

**USE OF TWO BACTERIOCIN-PRODUCING PROTECTIVE CULTURES IN  
COMBINATION WITH NISIN TO PREVENT GROWTH OF *LISTERIA  
MONOCYTOGENES* IN A MILD POTATO SALAD**

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Mild delicatessen salads produced with a reduced content of acetic acid or vinegar and a pH above 5.0 have an increased risk for pathogens to develop, even when the product is stored at refrigeration temperatures. *Listeria monocytogenes* is a psychrotrophic pathogen that is frequently being isolated from deli salads and other mayonnaise-based foods. It is therefore mandatory to take precautions to prevent growth of this pathogen during storage of this type of ready-to-eat foods with low acidity. Psychrotrophic lactic acid bacteria producing antilisterial bacteriocins may be used as bioprotective cultures in such minimally processed foods. In this study, two *Leuconostoc carnosum* strains (BFE 4220 and BFE 4226) both producing leucocin A were inoculated in a mild potato model salad of pH 5.7 and it was shown that both *Leuconostoc* strains inhibited *L. monocytogenes* during storage of the salad at 4°C. One of the two protective strains, *Lc. carnosum* BFE 4220, however, may have a negative impact on the organoleptic properties of the product because of the production of slime- polysaccharides during storage of the salad.

Therefore, in further experiments, the bacteriocin nisin was added to the product in addition to the protective cultures to explore if nisin causes a reduction of slime production by *Lc. carnosum* and enhances the inhibition of *L. monocytogenes* during cold storage of the salad. For this strategy of combining nisin with a protective culture, derivatives of the *Lc. carnosum* strains tolerating a certain amount of the bacteriocin were used. The combination of the nisin-tolerant strains *Lc. carnosum* BFE 4220-500

and BFE 4226-500 with nisin resulted in an enhancement of *Listeria* inhibition in the potato salad. Nisin addition, however, did not result in a reduced slime production by *Lc. carnosum* BFE 4220-500 in the product.