Identification of lactic acid bacteria from spoilage associations of cooked and brined shrimps stored under modified atmosphere between 0 degrees C and 25 degrees C

Aims: To evaluate spoilage and identify lactic acid bacteria (LAB) from spoilage associations of cooked and brined shrimps stored under modified atmosphere packaging (MAP) at 0, 5, 8, 15 and 25 degrees C. Methods and Results: Bacterial isolates (102) from spoilage associations of cooked and brined MAP shrimps were characterized by phenotypic tests and identified as lactic acid bacteria (78 isolates), other Gram-positive bacteria (13 isolates) and Gram-negative bacteria (11 isolates). A selection of 48 LAB isolates were further characterized and identified by phenotypic tests and SDS-PAGE electrophoresis of whole cell proteins. Selected clusters of LAB isolates were analysed by plasmid profiling, pulsed field gel electrophoresis and 16S rRNA gene sequencing. Enterococcus faecalis was identified in spoilage associations at 15 degrees C and 25 degrees C, and its metabolic activity corresponded to chemical changes in spoiled products. Carnobacterium divergens, a non-motile Carnobacterium sp. nov. and Lactobacillus curvatus were the LAB species observed in spoilage associations of products stored at 0 degrees C, 5 degrees C and 8 degrees C. Conclusions: Enterococcus spp. and Carnobacterium spp. were the dominant parts of spoilage associations of cooked and brined MAP shrimps stored at high and low temperatures, respectively. Significance and Impact of the Study: The SDS-PAGE technique and simple biochemical keys allowed the majority of LAB isolates from spoilage associations of cooked and brined MAP shrimps to be identified at the species level.

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