

**SEPARATION OF Pb(II) FROM WASTEWATER USING  
UNTREATED COCONUT FROND**

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## **ABSTRACT**

### **SEPARATION OF LEAD ION FROM WASTEWATER BY USING COCONUT FROND**

The adsorption of Pb(II) ion from wastewater by coconut frond was evaluated in batch adsorption process. Characteristic of the CFP was determined by using pH<sub>zpc</sub>, pH slurry, ATR-FTIR and TGA. The batch adsorption study was carried out using 5 parameter which are the effect of pH, effect of adsorbent dosage, the effect of initial concentration and contact time, the kinetic and isotherm study. The optimum dosage used in this study was 0.04 g while the optimum pH for the adsorption of lead ions is pH 4. The adsorption capacity dependent on Pb(II) concentration and contact time. It required a relatively short period of time to reach equilibrium which within 10 min. Two kinetics models which are pseudo first order and pseudo second order were used to analyze the Pb(II) adsorption process. Pseudo second order model fitted well the experimental data compared to pseudo first order. Adsorption equilibrium data were further analyzed by using Freundlich and Langmuir equation. Based on the result obtain, the Langmuir equation fitted the experimental with the maximum lead adsorption capacity of 23.42 mg/g. So, it shows that adsorption process was monolayer with the coverage of the Pb(II) ions molecule only takes place at the outer surface of CFP.