BAB V
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan penelitian yang telah dilakukan, dapat dibuat kesimpulan sebagai berikut:

1. Reagen vinyl laurat memberikan nilai DS produk xanthan ester paling besar, yang diikuti oleh metil miristat dan metil laurat berturut-turut.
2. Katalis K_2CO_3 memberikan nilai DS produk xanthan ester paling besar, yang diikuti oleh katalis CH_3COONa dan Na_2CO_3 berturut-turut.
3. Modifikasi xanthan gum melalui reaksi transesterifikasi dengan ester asam lemak dalam media CO_2 superkritik berhasil dilakukan yang dibuktikan dengan munculnya gugus C = O serta berkurangnya gugus O-H pada hasil analisis FTIR produk.
4. Xanthan gum memiliki potensi untuk digunakan sebagai bahan baku pembuatan bioplastik.
5. Modifikasi xanthan gum dengan reaksi transesterifikasi mengubah ukuran produk menjadi lebih besar dan jarak antar partikelnya berdekatan.
6. Modifikasi xanthan gum dengan reaksi transesterifikasi meningkatkan kestabilan termal dari produk yang ditunjukkan dengan peningkatan temperatur degradasi produk.

5.2 Saran

Berdasarkan penelitian yang telah dilakukan, saran yang dapat diberikan untuk penelitian berikutnya adalah sebagai berikut:

1. Reaksi transesterifikasi perlu dilakukan dengan waktu reaksi yang lebih lama, misalnya 6 jam.
2. Perlu dilakukan penelitian lebih lanjut untuk mengetahui kadar air optimum atau batas maksimum kadar air dari reaksi transesterifikasi pada xanthan gum.
3. Perlu dilakukan penelitian lebih lanjut menggunakan katalis dengan kation metal yang lebih kuat reaktivitasnya sehingga diharapkan DS yang diperoleh lebih tinggi karena katalis yang digunakan lebih reaktif, misalnya seperti kation magnesium.

4. Produk xanthan ester perlu dianalisis dengan *Differential Scanning Calorimetry* (DSC) untuk mengetahui *thermal properties* dari produk secara lebih rinci, misalnya seperti temperatur transisi gelas (Tg).
5. Perlu dilakukan analisis lebih lanjut mengenai sifat kelarutan dan *tensile strength* dari produk xanthan ester sehingga diperoleh produk yang memenuhi syarat sebagai material bioplastik.

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