

## BAB V

### KESIMPULAN DAN SARAN

#### 5.1 Kesimpulan

1. Terbentuk komposit karbon aktif-*graphene* dari hasil sintesis via simultan grafitisasi aktivasi menggunakan kulit salak dengan struktur berupa karbon amorf dan struktur morfologi berupa lembaran (*layers*).
2. Komposit karbon aktif-*graphene* dengan rasio massa kulit salak dengan KOH sebesar 1:2 menghasilkan luas permukaan paling besar, yaitu 663,779 m<sup>2</sup>/g.
3. Keberadaan impregnan dan katalis grafitisasi secara bersamaan menurunkan luas permukaan yang diperoleh.
4. Komposit karbon aktif-*graphene* dengan rasio massa kulit salak dengan KOH sebesar 1:2 memiliki nilai kapasitansi terbesar, yaitu 337 μF/g pada *scan rate* 2 mV/s, dan nilai kapasitansi ini lebih baik dibandingkan kapasitansi yang dimiliki karbon aktif komersil, yaitu sebesar 263 μF/g pada *scan rate* yang sama.
5. Komposit karbon aktif-*graphene* yang diperoleh dapat diaplikasikan sebagai sel kapasitor.

#### 5.2 Saran

1. Kulit salak yang digunakan diusahakan berasal dari sumber yang sama agar memiliki kandungan yang sama.
2. Perlu dilakukan adanya pengecekan secara berkala pada *furnace* agar tidak terjadi penyumbatan aliran gas nitrogen yang masuk agar tidak mengganggu proses karbonisasi.
3. Pada metode simultan grafitisasi dan aktivasi ini perlu dilakukan pada temperatur karbonisasi yang paling optimal, sehingga perlu dilakukan adanya tahap optimasi agar dapat menghasilkan kualitas komposit karbon aktif-*graphene* yang diinginkan.
4. *Sealing* pada sel elektroda yang akan diuji kapasitansinya harus sempurna dan dalam keadaan vakum sehingga tidak mengganggu proses ion transfer.

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