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PaperTitle **Characterization of Bacteriocins Produced By Lactic Acid Bacteria, Isolated From Boza, A Cereal-Based Fermented Beverage From Bulgaria**

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ABSTRACT

Boza is a low-alcohol beverage produced from the fermentation of barley, oats, millet, maize, wheat or rice. Cooked cereal is strained to remove most of the solids, sugar is added to taste and inoculated with a starter culture. A number Lactobacillus, Lactococcus, Leuconostoc, Pediococcus, Oenococcus and Weissella spp. have been isolated from boza. The aim of this study was to isolate new bacteriocin-producing lactic acid bacteria from boza and to compare the bacteriocins with those previously described for strains isolated from the same niche. Five bacteriocin-producing lactic acid bacteria [Lactobacillus plantarum ST69BZ (3.2kDa), Enterococcus faecium ST62BZ (10.0 kDa) and Leuconostoc lactis ST63BZ (10.0 kDa), ST611BZ (3.2 kDa) and ST612BZ (6.5 kDa)] were isolated from boza. The bacteriocins of all five isolates inhibited the growth of Enterococcus spp., E. coli, Klebsiella pneumoniae, Lactobacillus spp., Lactococcus spp., Listeria spp., Pseudomonas spp., Staphylococcus spp. and Streptococcus spp. The antimicrobial activity of all five bacteriocins was inhibited after treatment of the cell-free supernatants with proteolytic enzymes. Treatment of the cell-free supernatant containing bacteriocin ST63BZ with α -amylase resulted in loss of antibacterial activity. All five bacteriocins remained active after incubation at pH 2.0 to 8.0. Bacteriocin ST62BZ lost activity after treatment at pH 10.0. Treatment at pH 12.0 resulted in loss of activity for strains ST62BZ and ST63BZ. The mode of activity of bacteriocins ST69BZ, ST62BZ, ST63BZ, ST611BZ and ST612BZ is bactericidal, as determined against E. faecium HKLHS and L. sakei DSM 20017, respectively. E. faecium HKLHS and L. sakei DSM 20017 treated with bacteriocins ST69BZ, ST62BZ, ST63BZ, ST611BZ and ST612BZ resulted in leakage of β -galactosidase from the targeted cells.