

MASTER'S THESIS

Preparation and characterization of ultrafiltration membranes fabricated from poly(amidesulfonamide)s and their possible uses in separation process

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**Preparation and Characterization of Ultrafiltration
Membranes Fabricated from
Poly(amidesulfonamide)s and their Possible Uses in
Separation Process**

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Abstract

Ultrafiltration (UF) is one of the separation processes commonly used in laboratory and industrial scale to separate the macromolecules with molecular weight ranged from 1000 to 1,000,000 dalton. The membranes with distinct performances, high flux and sharp molecular cutoff, were highly demanded. The performance of the UF membranes depend on the fabrication conditions during preparing the membranes.

The synthesized PASAs, Am, Em, Ep, Cp and Bp and the purchased polysulfone, PS, were used as the materials to fabricate ultrafiltration membranes. The effects of the fabrication conditions were studied by using the Uniform Design Method (Fang K.T.). The trend and effect of the fabrication factors affecting the performance of the membranes were predicted by regression analysis method. According to this mathematical method, the specific fabrication conditions were selected to fabricate the highly selective ultrafiltration membranes.

The properties of the highly selective membranes were characterized by determining the mean and maximum pore sizes and the durability. The chemical resistance of the membranes was also studied.

To investigate on the real application in separation process, the membranes were used to separate the earthworm protein mixture. It is successfully to improve the efficiency and enhance the concentration of earthworm protein.

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