

Supporting Information

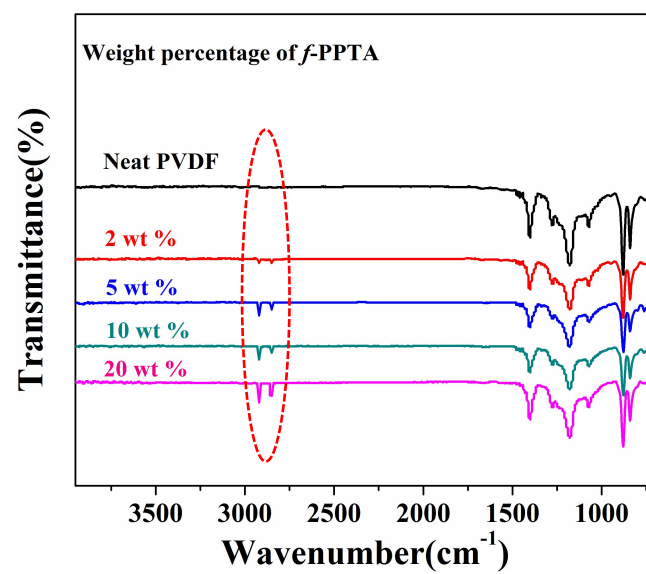
**High-efficiency ultrafiltration nanofibrous membrane with
remarkable antifouling and antibacterial ability**

