

THE ROLE OF BACTERIOPHAGES IN THE FOOD INDUSTRY: TWO SIDES OF THE MEDALLION

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Abstract

Bacteriophages, other commonly used name phages, are viruses that infect bacteria and use them as their hosts. They are the most numerous living organisms known in the world. Since bacteriophages' target is bacteria, they are harmless to humans, animals and plants. The question to be asked for phages is "is it beneficial or harmful for the food industry?" It is possible to answer the question with both "yes" and "no". This review focuses on answers of these two questions.

Bacteriophages are one of the alternative biopreservation methods food safety. Advantage of phages is that they do not have any negative effects such as resistance problem like the antibiotics and antimicrobials develop. Since phages are host-specific viruses, there are studies showing that the use of selected phage species is successful both in inactivation of pathogens present in the food matrix and in reducing the microbial load in food processing areas. There are studies on phage applications in the protection of farm animals' health. On the other hand, bacteriophages in the food industry have some technological disadvantages. It is undesirable for the production environment to be contaminated with phages, especially in enterprises producing fermented foods. Especially when starter cultures are infected by phages in the production of cheese, yoghurt and butter acid formation stops an undesirable taste and aroma can be seen and to the development of pathogenic microorganisms during ripening may occur.

As a conclusion, studies on the use of bacteriophages as a biopreservation method under controlled conditions in the food industry are promising. It is important that it is an alternative to antimicrobials, especially to which bacteria are resistant. On the other hand, it is necessary to take various precautions against phage contamination that will harm the starter cultures.

Key words: *Food industry, Bioprotection, Bacteriophage, Phages.*