ABSTRACT

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

By

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Chitin is biopolymer composed by units N-acetylglucosamine binds β-(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 hidrolyzed 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 column and mobile phase asetonitril/H₂O (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.