

Intisari

Kitin merupakan homopolimer dari β -1,4 N-asetil-D-glukosamin. Kitinase dapat mendegradasi kitin secara langsung menjadi produk dengan berat molekul kecil, seperti N-asetilglukosamin dan kitin-oligosakarida. Produksi N-asetilglukosamin menarik untuk dipelajari karena dapat dimanfaatkan pada berbagai macam industri. Penelitian ini bertujuan untuk mengetahui pengaruh pH medium dan suhu inkubasi terhadap aktivitas kitinase kultur *Micromonospora* sp. AR17, yang diisolasi dari instalasi pengolahan limbah industri pembekuan udang. Tahap pertama pada penelitian ini adalah persiapan inokulum *Micromonospora* sp. AR17. Sebelum digunakan untuk pembuatan kultur, kurva pertumbuhan *Micromonospora* sp. AR17 dibuat dengan menggunakan metode TPC (*Total Plate Count*) untuk menentukan umur inokulum yang sesuai. Selanjutnya, pada tahap kedua *Micromonospora* sp. AR17 dikultur dalam medium kitin cair selama 7 hari, kemudian setiap hari kultur diuji aktivitas kitinase dan jumlah N-asetilglukosamin dalam mediumnya. Pengujian aktivitas kitinase dan jumlah N-asetilglukosamin dilakukan menggunakan metode kolorimetri dengan mengamati nilai absorbansinya menggunakan spektrofotometer. Hasil penelitian menunjukkan bahwa aktivitas kitinase *Micromonospora* sp. AR17 dapat mencapai nilai optimum pada pH 7 dan suhu inkubasi 40°C yang menghasilkan aktivitas kitinase sebesar 0,0160 U/ml.

Kata kunci: kitin, kitinase, kolorimetri, *Micromonospora* sp. AR17, *Total Plate Count*.

Abstract

Chitin is a homopolymer of β -1,4 N-acetyl-D-glucosamine. Chitinase degrades chitin directly into small molecular weight products, as N-acetylglucosamine and chitin-oligosaccharides. The production of N-acetylglucosamine is interesting to learn because it can be used in a variety of industries. The purpose of this research were to observe the optimum pH of medium and incubation temperature on chitinase activity of *Micromonospora* sp. AR17 culture, which was isolated from industrial waste water treatment plant. The first step of this research was the preparation of *Micromonospora* sp. AR17 inoculum. To create a culture, the growth curve of *Micromonospora* sp. AR17 was made by using TPC (*Total Plate Count*) method to determine the appropriate age of inoculum. Furthermore, in the second step *Micromonospora* sp. AR17 was cultured in aqueous chitin medium during 7 days, and chitinase activity and amounts of N-acetylglucosamine in the medium were measured every day. Testing of chitin activity and the amount of N-acetylglucosamine was performed using colorimetric method by looking at the absorbance value using a spectrophotometer. The results show that the activity of chitinase *Micromonospora* sp. AR17 could achieve an optimum value at pH 7 and incubation temperature of 40°C which results in a activity of chitinase was 0.0160 U/ml.

Keywords: Chitin, chitinase, colorimetric, *Micromonospora* sp. AR17, Total Plate Count.