Supporting Information

Innovative reversed-phase monolithic column modified with 4-vinylbiphenyl and ionic liquid stationary phases for capillary electrochromatography

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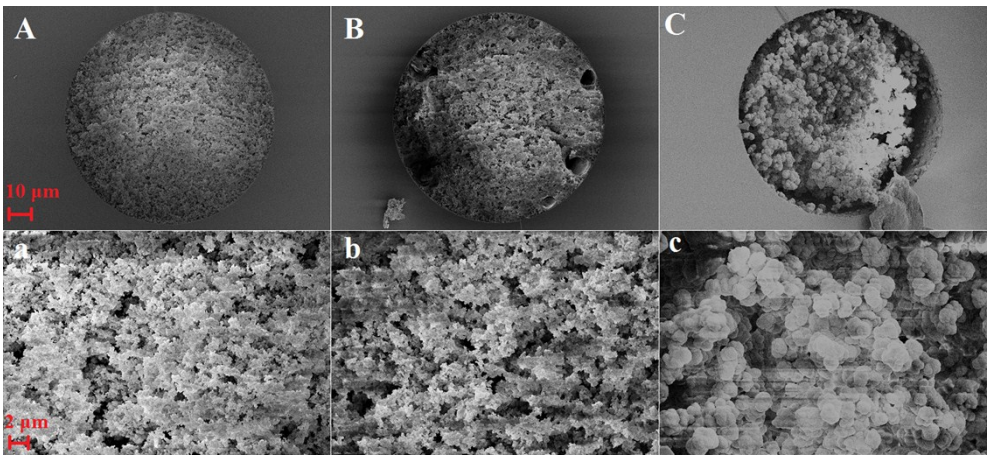

Fig. S1. Characterization of SEM for the monoliths (column 6: A, 750 ×; a, 3000 ×. Column 7: B, 750 ×; b, 3000 ×; Column 8: C, 750 ×; c, 3000 ×;).

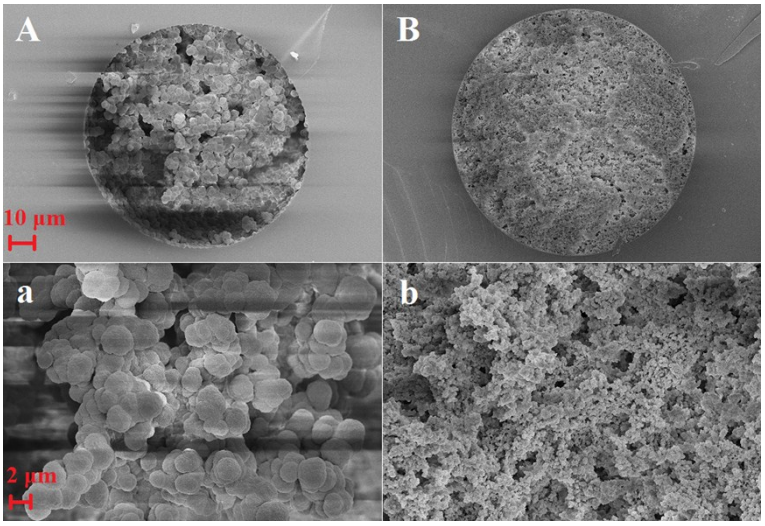

Fig. S2. Characterization of SEM for the monoliths (column 9: A, 750 ×; a, 3000 ×. Column 10: B, 750 ×; b, 3000 ×.).

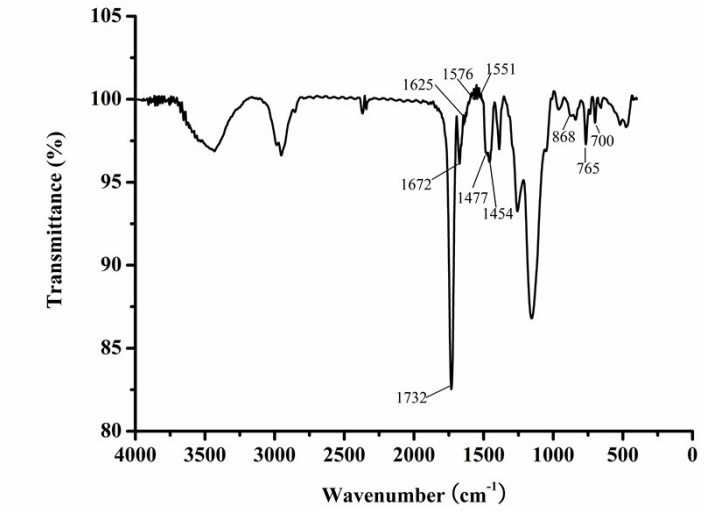

Fig. S3. FT-IR spectra of the monolithic column 4.

