption), the rise period was 30 min, and the average burst size was 32 phage particles per infected cell. Host range study showed that the phage was also able to infect a few other *Salmonella* serovars including *S.* Infantis. Protein analysis revealed that the phage has several structural proteins in the range from 30 to 70 KDa. The phage infection in a model food system resulted in rapid cell lysis. These results indicated that ΦEnt has a high potential for use as a biocontrol agent against *Salmonella* in food systems.

Biography

Jean Lu has completed her PhD from North Carolina State University and postdoctoral studies from Duke University in USA. She is a professor and a researcher in the Department of Molecular and Cellular Biology at Kennesaw State University. She has published more than 20 papers in reputed journals and has been serving as an editorial board member of repute.

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