

TAL 797 – Seminário

19 de Abril de 2023

### THE USE OF LACTIC ACID BACTERIA IN FOOD BIOPRESERVATION

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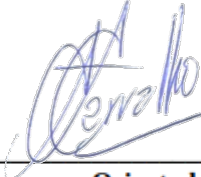
The consumer demand for safe and convenient food products that require minimal preservatives in their daily routines has gained significant attention in recent years. As a result, the food industry has been increasingly adopting new biopreservation techniques that utilize microorganisms to extend shelf life and enhance food safety. One such technique is the use of lactic acid bacteria, which not only contribute to microbiological safety through the production of lactic acid, but also through the production of antimicrobial agents, such as bacteriocins. Bacteriocins, which are antimicrobial peptides produced by lactic bacteria, have the potential to serve as natural substitutes for chemical food preservatives. They can effectively inhibit certain pathogens through various mechanisms of action, such as increasing the permeability of the cell membrane of target microorganisms by forming pores, preventing the formation of the cell wall, penetrating the bacterial cytoplasm and cleaving the DNA or RNA, and digesting the peptidoglycan precursors, leading to cell death. Bacteriocins can be incorporated into food in different ways, including by incorporating the bacteriocin-producing strain directly into the food, adding purified or partially purified bacteriocin to the food, or adding an ingredient that has been previously fermented with bacteriocin-producing strains. Currently, only a few bacteriocins, such as nisin produced by *Lactococcus lactis* strains, are commercially used as food preservatives; however, there are ongoing studies focused on discovering new bacteriocins with potential applications in the food industry. This research is of great importance for the evolution of the food industry as it provides a viable alternative for food preservation, aiding in the control of deteriorating microorganisms and/or pathogens. The discovery of new strains that potentially produce bacteriocins is a promising strategy for the safe and natural preservation of food, as well as for the production of new starter cultures.

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