Electronic Supplementary Material (ESI) for Materials Advances.

Supplementary Information for

A promising scalable route to construct GO-based laminate membranes for antifouling ultrafiltration

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Supplementary Figures

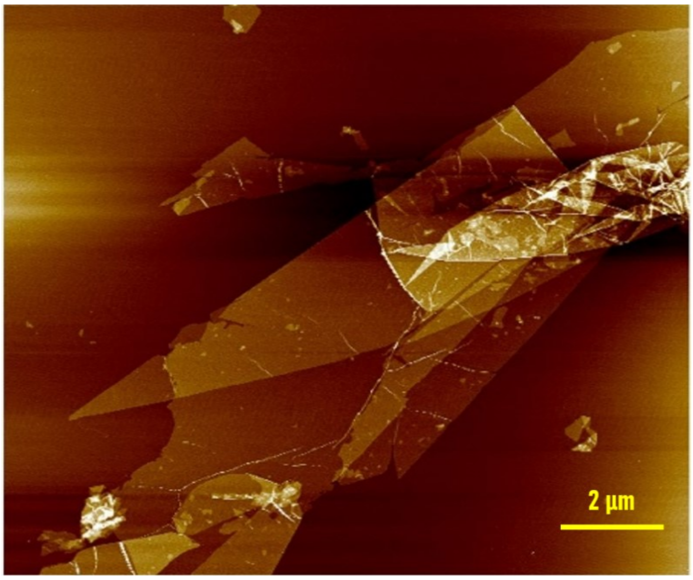

Fig. S1 AFM image of GO sheets.

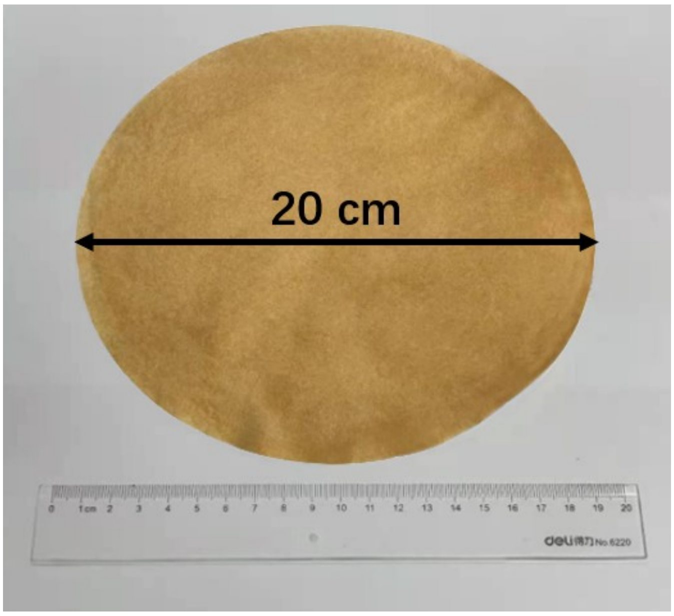

Fig. S2 The large-size composite membrane ($\Phi \geq$20 cm) prepared by dip-coating.

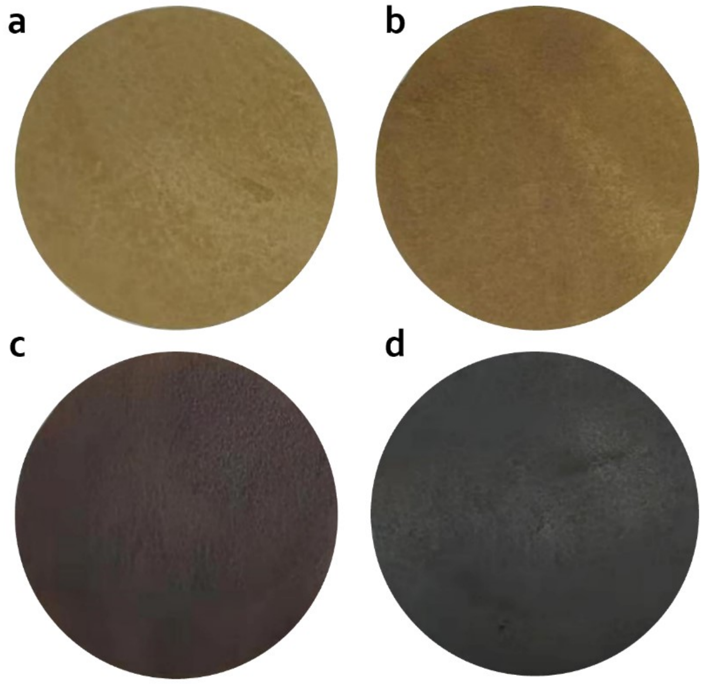

Fig. S3 Digital pictures of the borate crosslinked GO/PVA composite membranes: (a)G2P0.6, (b)G4G1.2, (c)G6P1.8 and (d)G8P2.4.

