**Abstract**

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 studies are designed to assess the trapping potential of the chosen dust materials through variable parameters. The comparative results of Pb(II)-Tea dust and Pb(II)-Sawdust systems based on batch mode revealed that tea dust exhibited better sorption efficiency than saw dust with a marginal increase of 97% against 95%; the optimized conditions being : 0.30 mm particle size, 100 mg dosage, 10 ppm initial concentration, 15 minutes contact time.