CHAPTER V
CONCLUSION AND RECOMMENDATION

V.1. Conclusion

The best mass ratio of NCC and rarasaponin for tetracycline drug carrier was 1:22 (rarasaponin:NCC), it was determined by the highest adsorption capacity at equilibrium (q_e). At a higher rarasaponin concentration, rarasaponin molecules may form aggregates that cause the desorption of rarasaponin from the NCC surfaces during the rinsing step. Synthesize of NCC-rarasaponin was successful, which can be seen from FTIR characterization results in the presence of several peaks that indicate the intercalation of rarasaponin into NCC. The successful synthesize of NCC-rarasaponin can also be confirmed by zeta potential measurements which shows a more negative value on NCC-rarasaponin due to the presence of deacylated carbonyl groups from rarasaponin.

The adsorption of tetracycline onto NCC and NCC-rarasaponin in kinetic adsorption was fit to pseudo-first order equation, assumes that physisorption is dominant. It was found that both Langmuir and Freundlich isotherm equations can represent the adsorption isotherm of tetracycline antibiotic onto NCC-rarasaponin. The higher desorption efficiency was obtained at pH 7, where tetracycline present as zwitterions.

V.2. Recommendation

NCC-rarasaponin has been shown suitable for tetracycline drug carrier, but the amount of drug adsorbed tetracycline at each equilibrium state are still low. Further research of NCC-rarasaponin is recommended in order to increase the adsorption capabilities.

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