Antimicrobial Activity of Bacteriocins Produced by *Lactobacillus plantarum* against Pathogenic Bacteria during Store at Cold Temperature

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Bacteriocins are antimicrobial substances produced by lactic acid bacteria (LAB) which can be used as a natural preservative. The preservative method which commonly used in storage under temperature of 4-10 °C. This method does not guarantee that it can inhibit the bacterial growth, such as psikrofil bacteria which still active on the refri temperature. The aim of this research was to study the stability of antmicrobial bacteriocins produced by *L. plantarum* 1A5, 1B1, 2B2, and 2C12 through its sensitivity during store at cold temperature (10 °C) against the pathogenic bacteria that consists of *Salmonella enteritidis* ser. Typhimurium ATCC 14028, *E. coli* ATCC 25922, *S. aureus* ATCC 25923, *P. aeruginosa* ATCC 27853, and *B. cereus*. Plantaricin that was used is the result of cation exchange chromatography purification. Storage duration for 15 days and testing was done in intervals of 5 days. The antagonistic assay showed the antimicrobial activity against the pathogenic bacteria. The results showed that plantaricin 1A5, 1B1, 2B2, and 2C12 during cold storage temperature is still effective to be used for antagonistic assay to the pathogen indicator bacteria. Plantaricin of the four strains is able to inhibit bacterial growth indicators. Plantaricins has been stored for 15 days still have antimicrobial activity. This showed that the four plantaricins remained active after storage for 15 days at cool temperatures (10 °C).

*Keywords*: *L. plantarum*, plantaricin, antagonistic assay, cold storage