Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Materials

for

Removal of acid red 88 by synthesized magnetic graphene oxide/cationic hydrogel nanocomposites from aqueous solutions: Adsorption behavior and mechanism

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2 figure (Fig. S1-3)

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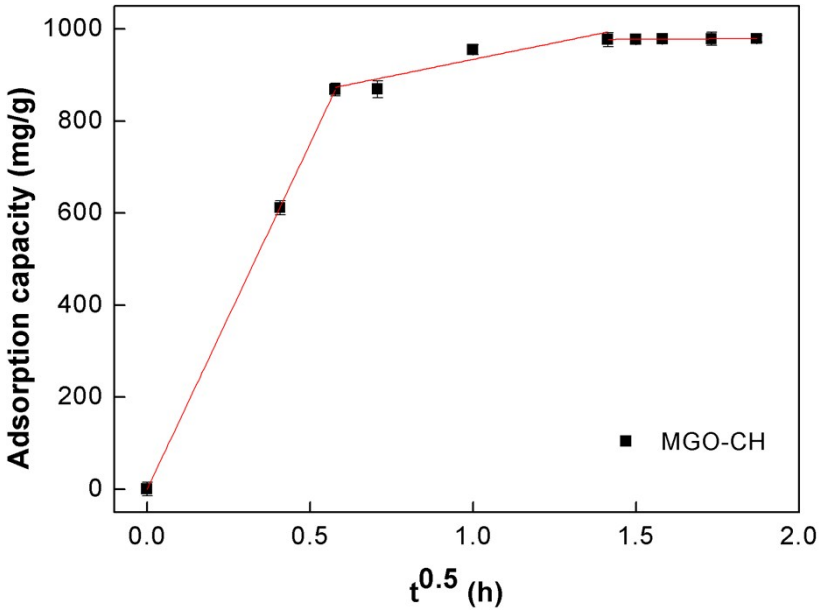

Fig. S1 Effect of contact time on AR88 adsorption onto MGO-CH at 500 mg/L initial concentration and fitting with the Weber-Morris intraparticle model (Weber and Morris 1963).

