ADSORPTION OF CADMIUM BY USING REGULAR Zn-AlCO_3 HYDROTALCITE

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ABSTRACT

Heavy metals pollution is very serious problem in waste water pollution around industrial area. In this study, Zn-$AlCO_3$ LDH was investigated as an alternatively low-cost adsorbent for the adsorption of cadmium in aqueous solution. Zn-$AlCO_3$ LDH with ratio 4 was synthesis by co-precipitations method at room temperature. X-Ray Diffractometer (XRD) pattern showed the presence sharp peaks, signifying high crystallinity with d_{003} of 7.63 Å which demonstrated general features of LDHs phase without impurity phase. The different parameters that affect the adsorption process were studied included contact time, temperature, adsorbent dosage, initial concentration and pH. The optimum contact time was 120 minutes with 40 mg/L initial concentration. The percentage uptake of cadmium increases with initial concentration, adsorbent dosage and temperature. The optimum pH obtained was at pH 7. For the Adsorption isotherm, the Langmuir isotherm more fitted to the experimental data with R^2 value of 0.877.