

Supporting Information

Removal and recycling of ppm level methylene blue from aqueous solution with graphene oxide

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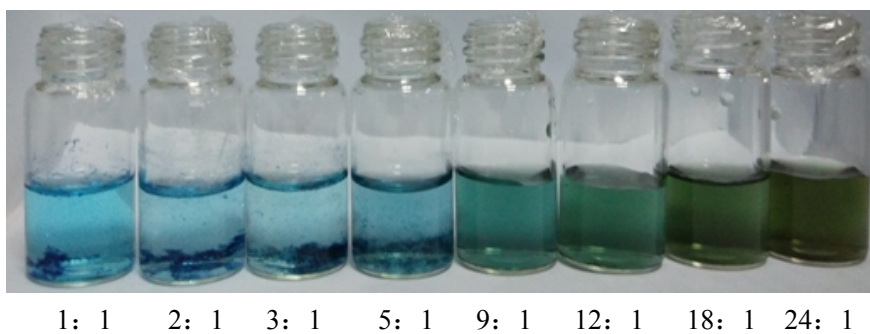


Fig S1. Removal of MB by GO with different ratio of GO/MB (mass concentration). All the samples were kept quietly after vigorous agitation at 1000 rpm for 30 s.

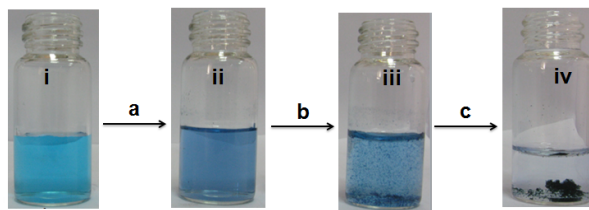


Fig S2. Adsorption of MB (5 ppm) by GO (15 ppm), with the presence of NaCl (5 mM). (i) MB (5ppm); (ii) MB (5 ppm) and GO (15 ppm) with NaCl (5 mM); (iii) a mass of small particulates; (iv) precipitate and colorless solution; process a: adding NaCl and GO; process b: fast stirring for 30s; process c: kept quietly for 2 days.

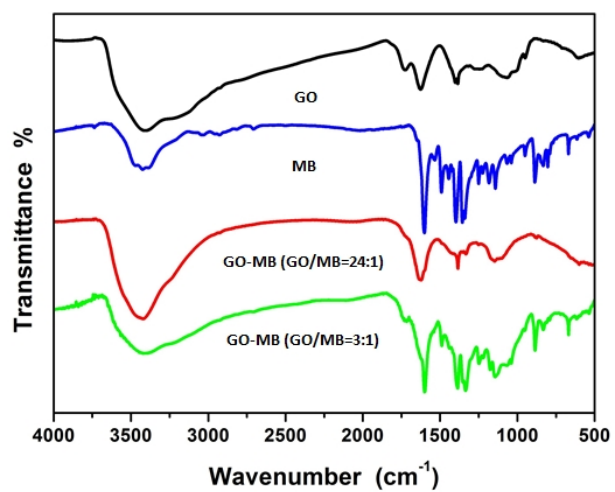


Fig S3. FTIR spectra of GO/MB precipitates with a different ratio of GO to MB.

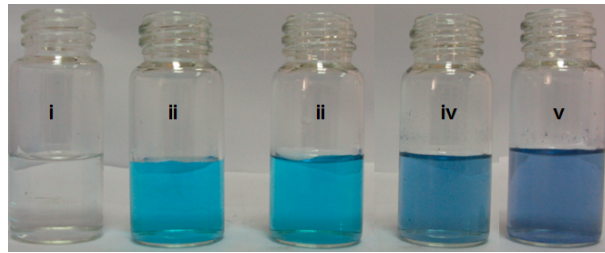


Fig S4. (i) D.I. water; (ii) MB (5 ppm); (iii) MB (5 ppm) with NaCl (5 mM) at pH 11.0; (iv) MB (5 ppm) with GO (15 ppm) and NaCl (5 mM) at pH 7.0; (v) MB (5 ppm) with GO (15 ppm) and NaCl (5 mM) at pH 11.0, the solution color turns to bluish violet.

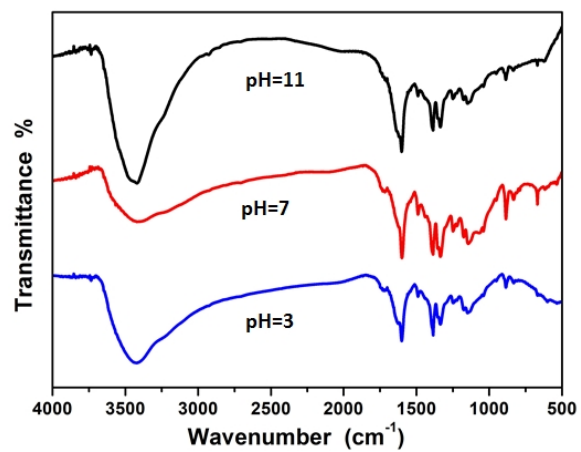


Fig S5. FTIR spectra of GO-MB residues formed at pH 3, 7, and 11.

