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Bacteriophages: Gently modifying food microflora for improving food safety

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The use of bacteriophages as biocontrol agents is an environmentally friendly, all-natural method to eliminate or significantly reduce contamination of food by pathogenic bacteria. Bacteriophages, arguably the oldest and most ubiquitous organisms on Earth, are viruses that kill bacteria. They play a key role in maintaining the microbial balance in any ecosystem where bacteria exist and are part of the normal microflora of all fresh, unprocessed foods. Interest in bacteriophages has been gaining momentum in recent years, as reflected in the both the number of regulatory approvals for bacteriophage products and the number of published studies. Because of the specificity of bacteriophages, their application only affects the target bacteria (the pathogen) but will not affect the other naturally present and potentially beneficial microflora. Bacteriophage products that target *Listeria monocytogenes, Salmonella*, and *E. coli* have been shown to reduce or completely eliminate the specific pathogen on a variety of foods, including beef, chicken, seafood, fruits and vegetables, and dairy products. In the US, several have been cleared as GRAS, with others receiving FCN and FAP approvals. Furthermore, none of the phage preparations affect the treated foods' flavors, aromas, or appearances. The presentation will review information about the use of bacteriophages in foods and food processing settings, as well as discuss regulatory and safety issues concerning the use of bacteriophages in the food industry.

Biography

Joelle Woolston is a research scientist and laboratory manager at Intralytix, where she provides hands-on research, directs and supervises laboratory staff, and assists in the regulatory approval process. Prior to joining Intralytix, she worked on metabolic transporters at the Children's Hospital in Washington, D.C. and co-developed a patented phage-based vector system at the University of Maryland.

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