

**CHEMICALLY ACTIVATED *Leucaena leucocephala* LEAF
POWDER AS A ADSORBENT FOR Pb (II) REMOVAL FROM
AQUEOUS SOLUTION**

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ABSTRACT

Leucaena leucocephala leaf (LLL) powder (an agriculture waste) was treated with nitric acid and its performance in the removal of Pb(II) ion from aqueous solution was evaluated. Firstly, preliminary study was done to identify the optimum concentration of nitric acid to be treated LLL for the adsorption of Pb(II). The characteristics of nitric acid treated *Leucaena leucocephala* leaf powder (NALL) was investigated by ATR-Fourier Transform Infrared (ATR-FTIR) and CHNO/S analysis. The effect of several parameters which can affected the adsorption of Pb (II) onto NALL such as pH, adsorbent dosage, kinetic and isotherm were studied. The optimum pH range for Pb(II) adsorption was at range pH 4. The equilibrium time for Pb(II) adsorption onto NALL is 90 min at 20 mg/L. Two Isotherm models, Langmuir and Freudlich were used to analyze the Pb(II) adsorption process. The adsorption of Pb(II) onto NALL fitted well with Freudlich isotherm model assumed that the Pb(II) adsorption occur at heterogeneous site on adsorbent surface. Two kinetic model; pseudo-first order and pseudo-second order model were used to analyze the Pb (II) adsorption process and the results showed that the pseudo-second order was fitted well with correlation coefficient R^2 greater than 0.99. The maximum adsorption capacity of Pb(II) was 48.78 mg/g.