BAB V
KESIMPULAN

5.1 Kesimpulan

1. Pada adsorben cangkang telur tanpa kalsinasi terdapat kandungan $CaCO_3$ yang tinggi, akan tetapi pada adsorben cangkang telur dengan kalsinasi, kandungan $CaCO_3$ berkurang dan muncul kandungan CaO. Karakteristik cangkang telur ini dianalisa dengan menggunakan FTIR dan SEM.
2. Hasil kondisi percobaan adsorpsi yang dilakukan memberikan *%removal* terbesar saat konsentrasi awal 10 ppm, pH 6, jumlah adsorben cangkang telur 500 mg untuk adsorben cangkang telur tanpa kalsinasi, sedangkan jumlah adsorben cangkang telur dengan kalsinasi yang digunakan sebesar 10 mg.
3. pH yang dihasilkan fluktuatif, dimana terdapat pH optimum untuk adsorpsi ion logam berat nikel (II) menggunakan adsorben cangkang telur yaitu 6.
4. Kondisi temperatur tidak berpengaruh secara signifikan terhadap kemampuan adsorben cangkang telur untuk menyerap ion logam nikel (II).
5. Konsentrasi awal mempengaruhi *%removal* dalam proses adsorpsi, dimana semakin tinggi konsentrasi awal, maka *%removal* akan semakin berkurang.
5. Model isotermal adsorpsi yang paling sesuai adalah model isotermal Langmuir yang menghasilkan kapasitas maksimum (qm) untuk adsorben cangkang telur tanpa kalsinasi sebesar 0,0135 mg ion logam nikel (II)/mg adsorben dan konstanta Langmuir sebesar 9071,5981 (L/mg ion logam nikal (II)), sedangkan untuk adsorben cangkang telur dengan kalsinasi sebesar 0,0156 mg ion logam nikel (II)/mg adsorben dan konstanta Langmuir sebesar 7296,899 (L/mg ion logam nikel (II)).
6. Model kinetika adsorpsi yang paling sesuai mengikuti model kinetika adsorpsi pseudo orde dua untuk kedua jenis adsorben

5.2 Saran

1. Pada saat proses kalsinasi, jumlah adsorben yang dimasukkan tidak terlalu banyak, karena dapat menyebabkan kalsinasi tidak merata ke setiap bagian adsorben, karena dapat mempengaruhi karakteristik dari adsorben, agar proses adsorpsi berjalan lebih baik.

2. Untuk memperoleh data yang akurat sebaiknya adsorpsi dilakukan duplo.

3. Analisa kandungan logam berat yang dilakukan sebaiknya menggunakan *Atomic Absorption Spectroscopy*(AAS), sehingga dapat diperoleh data kinetika yang lebih akurat.

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