BAB 5

KESIMPULAN DAN SARAN

5.1. Kesimpulan

Dari penelitian yang telah dilakukan selama satu semester ini, ada beberapa hal yang dapat disimpulkan terkait dengan hasil penelitian yang dilakukan. Kesimpulan yang didapat dari penelitian ini adalah sebagai berikut:

1. Penambahan rasio massa $ZnCl_2$ tidak memberikan peningkatan perolehan massa dan penambahan %kristalinitas yang signifikan. Namun, karbon aktif yang diaktivasi dengan penggunaan aktivator $ZnCl_2$ saja terlihat memberikan peningkatan pada luas permukaan dan pori-pori pada permukaan yang lebih lebar daripada dengan penambahan $ZnCl_2$ dan $FeCl_3$. Sementara itu, penambahan $FeCl_3$ menghasilkan karbon dengan luas permukaan yang lebih rendah, perolehan massa rata-rata 1,275 kali lebih besar, pori-pori pada permukaan yang lebih kecil, dan %kristalinitas rata-rata 1,21 kali lebih tinggi dibandingkan karbon aktif yang diaktivasi hanya menggunakan $ZnCl_2$. Akan tetapi, penggunaan $FeCl_3$ tidak terlihat memberikan pengaruh pada pembentukan *graphitic layer*.
2. Komposit karbon sulfur yang dihasilkan memiliki struktur menyerupai sulfur murni dengan penambahan puncak dari karbon aktif. Luas permukaan komposit karbon sulfur yang dihasilkan lebih kecil daripada karbon aktif menunjukkan bahwa sulfur telah berdifusi ke pori karbon.

5.2. Saran

Dari penelitian yang telah dilakukan selama satu semester ini ada beberapa saran yang dapat diberikan apabila penelitian ini ingin dilanjutkan di masa mendatang. Saran yang dapat diberikan untuk penelitian ini ke depannya adalah sebagai berikut:

1. Diperlukan karakterisasi morfologi, luas permukaan, dan %kristalinitas lebih lanjut terhadap sampel TKKS dan *hydrochar* untuk mengetahui perubahan yang diakibatkan oleh karbonisasi hidrotermal

2. Dapat dilakukan penambahan $FeCl_3$ dengan konsentrasi yang lebih tinggi untuk mengetahui efeknya terhadap pembentukan *graphitic layer*.
3. Analisis SEM dapat dilakukan kepada komposit karbon sulfur untuk melihat pengaruh penambahan sulfur pada morfologi strukturnya.

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