

عنوان مقاله:

Batch Study on COD and Ammonia Nitrogen Removal Using Granular Activated Carbon and Cockle Shells

محل انتشار:

ماهنامه بین المللی مهندسی، دوره 30، شماره 7 (سال: 1396)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Landfills generate leachate that contains elevated concentration of contaminants and is hazardous to human health and the ecosystem. In this study, the mixture of granular activated carbon and cockle shells was investigated for remediation of COD and ammonia from stabilized landfill leachate. All adsorbent media were sieved to a particle size between 2.00 and 3.35 mm. The optimum mixing ratio, shaking speed, shaking time, pH, and dosage were determined. Characterization results show that the leachate had a high concentration of COD (1763 mg/L), ammonia nitrogen (573 mg/L), and BOD5/COD ratio (0.09). The optimum mixing ratio of granular activated carbon and cockle shells was 20:20, shaking speed 150 rpm, pH level 6, shaking time 120 min, and dosage 32 g. The adsorption isotherm analysis reveals that the Langmuir isotherm yielded the best fit to experimental data as compared with the Freundlich isotherm. The media produce encouraging results and can be used as a good and economical adsorbent.

کلمات کلیدی:

Activated Carbon, Cockle Shells, Economical Adsorbent, Leachate, Optimum Parameters, Isotherms

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