Fabrication of PSS/PDADMAC Polyelectrolyte Membrane via Layerby-Layer (LbL) Technique for Forward Osmosis (FO) Application

Mok Tze How [a], Mazrul Nizam Abu Seman [b*]
Faculty of Chemical & Natural Resources Engineering,
Universiti Malaysia Pahang, 26300 Gambang, Pahang, MALAYSIA.

Email: [a] moktzehow@gmail.com, [b*] mazrul@ump.edu.my, [b*] ukh_wah@yahoo.com

Abstract **:**

In this study, FO membrane was fabricated by Layer-by-Layer (LbL) coating technique using Poly (sodium 4-styrene-sulfonate)(PSS) and Poly (diallyl-dimethylammoniumchloride) (PDADMAC) as the active polyelectrolytes. Different concentrations of polyelectrolytes and deposition time of polyelectrolytes were investigated. The success of the coated layer was confirmed using ATR-FTIR and FESEM images. The membrane performance was determined by water flux and reverse solute diffusion (RSD) using pure water and 1.75M Na2SO4 as feed and draw solution, respectively. It was observed that the highest water flux, 6.76 L/m2 · h was recorded at the lowest polyelectrolytes concentration and longer deposition time. Meanwhile, the minimum RSD was achieved by the membrane fabricated at the longest deposition time and highest polyelectrolyte concentration

Keywords: *Desalination, Forward osmosis, LbL technique, water flux, reverse salt flux.*