Supplementary Material (ESI) for RSC Advances

Remove of Chlorpyrifos from Waste Water by Wheat Straw-Derived Biochar Synthesized through Oxygen-Limited Method

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Wheat straw was acquired from a farm of LiuHe district, Nanjing City, China. Chlorpyrifos (HPLC grade) and methanol (chromatographic grade) were purchased from the TEDIA Company, America. Hydrochloric acid (analytical grade), sodium hydrate (analytical grade) and calcium chloride (analytical grade) were purchased from the Sinopharm Chemical Reagent Limited Corporation, P.R. China.

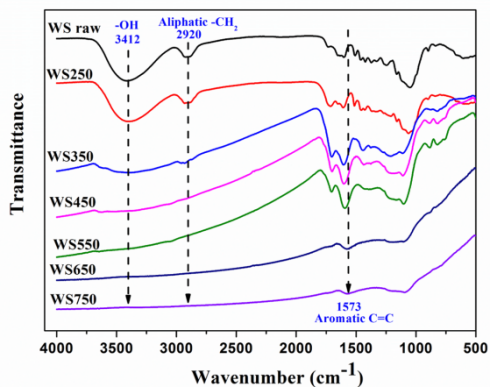


Fig.S1 FTIR spectra of WS250-WS750 samples.

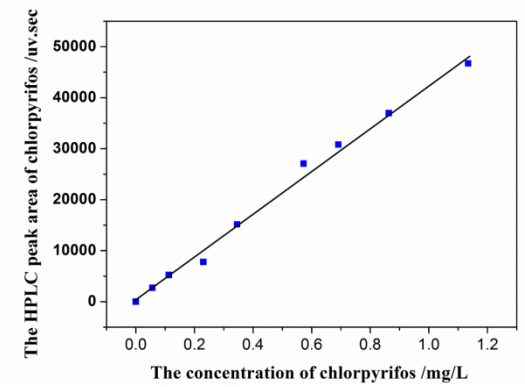


Fig.S2 The standard curve of chlorpyrifos in water.

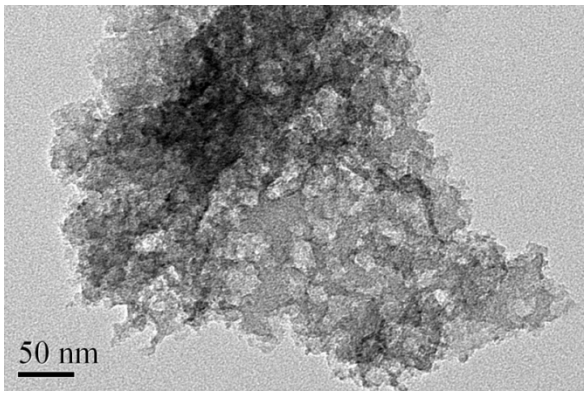


Fig. S3 TEM image of WS750 sample.

