# ABSTRACT

## OPTIMIZATION CARBON SOURCE FOR GROWTH AND PRODUCTION OF BACTERIOCIN BY LACTIC ACID BACTERIA *Lactobacillus plantarum* FROM PINEAPPLE FRUIT (*Ananas comosus*)

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Lactic Acid Bacteria (LAB) is one of the bacteria that is famous for its diverse use of preservatives, improving product quality, and antibiotics that can inhibit the growth and activity of pathogenic bacteria including MDRO strains. One fruit that becomes a LAB carrier is pineapple. LAB produces metabolites that are used as a substitute for antibiotics namely bacteriocin. The rate of bacteriocin production goes hand in hand with cell growth from LAB. Nutrition in LAB growth media is one of the factors that influence bacteriocin production. Carbon or carbohydrate sources are the main nutrients for the formation of energy during bacteriocin production. The effect of various carbon sources on the inhibition of pathogenic bacteria by bacteriocin is expressed as bacteriocin activity (AU/mL). Bacteriocin is produced by *Lactobacillus plantarum* which has been isolated from *Ananas comosus* fruit. From the literature review, glucose provide the best bacteriocin inhibitory activity compared to others. The concentration is further optimized to increase bacteriocin inhibitory activity. The bacteriocin inhibitory activity is optimal when the glucose concentration is 2-3%.

**Keywords:** bacteriocin production, *Lactobacillus plantarum*, pineapple fruit, carbon source, lactic acid bacteria, plantaricin