Supplementary Data

Protonated mesoporous graphitic carbon nitride for rapid and high efficient removal of microcystins

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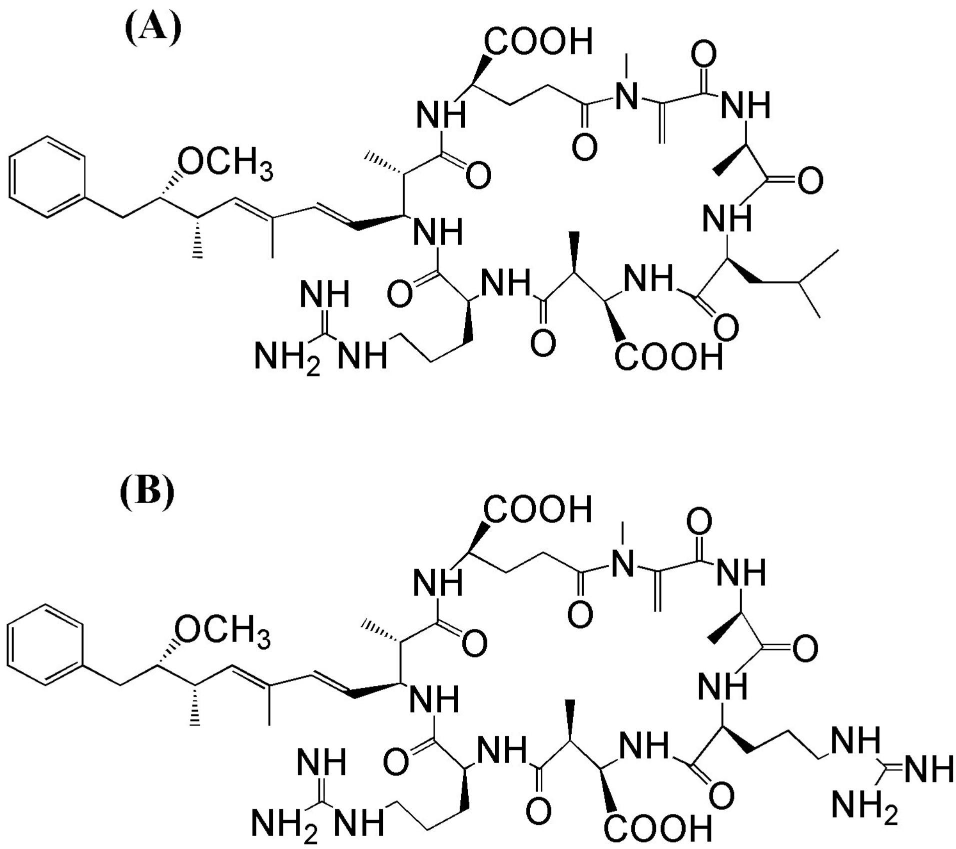

Fig. S1. Chemical structure of microcystins; (A) MC-LR; (B) MC-RR.

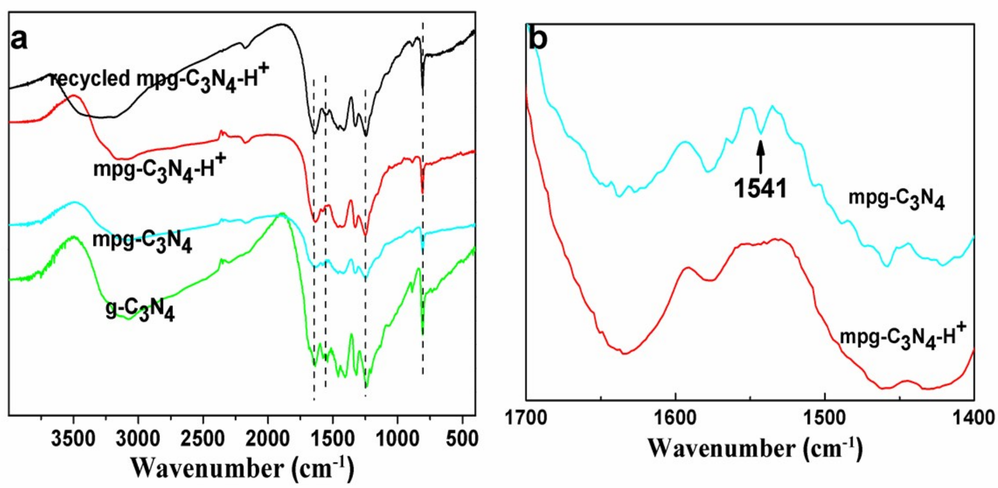

Fig. S2. FT-IR spectra.

