THE CHARACTERISTICS OF AN ANTIMICROBIAL PEPTIDE FROM *PEDIOCOCCUS ACIDILACTICI* JEM-1

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Nowadays there is a growing demand of natural products without synthetic preservatives. However, such products tend to lose their quality over time and can cause food poisoning. Moreover, inappropriate and excessive use of antibiotics has induced the development of antibiotic resistance in some bacteria. Bacteriocins produced by lactic acid bacteria could solve both of the problems but their industrial use is still limited because of challenging procedures of the purification.

Among all characterized bacteriocins only nisin and pediocin PA-1/AcH are approved to be used as food additives [1]. Nevertheless, a large number of pediocins exist which are different by their biochemical features, mode of action and even antimicrobial spectrum [2].

At first, an antimicrobial peptide from *Pediococcus acidilactici* JEM-1 was purified based on its feature to adsorb onto producer cells. This process is strongly influenced by the pH [3]. After all purification steps from 500 mL of cultivation medium of *Pediococcus acidilactici* JEM-1 about 39 μg of pediocin is obtained. Its purity was determined by Tricine-SDS-PAGE and capillary zone electrophoresis. The molecular weight calculated from Tricine-SDS-PAGE gel is about 4.4 kDa. In addition, purified bacteriocin was tested for its antimicrobial activity against *Bacillus subtilis* bacteria. Our study also showed that the antimicrobial peptide from *Pediococcus acidilactici* JEM-1 can be successfully encapsulated into nano/microparticles with polysaccharides.

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