

- Title:** Utilization of Carbamoyethylated Cotton for Heavy Metal Ion Removal
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- Abstract:** Cotton cellulose in fabric form was rendered ion exchanger via Carbamoyethylation Reaction (CER). The latter was carried out using acrylamide (Aam) and sodium hydroxide. The resulted carbamoyethylated cotton having amide functional groups (CONH₂) was monitored for its ability to adsorb heavy metals from their aqueous solutions. Different factors affecting adsorption of metal ions onto the latter substrate such as metal ion concentration, pH, treatment time and temperature were studied systematically. Results obtained reflect the following findings: (a) the adsorption value increases by increasing the metal ion concentration up to 60 m mol L⁻¹ then levels off, (b) the carbamoyethylated cotton was found to be selective adsorbent for Hg²⁺ at pH 0.5, (c) the adsorption values is higher at 40C then levels off by raising the temperature to 60 and 80C, respectively, (d). The adsorption values increase by increasing the treatment time up to 5 h at 40 and 60C and 3 h at 80C then levels off and (e) The adsorption values of the aforementioned substrate in question at different metal ions follow the order: Hg²⁺ > Cu²⁺ > Zn²⁺ > Co²⁺ > Pb²⁺.
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