

*Perspective***Management of foodborne pathogens using bacteriocins**

Tarquin Bahrum\*

Department of Virology, Swedish University of Agricultural Sciences, Uppsala, Sweden.

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**DESCRIPTION**

Antimicrobial peptides or proteins known as Bacteriocins are generated by various bacterial strains. The many food kinds present a wide range of scenarios where food poisoning, pathogenic, or spoilage bacteria may flourish, depending on the raw components, processing conditions, distribution, and consumption. In order to meet customer demands for foods that are fresh smelling, ready to eat, and lightly maintained, the use of bacteriocins may assist decrease the usage of chemicals. The growth of pathogenic and spoilage bacteria in food can be controlled using antibacterial metabolites produced by lactic acid bacteria as natural preservatives. Bacteriocins are one of them and are employed as a food preservative because of its heat stability, greater pH tolerance, and proteolytic action. Due to pH tolerance and thermo stability. It can survive heat and the acidity and alkalinity of food when stored. A bacterium in minimally processed foods raises questions about the safety and quality of the items. Under prolonged refrigeration, foodborne pathogens and spoilage microorganisms may grow in these items, endangering the safety of the customer. These bacteria are prevalent in the environment and exist naturally in the intestines of both humans and animals.

The microbiological quality of meat is significantly impacted by cross contamination during slaughter and carcass processing. Novel methods, such as bio preservation systems, non-thermal technologies, or combination treatments, have been investigated to inactivate food-borne viruses. Due to its antibacterial action against food spoilage and dangerous bacteria, Bacteriocins has attracted the attention of food scientists to be utilised as a natural food bio-preservative. One method of bio preservation is the use of lactic acid bacteria or their antagonistic metabolites, such as lactic acid, hydrogen peroxide, and Bacteriocins. As Lactic Acid Bacteria (LAB) has been used for many years to produce fermented foods, they are usually thought to be harmless.

One of the earliest processes for growing and preserving food is the use of microbes in food fermentation. Many fermented foods are mainstays of the diet in a large portion of the world. It has been difficult for food scientists to produce safer and healthier food since chemical preservatives and other conventional barriers have been utilised in food items to limit microbial development, which can result in significant health disasters. Food borne bacteria may wreak havoc in preserved/fresh food items at high temperature, room temperature, and even at low temperature, which has made food preservation a big problem.

**Properties of bacteriocins**

The original definition of bacteriocins (as colicins) was bacteriocidal proteins with fatal production, a highly restricted spectrum of activity, and adsorption to certain cell membrane receptors. Eventually, the description was expanded to include the known connection between plasmids and bacteriocin production. The characteristics of bacteriocins generated by gram-positive bacteria have now been included to the definition. Bacteriocins are the common name for bacteriocidal peptides or proteins generated by bacteria nowadays. A newly identified bacteriocin's susceptibility to proteolytic enzymes like trypsin, -chymotrypsin, and pepsin is often expected as an evidence of its proteinaceous origin.

**Bacteriocins and food preservation**

The only bacteriocins utilised in food preservation nowadays are those produced by LAB and used to make fermented foods. The U.S. Food and Drug Administration have granted LAB the GRAS (generally regarded as safe) designation since it has been used for generations to ferment foods. They can therefore be used in fermented meals without requiring further regulatory authorisation. The first bacteriocin that was identified and permitted for use in food was nisin. The use of bacteriocins offers an additional barrier to the formation of food-borne diseases and may enable the food sector to more accurately anticipate the storage lifetimes of its goods. Yet, there are several obstacles in the way of bacteriocins' increased use in foods.

\*Corresponding author. Tarquin Bahrum, E-mail: [bahrum@slu.se](mailto:bahrum@slu.se)