Title Pentocin 31-1, a novel meat-borne bacteriocin and its application as biopreservative in chill-stored tray-packaged pork meat

Author Jinlan Zhang, Guorong Liu, Pinglan Li and Yan Qu

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Abstract

Pentocin 31-1 was produced by *Lactobacillus pentosus* 31-1, isolated from the traditional China fermented Xuan-Wei Ham. In this work, study on its application as biopreservative in chill-stored nonvacuum-tray-packaged pork meat was carried out. Pentocin 31-1 was prepared by pH-adsorption in 5 l stainless steel fermentor. Each 200 ml semi-purified bacteriocin was obtained from one fermentation, and the specific activity was 1280 AU/ml. The effects of pentocin 31-1 on microbiological counts, physicochemical change and sensory quality of chilled pork in the period of preservation at 4 °C was investigated. Results showed that pentocin 31-1 could substantially inhibit the accumulation of VBN and generally suppress the growth of microflora, especially *Listeria* and *Pseudomonas,* during chilled pork storage. Microbiological counts, physicochemical parameters and sensory characteristics of the treatments (40 AU/ml pentocin 31-1 or 75 AU/ml nisin) had exceeded the limitation of Chinese hygienic standard for fresh meat of livestock by day 15. 80 AU/ml pentocin could extend the shelf life to 15 days and the meat showed good sensory characteristics. These results suggest the potential of pentocin 31-1 as a biopreservative in tray-packaged chilled pork storage.