

BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. Semakin tinggi kecepatan putar rotor dan waktu homogenisasi, maka produk selulosa yang dihasilkan memiliki derajat fibrilasi yang semakin besar, ukuran partikel semakin kecil, dan *hardness* yang semakin besar.
2. Pembuatan serat selulosa pada rentang kecepatan putar rotor homogenisasi 10.000-30.000 rpm dan waktu homogenisasi 20-60 menit menghasilkan rentang diameter 31,93 μm – 5,42 μm , rentang nilai WRV 525,58 % -773,75%, rentang nilai *yield of fibrillation* 15,82% - 29,96%, dan nilai *hardness* 24 g - 464 g.
3. Proses *pretreatment* asam pada rentang konsentrasi 0,1-1 M menghasilkan nilai WRV dengan rentang 127,17% - 284,40% dan rentang nilai *yield of fibrillation* 3,65% - 10,07%.
4. Proses *pretreatment* asam terbaik adalah saat konsentrasi HCl 1 M.
5. Hasil analisis morfologi, derajat fibrilasi, dan *hardness* menunjukkan bahwa metode homogenisasi dengan menggunakan *laboratory homogenizer* cocok untuk pembuatan serat selulosa berukuran mikro.

5.2 Saran

1. Sebaiknya dilakukan pemisahan selulosa hasil homogenisasi agar didapatkan ukuran yang lebih seragam dengan berbagai metode, seperti penyaringan dengan *nylon membrane syringe filter*, sentrifugasi biasa atau sentrifugasi dengan menggunakan media *Aqueous Multiphase Systems (MuPSs)*.
2. Proses pencucian selulosa dari larutan asam dapat dilakukan dengan menggunakan metode dialisis dengan menggunakan akuades.
3. Sebaiknya analisis kertas dilakukan dengan menggunakan standar TAPPI (*Technical Association of the Pulp and Paper Industry*) untuk mengkarakterisasi kekuatan tarik kertas.
4. Untuk penelitian selanjutnya, sebaiknya dilakukan pengamatan terhadap variabel lain seperti konsentrasi selulosa dan temperatur proses homogenisasi yang mungkin berpengaruh pada nilai derajat fibrilasi, morfologi, dan *hardness*.

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