Superior adsorption capacity of hierarchical iron oxide@magnesium silicate magnetic nanorods for fast removal of organic pollutant from aqueous solution

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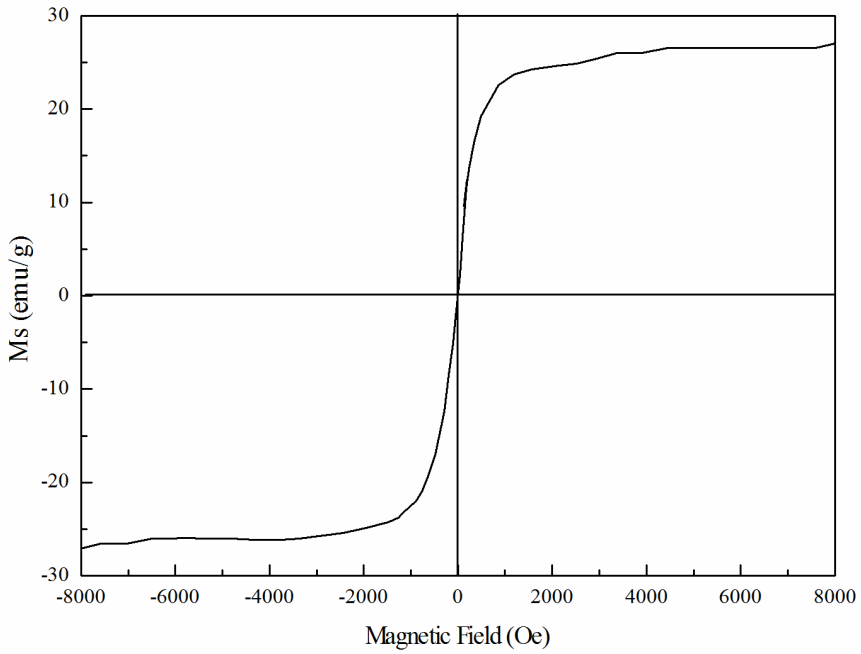

Fig. S1. Hysteresis loop measurements of HIO@MgSi nanorods at room temperature.

