REMOVAL OF Pb(II) ION FROM AQUEOUS SOLUTIONS USING SOURSOP (*Annona muricata*) LEAF POWDER

MOHD SYOKRI BIN FABIL

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ABSTRACT

REMOVAL OF Pb(II) ION FROM AQUEOUS SOLUTION USING SOURSOP (*Annona muricata*) LEAF POWDER.

The potential of *Annona muricata* leaf powder as an adsorbent for the removal of Pb(II) in the aqueous solution was investigated. The *Annona muricata* leaf powder was characterized before the adsorption using Fourier Transform Infrared (FTIR) spectrophotometer and Thermogravimetric analyzer (TGA). The zero point charge for the adsorbent surface was determined and the data shows that the value for pH_{zpc} is 6.3. The effect of pH, sorbent dosage, initial concentration and contact time were investigated. The maximum uptake of Pb(II) was at pH 6 with 64.57 mg/g. The absorption equilibrium was established after 30 minutes. The adsoprtion of Pb(II) by *Annona muricata* leaf powder increased with its initial concentration. Pseudo-second order showed the best fitting with high correlation ($R^2 = 0.999$). It was found that the adsorption fits well with Langmuir isotherm equation. The maximum adsorption capacity for Langmuir Isotherm was found at 192.31 mg/g. The study suggested that *Annona muricata* could be an efficient sorbent for Pb(II) removal.

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LIST OF ABBREVIATONS

Pb(II)	:	Lead (II)
$Pb(NO_3)_2$	:	Lead nitrate
NaCl	:	Sodium chloride
HCl	:	Hydrochloric acid
Ni	:	Nickel
Co	:	Cobalt
Cu	:	Copper
Zn	:	Zinc
Cd	:	Cadmium
As	:	Arsenic
Fe	:	Iron/ Ferrum
Cr	:	Chromium
B	:	Baron
Ba	:	Barium
Sr	:	Strontium
Na^+	:	Sodium ion
K^+	:	Potassium ion
Mg^+	:	Magnesium ion
Ca^{2+}	:	Calcium ion
AAS	:	Atomic Absorption Spectrophotometer
FTIR	:	Fourier transform infra-red
TGA	:	Thermogravimetric Analyze