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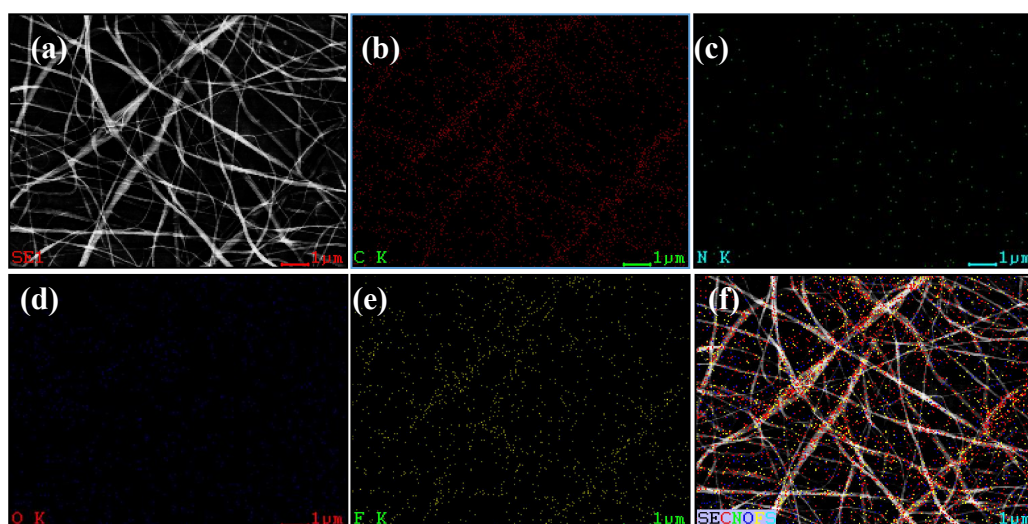
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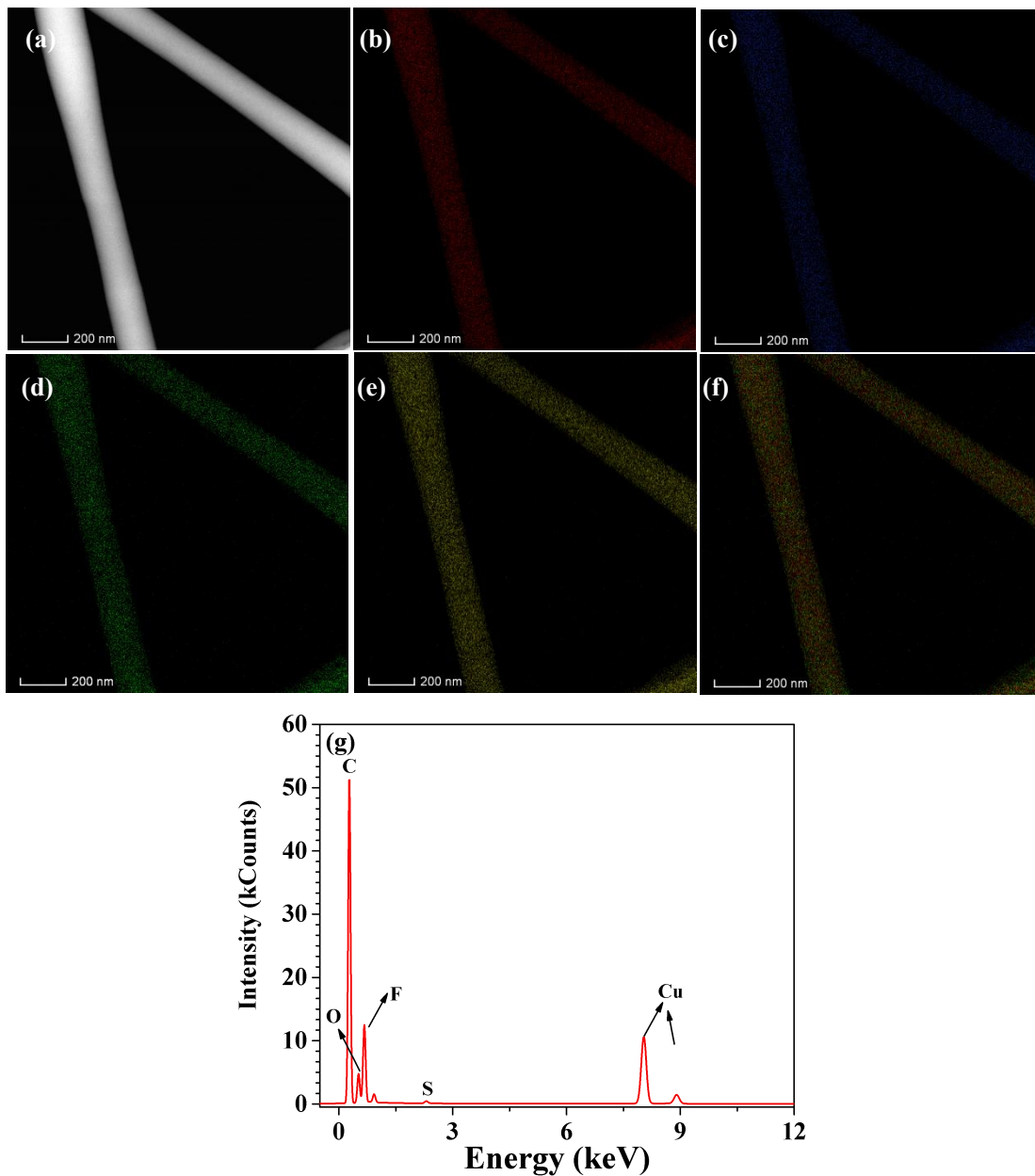
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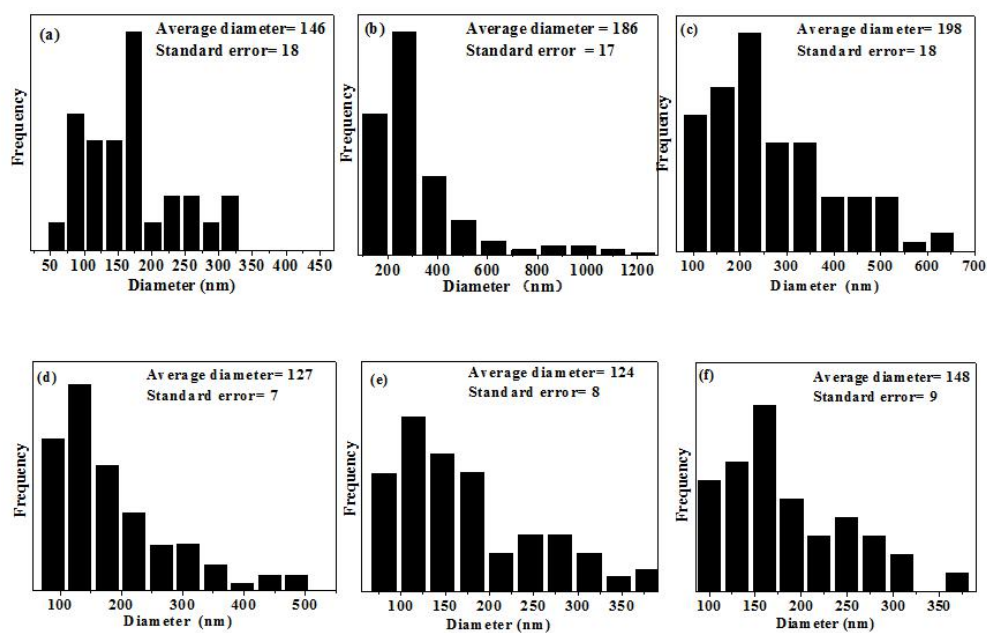
SF 1. FT-IR spectra of nanofibrous membranes with the different addition amounts of *f*-PPTA.