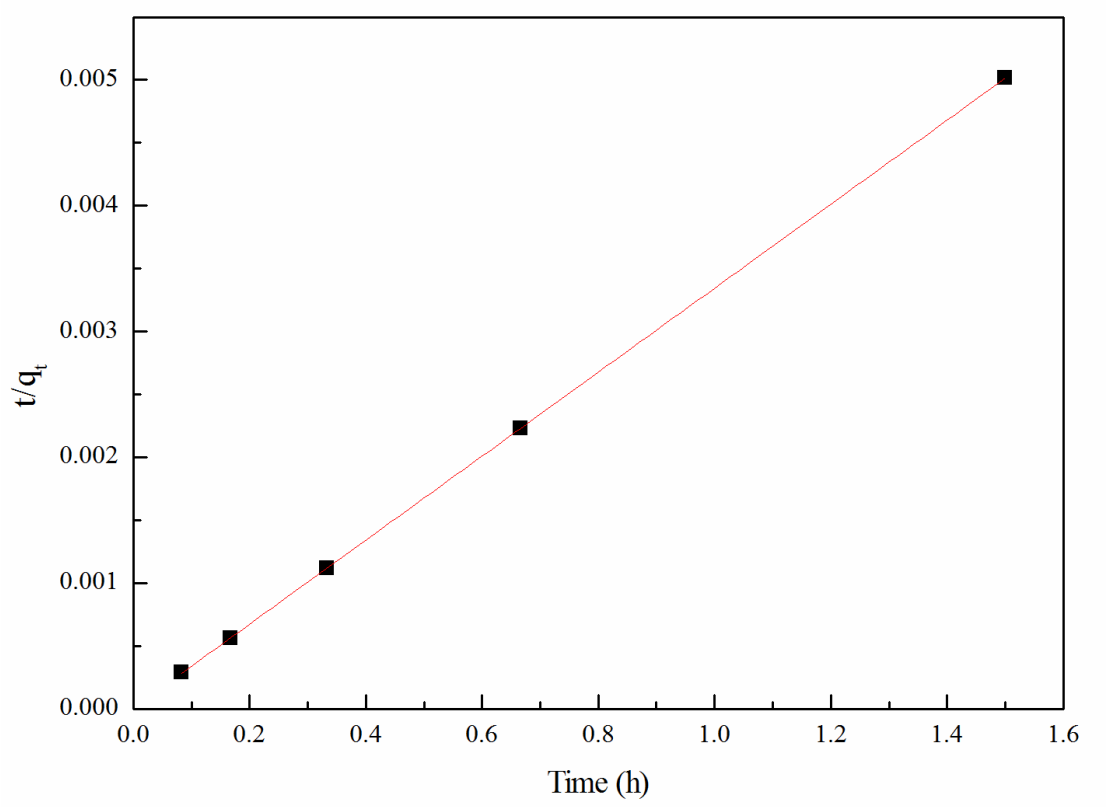

Fig.S2. Adsorption kinetics based on the pseudo-second-order kinetic model of the adsorption of MB onto HIO@MgSi nanorods (the initial MB concentration is 150 mg/L).