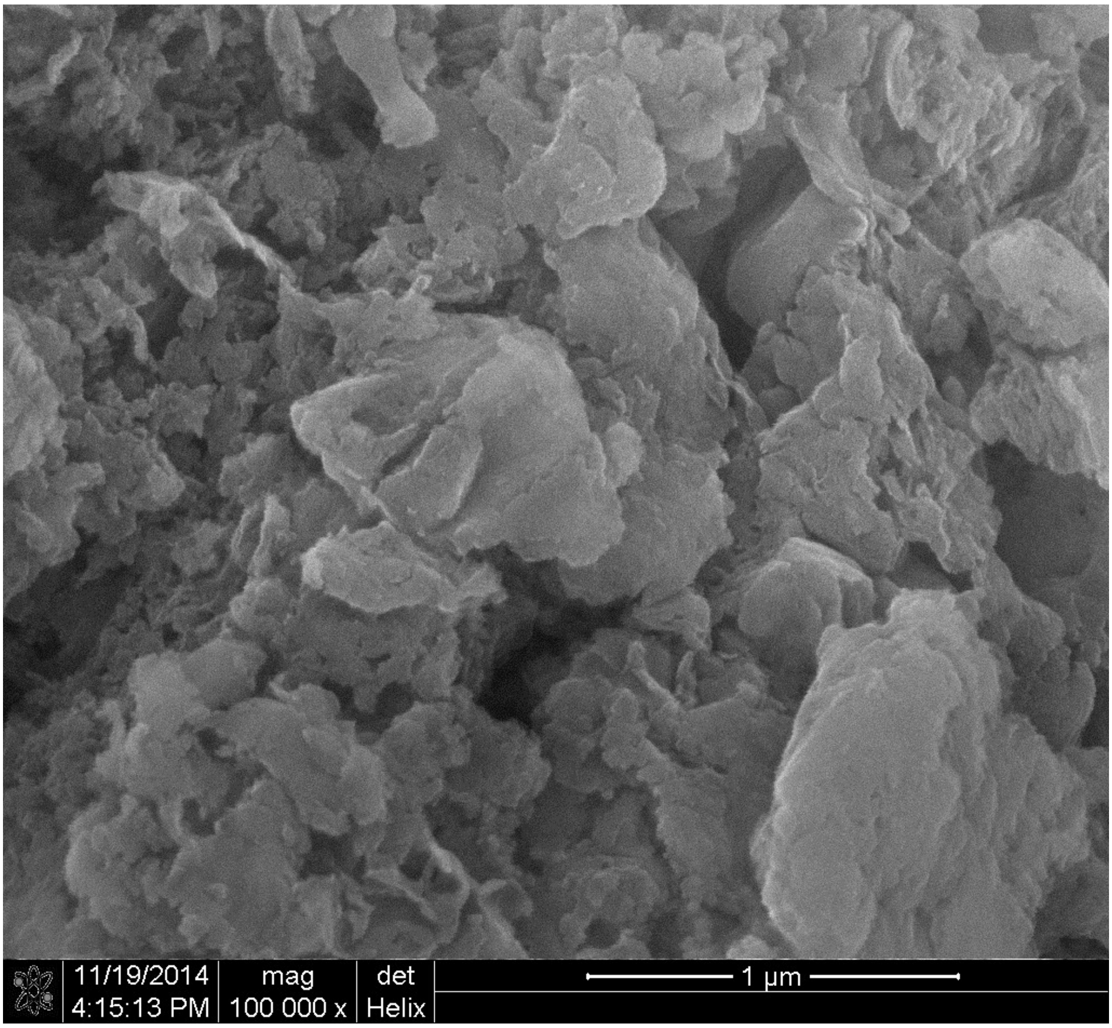

Fig. S3. SEM images of the bulk g-C_3N_4.

