

Comparative Study of Antimicrobial Activity of Bacteriocin Producing Lactic Acid Bacteria from Fermented Batter of Green Gram And Bengal Gram Against Food-Borne Pathogens

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Abstract : The increase of multidrug-resistant pathogens and the restriction on the use of antibiotics due to its side effects have drawn attention to the search for possible alternatives. Bacteriocins are ribosomally synthesized antimicrobial peptides that are active against Gram-positive and Gram-negative bacteria. The bacteriocins from lactic acid bacteria represent an important application of these peptides as clinical drugs or as food biopreservatives. The present study describes the isolation of bacteriocin producing lactic acid bacteria (LAB) from fermented batter of green gram and bengal gram using Man, Rogosa and Sharpe (MRS) media. The bacteriocin produced by these organisms inhibited the growth of *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*. The isolates G1, G2 were isolated from green gram; B1 and B2 were isolated from fermented bengal gram batter. G1 and G2 were identified as *Lactobacillus casei* and B1 and B2 were identified as *Streptococcus* species. Antimicrobial activity of the bacteriocin produced by these strains was studied by agar well diffusion method. Bacteriocins produced by the *Lactobacillus casei* and *Streptococcus* species retained their antagonistic property at pH of 5 and pH of 7. Exposure of bacteriocin to UV light for 4 min showed antibacterial activity. The antagonistic property was observed even at 100°C demonstrating stability at higher temperatures of the bacteriocin. The bacteriocins were stable for a period of 15 days at 27°C. The bacteriocins of G1, G2, and B2 exhibited highest antagonistic activity at pH of 5 and B1 at pH of 7. Therefore, the bacteriocins of the isolates may find important application in controlling the food-borne pathogens.

Keywords : Keywords: Antibacterial activity, Lactic acid bacteria, Bacteriocin

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