

Fabrication of highly permeable thin-film nanocomposite forward osmosis membranes via design novel freestanding robust nanofiber substrates

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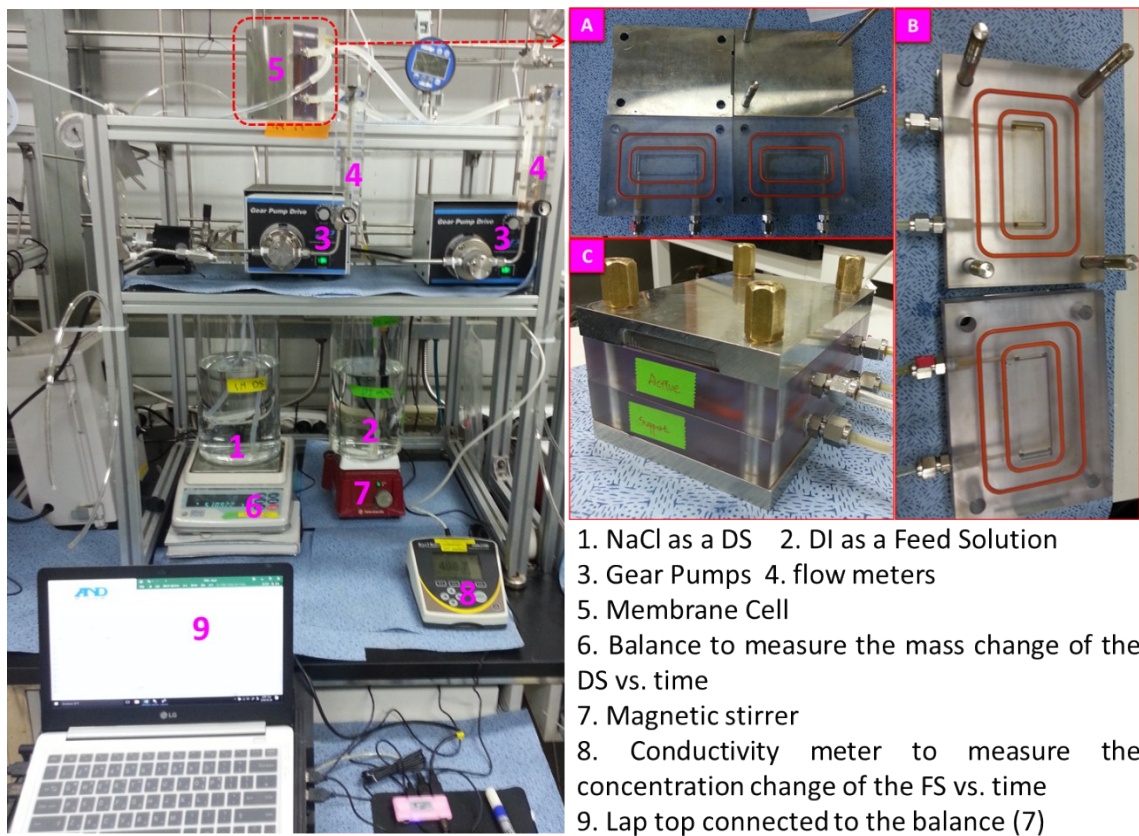


Figure S1. Photograph of the laboratory-scale forward osmosis setup. (A) The cell body and cell holder, (B) inserting the cell body into the cell holder, and (C) an assembled Membrane Cell.