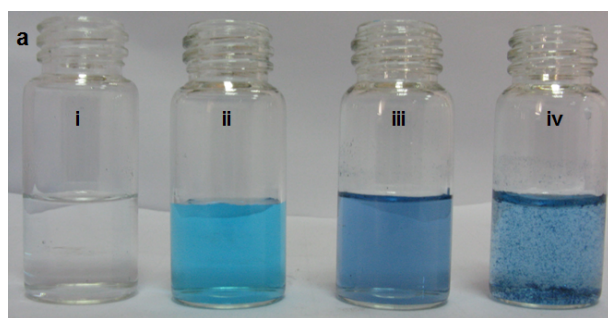


Fig S6. (a) Vigorous stirring (1000 rpm) for 30s (b) and then kept quietly for 2 days. (i) D.I. water; (ii) MB (5 ppm); (iii) MB (5 ppm) and GO (15 ppm), without NaCl; (iv) MB (5 ppm) and GO (15 ppm) with NaCl (5 mM).

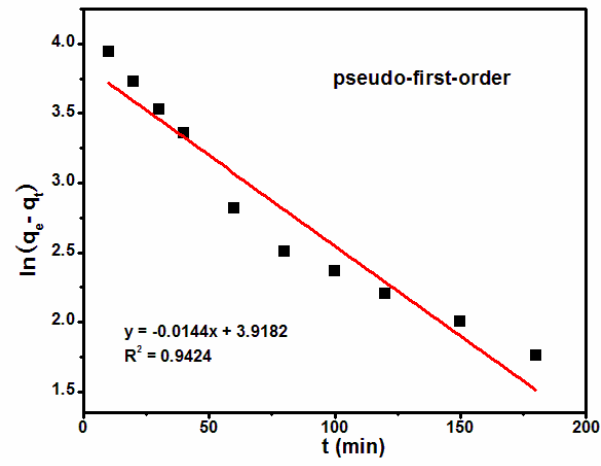


Fig S7. The linear plots of $\ln(q_e - q_t)$ vs. t for MB adsorbed on GO.

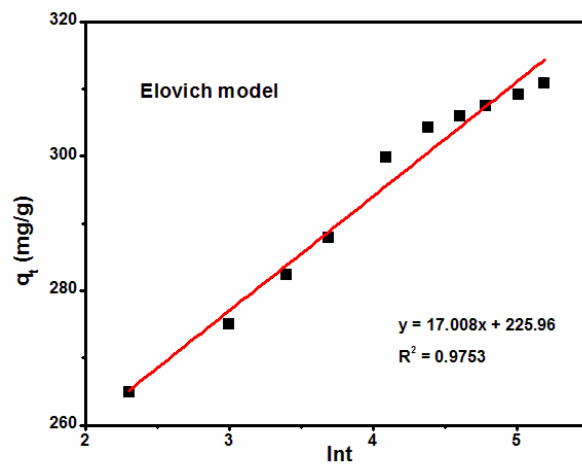


Fig S8. The linear plots of q_t vs. $\ln t$ for MB adsorbed on GO.

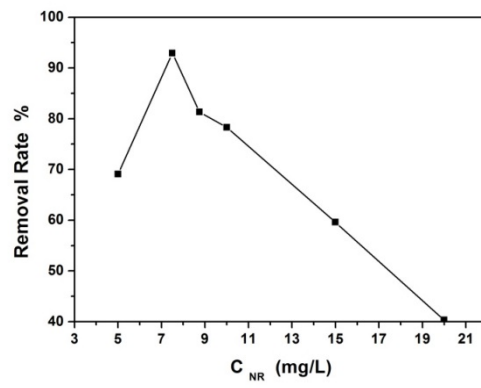


Fig S9. The plot of the removal rate of NR (5-20 mg/L) by GO (11.2 mg/L).

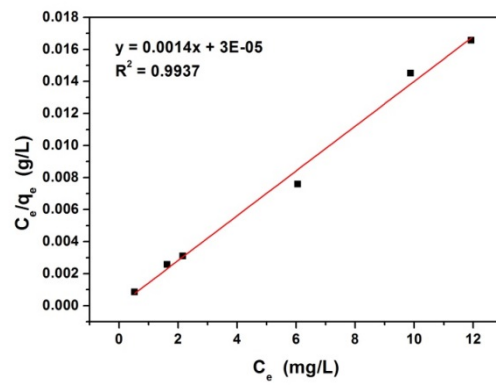


Fig S10. The Langmuir isotherm for NR on GO.

