

BAB 5

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan penelitian yang telah dilakukan, dapat disimpulkan bahwa:

1. Pada tahap transesterifikasi, semakin tinggi konsentrasi metil furanoat yang digunakan semakin tinggi nilai DS pati ester yang diperoleh. Nilai DS paling besar yang berhasil diperoleh adalah 0,2518 dengan konsentrasi metil furanoat yang digunakan sebesar 4 mol/mol AGU.
2. Modifikasi pati dapat menurunkan %*solubility* dalam DMSO baik dengan cara transesterifikasi maupun *crosslinking*.
3. Persentase *solubility* yang paling kecil diperoleh pada penggunaan reagen *bismaleimide* yang paling sedikit, yaitu 0,25 mol/mol AGU.
4. Pada tahap *crosslinking* pati termodifikasi mengalami *Diels-Alder* pada temperatur 70°C dan terjadi *retro-Diels-Alder* pada temperatur 150°C. Namun pada beberapa sampel terjadi penyimpangan yang diduga disebabkan oleh terjadinya *permanently crosslinked*.
5. Modifikasi pati dengan cara *crosslinking* melalui mekanisme *Diels-Alder* berhasil membuktikan bahwa modifikasi dengan mekanisme *Diels-Alder* mampu menghasilkan pati yang bersifat *thermoreversible* yang ditandai dengan terjadinya *retro-Diels-Alder*.

5.2 Saran

Berdasarkan kesimpulan tersebut, maka disarankan agar:

1. Dalam pembuatan pati ester perlu digunakan kondisi paling optimum yang dapat memberikan nilai DS yang paling besar.
2. Pada tahap *crosslinking* perlu dikaji lebih lanjut terkait kondisi yang paling optimal untuk mendapatkan pati dengan sifat kekuatan ikatan silang yang paling kuat.
3. Produk *crosslinking* perlu dianalisis lebih lanjut terkait sifat mekanik guna memperoleh pati yang memenuhi syarat untuk digunakan sebagai plastik.

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