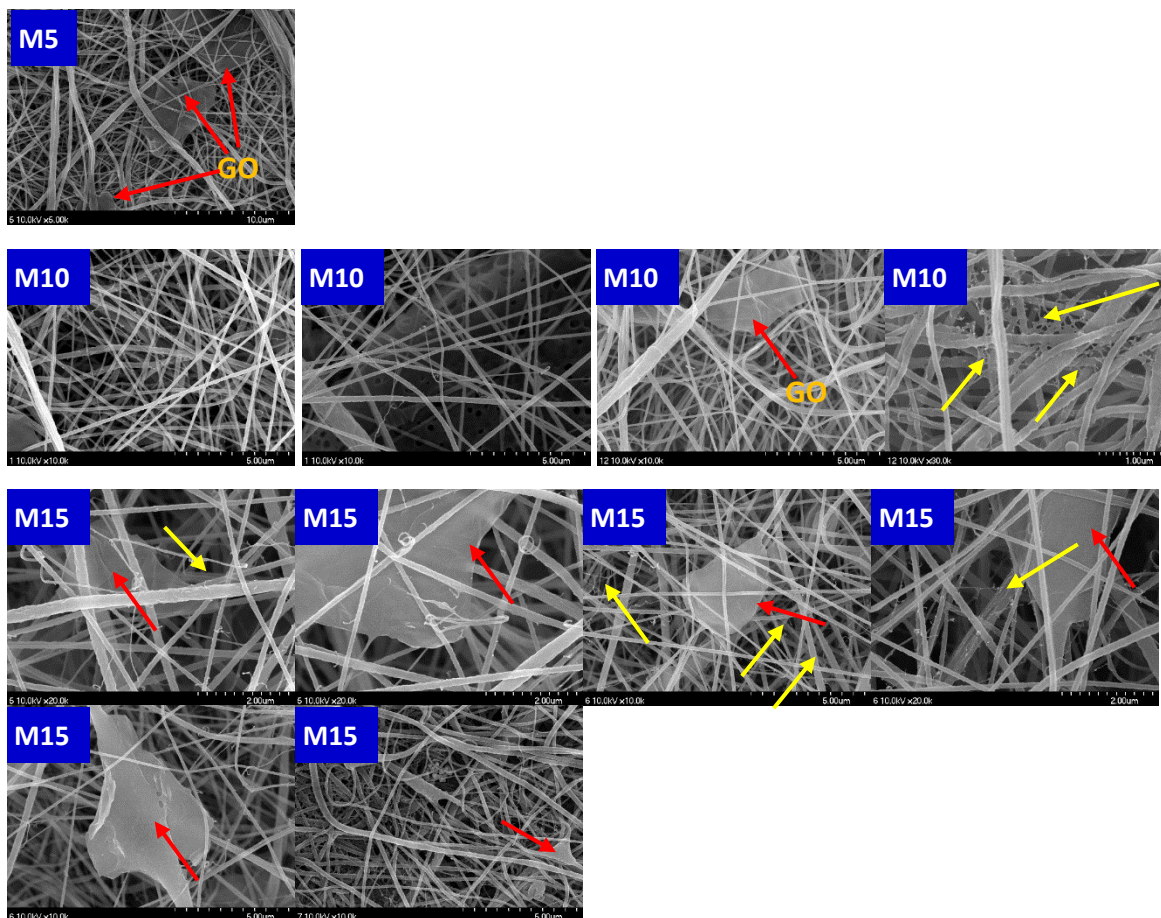


Figure S2. FE-SEM images of the electrospun support layers embedding high concentration of GO; 5 (M5), 10 (M10), and 15 wt. % (M15). The red arrows indicate the GO, while the yellow arrows to the crosslinking (branching).

