

Abstract :

This research work focuses on the transport of citric acid from aqueous solutions using a polymer inclusion membrane (PIM). The PIM contains calix[4]resorcinarene as the carrier, mixture of cellulose triacetate and cellulose acetate (CA) as the base polymers, and 2-nitrophenyl octyl ether as a plasticizer. The transport percentage of citric acid was found to be dependent on various factors such as the concentration of the carrier and the plasticizer in the membrane phase, pH of the aqueous feed phase, and stirring speed. The corresponding stirring speed, pH of feed phase, the initial concentration of citric acid in feed phase, carrier content, and plasticizer were: 600 rpm, 2, 10–2 M, 0.15 g/g of support, and 0.03 mL, respectively. The 86% of citric acid was transported from feed phase to stripping phase in 5 d. This study shows that PIM composition has a great influence on citric acid recovery. It may be concluded that PIM with calix[4]resorcinarene (RC8) as the carrier can be successfully used for the extraction of citric acid from aqueous solutions.