



BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Dari penelitian kali ini dapat diambil beberapa kesimpulan berdasarkan hasil analisis, kesimpulan yang didapatkan adalah sebagai berikut :

- 1) Kulit salak dengan *pre-treatment* delignifikasi menghasilkan perolehan karbon lebih rendah dibandingkan yang tanpa *pre-treatment* delignifikasi.
- 2) Pada rentang variasi temperatur dan waktu tinggal karbonisasi, semakin semakin tinggi temperatur maka perolehan massa karbon aktif yang didapat semakin kecil.
- 3) Pada rentang variasi temperatur dan waktu tinggal karbonisasi, semakin lama waktu tinggal maka perolehan massa karbon aktif yang didapat semakin kecil.
- 4) Pada rentang variasi temperatur dan variasi waktu tinggal, temperatur tidak memberikan pengaruh signifikan terhadap data luas permukaan karbon aktif.
- 5) Pada rentang variasi temperatur dan waktu tinggal karbonisasi, semakin lama waktu tinggal maka luas permukaan karbon aktif yang didapat semakin besar.
- 6) Temperatur yang semakin tinggi dan waktu tinggal karbonisasi yang semakin lama pada menunjukkan adanya pengurangan intensitas pada gugus C-O.
- 7) Pada hasil aktivasi didapatkan OFG karbon mengalami penurunan dari OFG karbon hasil karbonisasi, menyisakan gugus C-O, O-H, dan C=C.
- 8) Nilai kapasitas karbon aktif dari kulit salak hasil aktivasi lebih besar dibanding karbon aktif komersil hasil aktivasi yang menunjukkan karbon aktif kulit salak dapat digunakan sebagai sel elektroda dalam superkapasitor.

5.2 Saran

- 1) Pre-treatment delignifikasi dan impregnasi KOH saat aktivasi sebaiknya dilakukan di dalam *shaker waterbaath*.
- 2) Dinding reaktor karbon aktif sebaiknya dibersihkan secara berkala dengan menggunakan pelarut organik.
- 3) *Slurry* hasil impregnasi KOH sebaiknya jangan disaring karena dapat mengurangi jumlah KOH saat aktivasi.



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