Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary information

Preparation of super-hydrophilic polyphenylsulfone nanofiber membranes for water treatments

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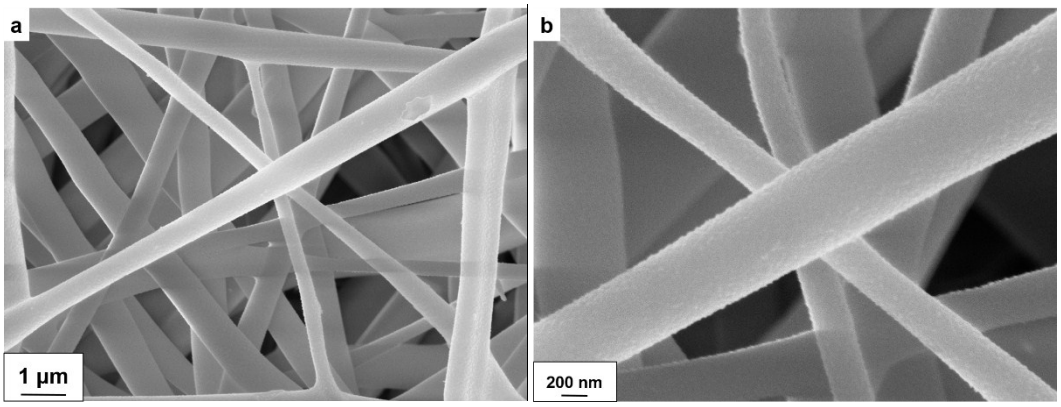

Fig. S1 SEM image of the plasma-treated PPSU ENM: (a) 35000X, (b) 100000X.

SEM images of the plasma-treated PPSU ENM are presented in Fig. S1. As shown in Fig. S1(a), plasma treatment induced no significant morphological changes of the porous network. Individual fibre structures remained mostly intact, although a few damages of the fibre surface could be observed. As shown in Fig. S1(b), the roughness of fibre surfaces increased after plasma treatment with little bumps in nanoscale appearing on the fibre surfaces. The oxygen plasma treatment has been reported to produce certain surface roughness by etching.[1-4] However, due to the short period of the plasma treatment, the etching effect on the PPSU fibres was limited.

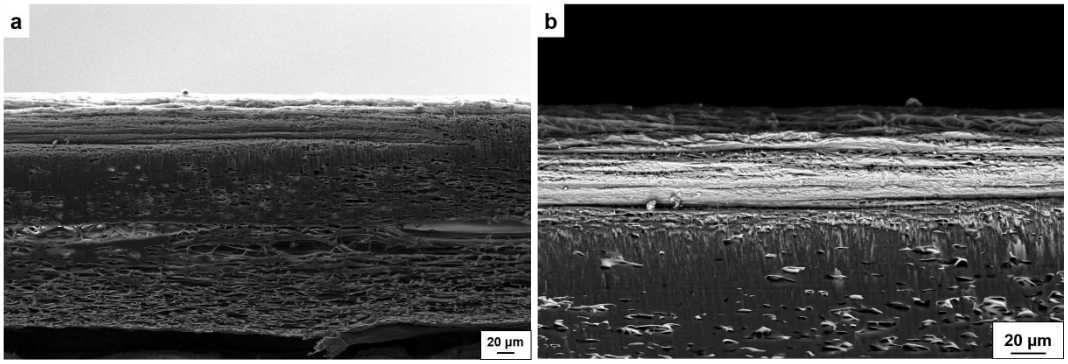

Fig. S2 SEM image of the cross section of the resulting TFNC FO membrane after FO tests: (a) 500X, (b) 1000X.

As shown in Fig. S2, SEM images of the cross section of the resulting TFNC FO membranes present a dense layer on top of the porous nanofibrous substrate. However, it is difficult to identify a clear boundary between polyamide active layer and PPSU ENM substrate. Due to the porous structure and high hydrophilicity of the substrate, the polyamide layer integrated into the nanofibrous

substrate, indicating good adhesion between them.

References

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