BAB V
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Terdapat beberapa kesimpulan yang dapat ditarik dari hasil penelitian ini:

1. Proses NSP menggunakan katalis *ferrocene* dengan deposisi secara langsung pada dinding reaktor *stainless steel* mampu mensintesis material karbon nano.
2. Temperatur optimum untuk pertumbuhan karbon nano dari variasi temperatur 650°C, 700°C, 750°C, 800°C, 850°C, dan 900°C adalah 850°C
3. Temperatur operasi 850°C dan konsentrasi katalis 0,015 gr/ml dinilai merupakan kondisi terbaik pertumbuhan material karbon nano dengan menghasilkan CNT dalam jumlah yang banyak.
4. Peningkatan temperatur operasi mengakibatkan perbedaan bentuk morfologi dari material karbon nano dan semakin tinggi temperatur maka diameter material karbon nano akan semakin kecil.
5. Peningkatan konsentrasi katalis *ferrocene* pada temperatur operasi 850°C menyebabkan CNT yang terbentuk memiliki diameter yang semakin besar.
6. CNT pada konsentrasi temperatur 850°C, konsentrasi katalis 0,020 gr/ml, serta *scan rate* 5 mV/s memiliki kapasitansi yang paling besar yaitu 25.06 F/g yang berpotensi untuk digunakan sebagai sel elektroda dalam baterai superkapasitor.
7. Penelitian ini berpotensi dapat beroperasi secara kontinu dan dapat di *scale up*.

5.2 Saran

Adapun beberapa saran yang dapat dipertimbangan guna menyempurnakan penelitian selanjutnya antara lain:

1. Efisiensi dari *nebulizer* yang digunakan dan kelarutan katalis dalam sumber karbon yang digunakan perlu dipertimbangkan.
2. Bentuk besi selongsong untuk mengeluarkan material karbon nano dari dinding reaktor perlu dipertimbangkan agar mempermudah proses pengeluaran sampel.
3 Penggunaan PVDF sebagai *binder* dan ss mesh pada elektroda positif dalam analisa CV perlu dipertimbangkan.

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