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Self-regenerative and Self-enhanced Smart Graphene/Ag_3PO_4 Hydrogel Adsorbent under Visible Light

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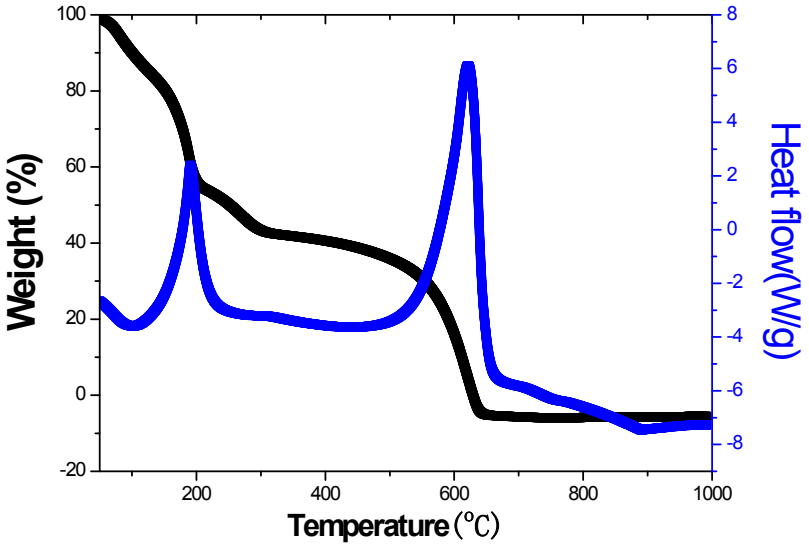


Fig. S1. The thermal analysis curve of graphite oxide

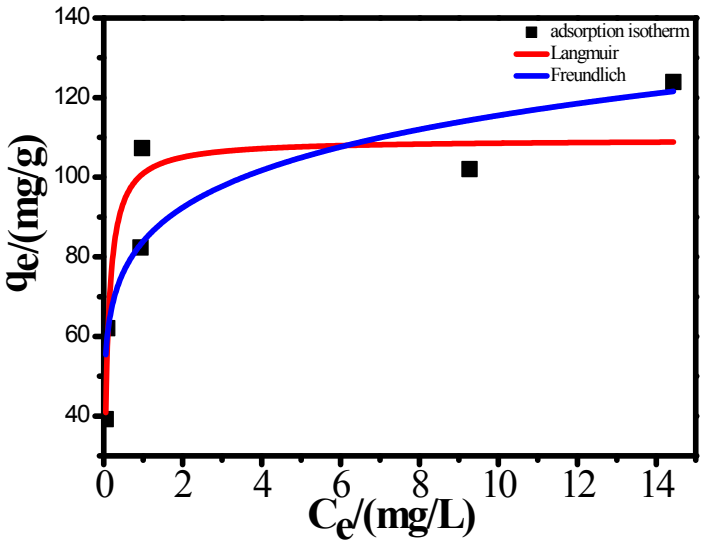
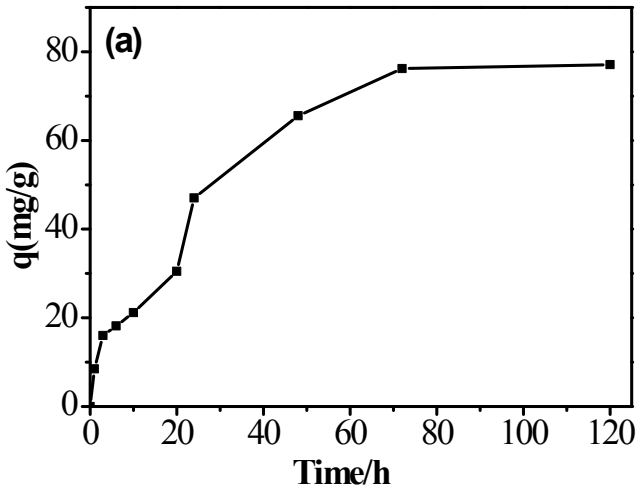
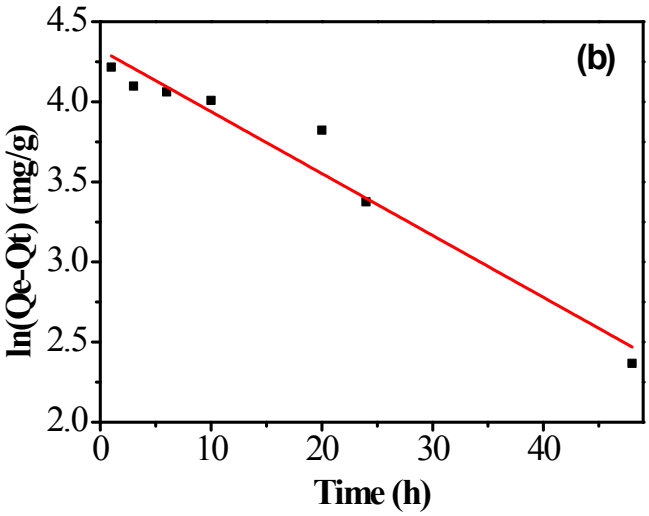


