## CHAPTER V CONCLUSION AND RECOMMENDATION

## V.1. Conclusion

Delignification of OPEFB divided into two steps, the first with acetic acid peroxide then the second was done with an acid detergent solution. This two steps treatment has resulted 95.19% of cellulose which used to produce NCC.

Acid hydrolysis was conducted at various time and temperature. The highest yield on this research was 51.02% reached at 35<sub>o</sub>C for 20 minutes. Based on the yield of NCC production, the more influencing factor was analyzed by Taguchi analysis. The NCC characteristic was done by FTIR and SEM analysis, the results are in accordance with the literature.

In the adsorption process, NCC can adsorb tetracycline antibiotic until 150.8001 mg/g using 500 ppm tetracycline solution for 9 hours at ambient temperature. The desorption ability slowly for 12 hours with efficiency reaching 60.78%.

## V.2. Recommendation

T his NCC production has given the high yield, but the yield of NCC has not reached the highest yield. Modification of NCC as drug delivery is recommended in order to increase the ability of NCC's adsorption and enhance drug prolonged releases.

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