

## **Magnetic graphene hybrid functionalized by beta-cyclodextrins for fast and efficient removal of organic dyes**

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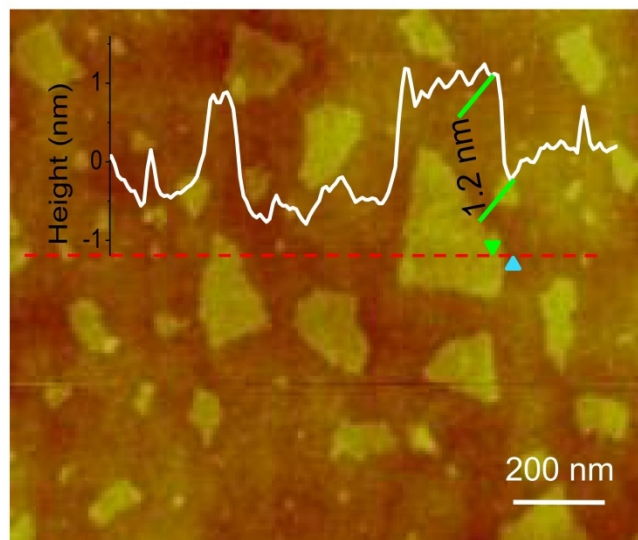
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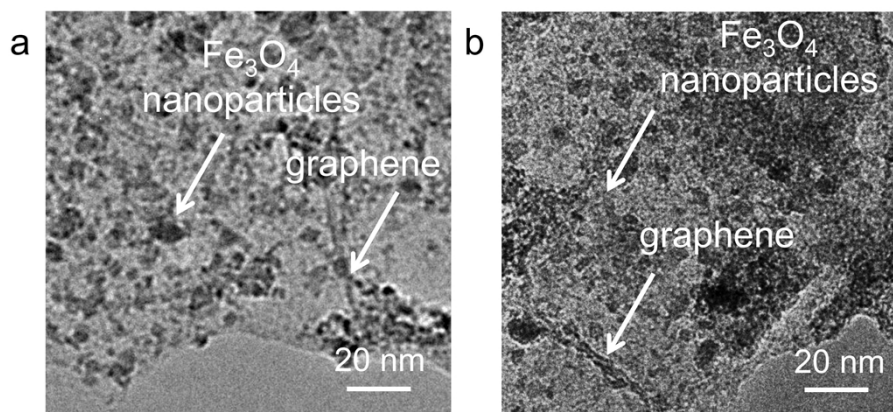
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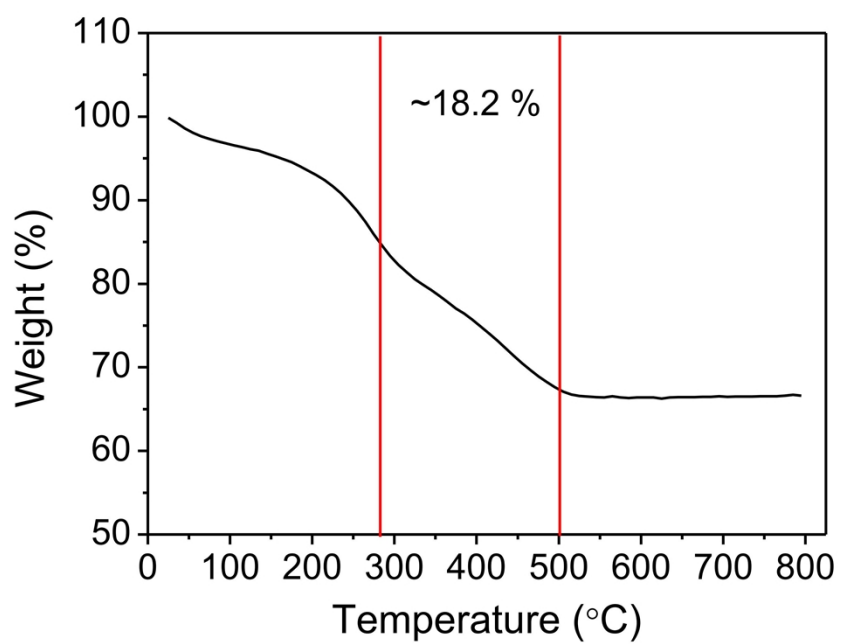
## Supplementary Figures



**Figure S1.** AFM image of GO.



**Figure S2.** TEM images of mGO hybrid (a) and mGO- $\beta$ -CD hybrid (b), respectively. In the images, wrinkled GO nanosheets are observed and Fe<sub>3</sub>O<sub>4</sub> nanoparticles were loaded onto the graphene surface before (a) and after (b) attaching mGO with  $\beta$ -CDs.