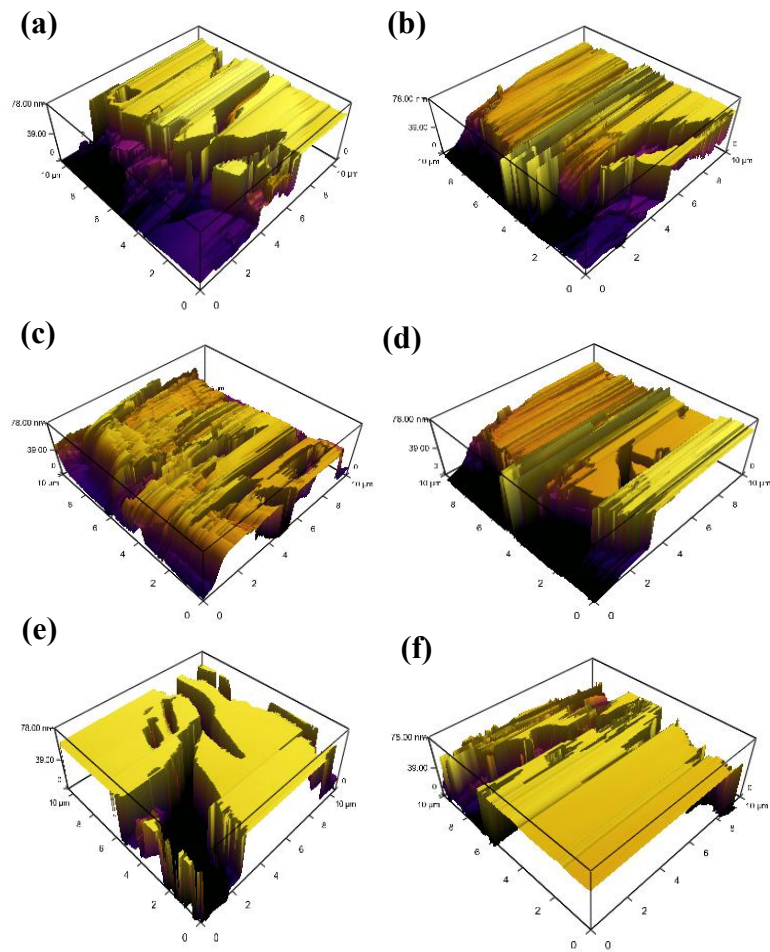
SF 2. Energy dispersive spectrometer (EDS-SEM) analysis of elements distribution on the modified PVDF membranes with 20 wt% *f*-PPTA: (a) original micrograph, (b) C element distribution, (c) N element distribution, (d) O element distribution, (e) F element distribution and (f) relative abundances of these elements.



