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Synthesis of novel ECH crosslinked chitosan schiff base-sodium alginate for adsorption of Cd(II) ion from aqueous solution

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ABSTRACT

A novel chitosan derivative was synthesized by crosslinking reaction of chitosan Schiff base and sodium alginate, and then used as adsorbent for Cd(II) ion. The structure of chitosan derivative was fully characterized and the adsorption behavior of Cd(II) ion was also investigated. The equilibrium and kinetic data fitted well the Langmuir and pseudo-second-order model. The estimated maximum adsorption capacity is 262.47 mg/g. Thermodynamic parameters indicates that at higher temperatures, the process is spontaneous, hence the adsorption is easy. Additionally, the regenerated adsorbent after five cycles could retain 87.15% of the adsorption capacity compared with the freshly prepared adsorbent.

Keywords: Chitosan; Sodium alginate; Adsorption; Cadmium (II) ion; Recycle

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