

ABSTRACT :

This work aimed to isolate as large as possible numbers of bacteriocin-producing lactic acid bacteria (Bac+) active against *L. monocytogenes* from different products and which belong to most species of LAB of technological importance. The results showed that Bac+ strains were more frequently isolated from dairy products. In contrast, *Lactobacillus curvatus* CWBI-B28, a bacteriocin-producing strain, studied in this work, was isolated from meat samples. The dynamics of cell growth and bacteriocin production by *Lactobacillus curvatus* CWBI-B28 in modified MRS broth with various concentrations of glucose and a complex nitrogen source were investigated in flask fermentations and in a laboratory fermentor using batch or fed-batch cultivations. Both cell-growth and bacteriocin activity were influenced by the changes in the concentrations of glucose and the complex nitrogen source. The highest bacteriocin titre was obtained with fed-batch fermentation at an exponentially varying rate. Three novel bacteriocins named curvalicin 28a, 28b, and 28c from *Lactobacillus curvatus* CWBI-B28, were isolated and purified from complex culture broth by a three-step protein purification protocol. N-terminal amino acid sequencing by automated Edman degradation reaction and comparison of the sequences with those of international data bases indicated that the curvalicins 28 were novel bacteriocins which did not fit in any of the known classes of bacteriocins. The effectiveness of a bacteriocin-producing *Lactobacillus curvatus* CWBI-B28 to inhibit the growth of *Listeria monocytogenes* in bacon meat, pork and cold-smoked salmon was evaluated. Four bacteriocin-based strategies for the control of *L. monocytogenes* in foods (i.e., producing bacteriocin *in situ*, spraying with partially purified bacteriocin, packaging in bacteriocin-coated plastic film), combination of bacteriocin with essential oils, plus a newly developed method that uses cell-adsorbed bacteriocin, were assessed. The re-growth of *Listeria* occurred in samples treated with strain and partially purified bacteriocin was the most important inconvenience recorded. However, the application of the cell-adsorbed bacteriocin was shown to be the most effective means, as it resulted in a prevention of the re-growth of the pathogen and in a prolongation of the period of the inactivation of *Listeria*.