Table S3: PeakMaster simulation of the analytes of Section 5.2 in the BGE (2.3 M HAc).

Constituent	Ion	Detector	u_eff [a]	t_max (min)	t_max (s)	EMD [b]	Limiting mobilities [a]	pKa
Potassium	K^+	C4Dc	73.574	1.817	109.0	8.131	u(+1) = 76.2	13.0
Calcium	Ca^{2+}	C4Dc	55.949	2.355	141.3	19.680	u(+2) = 61.7; u(+1) = 30.9	12.6; 13.6
Magnesium	Mg^{2+}	C4Dc	49.460	2.661	159.7	20.942	u(+2) = 55.0; u(+1) = 27.5	11.4; 12.2
Nitric acid	NO_3^-	C4Da	−70.117	1.985	119.1	−21.940	u(−1) = 74.1	−1.4
Sulfuric acid	SO_4^{2-} / HSO_4^-	C4Da	−66.601	2.121	127.3	−39.953	u(−2) = 82.9; u(−1) = 52.0	1.9; −3.0

[a] 10^{-9} m^2 V^{-1} s^{-1}.

[b] 10^{-3} S m^2 mol^{-1}.

Simulation conditions: BGE 2.3 M acetic acid (u(−1) = 42.4, pKa = 4.756); L_tot = 50 cm, L_det = 13 cm; 8 kV; no EOF;
ionic-strength correction applied. Calculated BGE properties: pH 2.198, ionic strength 6.905 mM, conductivity 0.262 S m^{-1},
buffer capacity 31.75 mM. Polarity at the injection site: negative for anions (C4Da), positive for cations (C4Dc).
t_max assumes full voltage from t = 0 and should be compared with experimental t_m − 5 s (10 s linear ramp).