



Synthesis of new composite polymer membrane from tapioca grains—polysulfone for desalination

Chitrakara Hegde^{a,*}, Srilatha Rao^b, John D'Souza^c

^aDepartment of Chemistry, Alliance University, Chikkahagade Cross, Anekal, Bangalore 562106, India, Tel. +91 9845465420; email: chitrakarahegde@gmail.com

^bDepartment of Chemistry, Nitte Meenakshi Institute of Technology, Yelahanka, Bangalore 560 064, India, Tel. +91 9900407008; email: srilatha_rao_p@yahoo.com

^cDepartment of Chemistry, St. Aloysius College, Mangalore 575 003, India, Tel. +91 9845315943; email: jddsouza@rediffmail.com

Received 10 March 2014; Accepted 11 November 2014

ABSTRACT

Nowadays, membrane technology has gained significant attention from scientific community throughout the world due to their attractive features such as low costs, low energy costs, and high efficiency in water purification. Different types of membranes and its performance study have been widely applied in the desalination processes. One of the drawbacks in membrane preparation was usage of hazardous chemicals causing serious environmental pollution. Here, we attempted to prepare partial green composite membranes using tapioca grains. The same membranes were subjected to various characterizations and the results were fairly encouraging showing salt rejection as high as 71%. This study aimed to synthesize polysulfone and tapioca membranes over nonporous support of K.C. 27.0 using diffusion-induced phase separation technique method. Newly synthesized polymer membranes were subjected to Infra-red spectral study and water uptake. Their surface morphology is visualized by SEM.

Keywords: Tapioca; Polysulfone; Porous support; Membrane preparation; Salt rejection

*Corresponding author.