Supporting Information

Table S1 Pseudo-first-order and pseudo-second-order reaction parameters for MB and RHB adsorption by BCs

Sample-contaminant	**Pseudo-first order**		**Pseudo-second order**	
	K_1	R_1^2	K_2	R_2^2
BC600-MB	0.015	0.7979	31.82	0.9879
BC600-RHB	0.029	0.4165	0.015	0.9999
BC700-MB	0.020	0.8862	11.37	0.9873
BC700-RHB	0.014	0.4580	1.023	0.9966
BC800-MB	0.029	0.7416	2.579	0.9964
BC800-RHB	0.009	0.2010	0.908	0.9861
BC900-MB	0.060	0.7264	0.009	0.9999
BC900-RHB	0.023	0.8672	2.040	0.9974
BC900-500/1-MB	0.478	0.8300	0.002	0.9999
BC900-500/2-RHB	0.031	0.8888	0.402	0.9993

Table S2 Langmuir and Freundlich adsorption isotherm parameters for MB and RHB adsorption by BCs

Sample-contaminant	Langmuir			Freundlich		
	Q_m	b	R^2	K_F	n	R^2
BC900-MB	38.33	1.09E+07	0.7373	77.12	0.082	0.5245
BC900-RHB	10.63	1.83E+00	0.0210	8.540	0.057	0.4041
BC900-500/1-MB	43.99	4.12E+01	0.9645	38.21	0.137	0.8741
BC900-500/2-RHB	151.52	1.68E+01	0.8179	358.8	0.619	0.7563

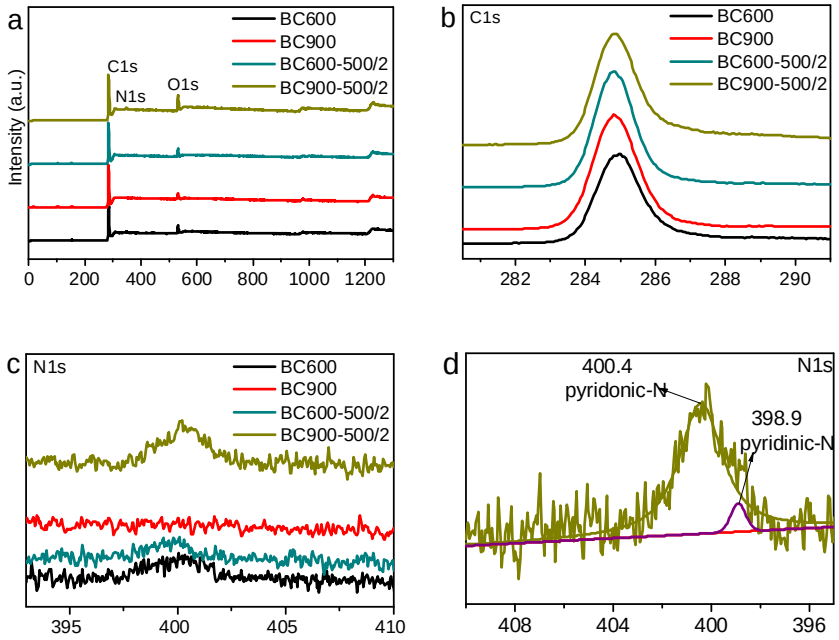

Fig. S1 XPS plots of BC600, BC900, BC600-500/2, and BC900-500/2: (a) Full survey of C1s, N1s, and O1s, (b) C1s spectrum, (c) N1s spectra, (d) High resolution of N1s of BC900-500/2

