

Preparation and chromatographic evaluation of mixed polymer brush-silica stationary phase with temperature-sensitive property

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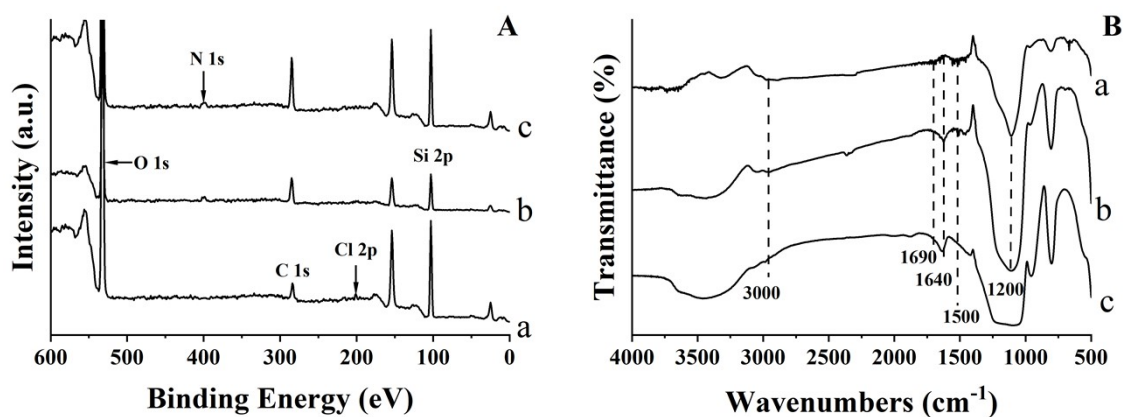


Fig. S1. XPS spectra (A) and FT-IR spectra (B) of silica@Cl (a), silica@poly(Qun) (b) and silica@poly(Qun-co-VCl) (c).

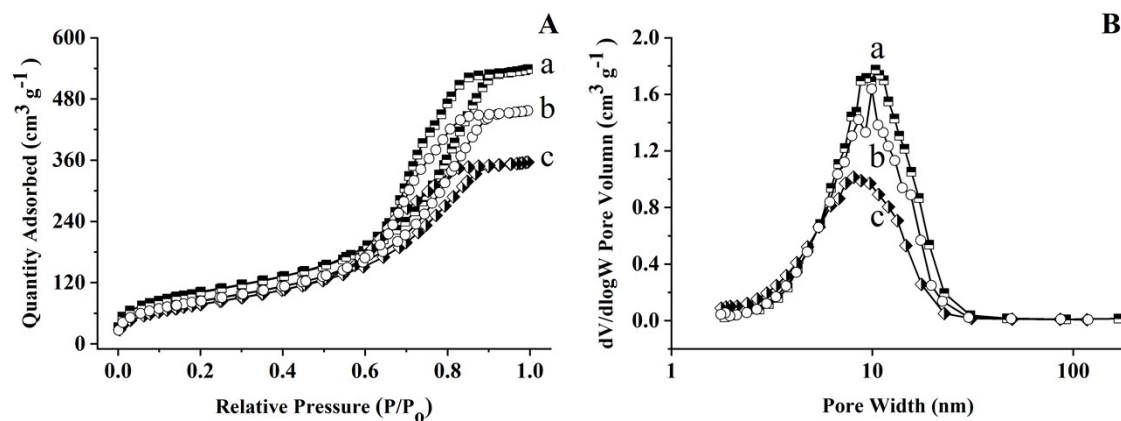


Fig. S2. N₂ isothermal adsorption graphs (A) and BJH adsorption average pore size (D) of silica (a), silica@poly(Qun) (b) and silica@poly(Qun-co-VCl) (c).

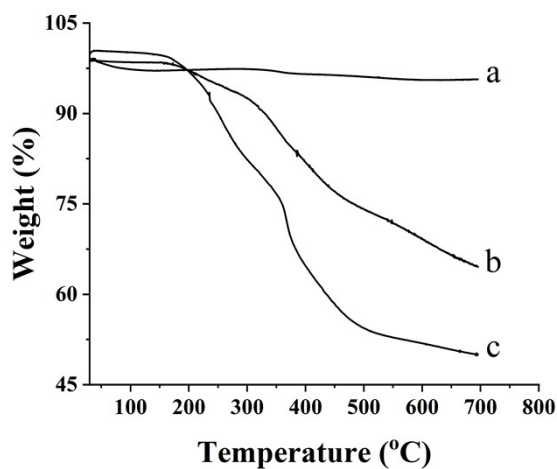


Fig. S3. TGA spectra of silica (a), silica@poly(Qun) (b) and silica@poly(Qun-co-VCl) (c).

