



Intisari

Penelitian ini bertujuan untuk memproduksi N-asetilglukosamin (NAG) dari kitin dengan menggunakan kitinase kasar *Bacillus* sp. SMG 1.1 dan mengetahui nilai MIC50 N-asetilglukosamin terhadap *Staphylococcus aureus* dan *Escherichia coli*. Produksi NAG dilakukan dengan hidrolisis enzimatis kitinase kasar *Bacillus* sp. SMG 1.1 pada suhu 40°C, pH 7, dan inkubasi 60 menit.. Aktivitas antibakteri diuji dengan mengukur kepadatan bakteri selama inkubasi 6 pada medium TSB yang ditambahkan NAG dengan berbagai konsentrasi (0,025; 0,05; 0,075; dan 0,1 ppm). Pengamatan kepadatan bakteri dilakukan setiap satu jam dengan menggunakan spektrofotometer pada panjang gelombang 640 nm. Daya hambat bakteri diukur dengan membandingkan kepadatan bakteri pada perlakuan dan kontrol. MIC50 N-asetilglukosamin terhadap *Staphylococcus aureus* sebesar 5,14 ppm dan *Escherichia coli* sebesar 4,94 ppm.

Kata kunci: antibakteri, enzimatis, kitinase, N-asetilglukosamin, *Bacillus* sp.



Abstract

This study aimed to produce N-asetilglucosamine from chitin using crude chitinase from *Bacillus* sp. SMG 1.1 and to observe the MIC50 of N-acetylglucosamine against *Staphylococcus aureus* and *Escherichia coli*. Production of N-acetylglucosamine was done by performing enzymatic reaction using crude chitinase from *Bacillus* sp. SMG 1.1 at 40°C, pH 7, and 60 min incubation. Antibacterial activity was tested by measuring the optical density of the bacterial culture grown on TSB medium added with various concentration of N-acetylglucosamine (0.025; 0.05; 0.075; 0.1 ppm) during six hour. The measurement of bacterial density was made every hour using a spectrophotometer at a wavelength of 640 nm. The percentage of growth inhibition was measured by comparing the bacterial culture density between treatment and control. MIC50 of N-acetylglucosamine against *Staphylococcus aureus* was 5.14 ppm and *Escherichia coli* was 4.94 ppm.

Keywords: antibacterial, enzymatic, chitinase, N-acetylglucosamine, *Bacillus* sp.