ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

Sulfonated chitooligosaccharide modified silica material for hydrophilic interaction liquid chromatography and its chromatographic evaluation

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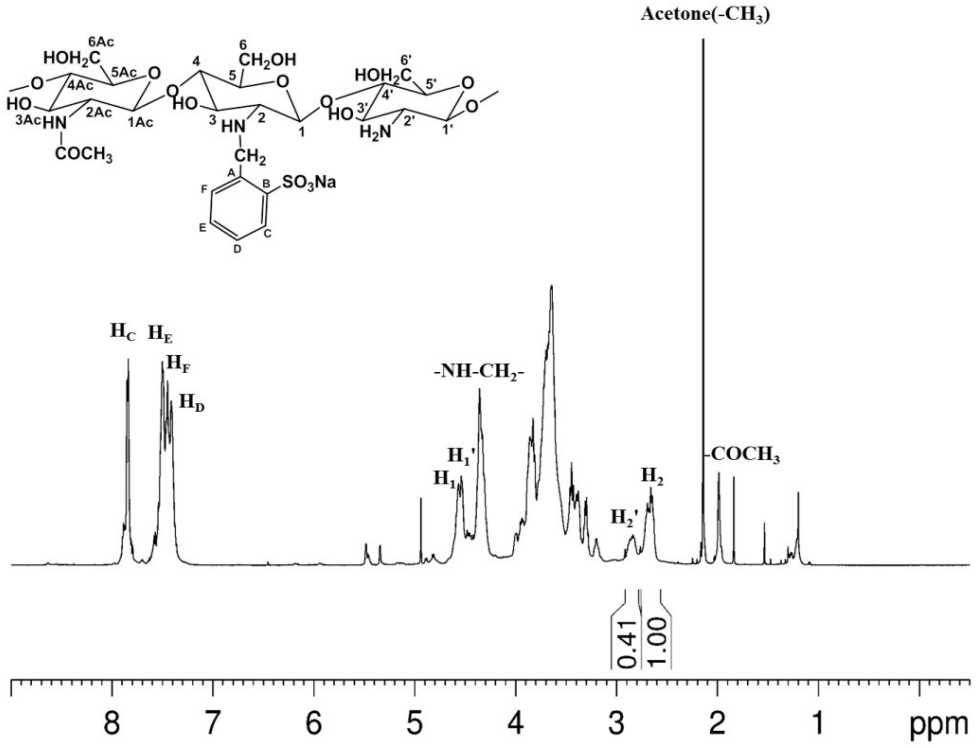

Fig. S1. 600 MHz ^{1}H NMR spectrum of COS(BSS). Sulfonated ratio was calculated from the ratio of the integral area of H_2 to that of H_2 and H_2'.

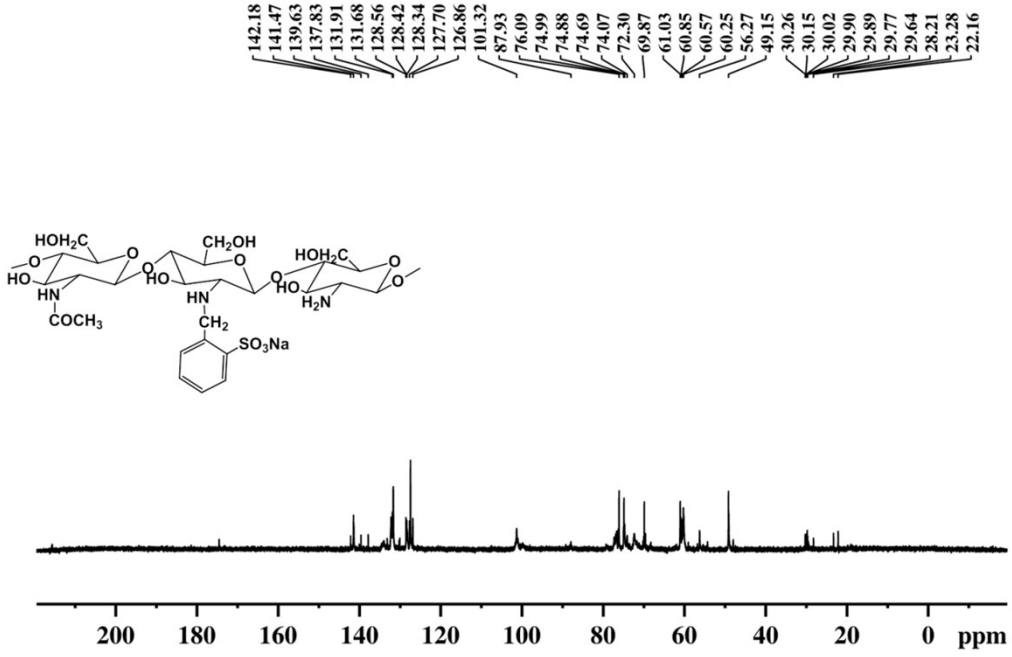

Fig. S2. 150 MHz ^{13}C NMR spectrum of COS(BSS).

