عنوان مقاله:

Mercury removal from aqueous solutions by palm leaves adsorbent

محل انتشار:

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خلاصه مقاله:

Mercury is a carcinogenic and teratogenic compound that tends to accumulate in water solutions. In this research, the removal of mercury from an aqueous solution was evaluated by using palm leaves. Experiments were performed to study the adsorption efficiency, the effect of the adsorbent amount, the balance time, the adsorbate concentration, and the pH on mercury removal. The experimental apparatus used was a batch stirred reactor (volume: 1m3). The study was conducted under almost isothermal conditions. The test results showed that the optimum adsorbate concentration was 2 g/l, the balance time was three hours, the optimum adsorbent concentration was 15 mg/l, and the pH was 6. The maximum efficiency obtained was 99.24%. The chemical compounds with the highest presence in the palm leaves were LoI (93.76%), and SiO2 (4.1%), whereas the compound with the lowest presence was Na2O (0.08%). The mercury removal efficiency increased with an increase in the adsorbent dose and the contact time, and reduced with an increase in the initial mercury concentration. The Freundlich model, using the variables provided in the study, predicted the change in the adsorption kinetics

کلمات کلیدی:

Palm leaves, Adsorption, Mercury, Isotherm