REMOVAL OF LEAD FROM AQUEOUS SOLUTION BY CHEMICALLY TREATED DURIAN LEAVES

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ABSTRACT

REMOVAL OF LEAD FROM AQUEOUS SOLUTION BY CHEMICALLY TREATED DURIAN LEAVES

Ability to remove Pb(II) from aqueous solution by Citric acid modified Durian leaves (CADL) was evaluated. CADL was characterized by using pH_{slurry}, pH_{zpc} and FTIR analysis of biosorbent. The effect of physicochemical such as pH, adsorbent dosage, initial concentration of Pb(II) and contact time has been studied to obtain the optimum condition to remove Pb(II) ion from the aqueous solution. The studies were conducted at pH 4, CADL dosage 0.04 g, in contact time of 90 minutes and temperature of 30 °C. Kinetic data were analyzed by using two adsorption kinetic model which is pseudo-first-order and pseudo-second-order. The data shows high correlation coefficient based on pseudo-second-order model with R^2 between 0.997 to 0.9992 rather than pseudo-first-order model. Isotherm studies has been done and determine by using Langmuir and Freundlich model. Langmuir isotherm model give the R^2 is 0.997 and maximum adsorption capacity is 16.64 mg g^{-1}.