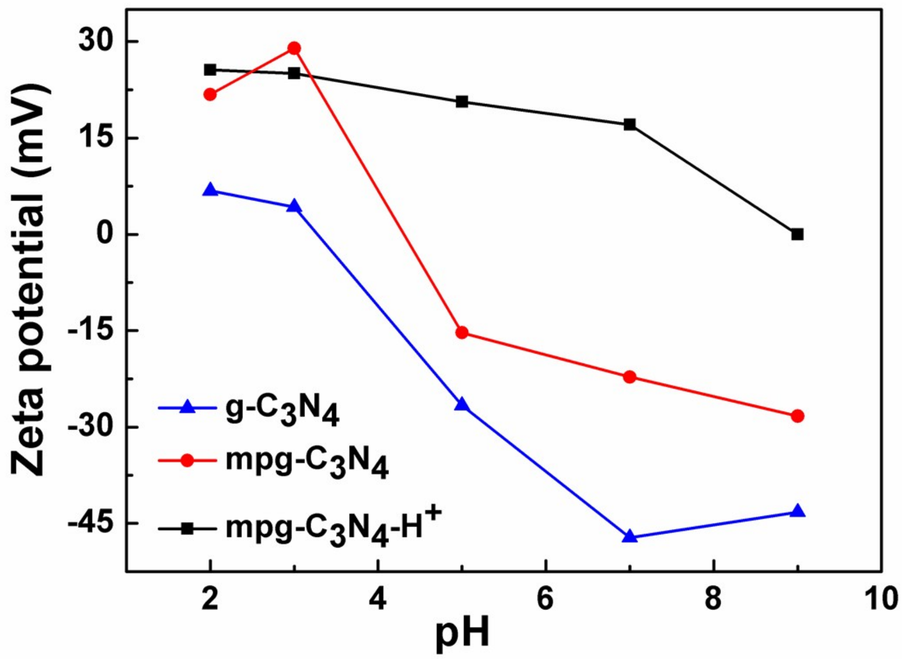

Fig. S4. Zeta potential of the adsorbent (0.15 mg/mL) at 30 ºC.

Table S1. Kinetic parameters for adsorption of MCs on mpg-C_3N_4-H^+ at 30 ºC.

		Pseudo-first-order kinetic model		
	C_0/(ppb)	$q_{e（cal）}$ /（ug/g）	k_1/（/min）	R^2
MC-LR	50	26.59	2.59E-03	0.6450
	100	76.68	2.54E-03	0.7797
	200	91.19	3.31E-03	0.6618
MC-RR	50	0.67	5.43E-03	0.3172
	100	36.40	2.18E-03	0.1562
	200	132.72	2.54E-03	0.2106

