

ABSTRACT

Vania Lucida (00000004814)

EFFECT OF FERMENTATION pH AND TIME ON PRODUCTION OF CRUDE GLUCOSAMINE FROM *Penaeus monodon* SHELL DERIVED CHITIN FERMENTED BY *Serratia marcescens*

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Glucosamine is naturally occurring substance usually derived from exoskeleton of shrimp, crab and other arthropods which is in form of amino sugar or hexosamine. The production of glucosamine can be done in 3 methods which are chemical, physical-chemical and fermentation process. The aim of this research was to determine the optimum condition for *Serratia marcescens* (chitinolytic bacteria) to produce optimum amount of N-acetyl glucosamine. The shrimp shell used in this research was tiger shrimp (*Penaeus monodon*) which was isolated its chitin content. Then, the isolated chitin was used for the fermentation media using submerged fermentation method. Various temperature (20, 30, 37°C), pH (6, 7, 8), and time (2, 4, 6, and 8 days) were applied to the process to find the optimum condition for fermentation. Through the research, the optimum condition found was fermentation process done for 6 days at 30°C and at pH 8. In this condition, the amount of glucosamine produced can reached up to $41,166.11 \pm 4,480.59$ ppm.

Keywords: Glucosamine, fermentation, *Serratia marcescens*, chitin, tiger shrimp

References: 46 (2000-2017)