Use of the bacteriocin, nisin, as a preservative in processed meat.


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Nisin is a bacteriocin produced by certain strains of Lactococcus lactis and is widely used throughout the world as a safe and authorised food preservative. Nisin shows antimicrobial activity against a wide range of Gram positive bacteria but shows little or no activity against yeasts and moulds. Recently there has been interest in the use of nisin in cured processed meat products. Such meats can be prone to spoilage by non-pathogenic lactic acid bacteria. They are also prone to contamination and growth during shelf life of the psychoduric pathogen, Listeria monocytogenes. Use of nisin preparations have shown to be effective in controlling lactic acid bacteria spoilage in vacuum-packed pasteurised bologna sausages resulting in significant increases in shelf life. The use of nisin preparations to control L. monocytogenes has presented more difficulties as the bacterium has been shown to adapt to the use of nisin resulting often in its recovery. This has led to investigations into the use of the "hurdle concept" where nisin is applied in combination with other preservatives to provide an effective preservative system. Furthermore, problems have been experienced with components in the meat such as carrageenan and glutathione interacting negatively with the meat. Experiments carried out have demonstrated a synergistic effect of nisin with rosemary extract and sodium acetate have resulted in improved control of L. monocytogenes in meat systems. Prevention of interaction of nisin with meat components by encapsulation has also resulted in improved efficacy.