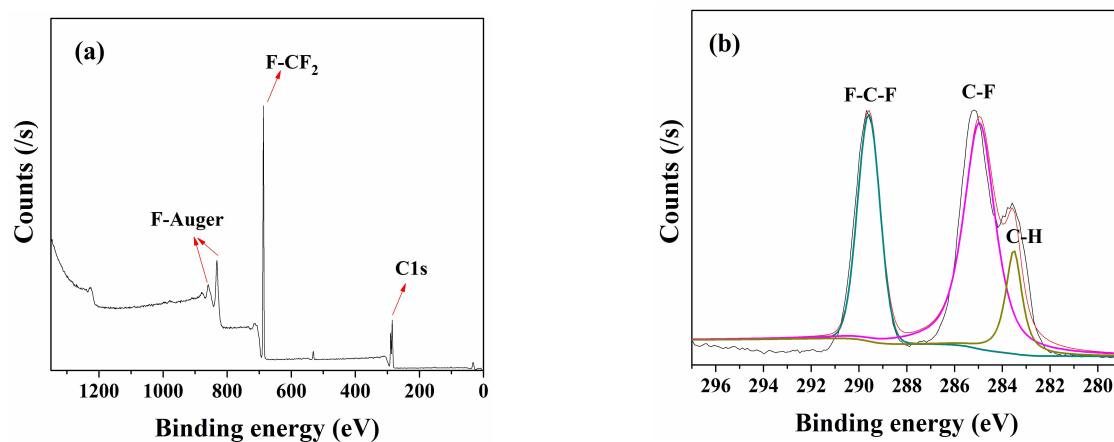
SF 3. Energy dispersive spectrometer (EDS-TEM) analysis of elements distribution on nanofiber of the modified PVDF membranes with 20 wt% *f*-PPTA: (a) original micrograph, (b) C element distribution, (c) F element distribution, (d) O element distribution, (e) N element distribution and (f) C and O elements distribution. (g) relative abundances of these elements.



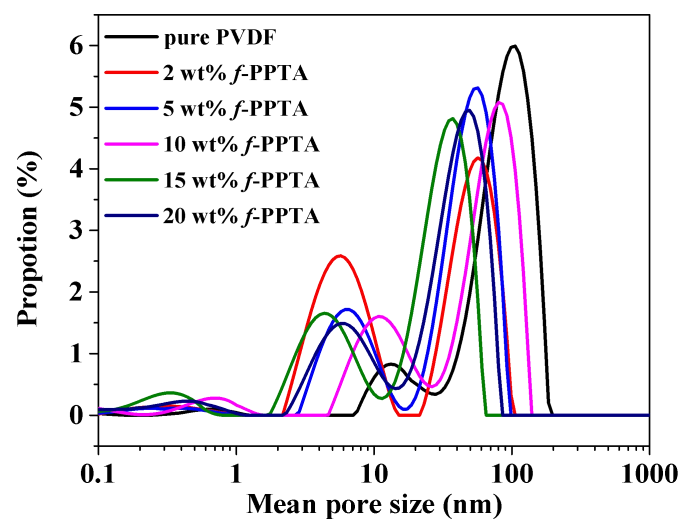
SF 4. Nanofibers diameter distribution of membranes with the different addition amounts of *f*-PPTA: (a) Neat PVDF, (b) PVDF-2 wt% *f*-PPTA, (c) PVDF-5 wt% *f*-PPTA, (d) PVDF-10 wt% *f*-PPTA, (e) PVDF-15wt% *f*-PPTA and (f) PVDF-20 wt% *f*-PPTA.



SF 5. AFM three-dimensional surface images of membranes in tapping mode: (a) PVDF; (b) PVDF with 2 wt% *f*-PPTA; (c) PVDF with 5 wt% *f*-PPTA; (d) PVDF with 10 wt% *f*-PPTA; (e) PVDF with 15 wt% *f*-PPTA; (f) PVDF with 20 wt% *f*-PPTA. (RMS a. 49.807 nm, b. 53.293 nm, c. 53.481 nm, d. 56.441 nm, e. 56.640 nm, f. 61.735 nm)

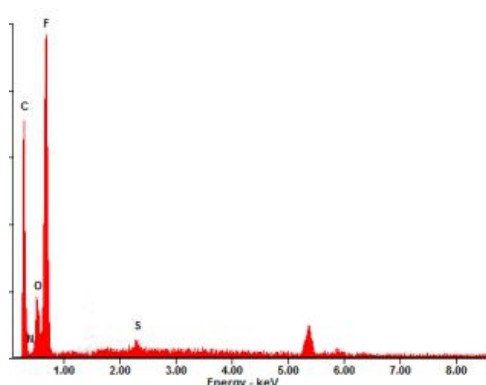


SF 6. XPS spectra of the neat PVDF membrane. (a) Survey and (b) C1s.



