

ABSTRACT

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PROFILE OF CHITIN FERMENTATION YIELD FROM BLACK TIGER SHRIMP SHELL (PENAEUS MONODON) USING TRICHODERMA VIRENS

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(xvi + 46 pages, 3 tables, 10 figures, 16 appendices)

Black tiger shrimp (Penaeus monodon) is the most widely used shrimp in fisheries industries of Indonesia for export. This activity contribut to increase the amount of shrimp shell waste. Shrimp shell contains chitin at 15-20%. Chitin can be hydrolyzed using chitinase to produce N-acetylglucosamine. This research was conducted to determine profile of chitin fermentation yield from black tiger shrimp shell (Penaeus monodon) using Trichoderma virens. Chitin was made by demineralization and deproteination black tiger shrimp shell waste. The production of fermentation yield was using solid substrate fermentation. Duration of fermentation process was 8 days, incubation temperature was 30 °C and pH 4. Based on the results of fourier transform infrared (FT-IR) spectrophotometer and liquid chromatography-mass spectrometry (LC-MS) analysis, it can be seen that crude N-acetylglucosamine oligosaccharides can be produced as the result of chitin fermentation besides N-acetylglucosamine. It can be determined from the presence of C-O-C groups and the molecular weight (10949,6230) which is a derivative molecule of GlcNAc-2-Man-3-GlcNAc-Fuc-GlcNAc and can be classified as N-gylcans.

Keywords: *Trichoderma virens*, Chitin, N-acetylglucosamine, N-acetylglucosamine oligosaccharides, N-glycans

Reference: 66 (1990-2018)

ABSTRAK

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PROFIL HASIL FERMENTASI KITIN DARI KULIT UDANG WINDU (*PENAEUS MONODON*) DENGAN KAPANG *TRICHODERMA VIRENS*

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Udang windu (*Penaeus monodon*) merupakan jenis udang yang paling banyak diekspor oleh negara Indonesia. Kegiatan ini berkontribusi dalam peningkatan jumlah limbah kulit udang. Di dalam kulit udang, terkandung 15-20% kitin. Kitin dapat dihidrolisis menggunakan enzim kitinase untuk menghasilkan N-asetilglukosamin. Penelitian ini bertujuan mengetahui profil hasil fermentasi kitin dari kulit udang windu (*Penaeus monodon*) dengan kapang *Trichoderma virens*. Kitin dibuat dengan proses demineralisasi dan deproteinasi limbah kulit udang windu. Proses produksi hasil fermentasi kitin menggunakan proses fermentasi substrat padat. Proses fermentasi dilakukan selama 8 hari dengan suhu inkubasi 30 °C, and pH 4. Berdasarkan hasil analisis *fourier transform infrared* (FT-IR) *spectrophotometer* dan *liquid chromatography-mass spectrometry* (LC-MS) dapat diketahui bahwa selain dihasilkan N-asetilglukosamin dapat dihasilkan *crude* oligo N-asetilglukosamin merupakan hasil fermentasi kitin. Hal tersebut dapat diketahui dari adanya gugus C-O-C dan berat molekul (1094,6230) yang merupakan molekul turunan GlcNAc-2-Man-3-GlcNAc-Fuc-GlcNAc dan dapat digolongkan sebagai N-glikan.

Kata Kunci: *Trichoderma virens*, Kitin, N-asetilglukosamin, Oligo N-asetilglukosamin, N-glikan

Referensi: 66 (1990-2018)