



Removal of the heavy metal ion Cr(VI) by soybean hulls in dyehouse wastewater treatment

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ABSTRACT

The preparation and properties of soybean hulls are studied. The efficiency of chromium ions removal by soybean hulls from aqueous solutions is investigated. The experiment results showed that the quality of the dyehouse treated wastewater can meet the national requirements of the first grade of integrated wastewater discharge standard (GB 8978–1996) through this treatment. The experiment results indicated that the initial concentration of the metal ions, pH solutions, contact time, soybean hulls of different molecular weight could affect the efficiency of heavy metal ions removal. With soybean hulls of 2 g l⁻¹ for 20 min, the removal rate of Cr(VI) was 91.991% at 30°C pH 2–3. The soybean hulls could be used repeatedly because the desorption rate of Cr(VI) was 95.01%. Soybean hulls are safe and environmentally-friendly natural products. The treating system could be managed conveniently and operated reliably.

Keywords: Soybean hulls; Heavy metal ions; Adsorptive property; Desorption; Removal rate; Adsorbent dosage

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