

Supporting Information

Channelization of water pathway and encapsulation of DS in the SL of TFC

FO membrane as a novel approach for controlling dilutive internal concentration polarization

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2.1. Materials and chemicals

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Table S1: Analysis of Caspian seawater at two stations.

Properties	Unit	Nour station	Gorgan station	Average
pH	---	$\cong 7.10$	$\cong 7.10$	$\cong 7.10$
Na ⁺	mg L ⁻¹	$\cong 4470$	$\cong 5533$	$\cong 5001$
Ca ²⁺	mg L ⁻¹	$\cong 160$	$\cong 249$	$\cong 204$
Mg ²⁺	mg L ⁻¹	$\cong 500$	$\cong 737$	$\cong 618$
Cl ⁻	mg L ⁻¹	$\cong 5516$	$\cong 6900$	$\cong 6208$
SO ₄ ²⁻	mg L ⁻¹	$\cong 1500$	$\cong 2250$	$\cong 1875$
K ⁺	mg L ⁻¹	$\cong 100$	$\cong 260$	$\cong 180$
TDS	mg L ⁻¹	$\cong 12200$	$\cong 15900$	$\cong 14000$

3.3. Characterization and performance of MMM-based TFCs

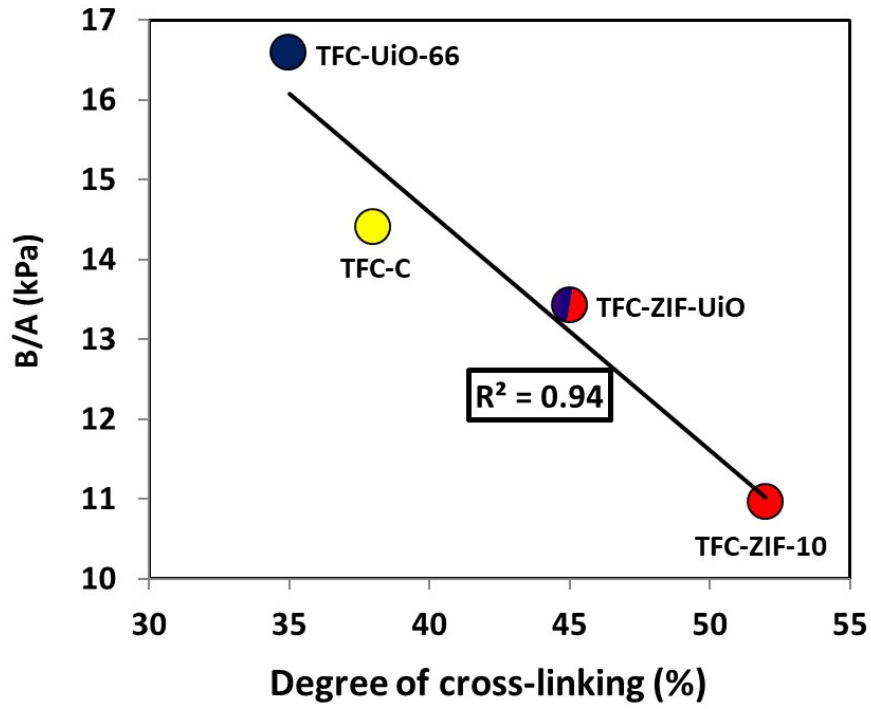


Figure S1: Relationship between B/A and degree of cross-linking for selected TFC membranes in RO experiment.

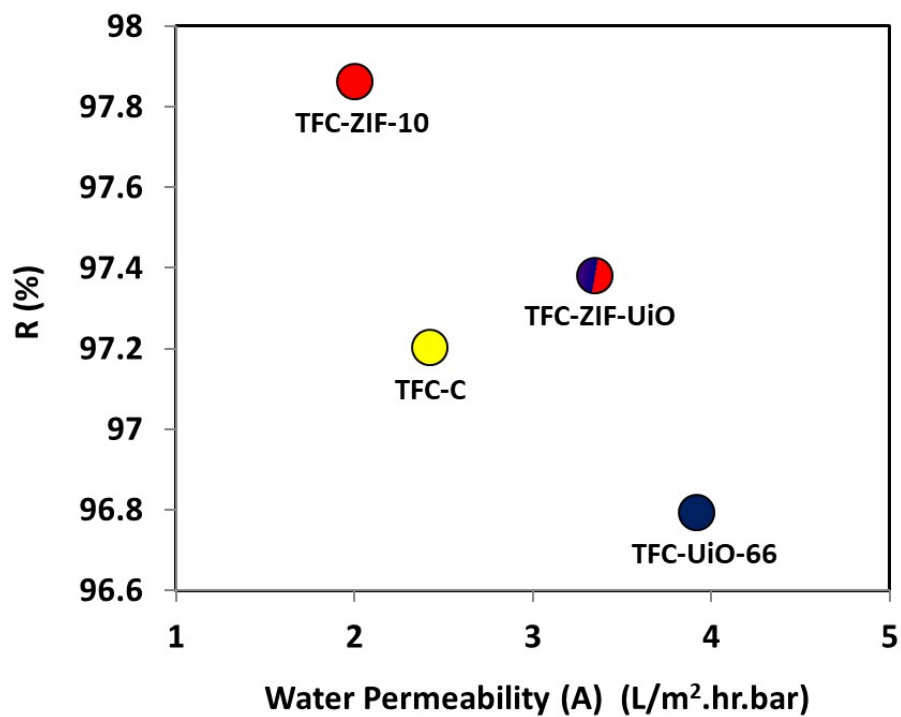


Figure S2: Comparisons between performance of selected TFC membranes in RO experiment.

