Supplementary Material for

Tea Polyphenol-Coated ZIF-8 Blends Polyethersulfone for Modulating Water Flux and Antibacterial Properties of Ultrafiltration Membrane

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Table S1 *The casting solution composition for different membranes*

Samples	PES (g)	PVP (g)	DMAC (g)	ZIF-8 (g)	ZIF-8@TP (g)
M-PES	1.7	0.1	8.2	-	-
M-ZIF-8-0.01	1.7	0.1	8.2	0.01	-
M- ZIF-8-0.02	1.7	0.1	8.2	0.02	-
M- ZIF-8-0.03	1.7	0.1	8.2	0.03	-
M-ZIF-8@TP-0.1	1.7	0.1	8.2	-	0.1
M- ZIF-8@TP-0.2	1.7	0.1	8.2	-	0.2
M- ZIF-8@TP-0.3	1.7	0.1	8.2	-	0.3

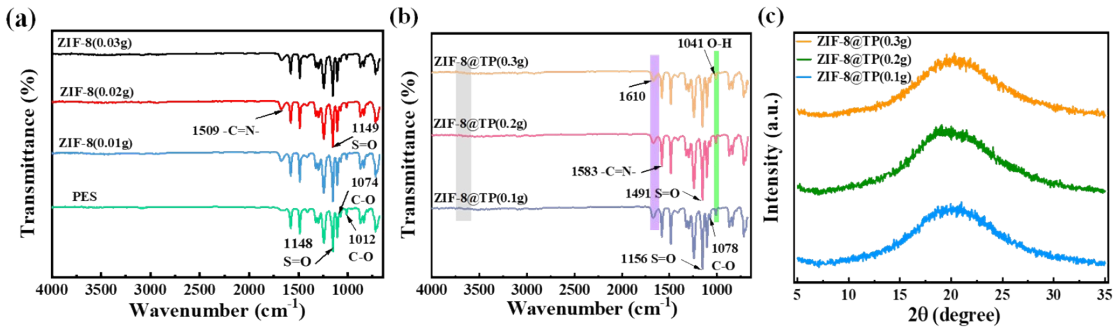

Figure S1 *a) Infrared images of PES membrane and different ZIF-8 membranes with different contents (M-ZIF-8-0.01, M-ZIF-8-0.02, and M-ZIF-8-0.03), b) Infrared images of tea polyphenol coating ZIF-8 film at different contents (M-ZIF-8@TP-0.1, M-ZIF-8@TP-0.2, M-ZIF-8@TP-0.3; c) XRD images of tea polyphenol coating ZIF-8 film at different contents (M-ZIF-8@TP-0.1, M-ZIF-8@TP-0.2, and M-ZIF-8@TP-0.3).*