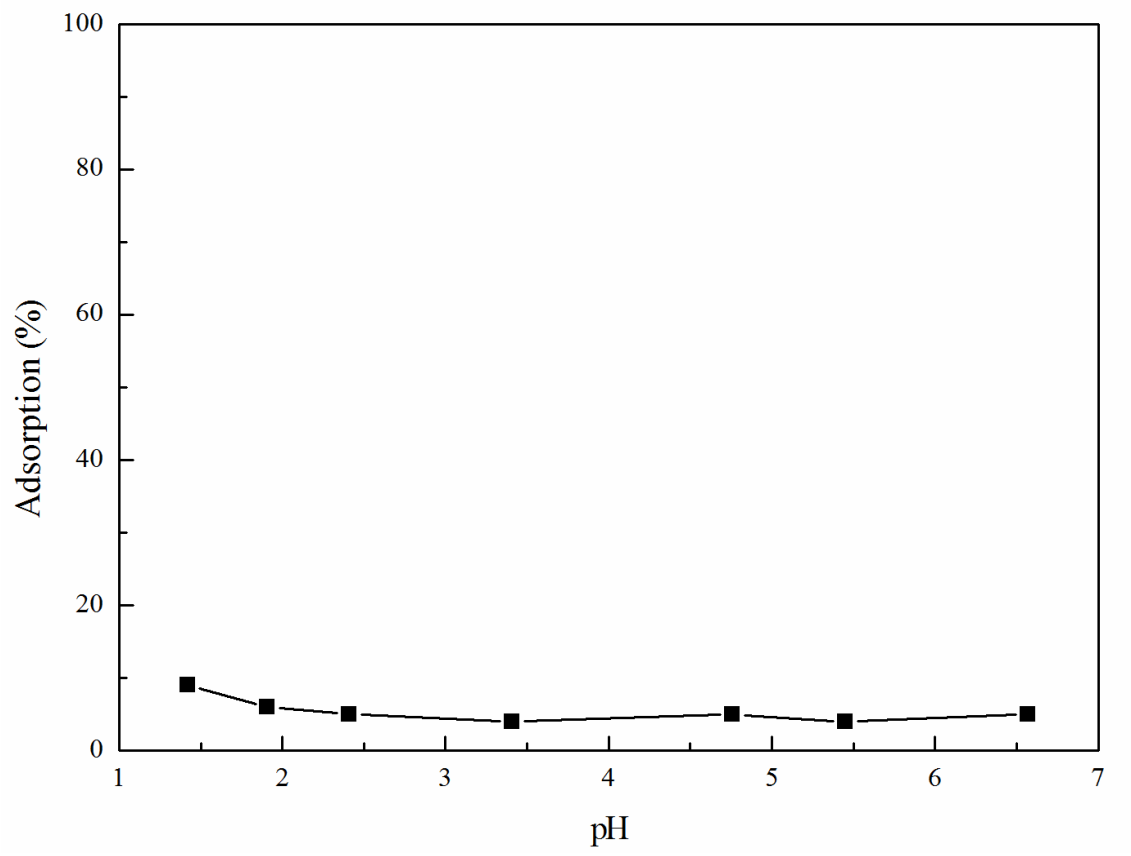

Fig. S3. Effect of pH on the removal of MO by HIO@MgSi nanorods (initial concentration of HIO@MgSi: 0.5g/L, initial concentration of MO: 50 mg/L).

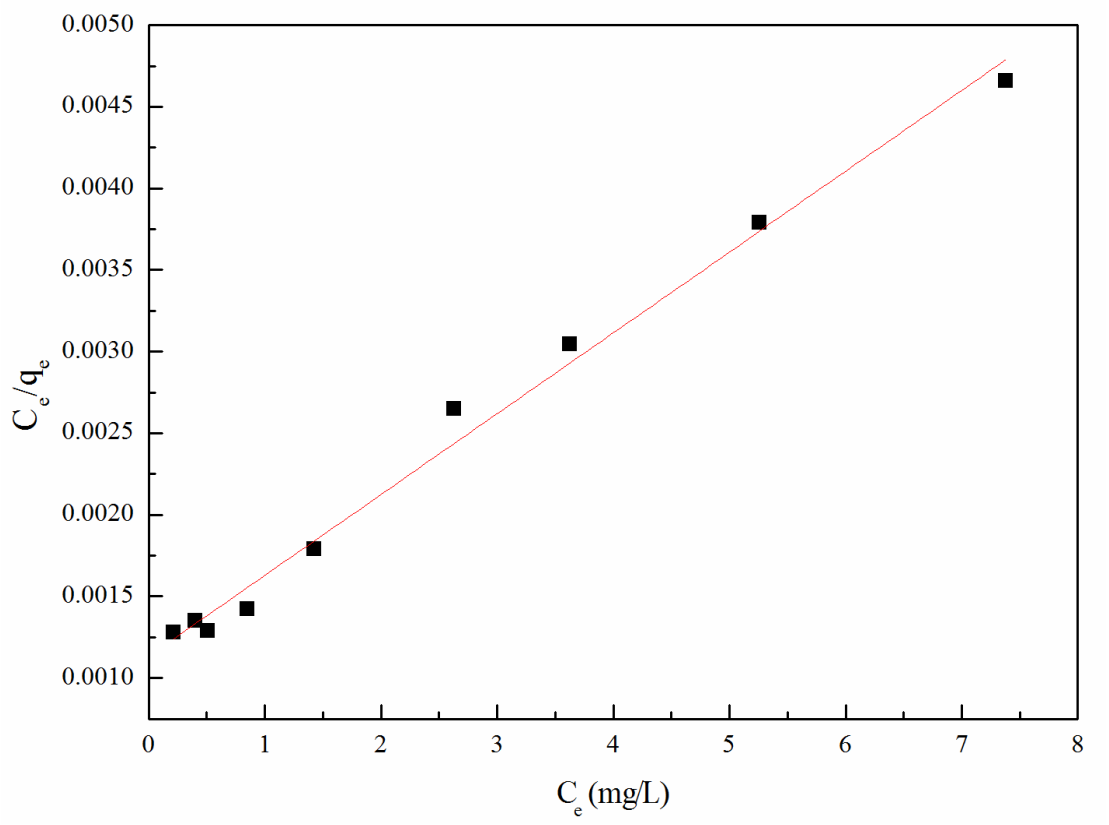

Fig. S4 Langmuir isotherm of MB adsorption onto HIO@MgSi nanorods (initial concentration of HIO@MgSi: 0.5g/L, initial concentration of MB: 150mg/L, pH 7).

