Supplementary Materials

Figure S1. Kinetic models plots for the adsorption of Orange II on Fe-BTC at different initial concentrations, (**a**) pseudo-second-order kinetic model plot; (**b**) pseudo-first-order kinetic model plot. (adsorbent mass: 10 mg; temperature: 298 K; pH 7).

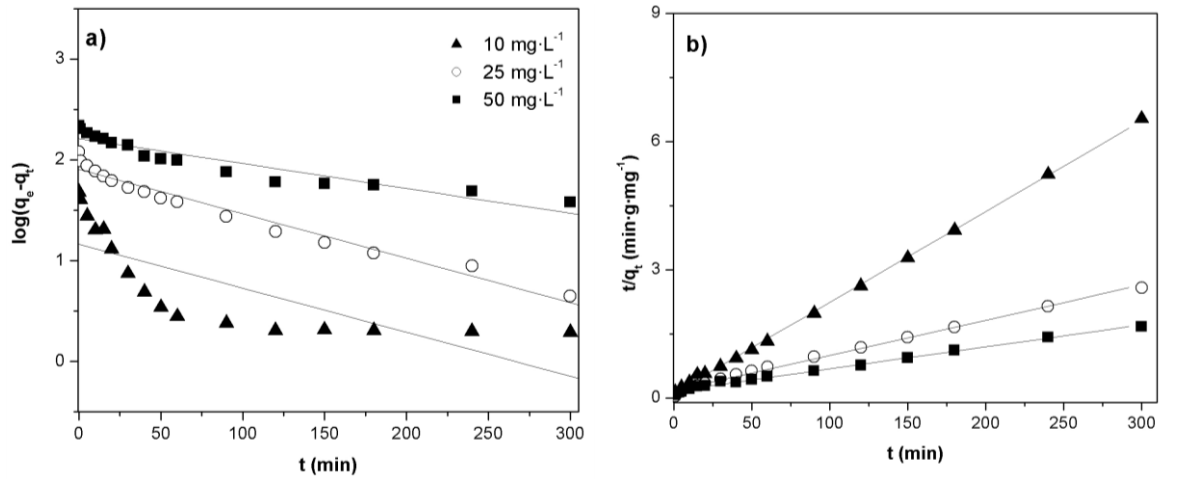

Figure S2. Kinetic models plots for the adsorption of Orange II on Fe-BTC at different initial concentrations, (**a**) pseudo-second-order kinetic model plot; (**b**) pseudo-first-order kinetic model plot. (adsorbent mass: 10 mg; temperature: 318 K; pH 7).

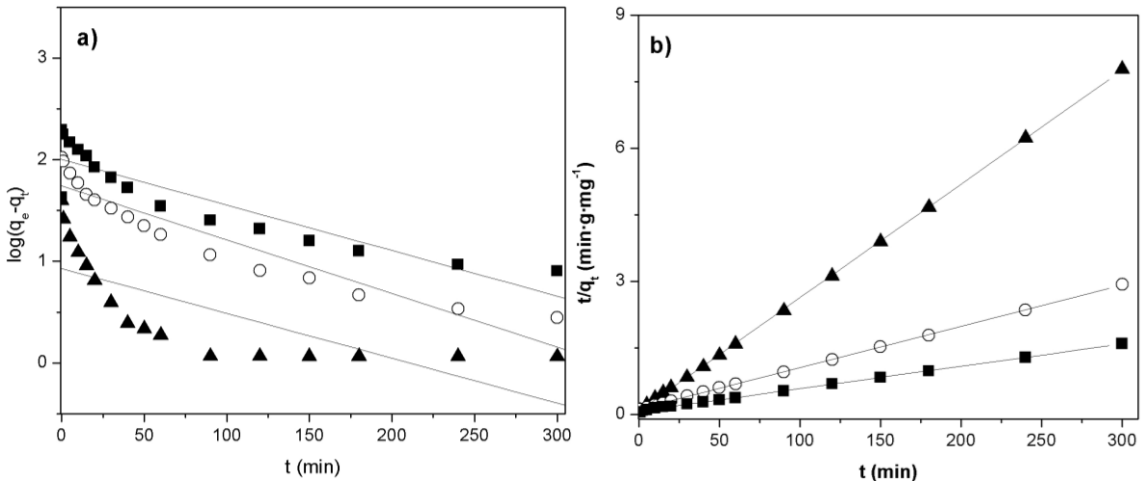

Figure S3. Intra-particle diffusion model plot of dye adsorbed on Fe(BTC). (Initial concentration: 50 mg·L^{-1}; adsorbent mass: 10 mg; temperature: 298 K and pH 7.