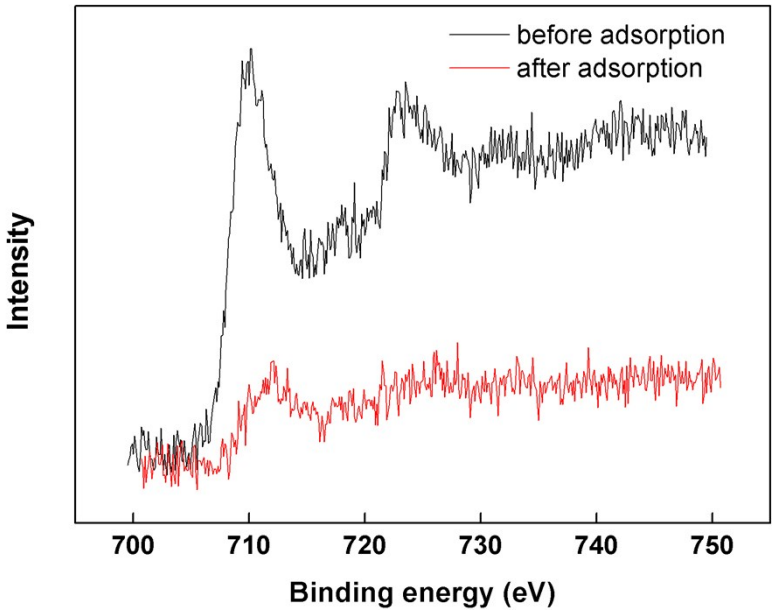

Fig. S2 XPS of Fe 2p before and after AR88 adsorption

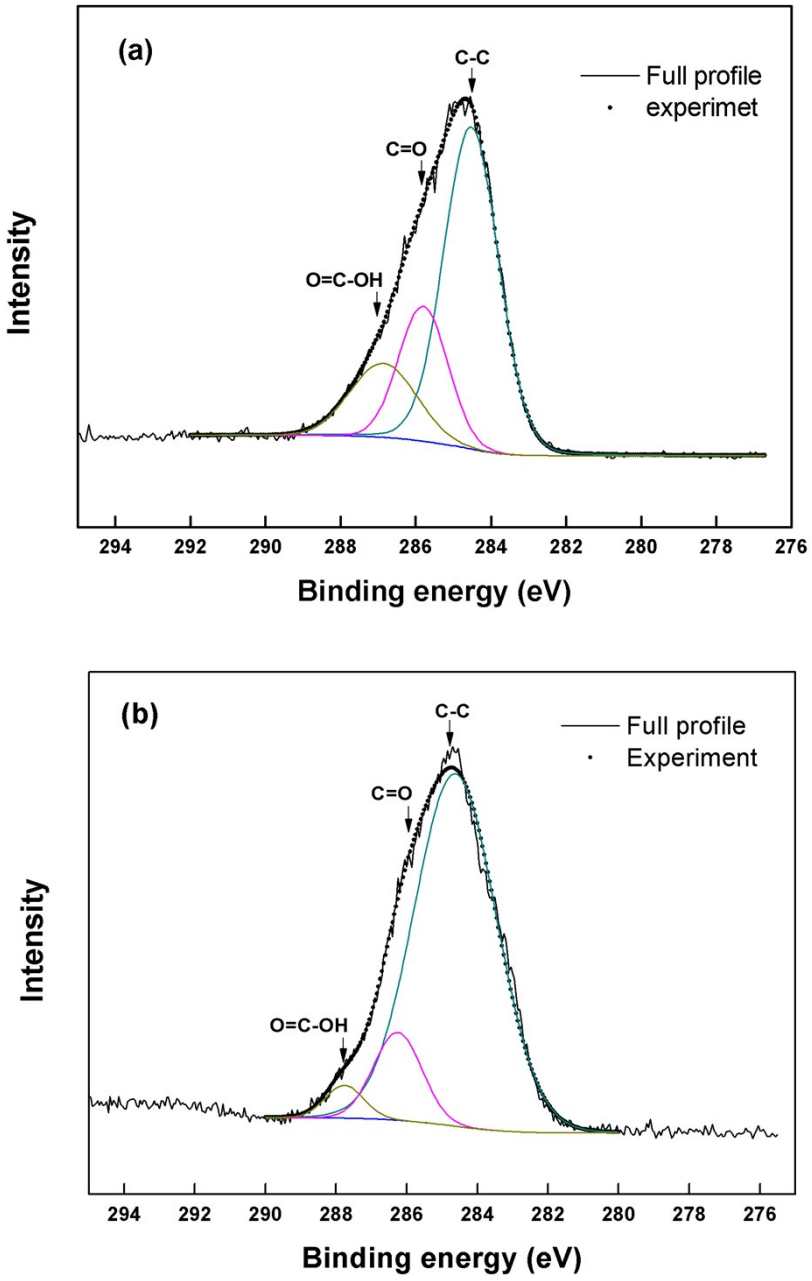

Fig. S3 XPS spectra of C 1s for the MGO-CH adsorbent before (a) and after (b) AR88 adsorption

Table S1. The intraparticle diffusion coefficients for 500 mg/L AC88 adsorption on the MGO-CH

Initial concentration (mg/L)	k_{p1} (mg/g·h$^{0.5}$) *	R_1^2	k_{p2} (mg/g·h$^{0.5}$) *	R_2^2	k_{p3} (mg/g·h$^{0.5}$) *	R_3^2
500	1503.4	0.999	144.1	0.882	0.46	0.869

*These values were determined using the Weber-Morris intraparticle model, equation (3).

Table S2. The deconvolution of XPS N 1s spectra for the MGO-CH sample before and after AC88 adsorption from a 500 mg/L aqueous solution.

Parameters	Species	B.E.[a] (eV)	FWHM[b] (eV)	G:L[c] ratio	Percent[d] (%)
Before adsorption	pyrrole-like	399.7	1.81	15:85	51.3
	quaternary nitrogen	402.5	2.18	15:85	48.7
After adsorption	pyridine-like	398.1	1.03	15:85	6.9
	pyrrole-like	399.7	3.29	15:85	68.3
	quaternary nitrogen	402.5	1.43	15:85	24.8

[a]Binding energy (B.E.); [b]The full width at half maximum (FWHM); [c]Gaussian:Lorentzian ratio; [d]The percentage represents the contribution of each peak to the total number of counts under the N 1s peak.

Table S3. The deconvolution of XPS C 1s spectra for the MGO-CH sample before and after AC88 adsorption from a 500 mg/L aqueous solution.

Parameters	Species	B.E.[a] (eV)	FWHM[b] (eV)	G:L[c] ratio	Percent[d] (%)
Before adsorption	C-C bonds in nonoxygenated ring	284.6	1.72	10:90	62
	C-O bonds in hydroxyl and epoxy	286.1	1.59	10:90	26.2
	C=O bonds in carbonyl	287.0	1.85	10:90	11.8
After adsorption	C-C bonds in nonoxygenated ring	284.6	2.73	10:90	82.4
	C-O bonds in hydroxyl and epoxy	286.2	1.64	10:90	13.6
	C=O bonds in carbonyl	287.7	1.38	10:90	4.0

[a]Binding energy (B.E.); [b]The full width at half maximum (FWHM); [c]Gaussian:Lorentzian ratio; [d]The percentage represents the contribution of each peak to the total number of counts under the C 1s peak.