Supporting Information

Enhanced performance of porous forward osmosis (FO) membrane in the treatment of oily wastewater containing HPAM by the incorporation of palygorskite

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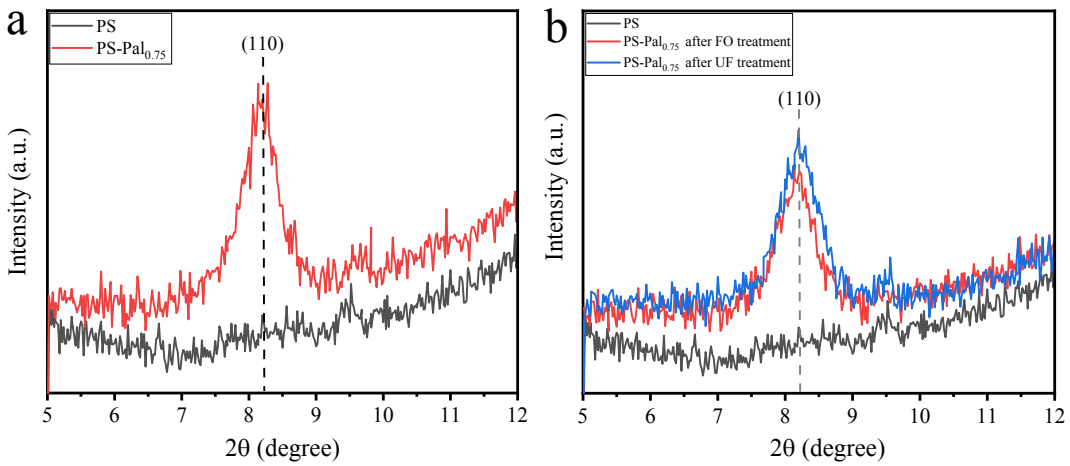

Figure S1. XRD spectra of PS and PS-Pal$_{0.75}$ membranes before (a) and after (b) FO and UF processes.


