

Effects of Operating Parameters in the Recovery of Potassium Clavulanate by Ion Exchange Chromatography

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Clavulanic acid is a β -lactamase inhibitor produced by *Streptomyces clavuligerus*. Potassium clavulanate (PC) is widely used in combination with penicillin antibiotics to enhance their efficacy. In the present study, PC was recovered from model clavulanate solutions containing a β -lactam antibiotic by ion exchange chromatography with a strong anion exchanger, Amberlite IRA400 resin. The effects of pH on the chemical stability of PC was investigated and the most stable pH was found to be 5.0. The effects of operation mode (isocratic or gradient), buffer and eluent (KOH) concentration, and flow rate were also investigated. The isocratic mode was more advantageous than gradient mode. The buffer concentration had no significant on the rate of PC. The recovery rate increased with eluent concentration and flow rate. Under an optimal condition, over 95 % of the β -lactam antibiotic was removed and over 99 % of potassium clavulanate was recovered.