Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Fabrication of magnetite/diazonium functionalized-reduced graphene oxide hybrid as an easily regenerative adsorbent for efficient removal of chlorophenols from aqueous solution

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Appendix A. Supplementary data

Table S1. Freundlich isotherm parameters for adsorption of CPs onto M-DF-RGO at 298 K.

Phenolics	Adsorbents	Freundlich		
		R^2	K_F $mg^{1-n} \cdot L^n \cdot g^{-1}$	n
4-chlorophenol (4-CP)	M-DF-RGO	0.9896	3.270	1.54
2,4-dichlorophenol (2,4-DCP)	M-DF-RGO	0.9885	2.693	1.78

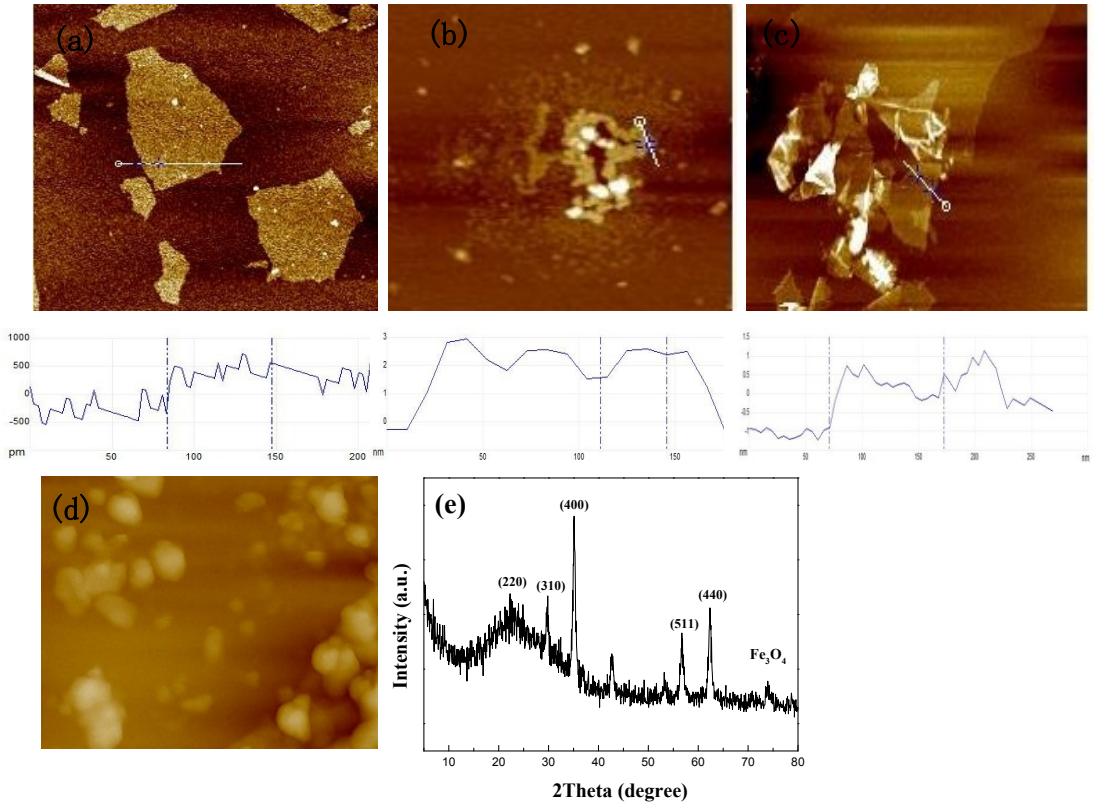

Fig S1. AFM images of (a) GO, (b) RGO, (c) DF-RGO, (d) M-DF-RGO, and (e) XRD spectra of Fe_3O_4.

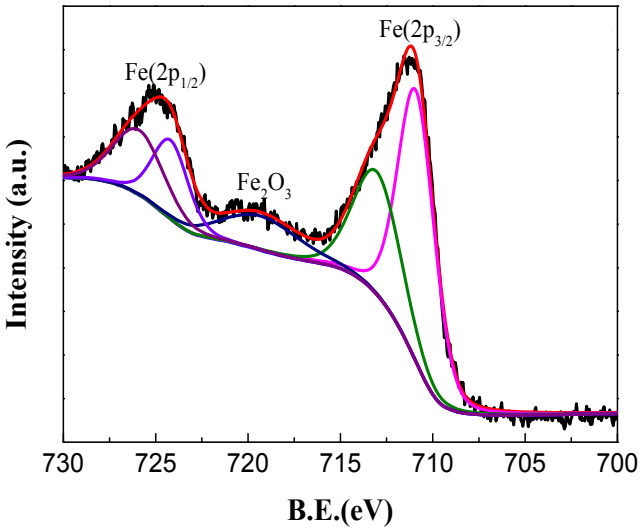

Figure S2. High resolution Fe 2p core level XPS spectrum of M-DF-RGO.

