

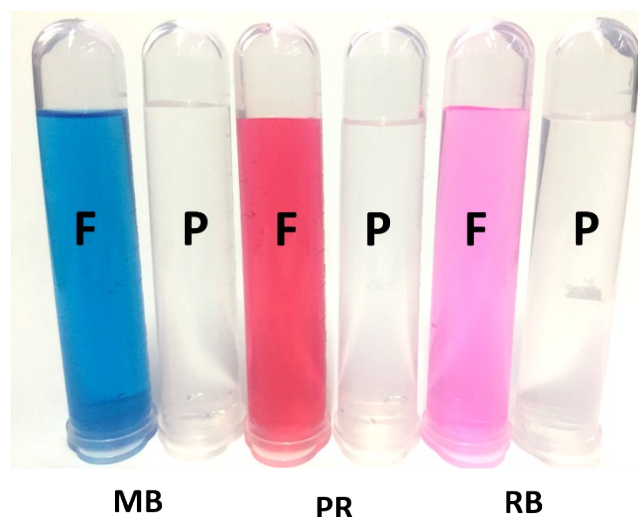
## Ultrahigh permeance of chemical cross-linking graphene oxide nanofiltration membrane enhanced by cation- $\pi$ interaction

Ruobing Yi,<sup>a</sup> Rujie Yang,<sup>b</sup> Risheng Yu,<sup>b</sup> Jian Lan,<sup>c</sup> Junlang Chen,<sup>b</sup> Zhikun Wang,<sup>b</sup> Liang Chen,<sup>b,#</sup> Minghong Wu<sup>a,#</sup>

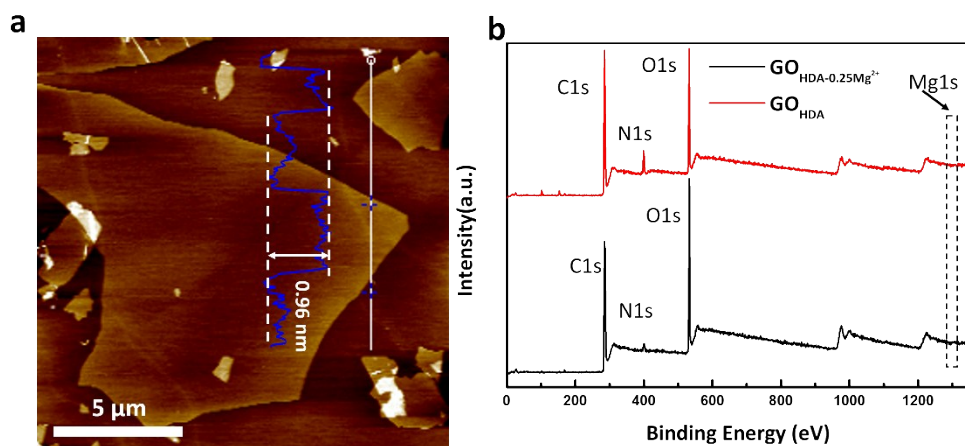
<sup>a</sup> Shanghai Applied Radiation Institute, Shanghai University, Shanghai 200444, P. R. China. E-mail: mhwu@shu.edu.cn (M.W.)

<sup>b</sup> Department of Optical Engineering, Zhejiang A&F University, Lin'an, Zhejiang 311300, P. R. China. E-mail: liang\_chen05@126.com (L.C.)

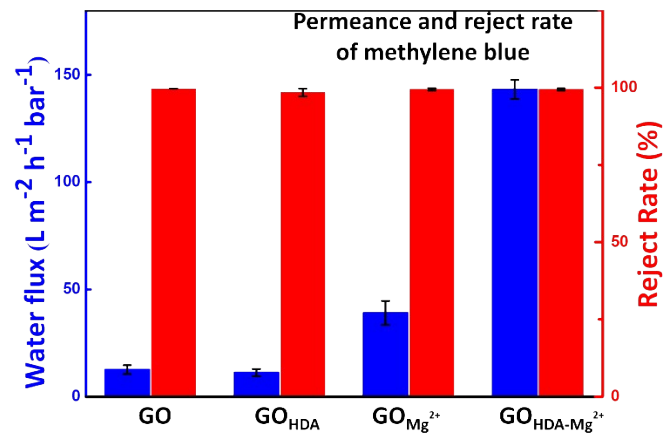
<sup>c</sup> College of Pharmaceutical Chemistry and Materials Engineering, Taizhou University, Taizhou, Zhejiang 317000, China.



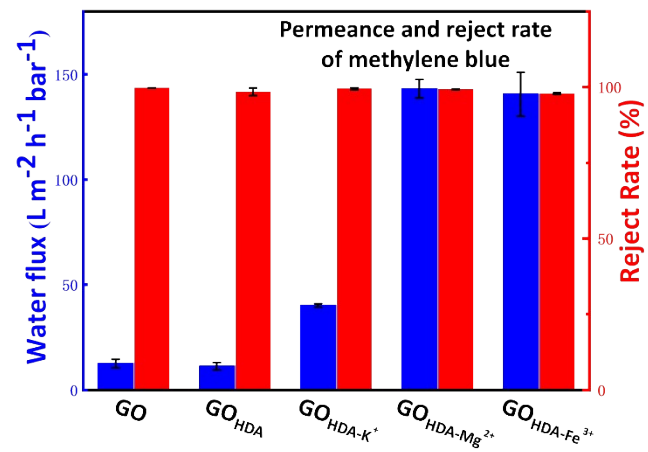
**Fig. S1** Photographs of feed and permeate solutions containing different dye molecules before and after filtration. F and P represent feed and permeation solution, respectively.



**Fig. S2** (a) AFM image of GO flakes. (b) The XPS survey spectra of  $\text{GO}_{\text{HDA-0.25Mg}^{2+}}$  and  $\text{GO}_{\text{HDA}}$



**Fig. S3** Water flux and reject rate of GO, GO<sub>HDA</sub>, GO<sub>Mg<sup>2+</sup></sub> and GO<sub>HDA-Mg<sup>2+</sup></sub> membranes for rejection of



methylene blue at a pressure of 1.0 bar.

**Fig. S4** Water flux and reject rate of GO, GO<sub>HDA</sub>, GO<sub>HDA-K<sup>+</sup></sub>, GO<sub>HDA-Mg<sup>2+</sup></sub> and GO<sub>HDA-Fe<sup>3+</sup></sub> membranes for rejection of methylene blue at a pressure of 1.0 bar.