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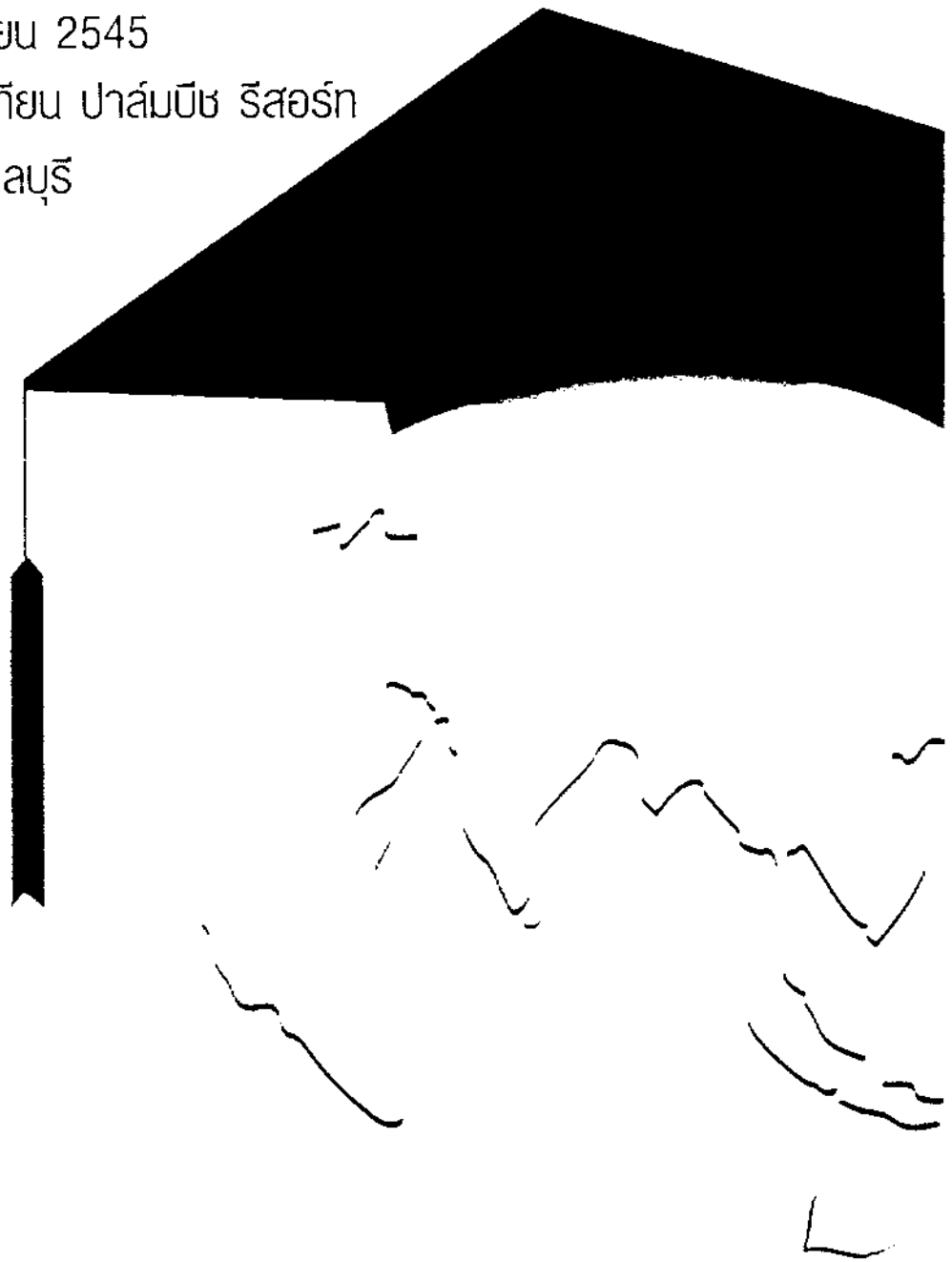
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Effect of pH and Ionic Strength on Arsenic Rejection Through Ultrafiltration MembranePreeyaporn Pookrod^a, Kenneth J Haller^a, John F Scamehorn^b^a School of Chemistry, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, Thailand.^b Institute for Applied Surfactant Research, University of Oklahoma, Norman, Oklahoma, USA.

The polyelectrolyte-enhanced ultrafiltration (PEUF) method, using cationic polyelectrolyte poly(diallyldimethyl ammonium chloride) with an average molecular weight of 240,000 Daltons, is used to investigate the removal of arsenic(V) from dilute aqueous solutions. Arsenic rejection experiments included variation of polyelectrolyte-to-arsenic ratio, pH, presence of background electrolyte, and relative flux. Arsenic concentrations were determined using flow injection hydride generation atomic absorption spectrometry. Arsenic rejection increased with increasing pH and polyelectrolyte-to-arsenic ratio. Arsenic was 97-99.9% removed from synthetic feed water containing 100 mg/L As, resulting in permeate arsenic concentrations lower than 10, 5, and 3 mg/L at pH 6.5, 7.5, and 8.5, respectively. Arsenate rejection decreased as the concentration of background electrolyte increased. Arsenic retention increased and relative flux decreased with increased polyelectrolyte concentration in the retentate.

Keywords: ionic strength, polyelectrolyte-enhanced ultrafiltration, arsenic rejection, PEUF

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