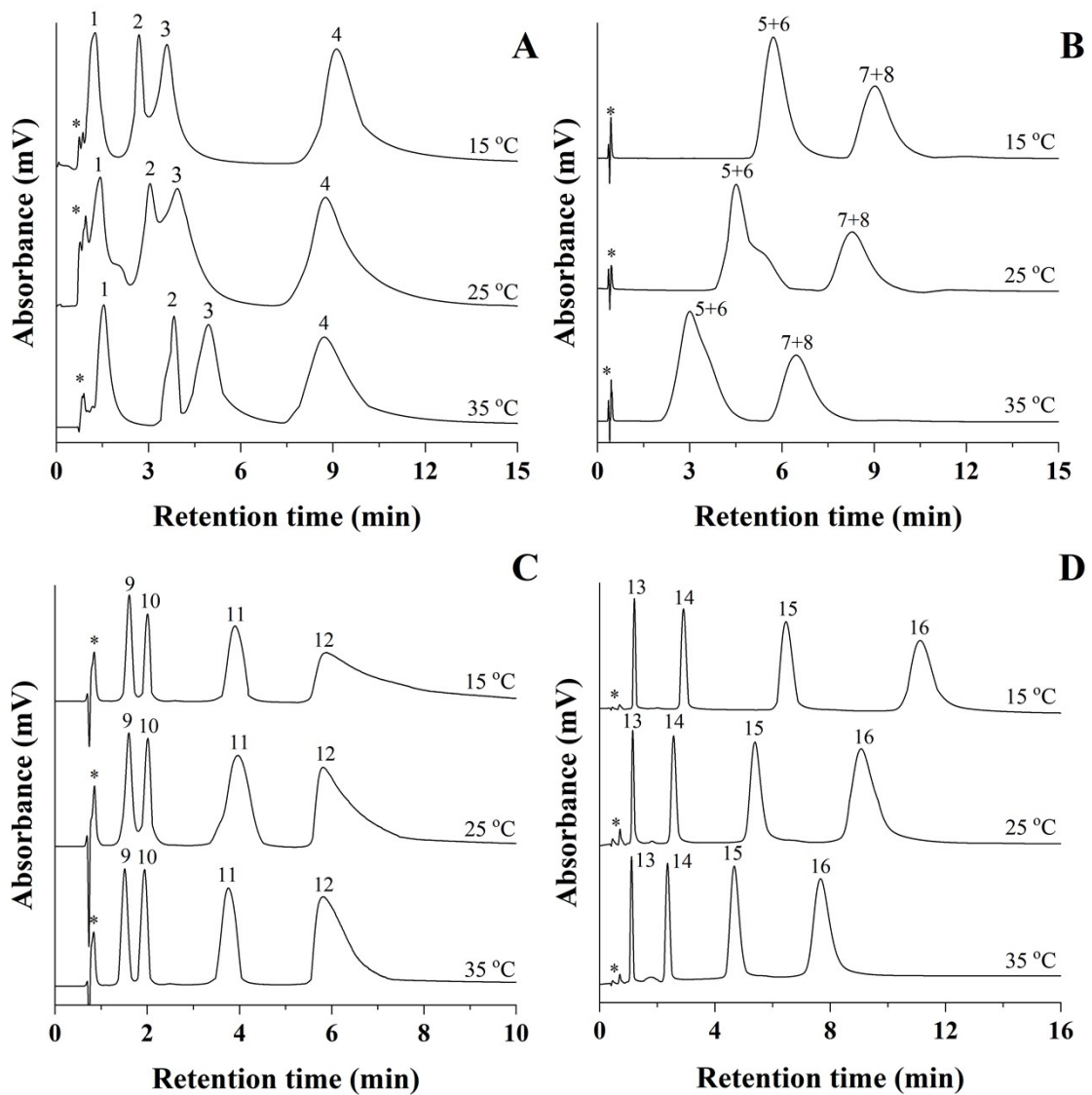


Fig. S4. Silica@poly(Qun): nucleoside (A), organic acids (B), β -agonists (C) and PAHs (D) retention time at various temperature. Other chromatographic conditions are consistent with **Fig. 5**.

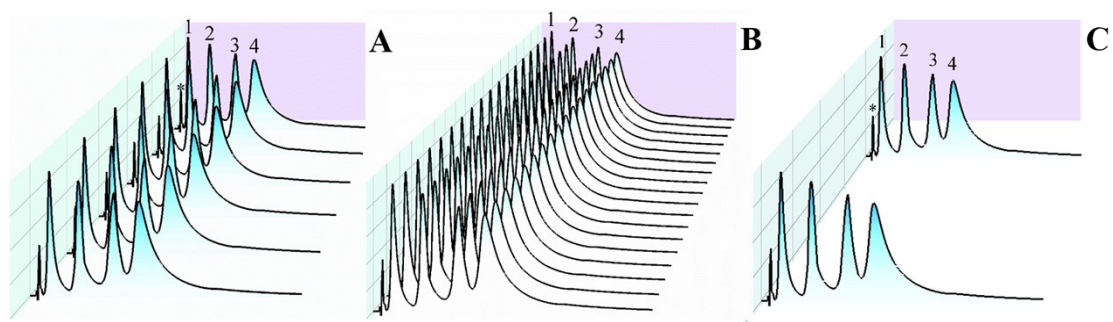


Fig. S5 Intra-day reproducibility (A) and inter-day reproducibility (B) of silica@poly(Qun-co-VCl) column. Chromatogram of nucleosides on silica@poly(Qun-co-VCl) column at the initial injection and at the injection used for 3 months (C). Analytes: 1, uracil, 2, adenine, 3, cytosine, 4, guanine. The chromatographic conditions were the same as in **Fig 2C**.

Table S1 Elemental analysis data of silica, silica@poly(Qun) and silica@poly(Qun-co-VCl).

Materials	Elemental analysis (%)		
	C%	H%	N%
silica	1.50	0.80	0.00
silica@poly(Qun)	6.88	0.82	0.49
silica@poly(Qun-co-VCl)	11.38	1.05	0.74

Table S2 The mean pore size, pore volume and S_{BET} for silica, silica@poly(Qun) and silica@poly(Qun-co-VCl).

Adsorbent	S_{BET}	Pore volume	Mean pore size
	($\text{m}^2 \text{g}^{-1}$)	($\text{cm}^3 \text{g}^{-1}$)	(nm)
silica	365.1	0.84	8.55
silica@poly(Qun)	312.9	0.71	8.01
silica@poly(Qun-co-VCl)	292.0	0.56	6.72