



Fabrication, characterization and permeation study of ultrafiltration dialysis membranes

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Received 24 August 2015; Accepted 18 January 2016

ABSTRACT

In this work, cellulose acetate-based flat sheet membranes were fabricated using PEG 400 and glycerol as an additive in various composition of doped solutions. The fabricated membranes were characterized using SEM, AFM, and FTIR analysis techniques. According to SEM, it was observed that the addition of PEG 400 wt% resulted in the formation of membranes with micro and nanopores and the distribution of pores was not uniform. To avoid heterogeneity in pore sizes, glycerol was added in the dope solution containing CA and PEG 400 (6.2 wt%). The addition of 10.1 wt% glycerol resulted in the formation of membrane with uniform distribution of pores. The permeation study of synthesized membranes was carried out using pure water, urea, and glucose solution which revealed that CA PEG-10.1 wt% glycerol-blended membrane (M8) is most sugar selective and selectivity up to 15.21 is documented.

Keywords: Cellulose acetate; Ultrafiltration membranes; Glucose; Water; Urea; Dialysis

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