

Supporting Information

Mussel-inspired Tailoring of Membrane Wettability for Harsh Water Treatment

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1. Schematic of UF dead-end stirred-cell filtration system

The UF dead-end stirred-cell filtration system is built out by our group. The ultrafiltration cup (MSC300, China) is commercial.

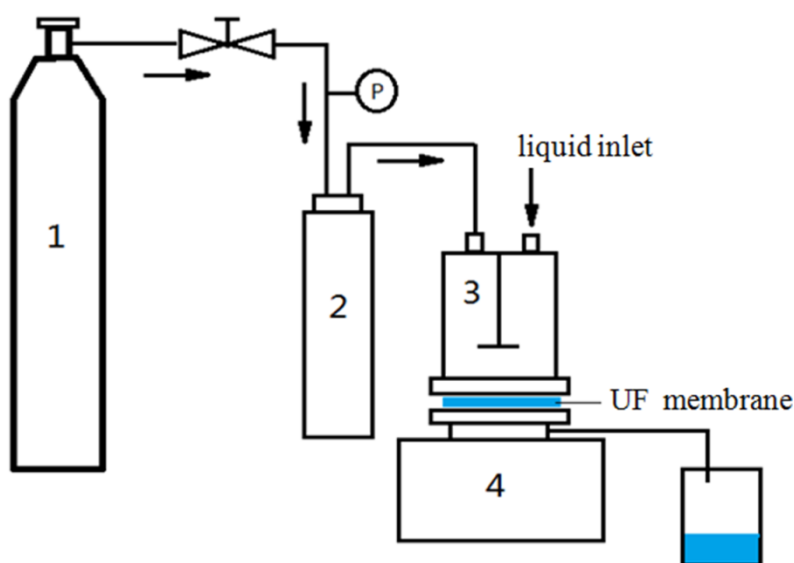


Figure S1. UF dead-end stirred-cell filtration system
(1. nitrogen gas cylinder 2. buffer tank 3. ultrafiltration cup 4. magnetic stirrer)

2. BSA flux of different membranes

BSA flux of different UF membranes were measured by the homemade dead-end stirred-cell filtration system. The UF membranes were compacted with pure water at 0.1 MPa for 50 min to reach a stable value, and then pure water was

changed to BSA solution (300 mL, 1 g L⁻¹) for the BSA flux test. The BSA flux was recorded at 0.1 MPa every 5 min for 30 min.

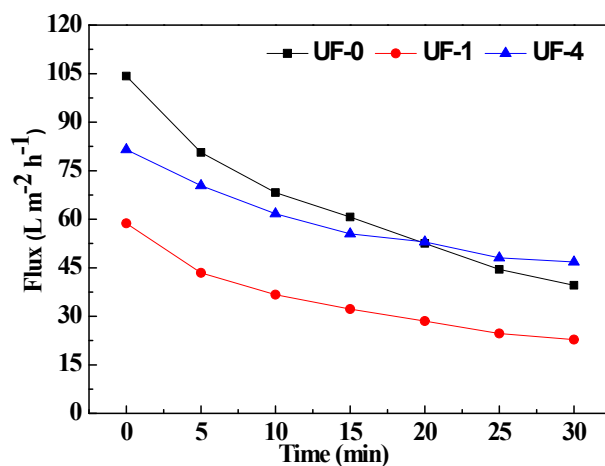


Figure S2. BSA flux of different membranes

From Figure S2, we can see that BSA flux of all membrane declines with the increase of operation time due to the fouling of the membranes.^[1] It can be concluded that the flux decline in unmodified membrane (UF-0) is much higher than the modified membranes (UF-1 and UF-4). Note that, the UF-4 has the smallest decline in flux, indicating the membrane fouling of UF-4 has been decreased after modification.^[2] Besides, after a certain time, UF-4 possessed the highest flux, disclosing its better performance for treating protein-rich water in long-term operation.

References:

- [1] J.G. Zhang, Z. W. Xu, W. Mai, C. Y. Min, B. M. Zhou, M. J. Shan, Y. L. Li, C. Y. Yang, Z. Wang and X. M. Qian, *J. Mater. Chem. A*, 2013, **1**, 3101
- [2] S.S. Madaeni, S. Zinadini and V. Vatanpour, *J. Membr. Sci.*, 2011, **380**, 155-162.