Pradthana Pongfha 2008: Efficiency of *Jatropha curcas* L. in Heavy Metal Adsorption of Zinc and Copper. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Vittaya Punsuvon, Ph.D. 134 pages.

This research studied the removal of zinc and copper heavy metals from aqueous solution by seed shell, leaf, stem, fruit shell and bark of *Jatropha curcas* L. The experiments were conducted in batch experiment. The influence of different experimental parameters such as pH of solution, contact time, shaking time, size of adsorbent, adsorbent dose and concentration of heavy metal were evaluated. The Freundlich and Langmuir adsorption isotherms.were studied too. Furthermore, the analysis of surface area and chemicals constituent of different parts of *Jatropha curcas* L. were also studied.

The results showed that the optimum removal conditions of zinc and copper in aqueous solution were pH 5 and 4 respectively, contact time for 60 minute, shaking time for 90 and 60 minutes respectively, adsorbent size < 0.25 mm. When the of adsorbent dose increased, the effectiveness of treatment was also increased. On the other hand when the concentration of heavy metals increased, the effectiveness of treatment tended to decrease. Langmuir and Freundlich isotherms were fitted well on these experiments. The result in adsorption from wastewater of plating industry showed that zinc adsorption with leaf and fruit shell were 71.84 and 70.98 %, respectively. The copper adsorption with leaf and fruit shell was 76.57 and 68.83 %, respectively. The result of copper adsorption showed leaf was better than fruit shell. In addition, the content of lignin, total phenolic compound and surface area of adsorbents were zinc and copper adsorption.

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