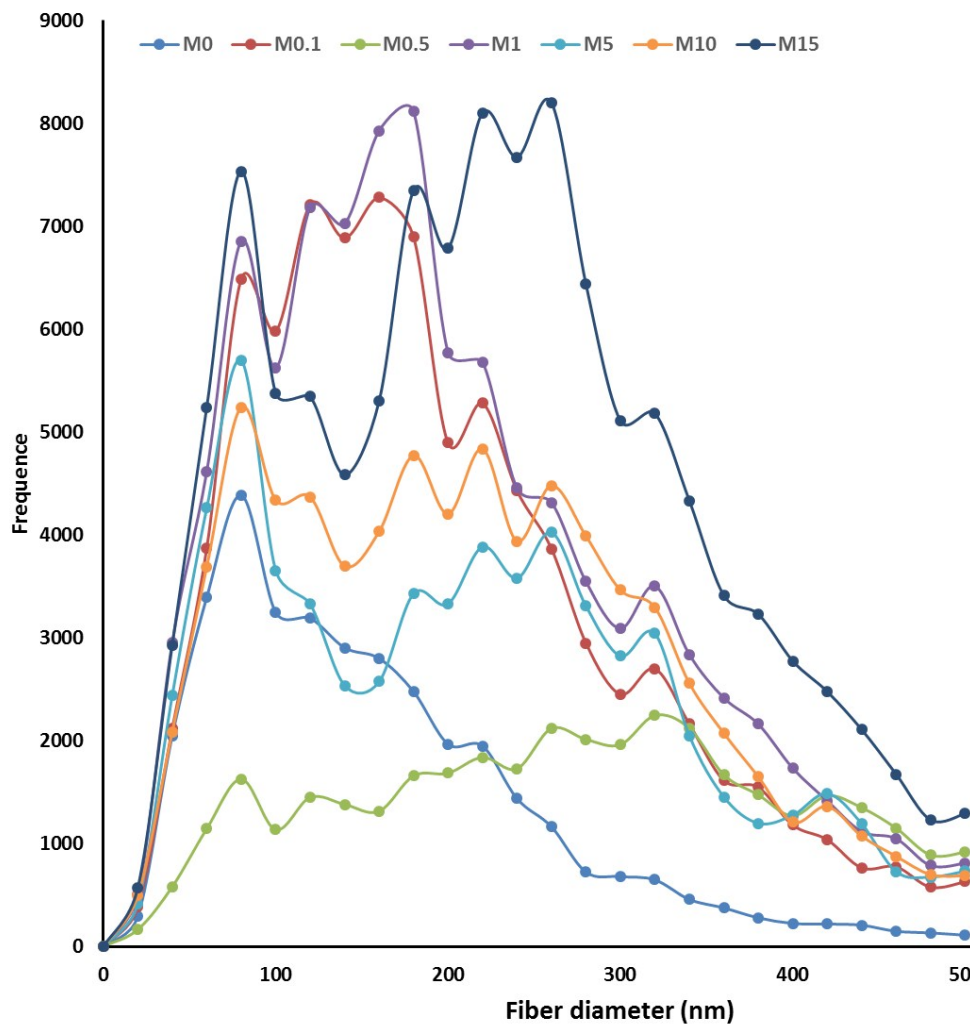


Figure S3. The histogram of the nanofiber diameter distribution.

Table S1: porosimetry data of the pristine and nanocomposite EN substrates

Substrate	TIV (ml/g)	APD (nm)		
		A	V	4V/A
M0	4.07	304	27922.3	1960.5
M0.1	2.64	487.7	19938.9	1703.3
M0.5	2.31	607.5	19218.6	1966.7
M1	3.05	338.1	26410	1635.8
M5	5.15	61	23548.4	684.1
M10	4.38	80.3	10702.5	644.9
M15	3.85	75.5	20711.8	862.6

TIV, Total Intrusion Volume; TPA, Total Pore Area; APD, Average Pore Diameter.

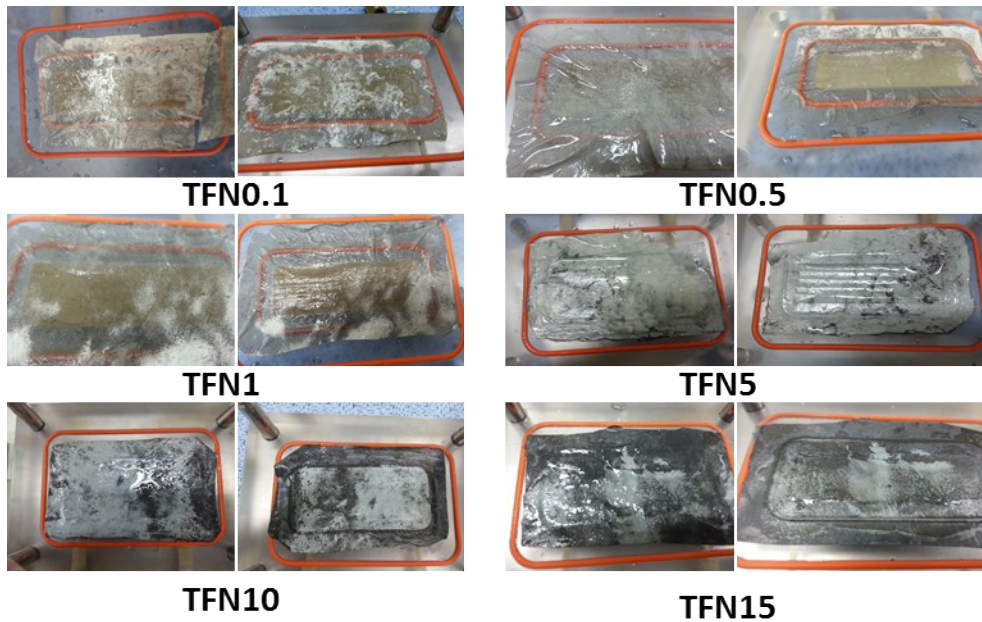


Figure S4. The TFC and TFN membranes (left) before used (right) after used for 30h in FO lab scale system.