**Figure S3.** TGA of mGO-β-CD hybrid.

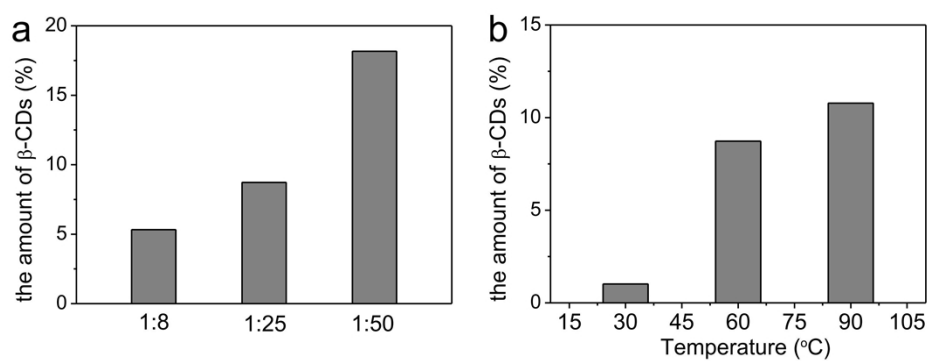
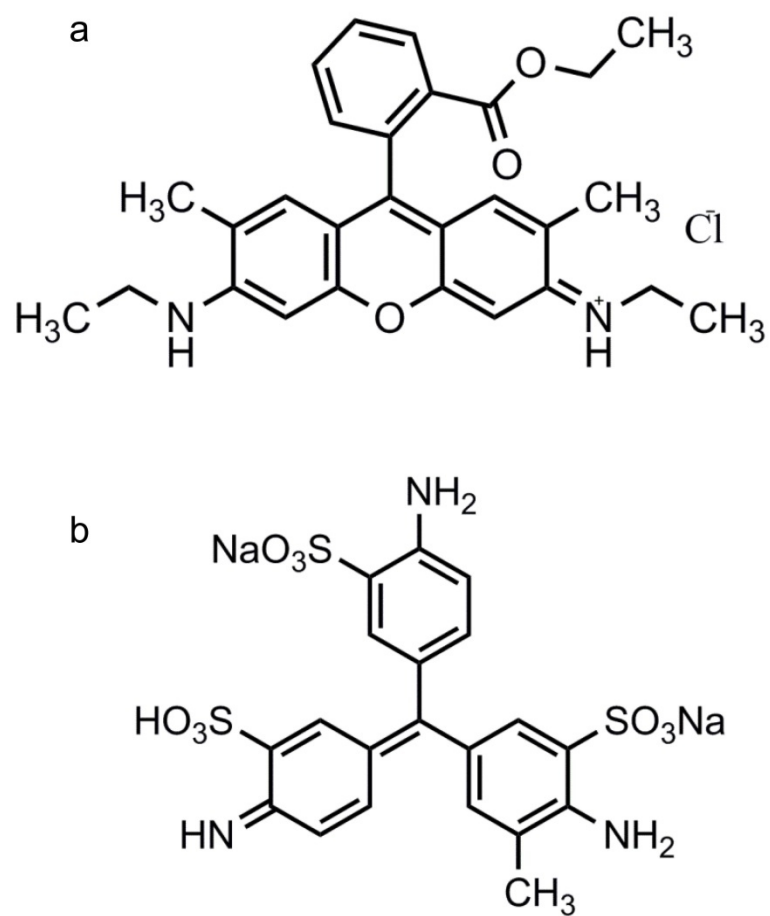
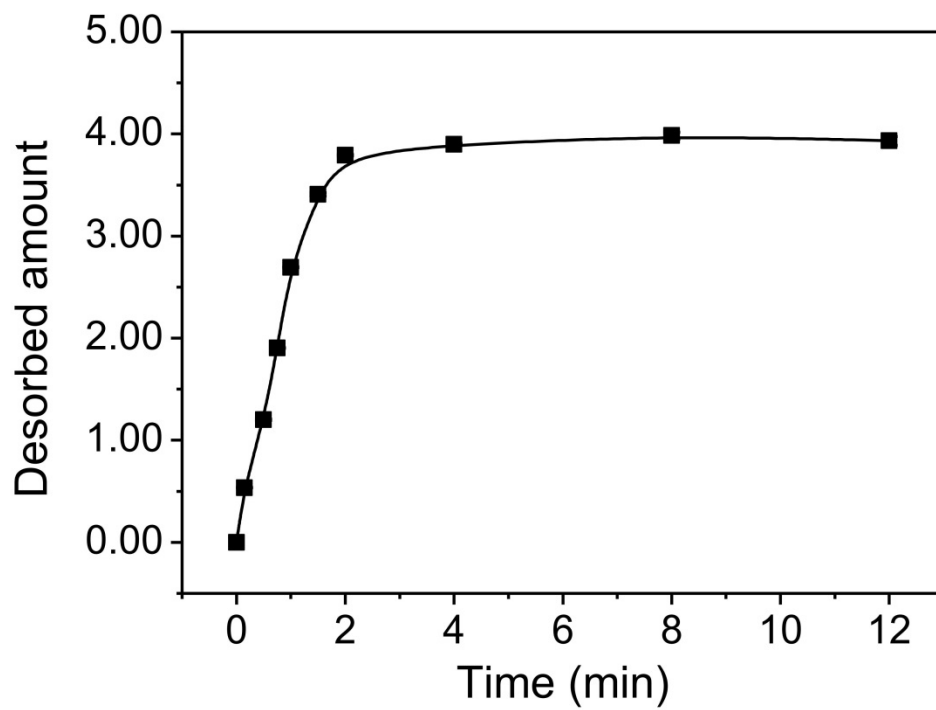


