BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Dari penelitian yang dilakukan dapat ditemukan beberapa kesimpulan sebagai berikut :

1. Penambahan *doping* sulfur menyebabkan penurunan *yield hydrochar*. *Yield* HC-200 sebesar 39,25 %, *yield* HC-S1-200 sebesar 37,25 %, *yield* HC-S2-200 sebesar 36,65 %, dan *yield* HC-S3-200 sebesar 37,4 %.
2. Penambahan *doping* sulfur menyebabkan penambahan *yield* karbon aktif. *Yield* AC-600 sebesar 59 %, *yield* AC-S1-600 sebesar 73 %, *yield* AC-S2-600 sebesar 73,25 %, dan *yield* AC-S3-600 sebesar 72,25 %.
3. Penambahan *doping* sulfur menyebabkan penurunan luas permukaan, dimana luas permukaan karbon aktif tanpa *doping* adalah 1883,89 m^2/g sedangkan luas permukaan terkecil karbon aktif dengan *doping* adalah 720,09 m^2/g pada sampel AC-S1-600.
4. Berdasarkan analisis FTIR, diperoleh bahwa sampel *hydrochar* dan karbon aktif menunjukkan terbentuknya gugus C-S, S=O, serta S-S.
5. Penambahan *doping* sulfur dengan jenis yang berbeda menghasilkan kadar sulfur yang beragam dengan %S AC-S1-600 11,94 %, AC-S2-600 4,91 %, dan AC-S3-600 7,32 %.

5.2 Saran

Dari penelitian ini yang dilakukan terdapat saran yang dapat dipertimbangkan sebagai berikut:

1. Perlu dilakukan analisis elektrokimia untuk mengetahui kemampuan karbon aktif sebagai superkapasitor.
2. Perlu dilakukan variasi rasio massa masing-masing jenis sulfur untuk mengetahui rasio optimum S-*Doped* karbon aktif.
3. Perlu dilakukan analisis XPS untuk mengetahui kandungan gugus sulfur pada sampel.

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