

Electronic Supporting Information

Rapid capillary electrochromatographic profiling of phytohormones on a hydrophilic interaction / strong anion-exchange mixed-mode monolith

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Experimental:

Calculations

The permeability k value is calculated by the formula (1) [S1]:

$$k = \eta Lu / \Delta P \quad (1)$$

Where u is the linear velocity of the eluent, η is the dynamic viscosity of the mobile phase, L is the column length, and ΔP is the pressure drop across the column.

The swelling propensity (SP) factor is calculated by the formula (2) [S2]:

$$SP = (p(\text{ACN}) - p(\text{H}_2\text{O})) / p(\text{H}_2\text{O}) \quad (2)$$

Where p is the pressure relative to the viscosity, $p = P/\eta$. In the way chosen above a non-swelling material will have an SP value of 0.

The retention factor k^* for neutral compounds was calculated as Eq.(3), and peak locator for chromatography K_{cc} of charged analytes can be expressed in a manner similar to Eq.(4) as follows [S3]:

$$k^* = (t_m - t_0) / t_0 \quad (3)$$

$$K_{cc} = (t_m - t_0) / t_0 \quad (4)$$

t_m and t_0 are the migration time of the analyte and an unretained tracer, respectively.

References:

S1 P.A. Bristow and J.H. Knox, *Chromatographia*, 1977, **10**: 279

S2 F. Nevejans and M. Verzele, *J. Chromatogr.*, 1985, **350**:145

S3 Anurag S. Rathore and Csaba Horváth, *Electrophoresis*, 2002, **23**, 1211

Results and discussions

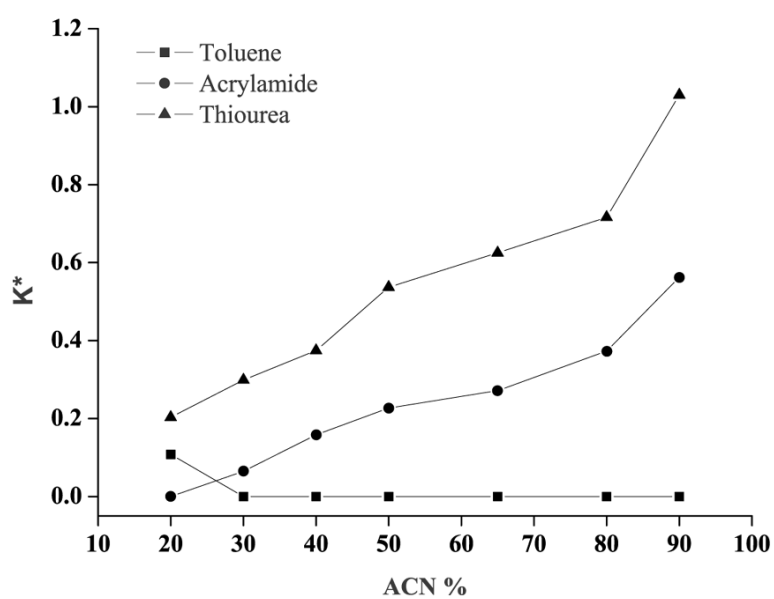


Fig.S1 Retention factor on poly(META-co-PETA) monolithic column

Column H, 30 cm effective length, 50 cm total length 100 mm id; mobile phase, 5mM ammonium formate buffer, pH 3.0, in ACN/H₂O; Back pressure 250 psi; applied voltage: +10 kV; pump flow: 0.1 ml/min.

Table S1. Effect of pump flow rate on migration time and the response of tested phytohormones^a

	0.15 mL/min		0.10 mL/min		0.05 mL/min	
	Migration	Response	Migration	Response	Migration	Response
	time (min)	(mV)	time (min)	(mV)	time (min)	(mV)
ABA	1.39	0.89	1.38	1.12	1.41	1.73
IAA	1.97	1.47	1.90	2.19	2.02	2.61
GA ₃	3.27	1.41	3.23	1.93	3.34	3.19

^a Monolithic column: effective length of 30 cm × 100 i.d., total length of 50 cm; mobile phase: ACN/ ammonium formate buffer (30 mM, pH 3.0)=80:20 (v/v); Pump flow rate changed from 0.05 to 0.15 mL/min; other conditions were same as the Fig.3