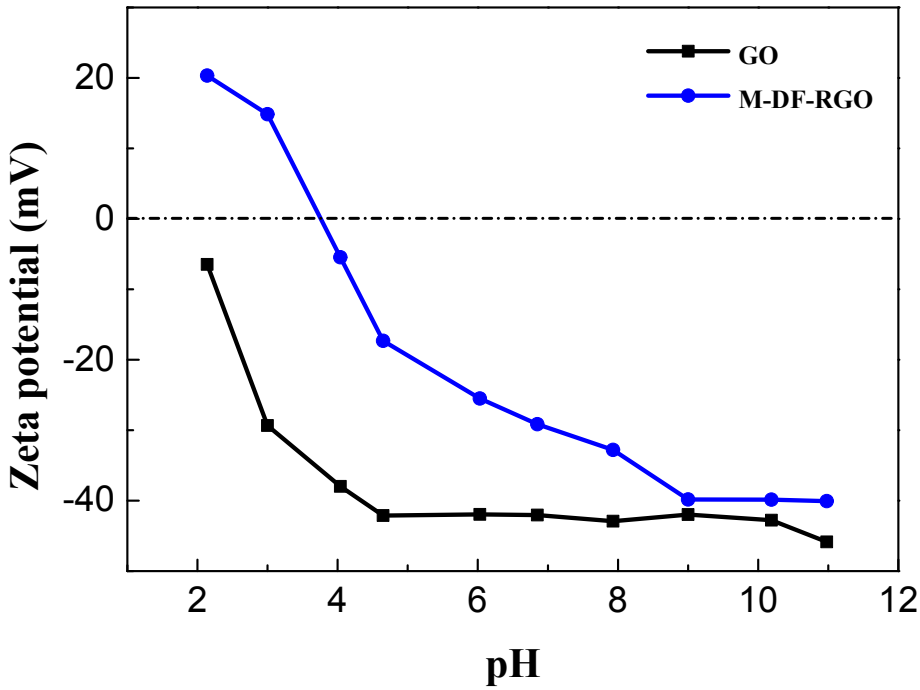

Figure S3. Zeta potential of GO, and M-DF-RGO as a function of pH.

Theoretical Calculations

The diazonium functionalized-reduced graphene oxide is constructed by a *p*-carboxyphenyl group at the plane of graphene, and the graphene model is built by the unit cell parameters of a = b = 2.460 Å, c =162 6.800 Å; α = β = 90 °, γ = 120°, and a 5 × 4 supercell was built.

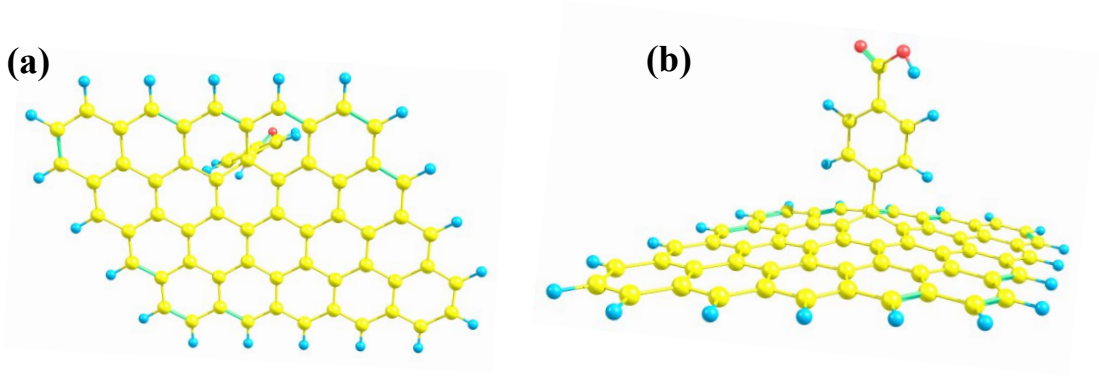

Figure S4. Molecular models of DF-RGO (carbon atom: yellow; oxygen atom: red; hydrogen atom: blue): (a) top view, and (b) side view.

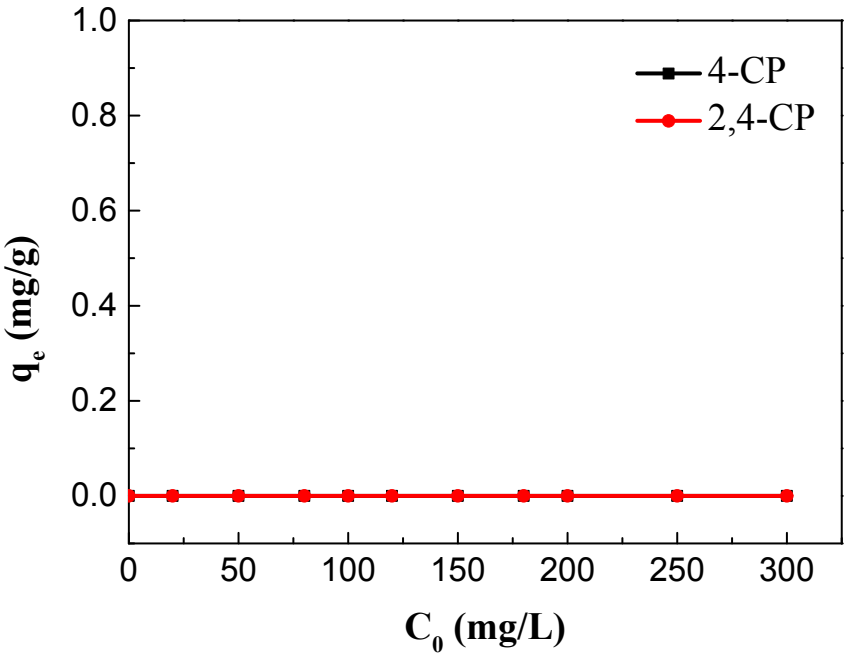

Figure S5. Chloropnenols uptakes of Fe_3O_4 nanoparticles (experimental conditions: initial chlorophenols concentration = 0-300 mg/L, pH = 6, Fe_3O_4 dosage = 1.0 g/L, contact time = 12 h at 298 K).