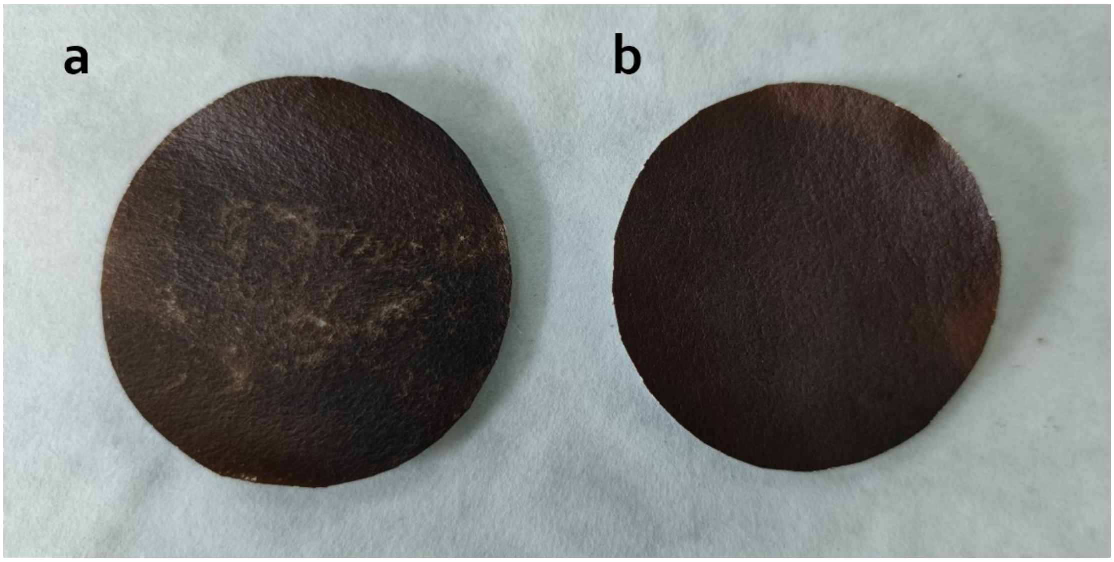

Fig. S4 Digital pictures of GO/PVA composite membrane (a) before and (b) after borate crosslinking after ultrasonication treatment (prepared from the GO/PVA dispersion: GO 6 mg mL^{-1}, PVA 1.8 mg mL^{-1}).

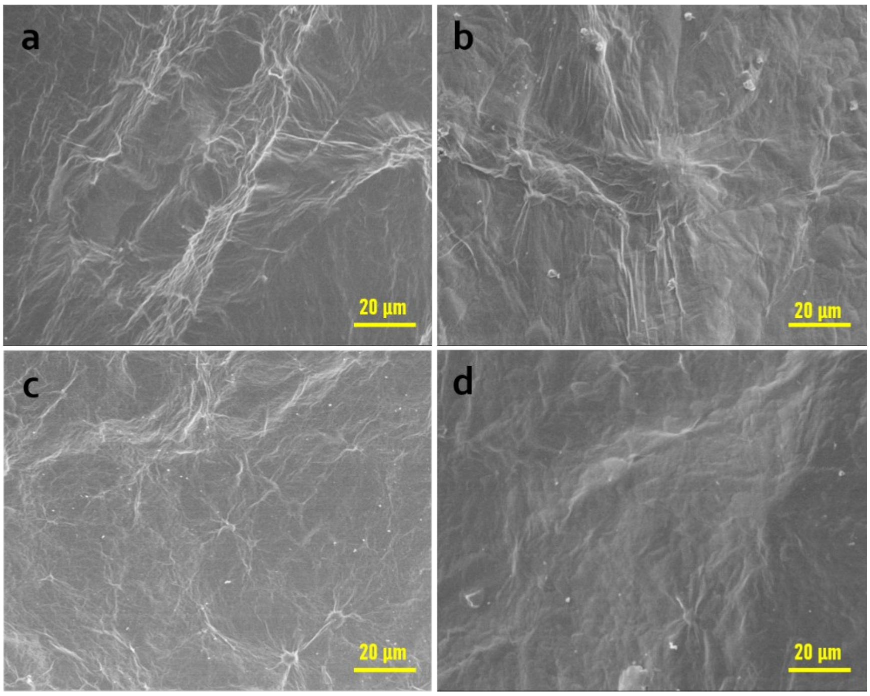

Fig. S5 SEM images of borate crosslinked GO/PVA composite membranes surface: (a)G2P0.6; (b)G4G1.2; (c)G6P1.8 and (d)G8P2.4.

In addition to the text analysis of the SEM images of the best fabrics, we also studied the surface microstructures of the composite membranes with different contents. The higher the GO concentration, the smoother the surface. At the same time, it was observed that the fibers of the filter paper were uniformly covered by the composite membrane.