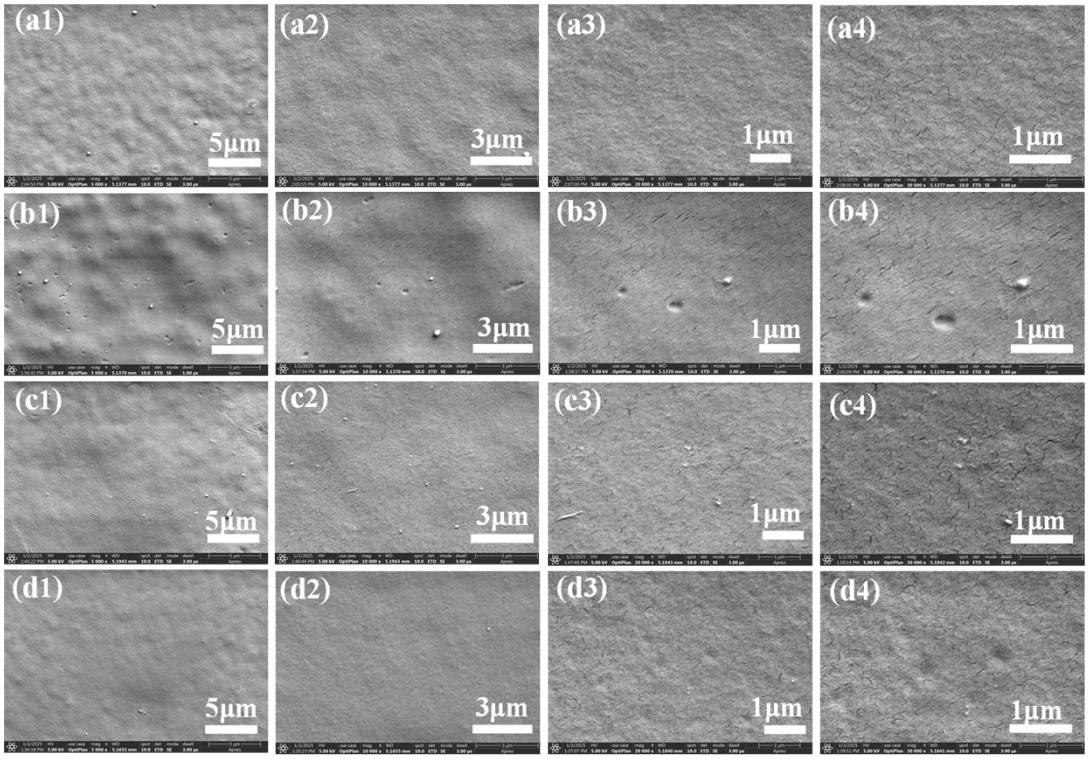

Figure S2 *SEM images of different ZIF-8 membranes with different contents M-ZIF-8-0.01 (a1-a4), M-ZIF-8-0.02 (b1-b4), M-ZIF-8@TP-0.1 (c1-c4), and M-ZIF-8@TP-0.2 (d1-d4).*