b
05.095
R
71.6°
71.6°
10.025
R
68.7°
68.7°
20.002
R
68.2°
68.2°
29.994
R
67.9°
67.9°
40.011
R
67.6°
67.6°


c
02.228
R
58.0°
58.0°
10.014
R
56.9°
56.9°
20.017
R
56.7°
56.7°
30.026
R
56.5°
56.5°
40.010
R
56.4°
56.4°

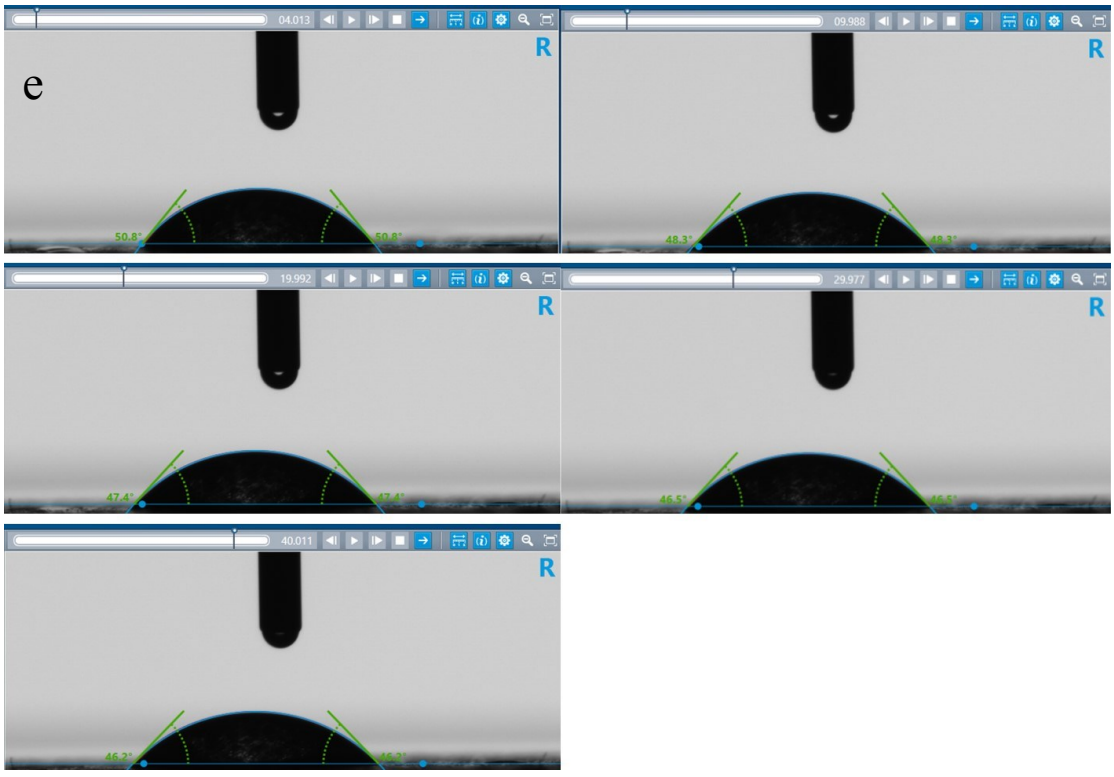

Figure S2. The time-dependence contact angle images of PS (a), PS-Pal$_{0.25}$ (b), PS-Pal$_{0.5}$ (c), PS-Pal$_{0.75}$ (d) and PS-Pal$_{1.0}$ (e) membranes.

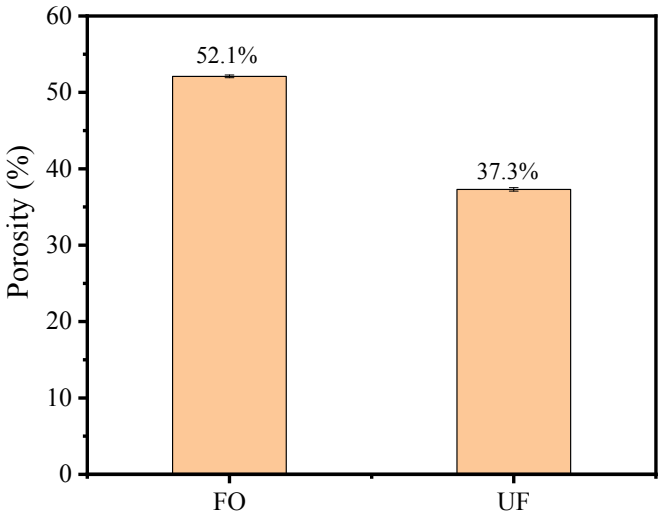

Figure S3. The porosity of the PS-Pal$_{0.75}$ membrane after the FO and UF processes.

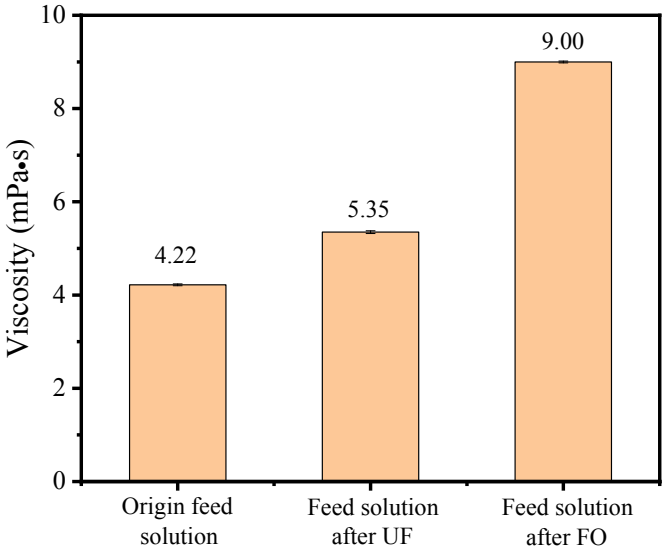

Figure S4. Viscosity of the feed solution before and after UF and FO process.

The detailed test procedure was descripted as follows:

The comparison between UF and FO separating performance were conducted by using the same PS-Pal$_{0.75}$ membrane. 4 L 200 mg/L HPAM solution was used as feed solution for both UF and FO process and 4 g/L PSS70000 solution was used as DS for FO process. When the permeant water volume reached 800 mL, the viscosity of the feed solution for both UF and FO process was measured by Brookfield viscometer under the condition of 25 ℃ and 60 r/min.