**Abstract**

 Water is the elixir of life. The impact of heavy metal pollution due to the discharge from metal plating industries is gaining much attention nowadays. The current investigation deals with the study on the effective sorption capacity of spent tea dust and saw dust being no cost adsorbents in the removal of Pb(II) ions. Batch /- Column studies are performed to frame a comparison for the assessment of the potentiality of the chosen dust materials emphasizing through variable parameters. The comparative results of Pb(II)-Tea dust and Pb(II)-Sawdust systems based on batch mode revealed that the sorption efficiency of tea dust to be in preference to saw dust in the removal of lead ions leading to a marginal increase of 97% against 95%: optimized at 0.30 mm particle size, 100 mg dosage, 10 mg/L initial concentration, 15 minutes contact time. Column studies ensured the quantitative estimation by trapping 100% of lead ions for a dosage of 100 gm (20 ml/5 min flow rate) ensuring the bulkiness of the material. The applicability of the methodologies (Batch and Column studies) in the employment of tea dust and saw dust in the uptake of Pb(II) ions from aqueous solution is found to be remarkably successful.