Fig. S2 The adsorption isotherm and models of MB on rGO/Ag_3PO_4 composite


(a)
q(mg/g)
Time/h
0
20
40
60
80
100
120


(b)
ln(Qe-Qt) (mg/g)
Time (h)
2.0
2.5
3.0
3.5
4.0
4.5
0
10
20
30
40

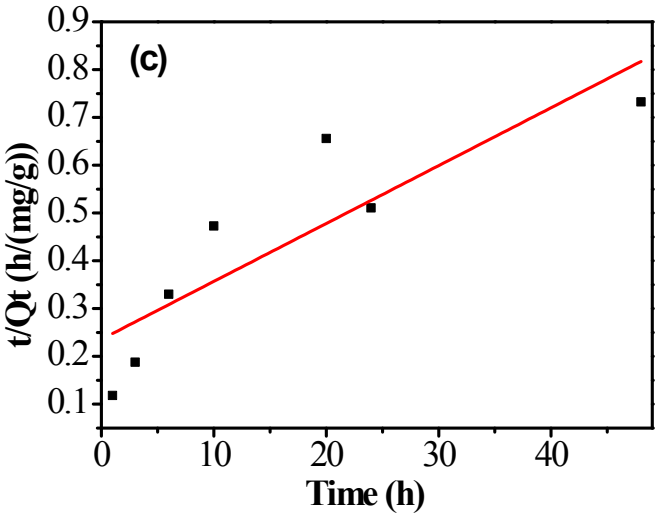


Fig. S3 The adsorption kinetics curves (a), pseudo first-order adsorption kinetic models (b) and pseudo second-order adsorption kinetic models (c) of MB on rGO/Ag_3PO_4 composite

Table S1. Langmuir and Freundlich isotherms parameters of rGO/Ag3PO4 composite

Absorbent	Adsorbate	Langmuir model			Freundlich model		
		K_L(l/mg)	q_m(mg/g)	R^2	K_F	1/n	R^2
rGO/Ag3PO4 composite	MB	11.83	109.47	0.908	83.9	0.1389	0.75

Table S2. Kinetic parameters of pseudo first- and second-order adsorption kinetic models for MB on rGO/Ag_3PO_4 composite

Dye	*Initial conc. (mg/L)*	$q_{e,exp}$ *(mg/g)*	Pseudo first-order model			Pseudo second-order model		
			$k_1(min^{-1})$	$q_{e,cal}$ *(mg/g)*	R^2	$k_2(min^{-1})$	$q_{e,cal}$ *(mg/g)*	R^2
MB	50	34.85	-0.3865	76.1351	0.9494	0.0006	82.5763	0.7084