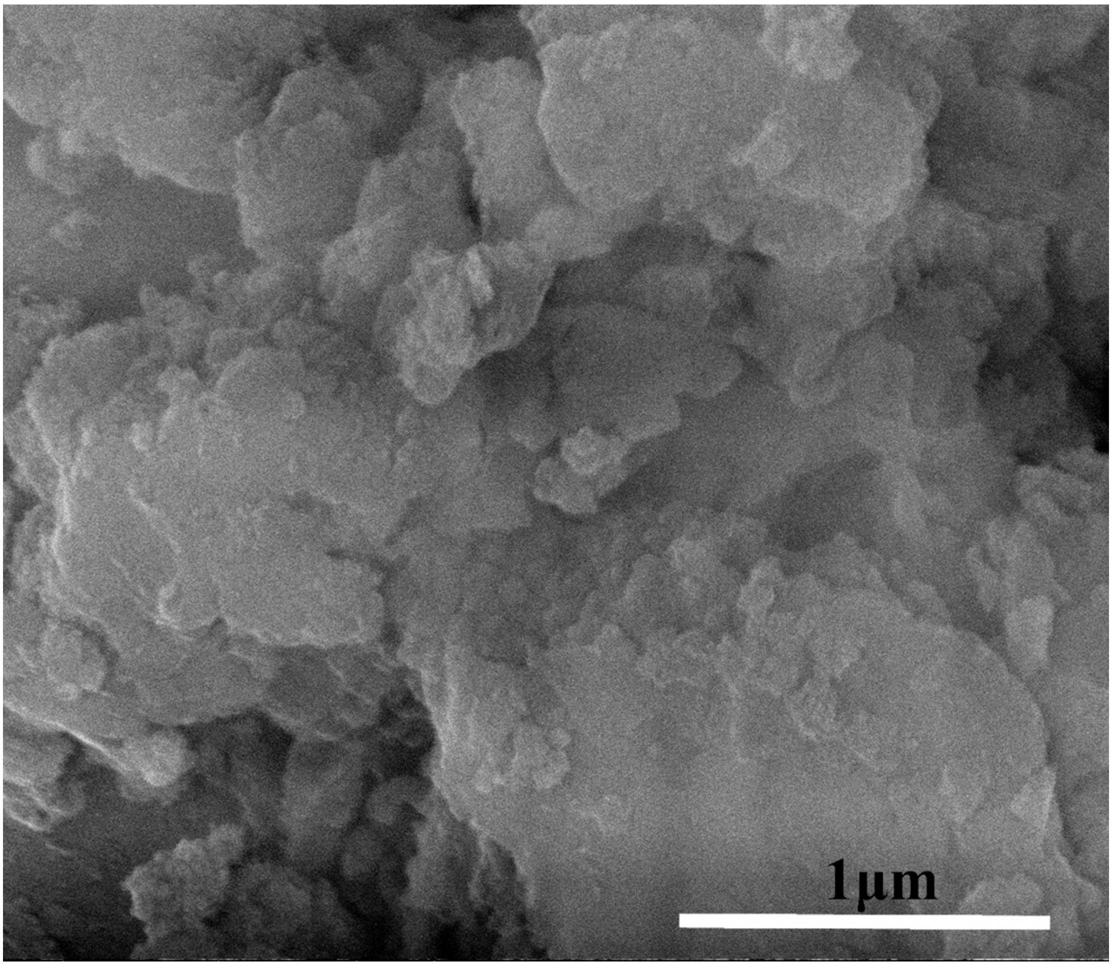

Fig. S5. SEM images of the recycled mpg-C_3N_4-H^+.

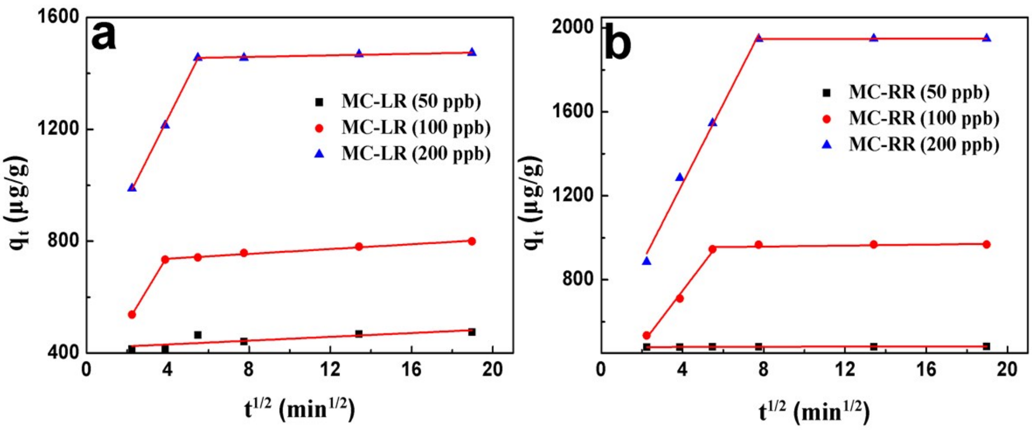

Fig. S6. Intraparticle diffusion plot for the adsorption of MCs on mpg-C_3N_4-H^+ (0.1mg) with different initial concentrations of MCs at 30 ºC； pH 7.0.