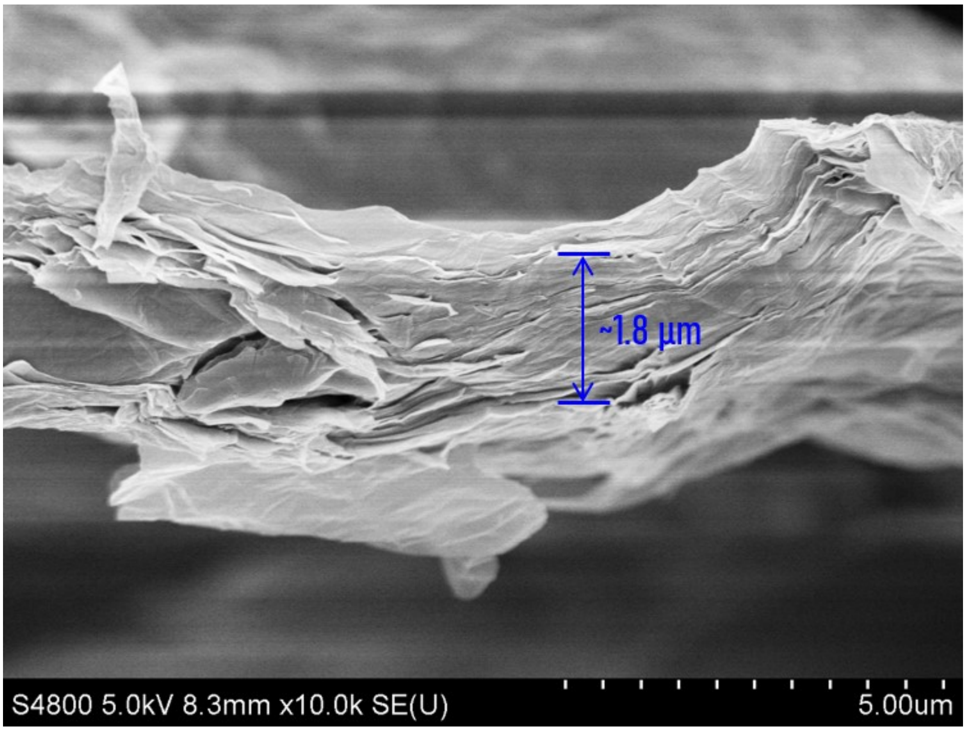

Fig. S6 Cross-sectional SEM image of GO membrane from dip-coating

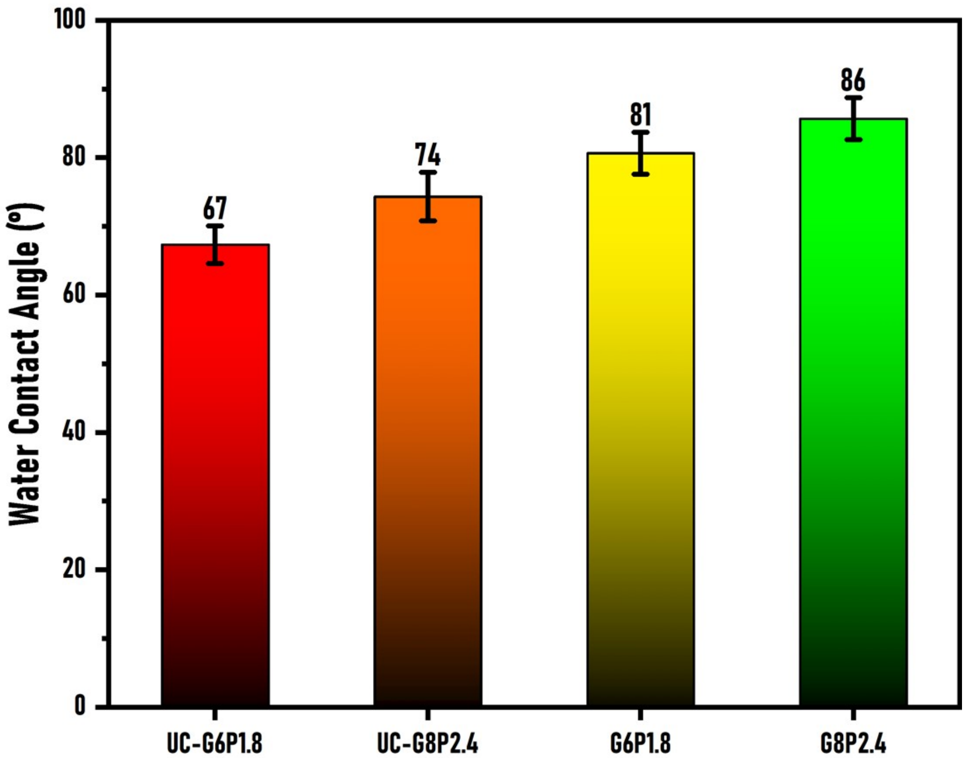

Fig. S7 Water contact angle of the GO/PVA composite membranes before and after borate crosslinking.

Interestingly, the contact angle of G6P1.8 composite film after boric acid cross-linking increased from 67° to 81°, while the contact angle of G8P2.4 was from 74° to 86°. This may also be due to the formation of a denser skin layer due to borate cross-linking, which is in line with the law of contact angle formation of other composite films.