

Intisari

IDENTIFIKASI BAKTERI DAN PURIFIKASI PARSIAL BAKTERIOSIN BAKTERI ASAM LAKTAT GMP 1 SERTA KARAKTERISASI AKTIVITAS ANTIBAKTERINYA TERHADAP BAKTERI KONTAMINAN PRODUK HASIL PERIKANAN

Isolat GMP 1 merupakan bakteri asam laktat (BAL) yang berhasil diisolasi dari pakasam. Penelitian ini bertujuan untuk mengidentifikasi isolat GMP 1 dan mengisolasi serta mengkarakterisasi bakteriosinnya. Identifikasi molekuler dengan primer spesifik BAL L5 15F (5'-GCTCAGGAYGAACGCYGG3') dan 687R (3'-CACCGCTACACATGRADTTC-5") berhasil mengidentifikasi isolat GMP 1 sebagai *Lactobacillus* sp. dengan kemiripan homolog 99.71% terhadap strain *Lactobacillus* sp. SDCM 1015. Bakteriosin *Lactobacillus* sp. GMP 1 dipurifikasi secara parsial dengan garam ammonium sulfat dengan tingkat kejenuhan 40-80%, dan dilanjutkan dengan dialisis. Bakteriosin murni didapatkan pada tingkat kejenuhan 80%. Bakteriosin yang diproduksi *Lactobacillus* sp. GMP 1 memiliki rentang stabilitas yang luas terhadap suhu 40°C-121°C, pH 2-7, dan mampu mempertahankan aktivitas penghambatannya setelah mengalami penambahan enzim lisozim. Bakteriosin ini juga mampu menghambat pertumbuhan bakteri Gram positif, *Staphylococcus aureus* ATCC 5638 dan bakteri Gram negatif, *Salmonella* sp. 230C yang merupakan bakteri kontaminan pangan dengan nilai *minimum inhibitory concentration* (MIC) masing-masing sebesar 250µg/mL.

Kata kunci: bakteriosin, karakterisasi, *Lactobacillus* sp. GMP 1, purifikasi

Abstract

IDENTIFICATION BACTERIA AND PARTIAL PURIFICATION OF BACTERIOICIN FROM GMP 1 LACTIC ACID BACTERIA AND CHARACTERIZATION OF ANTIBACTERIAL ACTIVITY AGAINST BACTERIA CONTAMINANTS OF FISHERY PRODUCTS

GMP 1 isolate is a lactic acid bacteria (LAB) that was successfully isolated from pakasam. This study aims to identify GMP 1 isolates and isolate and characterize their bacteriocins. Molecular identification with specific primers BAL L5 15F (5'-GCTCAGGAYGAACGCYGG3') and 687R (3'-CACCGCTACACATG RADTTC-5") succeeded in identifying GMP 1 isolate as *Lactobacillus* sp. with 99.71% percent identify to *Lactobacillus* sp. SDCM 1015. Bacteriocin produced by *Lactobacillus* sp. GMP 1 was partially purified with ammonium sulfate salt with a saturation level of 40-80% and followed by dialysis. The pure bacteriocin was obtained at a saturation level of 80% and had an inhibitory activity of 4897.75 AU against *Staphylococcus aureus* ATCC 5638. The bacteriocin produced by *Lactobacillus* sp. GMP 1 has a wide stability range at 40°C-121°C, pH 2-7, and is able to maintain its inhibitory activity after being subjected to the addition of the enzyme lysozyme. This bacteriocin is also able to inhibit the growth of Gram-Positive bacteria, *Staphylococcus aureus* ATCC 5638 and Gram-Negative bacteria, *Salmonella* sp. 230C which is a food contaminant bacteria with a minimum inhibitory concentration (MIC) value of 250µg/mL each.

Keywords: bacteriocin, characterization, *Lactobacillus* sp. GMP1, purification