

Rayakorn Nokkaew 2008: Elimination of Phorbol Esters in Seed Oil and Press Cake of *Jatropha Curcas* L.. Master of Science (Chemistry), Major Field: Chemistry, Department of Chemistry. Thesis Advisor: Associate Professor Vittaya Punsuvon, Ph.D. 158 pages.

Phorbol esters are the main toxic in seed oil and press cake of *Jatropha curcas* L.. The biological effects include tumor promotion and inflammation. However, *J. curcas* is an alternative plant whose the seed oil can be used for biodiesel or edible oil and the press cake is used for animal feed and fertilizer after phorbol esters are eliminated. The objective of this experiment is to investigate the optimum condition of the most suitable adsorbent including adsorption time, amount of adsorbent, temperature and stirring rate. The objective also is to investigate the optimum condition for removal of phorbol esters from press cake including ratio of press cake to water, stirring time, concentration of base solution, temperature, stirring rate and followed with soaking for one night in 95% ethanol. The results show that the optimum adsorption condition from *J.* seed oil is 3.2% (w/v) bentonite 200, 15 min adsorption time at room temperature with 100 rpm stirring rate. The phorbol esters can be removed up to 98% after one-time adsorption and 99% after two-time adsorption. In addition, Freundlich and Langmuir isotherms are fit well for adsorption of phorbol esters from *J.* seed oil by bentonite 200. The results also show that the press cake is better washed with potassium hydroxide solution than sodium hydroxide solution. The optimum washing condition is 3% (w/w) potassium hydroxide solution, 1:5 ratio of press cake to water, 45 min stirring time at room temperature with 200 rpm stirring rate, followed by soaking of press cake for one night in 95% ethanol. This condition can remove phorbol esters from *J.* press cake down to the concentration level which is suitable for an animal feed.

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