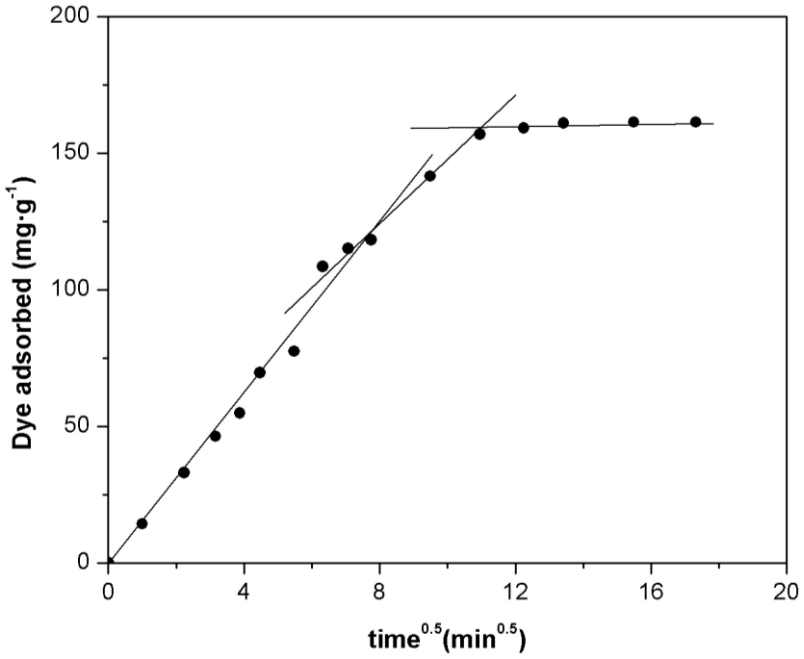

Figure S4. Intra-particle diffusion model plot of dye adsorbed on Fe(BTC). (Initial concentration: 50 mg·L^{-1}; adsorbent mass: 10 mg; temperature: 318 K and pH 7).

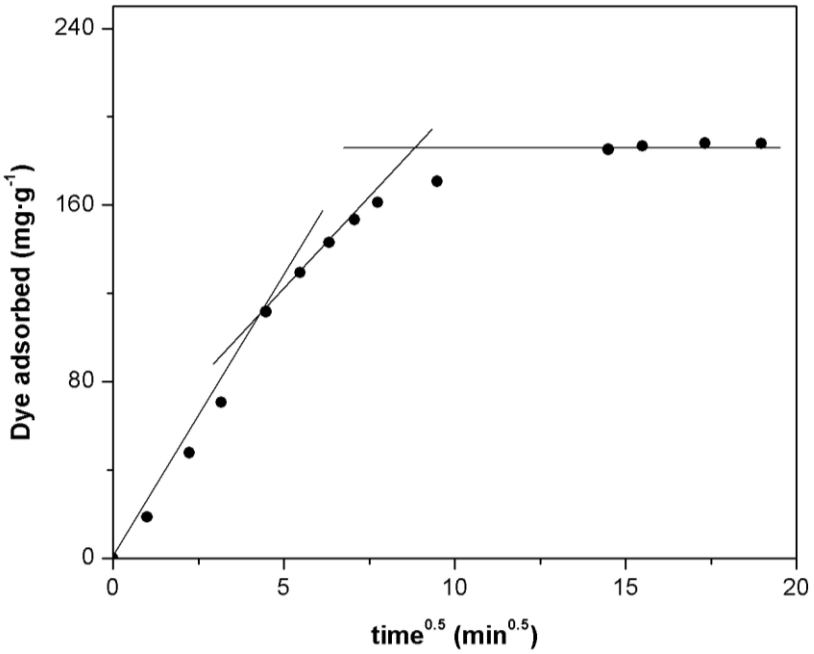

Table S1. Adsorbed amount ($mg \cdot g^{-1}$) in the adsorption of Orange II dye over Fe(BTC) and activated carbon at different initial dye concentrations.

Adsorbent	Adsorbed amount ($mg \cdot g^{-1}$)		
	10 ppm	25 ppm	50 ppm
Fe(BTC)	43.98	115.49	212.49
Activated carbon	41.43	61.88	80.31

Table S2. Kinetic parameters for the adsorption of Orange II over Fe(BTC) at different concentrations and temperature.

T	C_0	$q_{e,exp}$	Pseudo-first-order			Pseudo-second-order		
(°C)	($mg \cdot g^{-1}$)	($mg \cdot g^{-1}$)	$q_{e,cal}$ ($mg \cdot g^{-1}$)	k_1 ($g^{-1} \cdot mg \cdot min$)	R^2	$q_{e,cal}$ ($mg \cdot g^{-1}$)	k_2 ($g^{-1} \cdot mg \cdot min$)	R^2
25	10	45.78	21.69	2.21×10^{-2}	0.762	47.85	3.61×10^{-3}	0.997
	25	116.02	80.50	1.01×10^{-2}	0.967	120.48	4.36×10^{-4}	0.992
	50	213.24	132.25	5.75×10^{-3}	0.940	217.39	1.09×10^{-4}	0.997
35	10	43.96	10.67	1.24×10^{-2}	0.617	44.8	4.14×10^{-3}	0.999
	25	115.49	45.91	1.31×10^{-2}	0.820	117.1	1.46×10^{-3}	0.999
	50	212.49	91.94	1.08×10^{-2}	0.750	220.3	5.64×10^{-4}	0.999
45	10	38.51	39.68	3.79×10^{-2}	0.862	39.68	8.35×10^{-3}	0.998
	25	104.10	53.48	5.52×10^{-3}	0.512	105.26	1.69×10^{-3}	0.998
	50	187.90	101.74	8.75×10^{-3}	0.853	196.08	1.03×10^{-3}	0.999