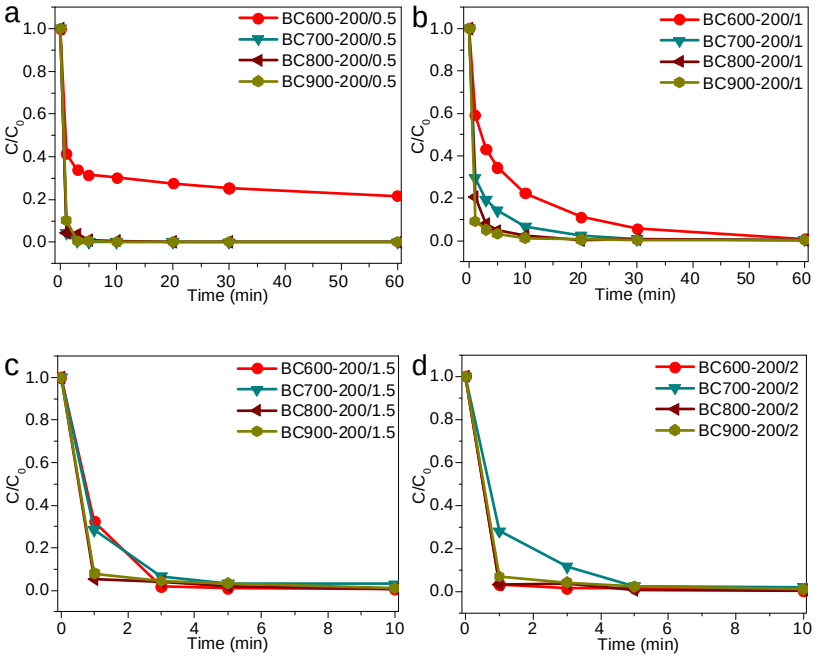

Fig. S2 The effect of agitation time on the removal efficiency of MB by BCs. Agitation time = 0.5 h (a), 1 h (b), 1.5 h (c), and 2 h (d) (adsorbent dosage = 0.05 g, MB concentration = 10.0 mg/L, solution volume = 100.0 mL)

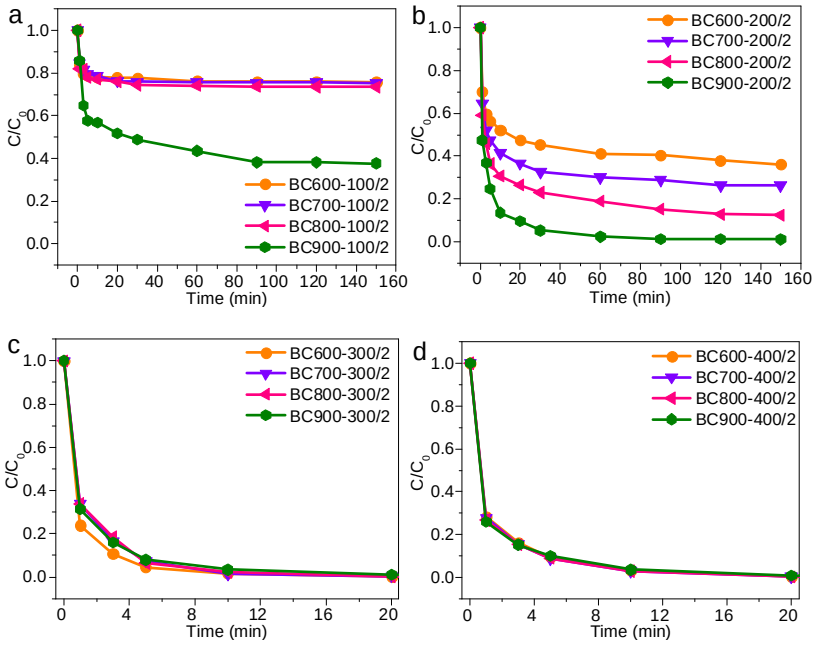

Fig. S3 The effect of agitation speed on the removal efficiency of RHB by BCs. Agitation speed = 100 r/min (a), 200 r/min (b), 300 r/min (c), and 400 r/min (d) (adsorbent dosage = 0.05 g, RHB concentration = 10.0 mg/L, solution volume = 100.0 mL)

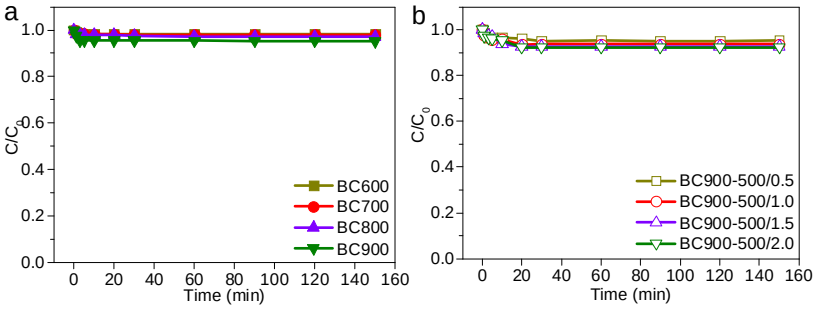

Fig. S4 The removal efficiency of Cr^{6+} by BCs (a), and Cr^{6+} removal by BC500 prepared at different agitation time (b) (adsorbent dosage = 0.05 g, Cr^{6+} concentration = 4.0 mg/L, solution volume = 100.0 mL)