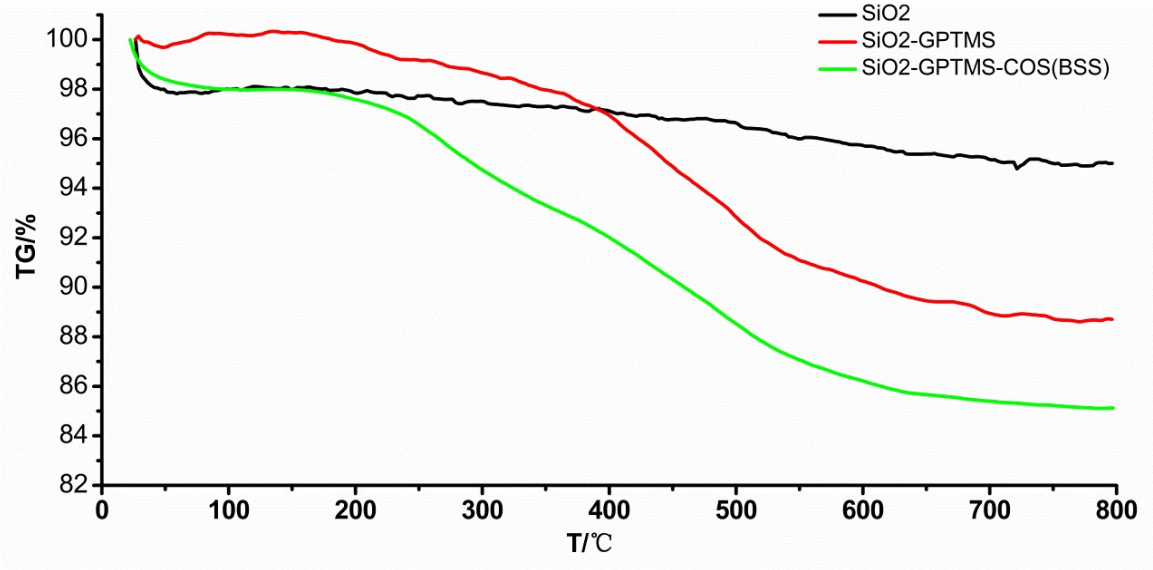

Fig. S3. TGA of SiO_2, SiO_2-GPTMS, and SiO_2-GPTMS-COS(BSS) under nitrogen flow, respectively.

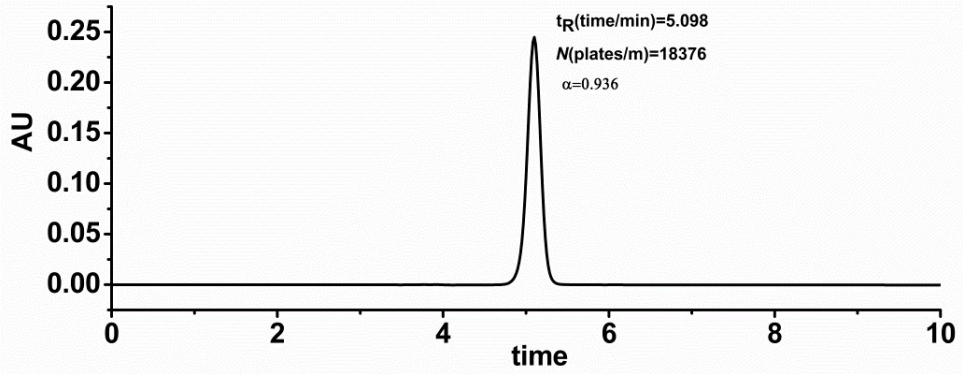

Fig. S4. Chromatogram for the column efficiency of SiO_2-GPTMS-COS(BSS). Chromatographic conditions: probe compound: uracil; mobile phase: ACN/H_2O = 90/ 10 (v/v); flow rate: 1.0 mL min^{-1}; detention: UV detector 254 nm; column temperature: 30 ℃; inject volume: 5 uL.

