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A Kinetics Study of *E.coli* and *S.aureus* Adsorption on Cross-Linked Hydrogels

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Abstract: Cross-linked hydrogels copolymer hydroxyl propylmethyl cellulose - acrylic acid(HPMC-co-AA) as adsorbent for two types of bacteria (*E.coli* and *S.aureus*) in aqueous solutions were studied with kinetic adsorptions. The adsorption process of *E.coli*on hydrogels was reached complete equilibrium within 90min., while the adsorption of *S.aureus* on hydrogels was reached equilibrium after 120 min.The maximum adsorption and the adsorption rate of *E.coli*on hydrogels are much higher than that of *S.aureus*. The kinetics of bacteria adsorption has been studied in terms of pseudo-first order and pseudo-second order rate expression. The results indicated that adsorption process followed two models and demonstrated that intraparticle diffusion plays a significant role in the adsorption mechanism.
Keywords: Adsorption; hydrogels; E.coli; S.aureus; Kinetics.

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