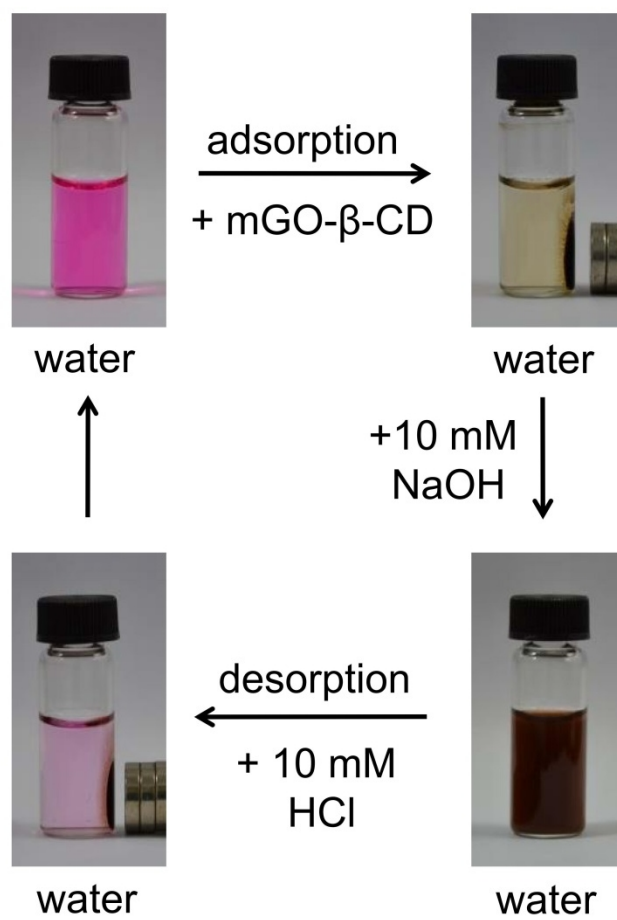
Figure S4. The amount of  $\beta$ -CDs with increasing the initial concentration of  $\beta$ -CDs and temperature. The results indicate that  $\beta$ -CDs are successfully bounded to mGO under the reaction conditions and the quantity of  $\beta$ -CD on mGO- $\beta$ -CD is related to the initial concentration of  $\beta$ -CD and temperature.



**Figure S5.** The chemical structures of R6G (a) and AF (b).



**Figure S6.** Effect of desorption time on the desorbed amount of R6G by mGO-β-CD hybrid.



**Figure S7.** A schematic of the procedure for the recyclability study using the mGO-β-CD hybrid as the adsorbent.