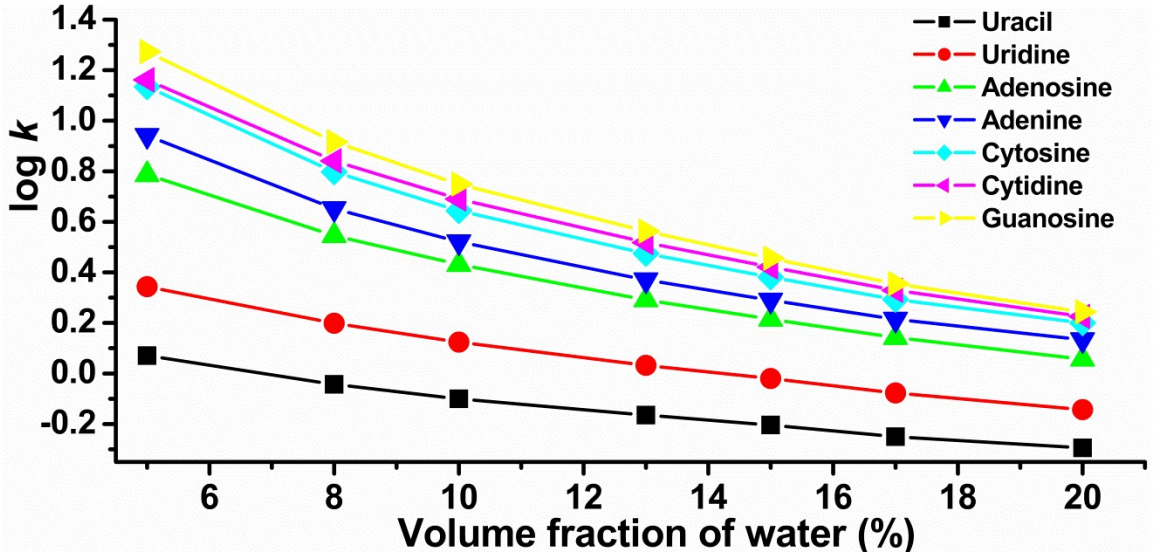

Fig. S5. Plot of log k versus the water volume fraction in eluent.

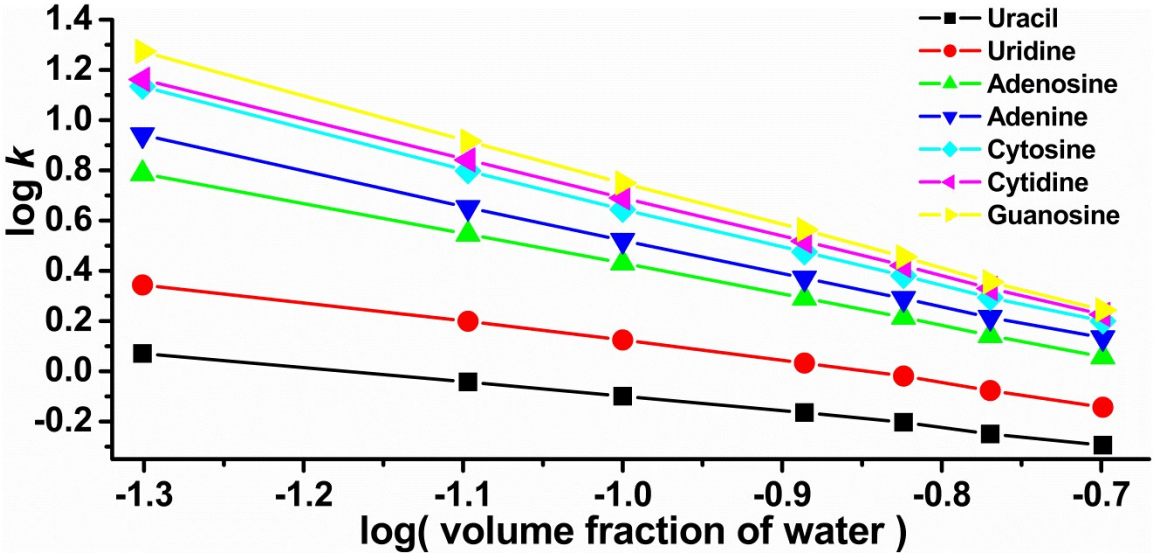

Fig. S6. Plot of log k versus logarithm of the water volume fraction in eluent.