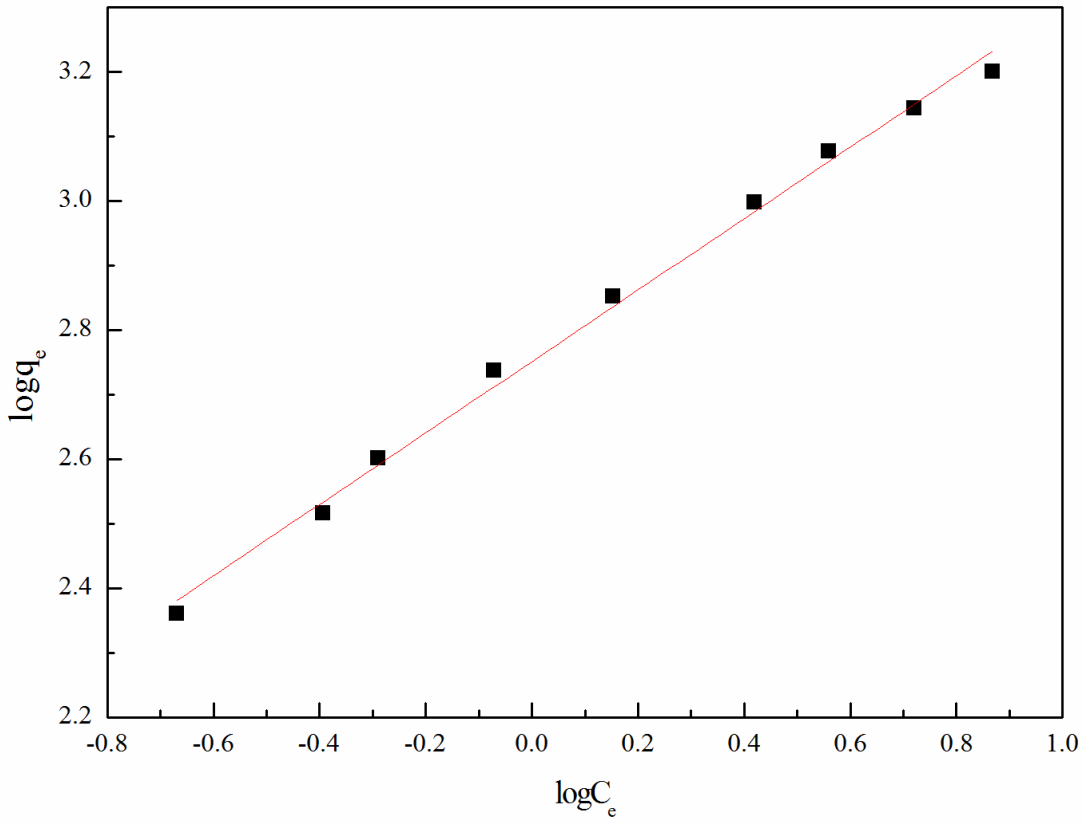

Fig. S5. Freundlich isotherm of MB adsorption onto HIO@MgSi nanorods (initial concentration of HIO@MgSi: 0.5g/L, initial concentration of MB: 150mg/L, pH 7).

Table S1. Kinetic parameters for MB adsorption on HIO@MgSi nanorods.

MB initial concentration	Second-Order Kinetic		
	K(g/(mg·min))	q_e(mg/g)	R^2
150mg/L	0.94	299.41	0.999

Table 2. Summary of the Langmuir and Freundlich isotherm model parameters for the adsorption of MB on HIO@MgSi nanorods.

Isotherm models			
Langmuir model		Freundlich model	
$q_m = (bq_mC_e)/(1+bC_e)$		$q_m = K_F C_e^{\ n}$	
q_m(mg/g)	2020.20	K_F	24.84
b	0.44	n	0.55
R^2	0.999	R^2	0.995