Intisari

Penelitian ini bertujuan untuk mengendalikan pembentukan buih selama proses demineralisasi tanpa mempengaruhi kulaitas kitin yang dihasilkan. Pembentukan buih yang tidak terkendalikan menimbulkan masalah dalam proses produksi. Penelitian ini dilakukan melalui 5 tahap, yaitu persiapan bahan baku cangkang rajungan, karakterisasi bahan baku, optimasi penggunaan *antifoaming agent* dalam proses demineralisasi, deproteinasi dan karakterisasi kitin. Proses demineralisasi dilakukan dengan menggunakan HCl 1.5 N yang dipanaskan pada suhu 60^{o}C dengan rasio padatan-pelarut 1:5. Selanjutnya ditambahkan *antifoaming agent* pada variasi konsentrasi 0%, 0,1%, 0,15%, 0,2% dan 0,25%. Campuran HCl dan *antifoaming agent* diaduk selama 30 menit pada suhu 60^{o}C dan diukur tinggi buih setiap satu menit sampai buih benar-benar hilang. Setelah proses demineralisasi sebanyak 3 *stage* maka dilanjutkan dengan deproteinasi sebanyak 3 *stage* pula. Selain tinggi buih dilakukan pula pengamatan pada parameter kadar air, kadar abu, kadar protein, rendemen dan FTIR (*Fourier-Transform Infrared Spectroscopy*). Semakin tinggi konsentrasi *antifoaming agent* yang digunakan, tinggi buih yang terbentuk semakin rendah. Penggunaan *antifoaming agent* 0,25% mampu mengendalikan pembentukan buih sejak awal proses demineralisasi. *Antifoaming agent* juga tidak merubah kualitas kitin yang dihasilkan dilihat dari kadar air, kadar abu, kadar protein dan hasil FTIR. Hal ini menunjukkan bahwa permasalahan pembentukan buih dalam proses demineralisasi dapat diatasi dengan penggunaan *antifoaming agent*. Namun demikian perlu dilakukan penyempurnaan proses agar dihasilkan kadar protein yang memenuhi standar sebelum diaplikasikan pada skala yang lebih besar.

Kata kunci : *antifoaming agent*, buih, demineralisasi, deproteinasi, kadarabu, kadar protein.

Abstract

The aim of this research was to control foam formation during demineralization without changing the quality of chitin. The uncontrollable foam formation will trigger the problem in chitin production. The research was conducted through five stages i.e. preparation of raw material, characterization of shell crab powder, optimization the concentration of the antifoaming agent, deproteination, and chitin characterization. Demineralization was done using 1.5 N HCl that was heated at 60^{o}C with a solid-solvent ratio 1:5 (w/v).The antifoaming agent was added in various concentration 0%, 0.1%, 0.15%, 0.2% and 0.25%. The mixture of HCl and the antifoaming agent was stirred at 60^{o}C for 30 minutes. The height of the foam was measured every one minute until the foam was completely disappeared. After the demineralization was undertaken 3 times, the process was continued by deproteination that was done 3 times as well. Besides the height of the foam, it was also observed the parameters of water content, ash content, protein content, rendemen and FTIR (Fourier-Transform Infrared Spectroscopy). The results showed that the higher the concentration of the antifoaming agent suppressed the formation of foam. The antifoaming agent of 0.25% was able to control the formation of foam from the beginning step of demineralization. The antifoaming agent also did not effect the quality of chitin in terms of water content, ash content, protein content and FTIR results. This indicates that the problem of foaming formation in the demineralization process can be overcome by the use of an antifoaming agent. However, it is still needed improvement on the chitin production process to result protein levels that meet the standards before being applied on a larger scale.

Keywords: antifoam agent, ash content, demineralization, deproteination, foam, protein content.