Characterization of a bacteriocin produced by *Lactobacillus bulgaricus* against mastitic pathogens.

김현진, 김지현, 김성구
부경대학교 생물공학과
전화 (051) 620-6188, FAX (051) 620-6180

Summary

The bovine mastitis in dairy farming is commercially a critical problem. Currently, the cows with bovine mastitis has been treated using antibiotics .[1] However, antibiotics are detected in the raw milk of cows with bovine mastitis by the antibiotics residue-test.[1] At this reason, it is ideal that bacteriocins have been emerged as an alternative to the antibiotics to treat the cows with bovine mastitis. Bacteriocins are biologically active peptides, proteins and protein complex produced by bacterial species acting against related species, thus which are expected as medical products in agriculture.[2,3]

In this study, the bacteriocin produced by *L. bulgaricus* was screened and the optimal culture condition for the production of bacteriocin was investigated. Also, the characteries of bacteriocin were evaluated.

Therefore, the optimal conditions for the production of bacteriocin from *Lactobacillus* sp. were the temperature of 30℃ and the culture time of 10 hours. *S. aureus* and *S. agalactiae*, which are common bovine mastitic pathogens, were treated with the bacteriocin by the agar-well method. The bacteriocin was more effective to *S. agalactiae* rather than *S. aureus*. Finally, the measurement of antimicrobial activity at 100℃ and the range of pH from 2 to 11 resulted that bacteriocin was stable at the pH 2-6 in the elevated temperature.

References

1. Marugg, I. D., "Bacteriocins, Their role in developing Natural products" (1991), *Food Biotechnol.*, 2(5), 305-310.
2. Jeong-hun Kang, Jin-suk Kim, Won-chang Lee, "A study on the drug residues in the raw milk collected over the withdrawal period after mastitis treatment using TTC-Ⅱ test and delvotest SP" (1999), *Korean J. Vet. Res.*, 39(3), 609-615.
3. Stiles, M. E. and J. W. hasting, "Bacteriocin production by lactic acid bacteria: potential for use in meat preservation" (1991), *Treds foood sci. Technol.*, 2(2) ,247-251.