

## ABSTRACT

### TEST EFFECTIVENESS OF FERMENTATION CHITIN GRADUALLY WITH *Actinomycetes* ANL-4 AND *Mucor miehei* ISOLATES FOR MAKING OF GLUCOSAMINE

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Chitin is biopolymer composed by units N-acetylglucosamine binds  $\beta$ -(1,4) which are abundant in nature after cellulose. Chitin can be hydrolyzed into glucosamine with enzymatic reaction. Specific enzyme was used to hydrolyze chitin into glucosamine was chitinase enzyme. Chitinase enzyme can be produced by *Actinomycetes* ANL-4 and *Mucor miehei* during batch fermentation with chitin substrate. This study aims to know the effectiveness of chitin batch fermentation gradually by *Actinomycetes* ANL-4 and *Mucor miehei*. In the first step chitin was fermented by *Actinomycetes* ANL-4. Chitin substrate from first step fermentation was not hydrolyzed by *Actinomycetes* ANL-4 further was fermented with *Mucor miehei*. The result of FTIR spectra of standart glucosamine with glucosamine isolation from the first and second step fermentation are qualitatively had the same relative absorbtion band. The purity of Samples were analyze using HPLC-ELSD using a C18 colomn and mobile phase asetonitril/H<sub>2</sub>O (65/35). The result of HPLC-ELSD chromatogram showed that there was one peak from glucosamine of chitin degradation by *Actinomycetes* ANL-4 and *Mucor miehei* with each retention time 2.1-3 minutes and 2-3 minutes. Effectiveness batch fermentation of chitin with *Actinomycetes* ANL-4 was 41,98%, whereas by *Mucor miehei* was 49,92 %. So the effectiveness of chitin batch fermentation gradually with *Actinomycetes* ANL-4 and *Mucor miehei* was 91,90 % with 10 grams initial substrate.