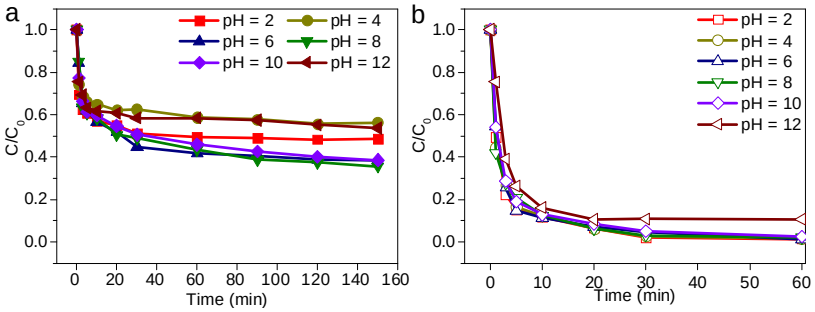

Fig. S5 The effect of pH on the removal efficiency of RHB by BC900 (a) and BC900-500/2 (b) (adsorbent dosage = 0.05 g, RHB concentration = 10.0 mg/L, solution volume = 100.0 mL)

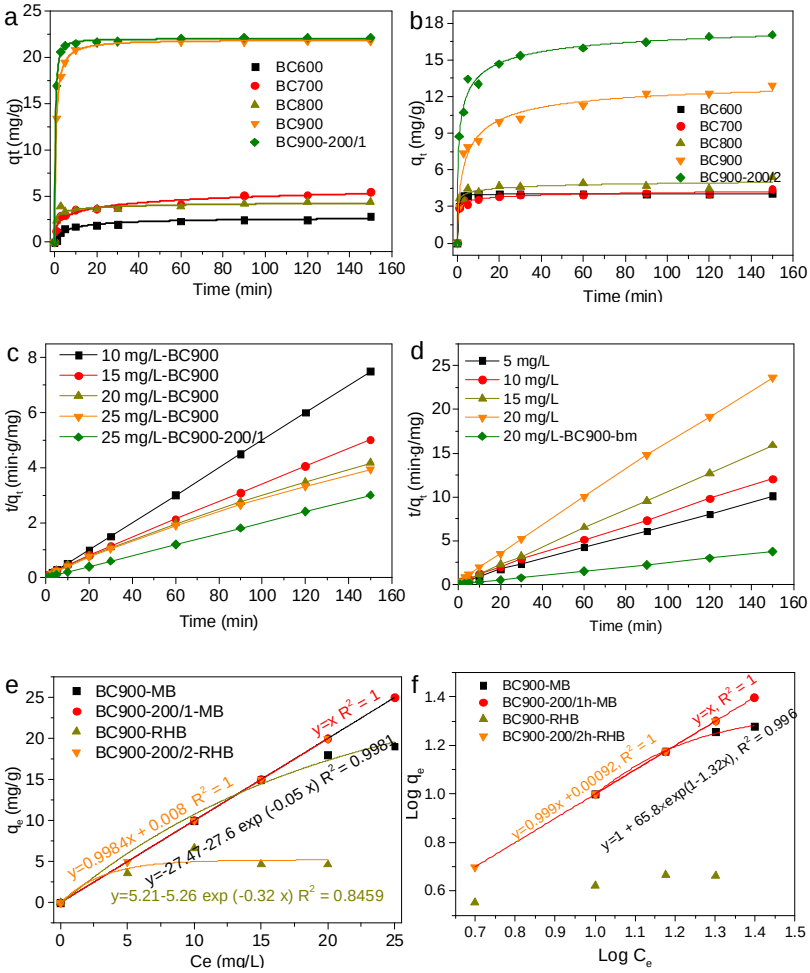

Fig. S6 The pseudo-first-order model (a and b), pseudo-second-order model sorption kinetics (c and d), Langmuir (e) and Freundlich isotherms (f) of MB and RHB adsorption by BCs