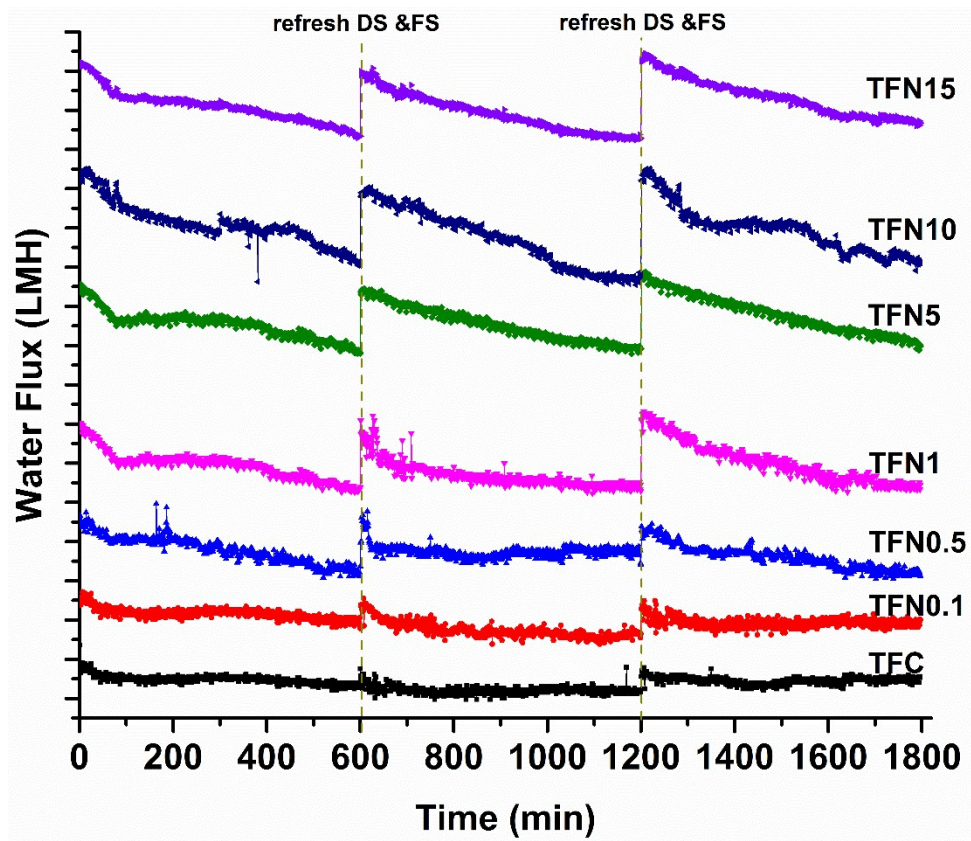


Figure S5. FO water flux of TFC/TFN membranes over long run test (30h), where the DS and FS were refreshed every 10h, same as Fig.10B in form of stacked lines.

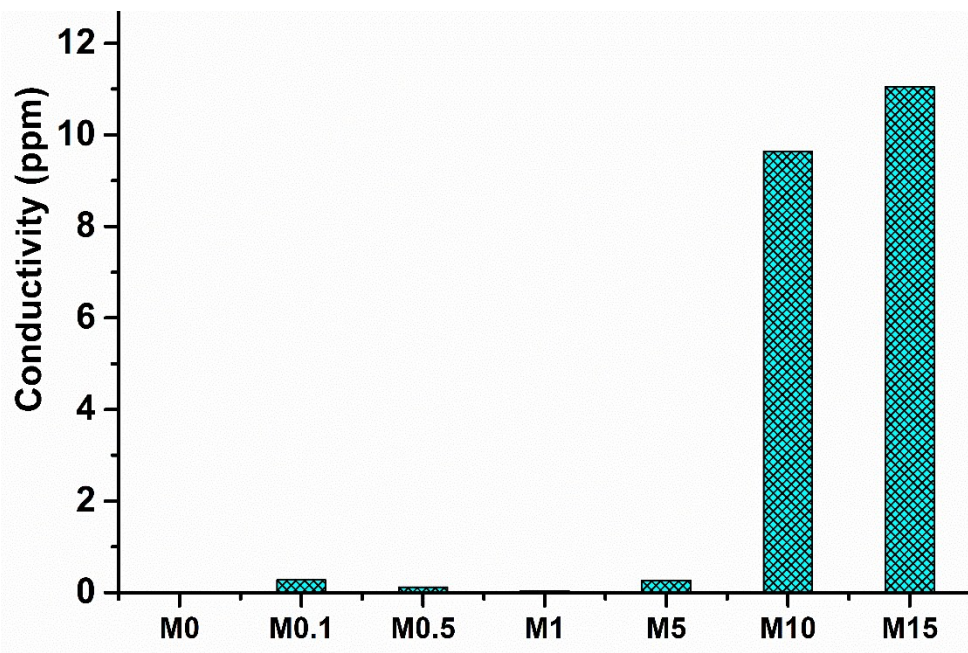


Figure S6. Stability of GO in the fabricated membranes via measuring of the conductivity of the water after sonicating, stirring the membranes in it.