



Synthesis of Chitosan from the Scales of Starry Trigger Fish (*Abalistes stelaris*)

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ABSTRACT

Synthesis of chitosan from the scales of starry trigger fish has been carried out in three stages: deproteination using 10% NaOH solution, demineralization using 0.63 M HCl solution, and deacetylation using NaOH solution with three different concentration of NaOH, those were 60%, 50%, and 40% NaOH. Characterization of synthesized chitosan showed that the best chitosan was obtained by deacetylation process with 60% NaOH. The degree of deacetylation obtained 74% has met the DD standard of at least 70% chitosan. Ash level 88.05%; 6% water content; 2.29% protein content.

Keywords: Chitosan, Starry Trigger fish, Deacetylation degree.

INTRODUCTION

The use of biopolymers has developed in all aspect, one of biopolymer is chitosan which is use as biopreservative, emulsificator, stabilizator¹. Chitosan can be derived from Chitin which is synthezed from solid waste of crustaceans such as shells, heads, feet and scales, and from scales of some fishes². By using the waste product as cheap and readily found in natural resources hopefully would solve the problems of solid waste in the seafood processing industry. One of fish that can be use as natural natural source is the scales of starry trigger fish (*Abalistes stelaris*).

The increasing consumption of starry trigger fish is followed by the increase solid wastes such

as skin, bone and scales of the fish. The physical properties of starry trigger fish are very hard outer skin and the scales cannot be cleaned with scales cleaning tool. Due to those uninteresting physical properties, the consumers only consume the flesh; while the skins as well as the scales are discarded around the beach thus became solid wastes. The amount of starry trigger fish skin that were discarded in around Tasik Agung beach, Rembang district, Central Java, Indonesia reached about 25 to 50 kg per day or 50-1500 kg per month. This waste product of fish skin has been utilized to produce valuable leather products by tanning using vegetable tanning process³. Now, the skin of this fish has been tried to synthesize chitosan and characterize by FTIR to determine the formation of NH₂ groups in chitosan and to calculate the deacetylation degree of chitosan.

