



Removal of Pb (II) ion from aqueous Solution Using Potential Low Cost Adsorbents: An Isothermal modeling study

M. Mustaqeem, M. Sharif Bagwan^{1*} and P. R. Patil²

1. Department of Chemistry, IES' H. J. Thim College of Arts and Science, Jalgaon. -425 001, (MS) **INDIA**
2. School of Environmental and Earth Sciences, North Maharashtra University, Jalgaon-425 001, (MS) **INDIA**

Email: bagwanms@rediffmail.com

Accepted on 06th January 2014

ABSTRACT

A study was conducted to determine Pb (II) removal efficiency of activated carbon prepared from Shivan (SAC), Nirgudi (NAC), Mudra (MAC) and Gliciridia Sipium (GAC) leaves. Batch study was carried out in the laboratory. The study was managed using pH, concentration of lead solution, partical size of the adsorbent and adsorption process equilibrium time as parameters. It is observed that the adsorption increased with increasing contact time, and the maximum removals were obtained by size of 45-180 micron. Batch equilibrium experiments exhibited that a maximum lead uptake was obtained at pH 7.0. The experimental data were analyzed by the Langmuir and Freundlich isotherm and the data fitted well to the Langmuir isotherm with monolayer adsorption capacity. The value of separation factor RL was found to be 0.00314, 0.0596, 0.00497 and 0.0109 for SAC, NAC, MAC and GAC respectively suggesting the isotherm to be favorable at the concentration studied. The SAC, NAC, MAC and GAC were found to be cost effective and have good efficiency to remove lead ions from aqueous solution.

Keywords: Lead ion, Shivan, Nirgudi, Mudra, Gliciridia Sipium, Langmuir and Freundlich isotherms.