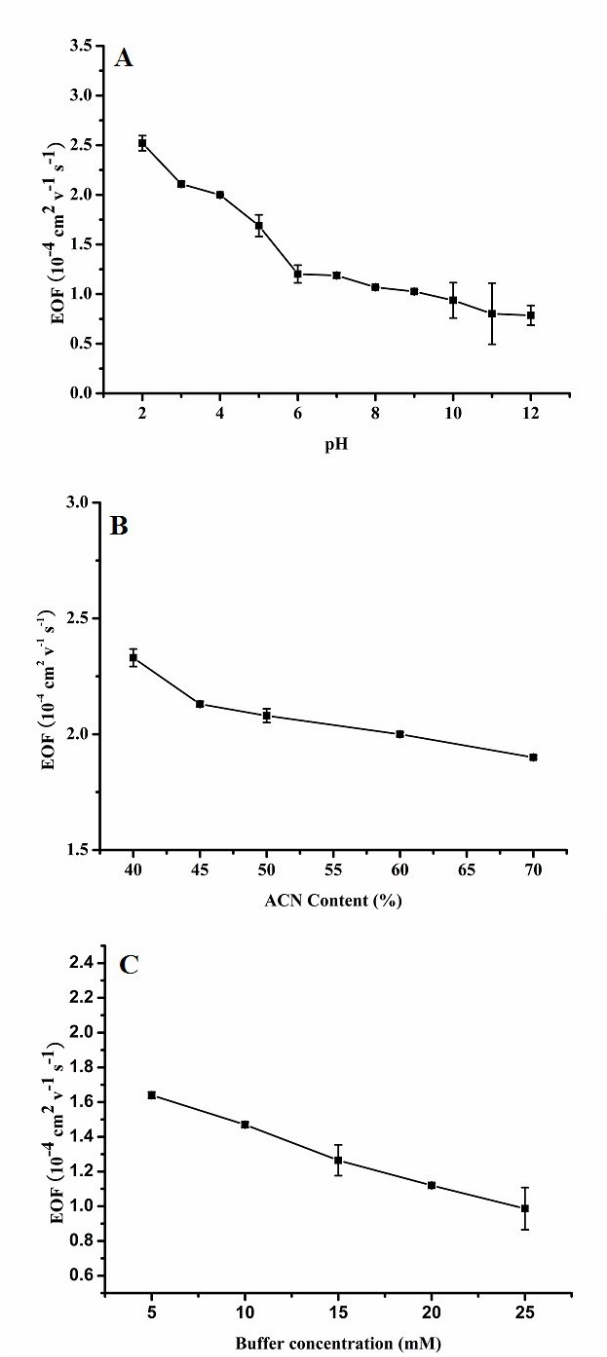

Fig. S4. Influence of pH (A), acetonitrile content (B), buffer concentration (C) to the EOF mobility on monolithic column 4. Experimental conditions: mobile phase, (A) 10 mM phosphate buffer (pH 2.0−12.0) with 60% acetonitrile, (B) phosphate buffer (10 mM, pH 4.0) with different content acetonitrile, (C) pH 4.0 phosphate buffer (5.0−25.0 mM) with 60% acetonitrile; applied voltage, − 20 kV; electrokinetic injection, − 5 kV × 5 s; detection wavelength, 214 nm; EOF marker, thiourea.

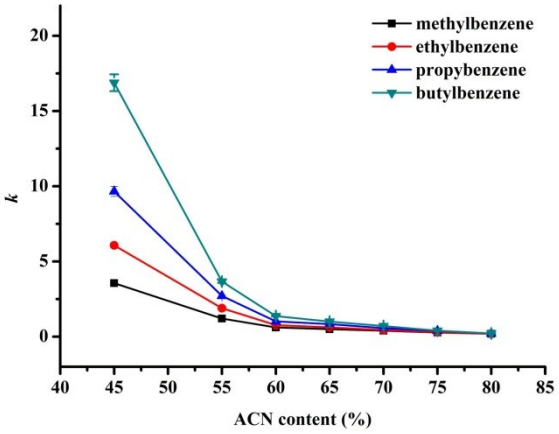

Fig. S5. Relationship between retention factors and acetonitrile content on the column 4 using alkylbenzenes as analytes and thiourea as EOF mobility marker. The experimental conditions are same as Fig. 3.