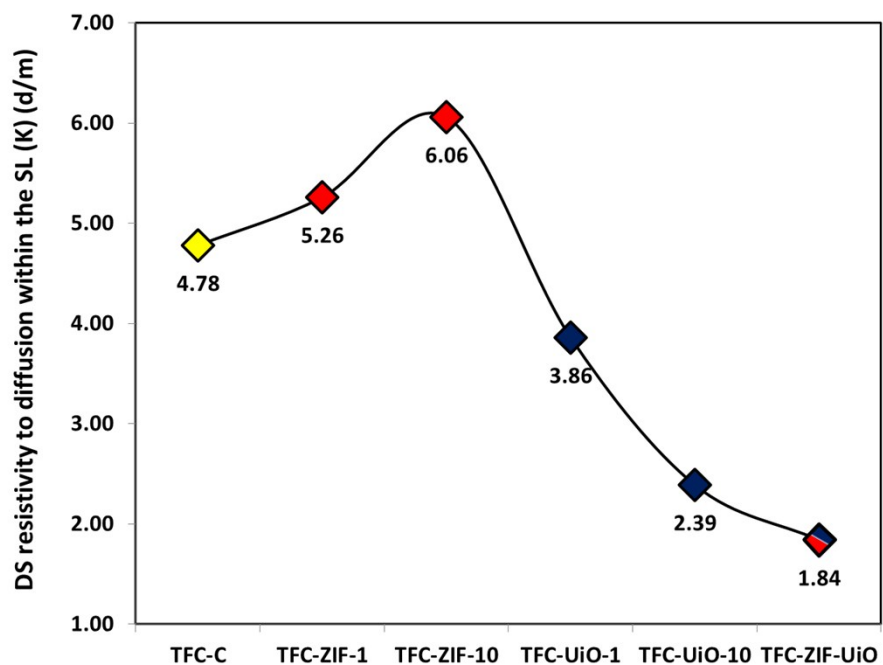


Figure S3: Trend of DS resistance to diffusion into the SL for all TFC membranes.

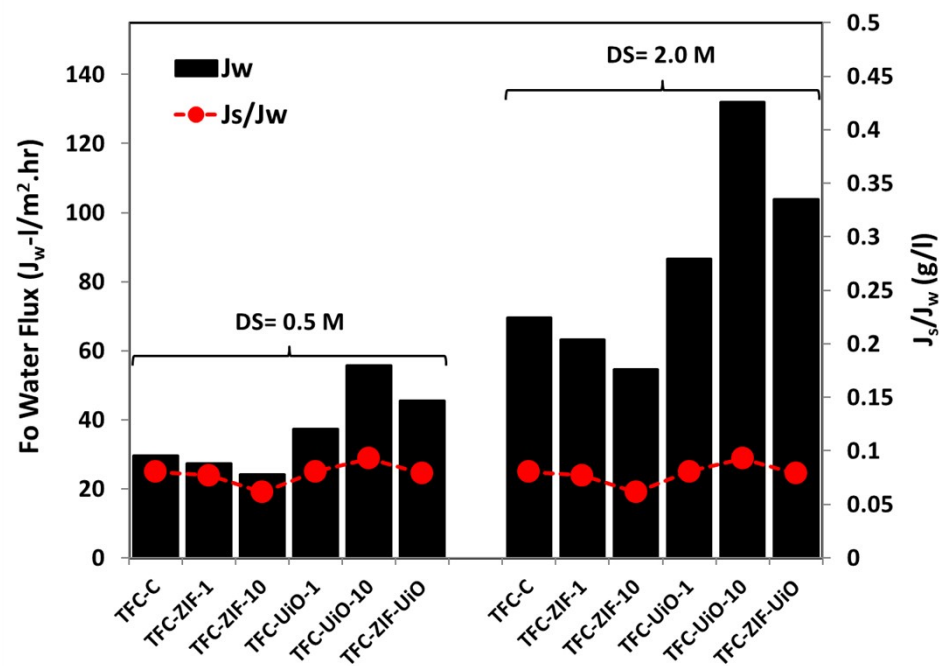


Figure S4: FO water flux and FO reverse solute flux of the TFC membranes in PRO mode using two DS concentrations.