BAB 5
PENUTUP

5.1 KESIMPULAN

Berdasarkan hasil penelitian yang telah dilakukan, dapat disimpulkan bahwa:

1. Kitosan berhasil diekstraksi dari cangkang lobster batu (*Panulirus penicillatus*) melalui tahapan demineralisasi, deproteinasi, dan deasetilasi. Variasi suhu deasetilasi mempengaruhi karakteristik kitosan, dimana suhu 80°C menghasilkan rendemen tertinggi (10,4%), sedangkan peningkatan suhu hingga 100°C menurunkan rendemen menjadi 5,4% namun menghasilkan kadar air dan kadar abu yang lebih rendah.
2. Analisis struktur kitosan menggunakan FTIR menunjukkan adanya gugus fungsi khas kitosan seperti gugus hidroksil (O–H), gugus amina (N–H), serta ikatan amida yang menandakan terbentuknya kitosan dari proses deasetilasi kitin. Sementara itu, hasil analisis menggunakan SEM menunjukkan morfologi permukaan kitosan yang tidak beraturan dan berpori. Variasi suhu deasetilasi mempengaruhi karakteristik struktur dan morfologi permukaan kitosan yang dihasilkan.
3. Kitosan yang dihasilkan menunjukkan aktivitas antibakteri terhadap bakteri *Escherichia coli* dan *Staphylococcus aureus*. Aktivitas antibakteri tertinggi diperoleh pada perlakuan suhu deasetilasi 100°C, dengan zona hambat sebesar 11 mm terhadap *E. coli* dan 13,7 mm terhadap *S. aureus* serta nilai MIC masing-masing sebesar 1% dan 0,5%. Hasil ini menunjukkan bahwa peningkatan suhu deasetilasi cenderung meningkatkan aktivitas antibakteri kitosan..

5.2. Saran

1. Penelitian selanjutnya disarankan untuk mengoptimalkan kondisi proses deasetilasi guna meningkatkan derajat deasetilasi kitosan.
2. Analisis derajat deasetilasi dapat dilakukan menggunakan metode kuantitatif yang lebih akurat, seperti titrasi atau spektroskopi NMR.
3. Pengembangan aplikasi kitosan sebagai agen antimikroba perlu diuji pada lebih banyak jenis mikroorganisme dan kondisi aplikasi yang lebih luas.

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