

ABSTRACT

CHARACTERIZATION OF BACTERIOCIN PRODUCTION IN LACTIC ACID BACTERIA ISOLATED FROM FERMENTED DAIRY PRODUCTS

Esra DEMİR

M.Sc. Thesis, Department of Biology
Supervisor: Assoc. Prof. Dr. Gamze BAŞBÜLBÜL

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With the developing technology, the importance given to the reliability of the consumed food has been increasing. By the use of controlled microflora and/or antibacterial substances, the opportunities to provide long shelf life and safe food production is presented. Lactic acid bacteria (LAB) or substances such as bacteriocin produced by LAB, as they are safe and natural, are used as the inhibitor against pathogenic microorganisms in food production. For this reason, the researches on bacteriocin production have gained more attention in recent years. In this study, 138 LAB consisting of *Enterococcus* (13,76 %), *Lactococcus* (18,84 %) and *Lactobacillus* (67,39 %) genus isolated from fermented dairy products obtained from local markets, bazaar and dairies, also home-made products were used and bacteriocin screening and bacteriocin producing genes were genotypically examined. First, LAB isolates were screened using agar spot assay method. All of the LAB exhibited inhibitory effect against *Geobacillus stearothermophilus* DSMZ 22, *Escherichia coli* ATCC 35218, *Bacillus cereus* ATCC 11778, *Listeria innocua* DSM 20649, *Listeria monocytogenes*, *Enterococcus faecalis* ATCC 51299, *Micrococcus luteus* ATCC 9341, *Lactococcus lactis* DSMZ 20729 and *Lactobacillus plantarum* DSMZ 20205, which are the indicator microorganisms. Then, cell-free supernatants (CFS) of LAB were analyzed using agar-well diffusion assay method to confirm antibacterial activity. Among LAB isolates none of them were found to be effective against the indicator microorganisms except for positive control *Lactococcus lactis* DSMZ 20729. Finally, as a result of PCR tests carried out to investigate bacteriocin-producing genes in LAB isolates, *ent-A* (5,07%), *ent-B* (2,17%), *lcn-A* (2,17%), and *pln* (1,44%) genes were found.

Key words: Agar spot assay, agar-well diffusion assay, bacteriocin, lactic acid bacteria, PCR.