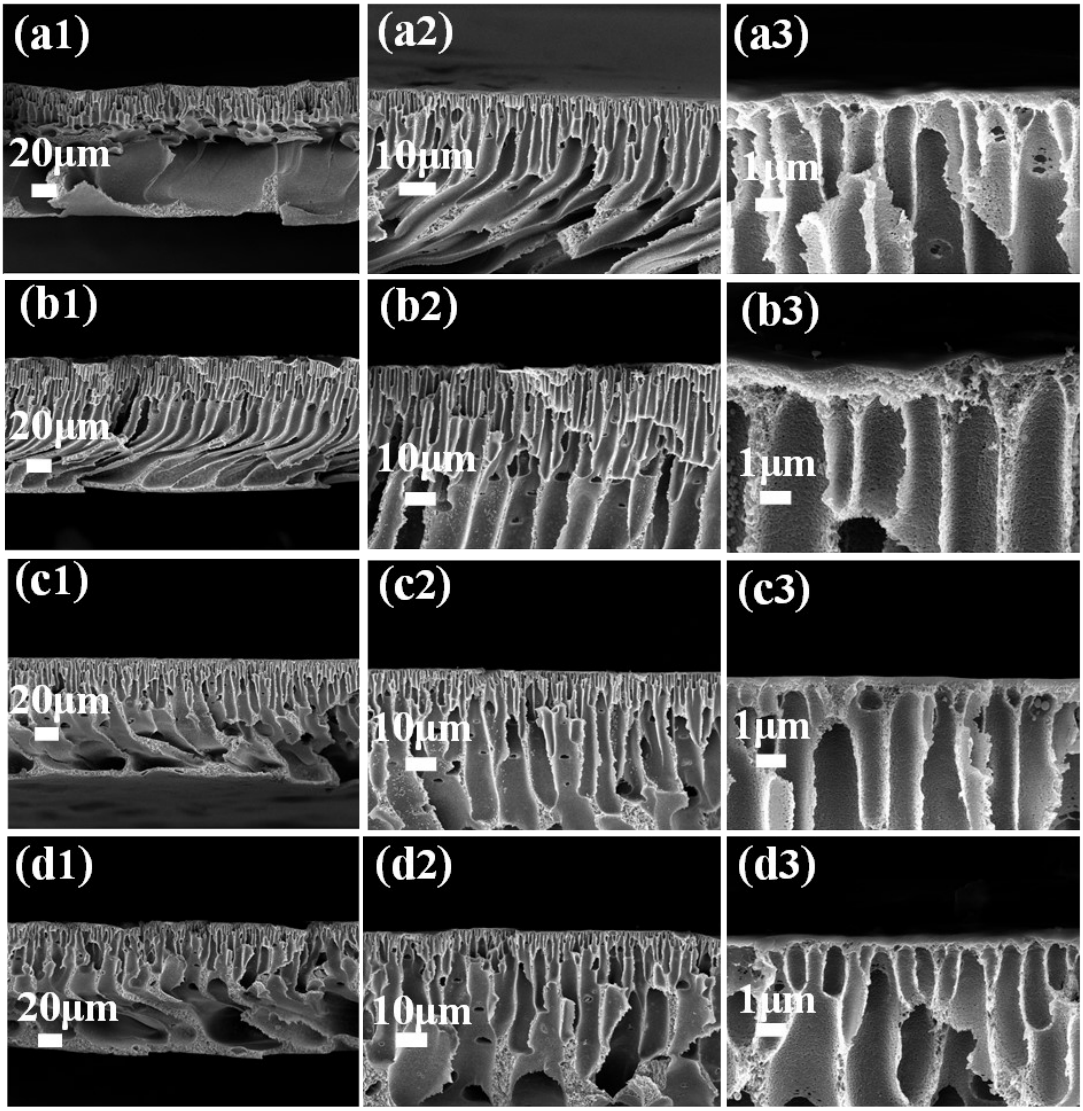

Figure S3 *SEM images of cross-sectional views of different ZIF-8 membranes with different contents M-ZIF-8-0.01 (a1-a3), M-ZIF-8-0.02 (b1-b3), M-ZIF-8@TP-0.1 (c1-c3), and M-ZIF-8@TP-0.2 (d1-d2).*

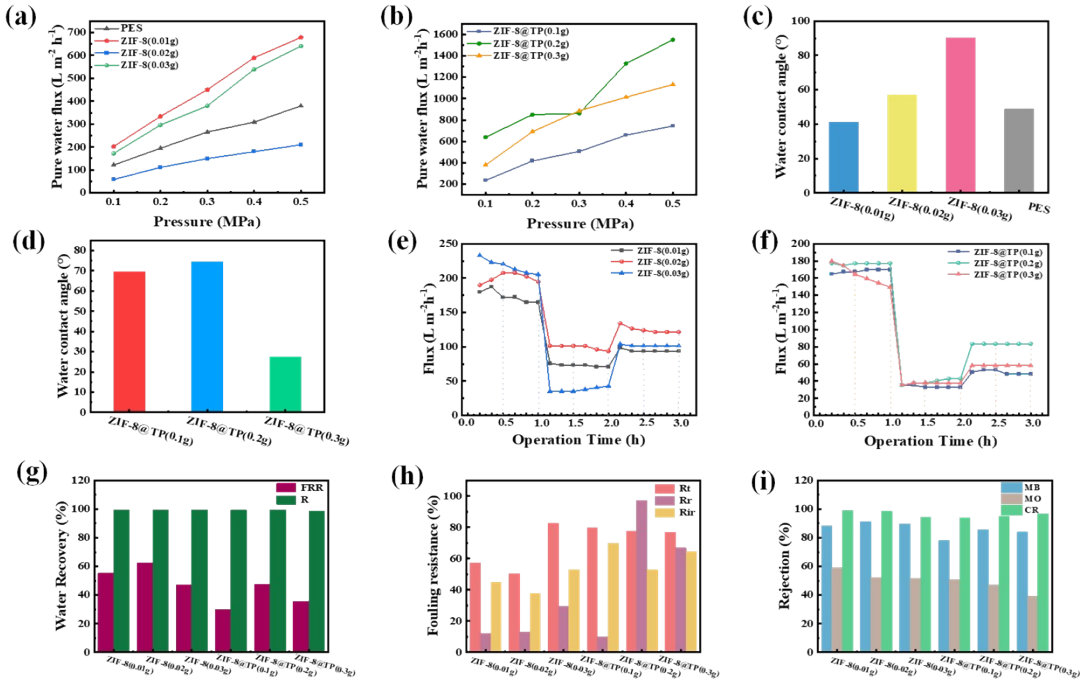

Figure S4 *Performance testing of M-PES and modified membranes a-b) Data on the varation of water flux with pressure for M-PES, M-ZIF-8NPs, and M-ZIF-8@TP$_X$; c-d) Water contact angle measurement of M-PES, M-ZIF-8NPs, and M-ZIF-8@TP$_X$; e-f) Water flux of pure water and BSA solution after membrane cleaning with pure water; g) Water flux recovery rate (FRR) and rejection rate of modified membrane; h) Contamination analysis of modified membrane in BSA; and i) Retention rates of modified membranes for MB, MO, and CR.*

Table S2 *Comparison of the separation performance of the improved polyethersulfone ultrafiltration membrane with the recently reported polyethersulfone ultrafiltration membrane:*

Materials	Pure water flux L m^{-2} $h^{-1}$$Bar^{-1}$	Rejection rate%(BSA)	References
TA/PES	237	-	R1
PES12.5-M0.50	180	60	R2
PES15-M0.50	150	90	R2
PES17.5-M0.75	80	95	R2
PES/SCNO-1.0	170	90	R3
MGO-5	350	-	R4
PES/NMP@WS_2 1.0	360	98	R5
MU 45/10	54	98	R6
PES-T/D-S	180	96	R7

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