An experimental approach on the removal of Cd (II) and Pb (II) ions from aqueous solutions by using dead calcareous skeletons

ABSTRACT

Calcareous skeletons were studied to determine its ability in removing cadmium (Cd (II)) and lead ions (Pb (II)) from aqueous solutions. The factors affecting adsorption were evaluated with respect to adsorbent size, contact time, adsorbent dosage, pH, and initial concentration to determine the optimum conditions for Cd (II) and Pb (II) removal. The optimum dosage for removal of Cd (II) and Pb (II) were 20 and 10 g/L, respectively. The pH of both metal solutions had shifted from acidic to alkali condition after equilibrating with the adsorbent. The adsorption capacity of CS appeared to be higher when the initial metal concentrations increased above 1 mg/L. This investigation has proved that CS has a great potential for removing metal contamination in acidic water.

Keyword: Calcareous skeletons; Cadmium; Lead; Removal efficiency; Adsorption capacity; Calcium carbonate