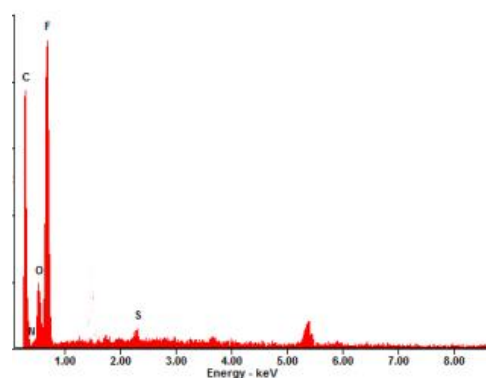
SF 7. Pore diameter distribution of neat PVDF and modified PVDF with the different addition amounts of *f*-PPTA.

(a)



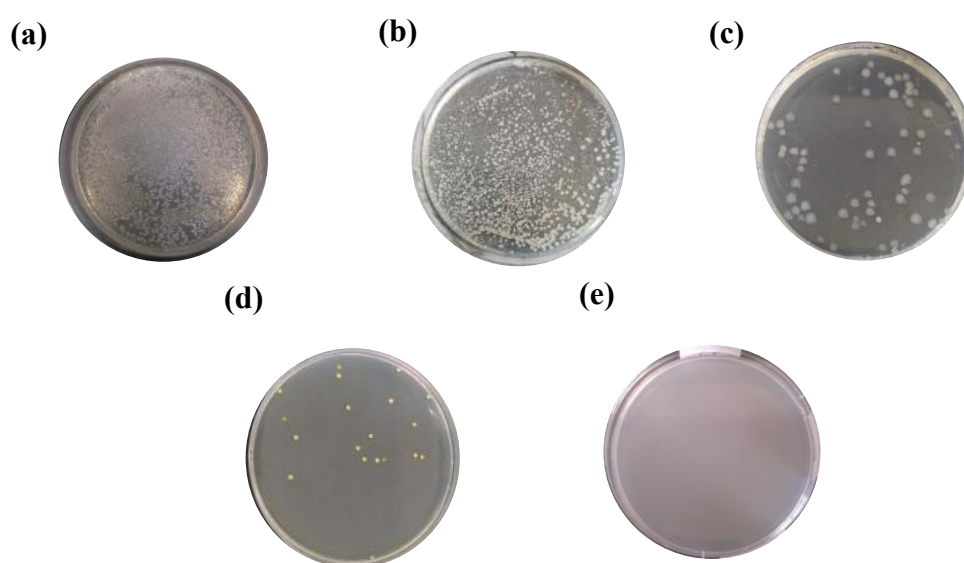
Element	Wt%	At%
<i>CK</i>	45.16	55.40
<i>NK</i>	02.13	02.25
<i>OK</i>	11.46	10.56
<i>FK</i>	40.61	31.50
<i>SK</i>	00.64	00.29
<i>Matrix</i>	Correction	ZAF

(b)



Element	Wt%	At%
<i>CK</i>	45.64	56.00
<i>NK</i>	01.79	02.66
<i>OK</i>	11.36	10.47
<i>FK</i>	38.31	30.40
<i>SK</i>	00.80	00.37
<i>Matrix</i>	Correction	ZAF

SF 8. EDS analysis of the modified membrane with 20 wt% *f*-PPTA before operation and after operation 24 h with pure water under 0.2 Mpa. (a) before operation approximately 20.057 wt% *f*-PPTA, (b) after operation 24 h 19.897 wt% *f*-PPTA (The membrane after operation was dried in a vacuum oven at 60 °C for 24 h to eliminate the interference of water to oxygen element content before the EDS analysis test. This data excluded Pt surface plating peak ~ 5.4 keV)



SF 9. Optical images of bacteria on solid medium removal from different membranes. (a) Neat PVDF, (b) PVDF with 5 wt% *f*-PPTA, (c) PVDF with 10 wt% *f*-PPTA, (d) PVDF with 15 wt% *f*-PPTA, (e) PVDF with 20 wt% *f*-PPTA.