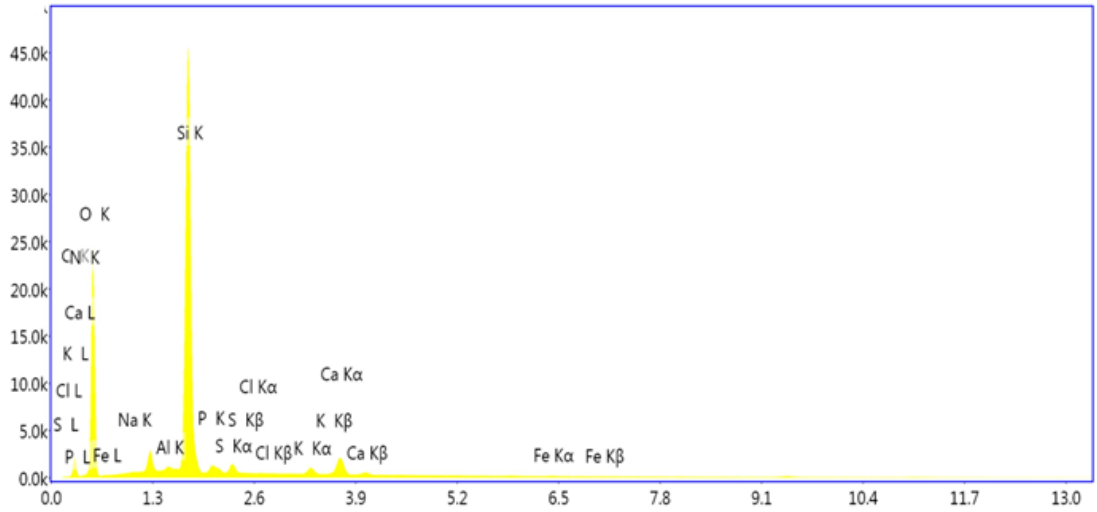
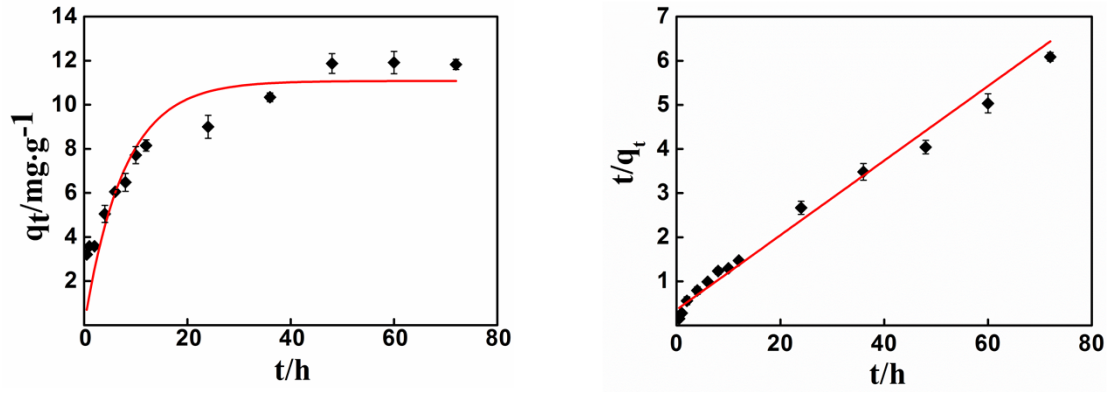


Fig. S4. EDS analysis for the ash acquired through heating WS750 sample at 800 °C under air condition for two hours.



(a) (b)

Fig. S5 Kinetic adsorption datas that were fitted by (a) pseudo-first-order model, and (b) pseudo-second-order model, respectively.

Table S1 Kinetic parameters for chlorpyrifos adsorption by WS750.

Model	Parameters	Values
Pseudo-first-order	k_1, h^{-1}	0.024±0.004
	q_e, mg/g	11.080±0.560
	R^2	0.841
Pseudo-second-order	k_2, kg·(mg·h)$^{-1}$	0.016±0.002
	q_e, mg/g	12.195±0.593
	R^2	0.991

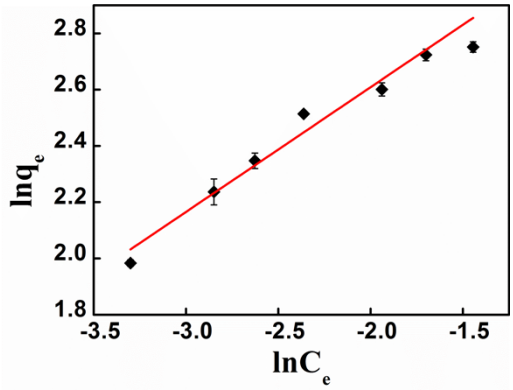


Fig S6 Adsorption isotherm datas that were fitted by Freundlich model.

Table S2 Adsorption isotherm parameters for chlorpyrifos adsorption by WS750.

Model	Parameters	Values
Freundlich	k	30.265±4.852
	1/n	0.413±0.0187
	R^2	0.968

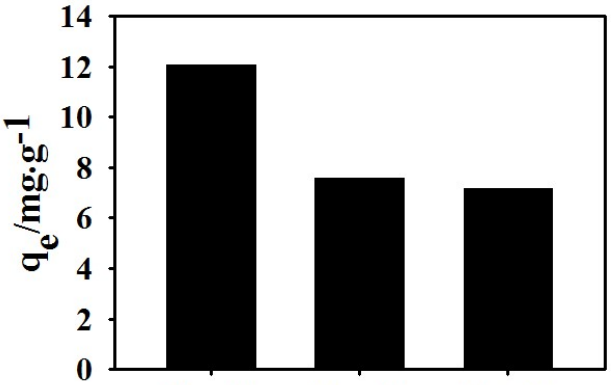


Fig. S7 Recycle experiments of chlorpyrifos adsorption by WS750. The concentration of chlorpyrifos is 0.80 mg/L.