

## عنوان مقاله:

Removal of cadmium (II) and lead(II) ions from aqueous solution using modified bentonite as a low-cost adsorbent: A kinetic and equilibrium study

## محل انتشار:

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## خلاصه مقاله:

In this article, the influence of modified bentonite on the adsorption of heavy metals ion like cadmium and lead from waste water is evaluated. Modified bentonite prepared during several steps, including Purification of the raw bentonite, Preparation of monolayer bentonite with n-cetyl pyridinium bromide(CP-bentonite), Synthesis and immobilization of a novel ligand s,s'-bis(2-mercaptoethyl)-3,3'-(dodecylazanediy) dipropanethioate on the monolayer bentonite and preparation of bilayer bentonite (MEDPT@CP-bentonite). The modified bentonite were used as absorbent to remove cadmium and lead ions from waste water. The chemical parameters for quantities of adsorption of heavy metal contamination have been done, and the kinetics of adsorption has also been carried out. MEDPT@CP-bentonite provides enough absorbable sites to overcome mass transfer limitations. The number of absorbable sites for lead is more compared to cadmium, and thus the rate of recovery of lead is faster than cadmium, and the percentage removal of lead is more than cadmium. This difference indicates the influence of MEDPT@CP-bentonite in the adsorption of heavy metals depends on adsorption isotherm. The maximum removal of metal occurred with 0.1 g MEDPT@CP-bentonite. The uptake amount of heavy metal ions on MEDPT@CP-bentonite increased rapidly with increasing the contact time from 1 to 35 h and then reaches equilibrium after 24h

## کلمات کلیدی:

Modified bentonite, Heavy metals removal, Adsorption isotherm

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