

Title Biopreservation of minimally processed iceberg lettuces using a bacteriocin produced by *Lactococcus lactis* wild strain

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Citation Food Control, Volume 20, Issue 8, August 2009, Pages 756-763

Keywords Biopreservation; Bacteriocins; Minimally processed vegetables; *Listeria monocytogenes*; PCR–DGGE

Abstract

The industry of minimally processed vegetables (MPV) is constantly searching new technologies for maintaining quality and for inhibiting undesired microbial growth in all steps of production and distribution chain. Among the proposed new technologies, biopreservation, such as bacteriocin-based strategy, is recently considered as a promising perspective in order to reduce the application of chemical preservatives. In the present study the effect of the bacteriocin RUC9 produced by a wild strain of *Lactococcus lactis* was tested in minimally processed lettuce iceberg samples artificially inoculated with a wild strain of *Listeria monocytogenes* during storage at 4 °C and compared to that of commercial nisin. Moreover the microbial group dynamics were evaluated by conventional and molecular approaches. Although the treatment did not completely eliminate the pathogen on the produce, the results showed that the bacteriocin reduced the *L. monocytogenes* viable count of 2.7 log unit in 7 days of storage at 4 °C, suggesting that the treatment can be used as sanitizer to improve microbial safety and to reduce the chemical treatment in MPV processing.