



Abstract

In this study the heavy metals is analyzed in the industrial waste. The lead Pb^{2+} is investigated in the industrial waste of paint industries. The sample is analyzed with the help of Atomic absorption spectroscopy. The lead Pb^{2+} shows peaks at 283.3 nm and on absorbance of 0.07. The roots of *Trapa bispinosa* are used to remove the lead Pb^{2+} from the industrial waste and different conditions are checked which cause effect on the adsorption rate of lead Pb^{2+} on roots of *Trapa bispinosa*. The pH of the sample is checked which is kept from 5.5 to 9.5 and all the samples are analyzed with help of Atomic absorption spectroscopy the high adsorption rate is recorded at 7.5 pH of the sample. The temperature of samples is kept from 30 degree centigrade to 70 degree centigrade and the adsorption rate show that the high temperature destroyed the adsorption capacity of roots of *Trapa bispinosa*. The high adsorption rate is recorded at 30 degree centigrade. The dose is varying from 2 mg to 12mg and the adsorption rate checked in all test samples which contains different dose concentrations. The high adsorption rate is seen at 8mg of dose. And contact time is checked from 30days to 75 days which show that the adsorption rate is high in 45 days then adsorption rate for lead Pb^{2+} on roots of *Trapa bispinosa* is slow down. The adsorption of lead Pb^{2+} follows pseudo first order of kinetics and pseudo second order of kinetics. The isotherms which are involved in the adsorption of lead Pb^{2+} by roots of *Trapa bispinosa* are Langmuir isotherm and Freundlich isotherm of adsorption. Investigation of lead in the industrial waste is very useful for environmental forensic investigations. It is helpful in the environmental crimes and investigation of contamination of lead in the events.

Keywords: Lead, Heavy metals, Atomic absorption spectroscopy, Adsorption, Roots, *Trapa bispinosa*, Adsorption Isotherm, Phytoremediation.