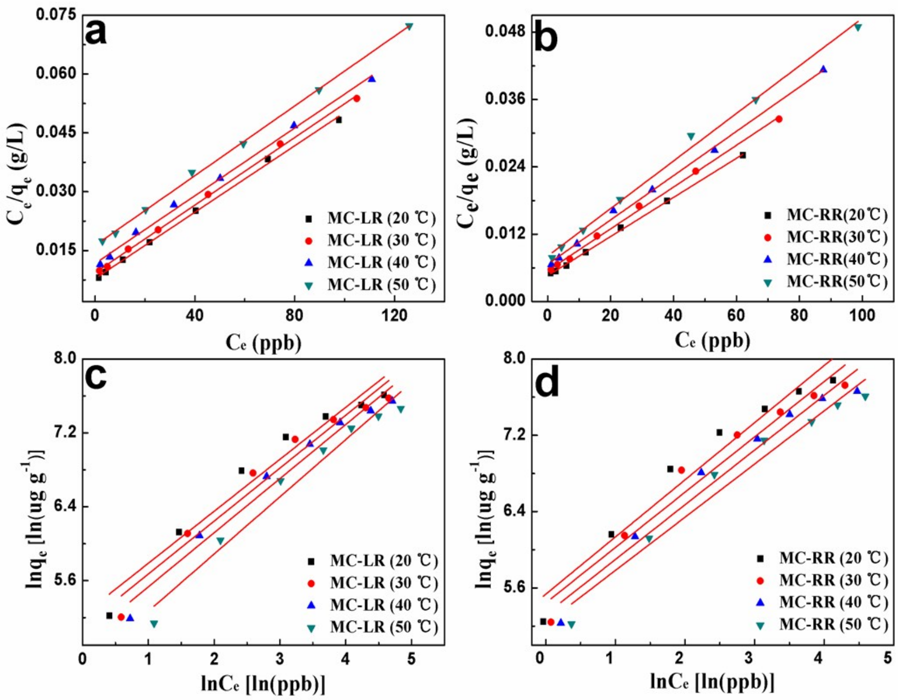

Fig. S7. (a) Langmuir plots of the isotherms; (b) Langmuir plots of the isotherms; (c) Freundlich plots of the isotherms; (d) Freundlich plots of the isotherms.

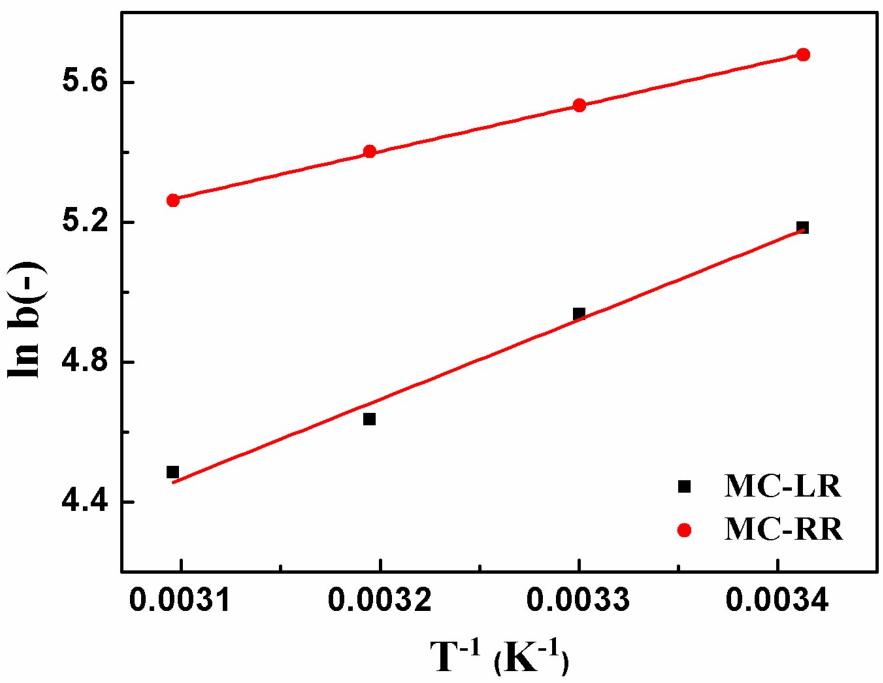

Fig. S8. Van't Hoff plot of the Langmuir constants b as a function of temperature, used to calculate the ΔH and ΔS of the MCs adsorption over mpg-C_3N_4-H^+.

Table S2. Maximum adsorption capacity of MCs on various adsorbents

Adsorbent	Q_{max}(MC-LR)	Q_{max}(MC-RR)	Reference
Ordered mesoporous carbons	526 mg/g	——[a]	S1
magnetic mesoporous carbon	220 mg/g	180 mg/g	S2
carbon nanotubes	14.8 mg/g	5.9 mg/g	S3
MIL-100(Al) gels	9007 μg/g	——[a]	S4
mpg-C_3N_4-H^+	2360.96 μg/g	2868.78 μg/g	this work
Graphene oxide	1700 μg/g	1878 μg/g	S5
commercial activated carbon	1481.7 μg/g	1034.1μg/g	S5
Fe_3O_4@copper silicate nanotube	500 μg/g	——[a]	S6
peat	255.7 μg/g	——[a]	S7
Cu^{2+}-immobilized magnetite nanoparticles	60 μg/g	——[a]	S8

——[a], not determined.

References

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