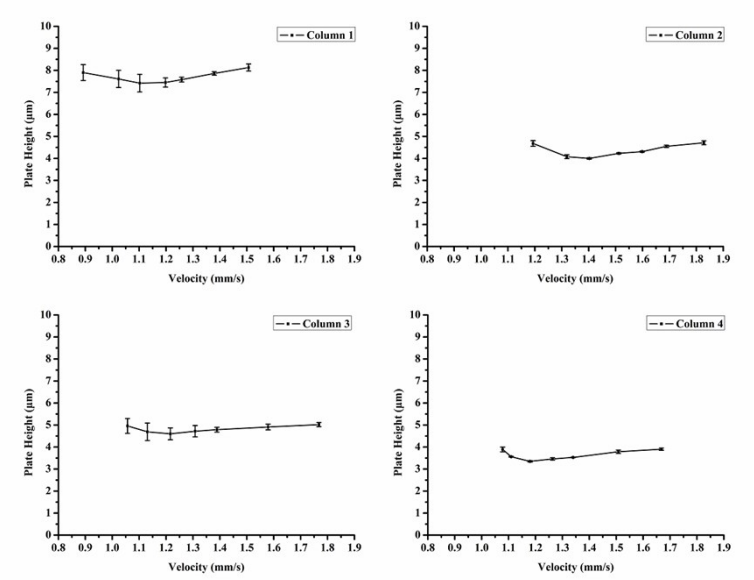

Fig. S6. Relationship between the plate height and linear velocity using toluene as test analyte. Experimental conditions: mobile phase, 60% acetonitrile in pH 4.0 10 mM phosphate buffer; applied voltage, from − 10 kV to − 25 kV; electrokinetic injection, − 5 kV × 5 s; detection wavelength, 214 nm.

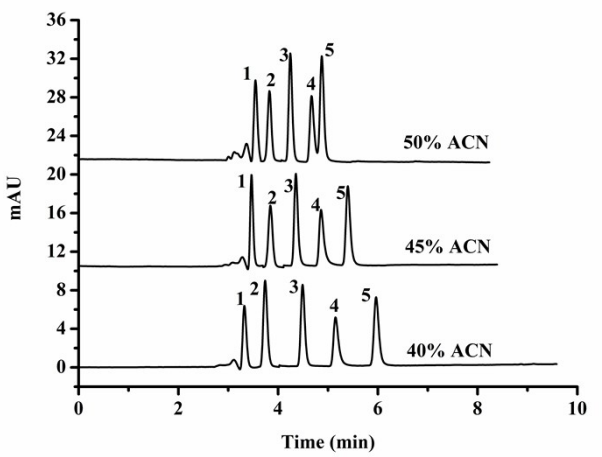

Fig. S7. Separation of phenols. Experimental conditions: mobile phase, 40% − 50% acetonitrile in pH 4.0 phosphate buffer; applied voltage, − 20 kV; electrokinetic injection, − 5 kV × 5 s; detection wavelength, 214 nm. Peaks: 1, thiourea; 2, phloroglucinol; 3, hydroquinone; 4, resorcinol; 5, phenol.

Table S1

Compositions of the polymerization mixtures for the poly (VBP-*co*-EDMA-*co*-IL) prepared in this study.

Column	Monomers/porogens (wt%)	Monomers			Porogens			Backpressure (MPa)	Permeability (10^{-13} m^2)
		VBP	$AlMeIm^+Cl^-$	EDMA	DMF	n-Propenal	Dodecanol		
1	20:80	18	42	40	50	15	35	0.6 MPa	2.09
2	20:80	15	35	50	50	15	35	0.9 MPa	1.39
3	20:80	8	32	60	50	15	35	2.7 Mpa	0.46
4	20:80	12	28	60	50	15	35	2.5 Mpa	0.50
5	20:80	16	24	60	50	15	35	6.8 MPa	0.18
6	20:80	12	28	60	50	50	0	Blocked	-
7	20:80	12	28	60	50	35	15	5.9 MPa	0.21
8	20:80	12	28	60	50	0	50	0.5 MPa	2.51
9	10:90	12	28	60	50	15	35	0.2 MPa	6.28
10	30:70	12	28	60	50	15	35	Blocked	-