BAB V

KESIMPULAN DAN SARAN

V.1 Kesimpulan

Dari penelitian adsorpsi senyawa *Rhodamine B* dengan menggunakan adsorben komposit bentonit alginat, dapat disimpulkan bahwa:

1. Metode iradiasi menggunakan *microwave* dalam pembuatan adsorben komposit bentonit alginat terbukti meningkatkan kapasitas adsorpsi.
2. Metode iradiasi menggunakan *microwave* dalam pembuatan adsorben komposit bentonit alginat tidak mempengaruhi kecepatan adsorpsi.
3. Berdasarkan paramater - paramater kinetika adsorpsi menunjukkan bahwa kecepatan adsorpsi senyawa *Rhodamine B* dengan menggunakan adsorben komposit bentonit alginat mengikuti model kinetika adsorpsi *Pseudo Second Order* dengan nilai R^2 berkisar antara 0,9821 – 0,9992.
4. Berdasarkan paramater - paramater adsorpsi isoterm menunjukkan bahwa adsorpsi isoterm senyawa *Rhodamine B* dengan menggunakan adsorben komposit bentonit alginat mengikuti model kinetika adsorpsi Freundlich dan Flory-Huggins dengan nilai R^2 berkisar antara 0,9801 – 0,9987. Hal ini menindikasikan bahwa proses adsorpsi membentuk lapisan multilayer dipermukaan yang heterogen.

5. Berdasarkan paramater – parameter termodinamika menunjukkan bahwa adsorpsi senyawa *Rhodamine B* dengan menggunakan adsorben komposit bentonit alginat terjadi secara spontan (ΔG° berkisar -9,234 sampai dengan -14,646 kJ/mol dan ΔS° berkisar 0,0326 sampai dengan 0,2097 kJ/mol.K) dan endotermis (ΔH° berkisar 1,5251 sampai dengan 52,990 kJ/mol).
6. Metode iradiasi menggunakan *microwave* dalam pembuatan adsorben komposit bentonit alginat terbukti meningkatkan kemampuan regenerasi adsorben hingga 3 kali siklus dengan %removal mencapai 70%.

V.2 Saran

Kami menyarankan kepada peneliti yang tertarik untuk meneliti lebih lanjut mengenai adsorpsi dalam penelitian ini dapat melakukan variasi – variasi baru terhadap variabel penelitian, seperti daya iradiasi, temperatur adsorpsi, dan pH adsorpsi sehingga ditemukan variabel – variabel yang dapat meningkatkan kemampuan adsorpsi adsorben komposit bentonit alginat.

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