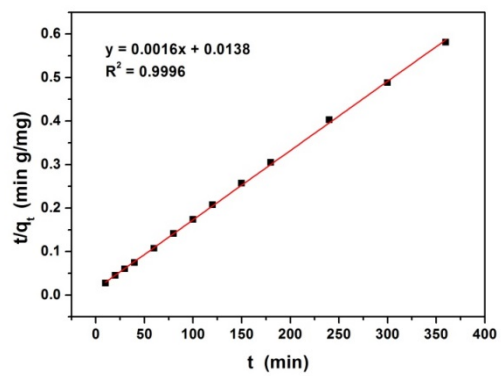


Fig S11. The pseudo-second-order kinetic plot for NR on GO.

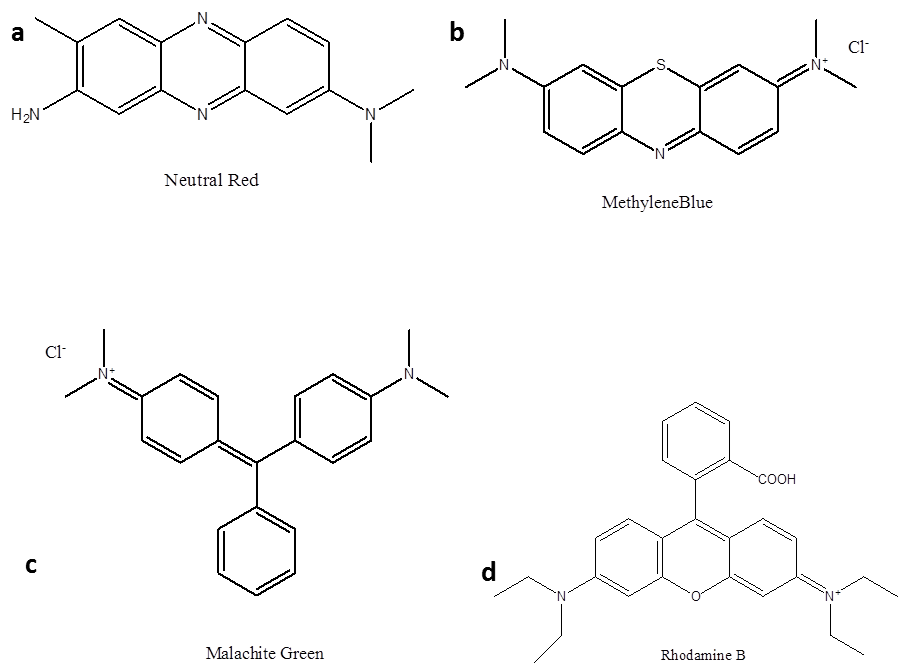


Fig S12. The structure of (a) NR, (b) MB, (c) MG, and (d) Rh B.

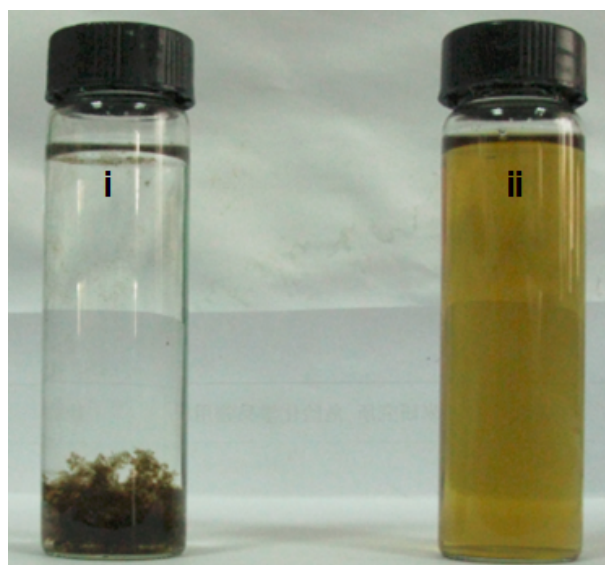


Fig S13. Photo of GO in nature water, a mass of precipitate occurred after 7 days; (ii) Photo of GO in D.I. water, with good solubility.

Table S1. The formation of precipitation: ‘+’ represents ‘obvious precipitation’ and ‘-’ represents ‘no visible precipitation’.

C_{GO} mg/L	10-15mg/L				100-150 mg/L			
	5	10	15	20	100	150	200	250
MB	+	+	+	+	+	+	+	+
NR	+	+	+	+	+	+	+	+
MG	-	-	-	-	+	+	+	+
Rh B	-	-	-	-	+	+	+	+