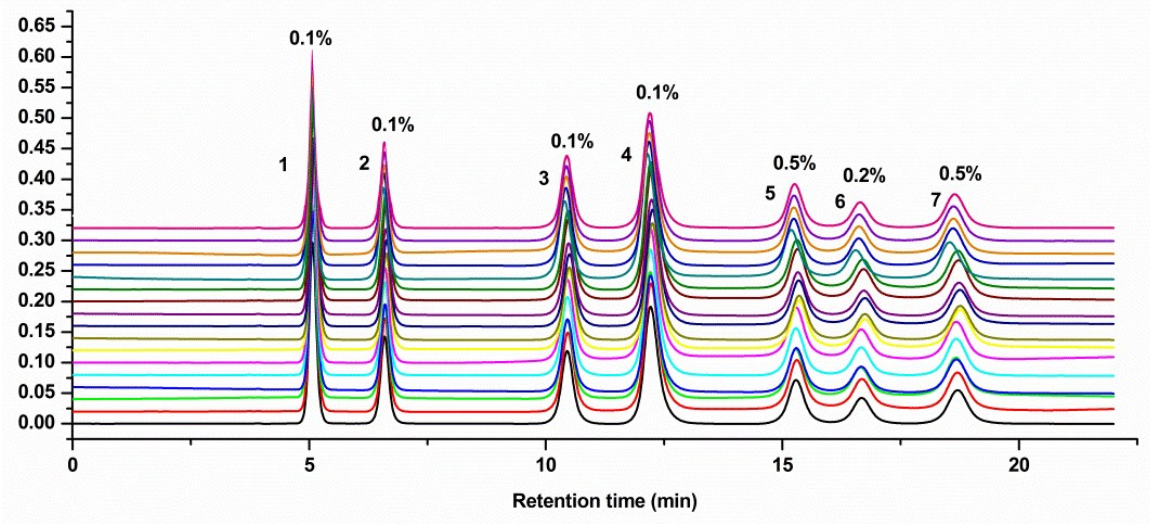

Fig. S7. Retention stability of seven nucleosides and bases including (1) uracil, (2) uridine, (3) adenosine, (4) adenine, (5) cytosine, (6) cytidine, and (7) guanosine on SiO_2-GPTMS-COS(BSS) by continuously injecting 18 times. Chromatographic conditions: mobile phase: ACN/H_2O = 90/10 (v/v); flow rate: 1.0 mL min^{-1}; detection: UV detector, 254 nm; column temperature: 30 ℃; inject volume: 5 uL.

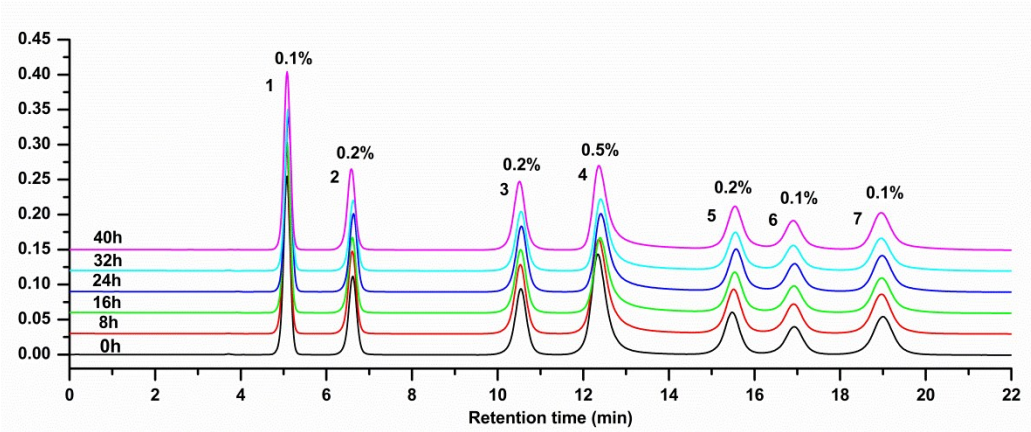

Fig. S8. Retention stability of seven nucleosides and bases including (1) uracil, (2) uridine, (3) adenosine, (4) adenine, (5) cytosine, (6) cytidine, and (7) guanosine on SiO_2-GPTMS-COS(BSS) by continuously injecting 6 times with an interval of 8 hours of incessantly working. Chromatographic conditions: mobile phase: ACN/H_2O = 90/10 (v/v); flow rate: 1.0 mL min^{-1}; detection: UV detector, 254 nm; column temperature: 30 ℃; inject volume: 5 uL.

Table S1. EA data of the bonded silica gels

	N (%)	C (%)	H (%)	S (%)
SiO_2-GPTMS	0	6.55	1.43	0
SiO_2-GPTMS-COS(BSS)	0.53	7.77	1.34	0.38

Table S2. Correlation coefficients of fitting the Eqs. (1) and (2) for tested solutes

Test solutes	Correlation coefficient (R^2)	
	Eq.(1)	Eq.(2)
Uracil	0.9762	0.9969
Uridine	0.9810	0.9956
Adenosine	0.9648	0.9997
Adenine	0.9496	0.9993
Cytosine	0.9486	0.9992
Cytidine	0.9588	0.9999
Guanosine	0.9568	0.9998

Table S3. Parameters of ln *k* and 1/T based on Van't Hoff equation for tested solutes

Solutes	ΔH^{θ} (KJ/mol)	Correlation coefficient (R^2)
Uracil	-12.68	0.9963
Uridine	-13.28	0.9974
Adenosine	-11.24	0.9974
Adenine	-9.48	0.9969
Cytosine	-6.70	0.9979
Cytidine	-10.27	0.9975
Guanosine	-9.26	0.9983