

Ultrahigh sensitivity capillary electrophoresis analysis of trace amounts of nitrate and nitrite in environmental water samples

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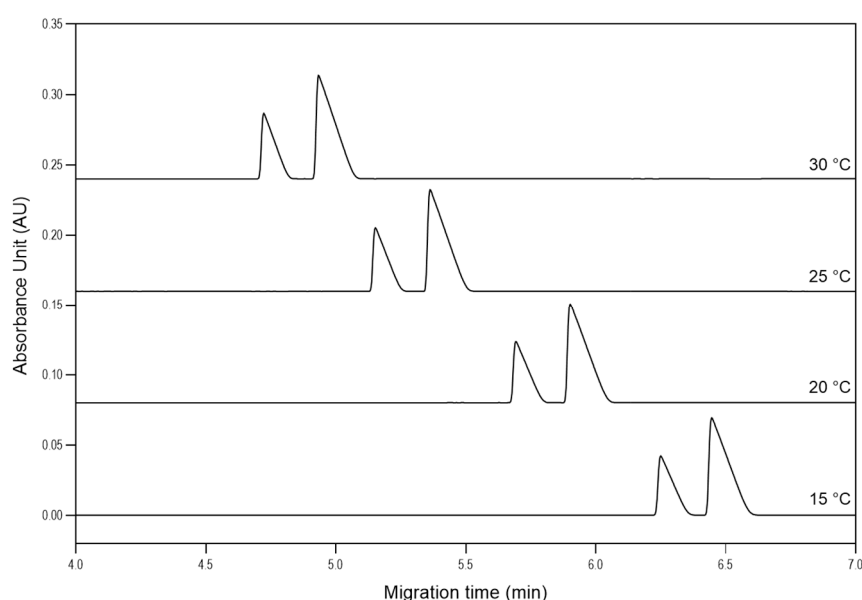


Figure S1. The effect of separation temperature on the peak resolution and migration time. Separation conditions: 50 μm I.D., 375 μm O.D., 60 cm total and 50 cm effective length BFS capillary; 75 mM TRIS-HCl BGE; hydrodynamic injection (8 psi / 8 seconds); 30 °C capillary temperature; 200 nm detection wavelength; -30 kV (reverse polarity, anode at the injection side) separation voltage with 1 minute ramp-up time.

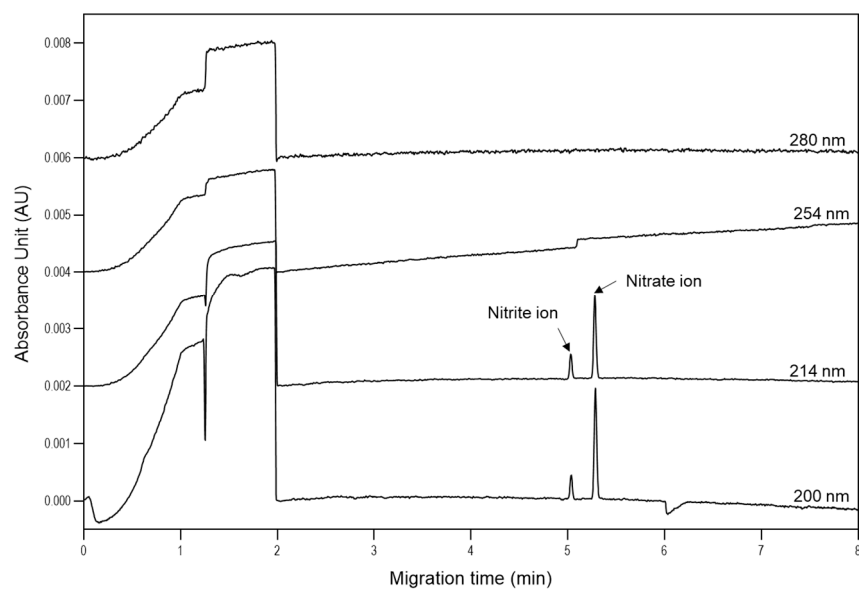


Figure S2. Detection of nitrite and nitrate at different wavelengths. Separation conditions: same as in S1.

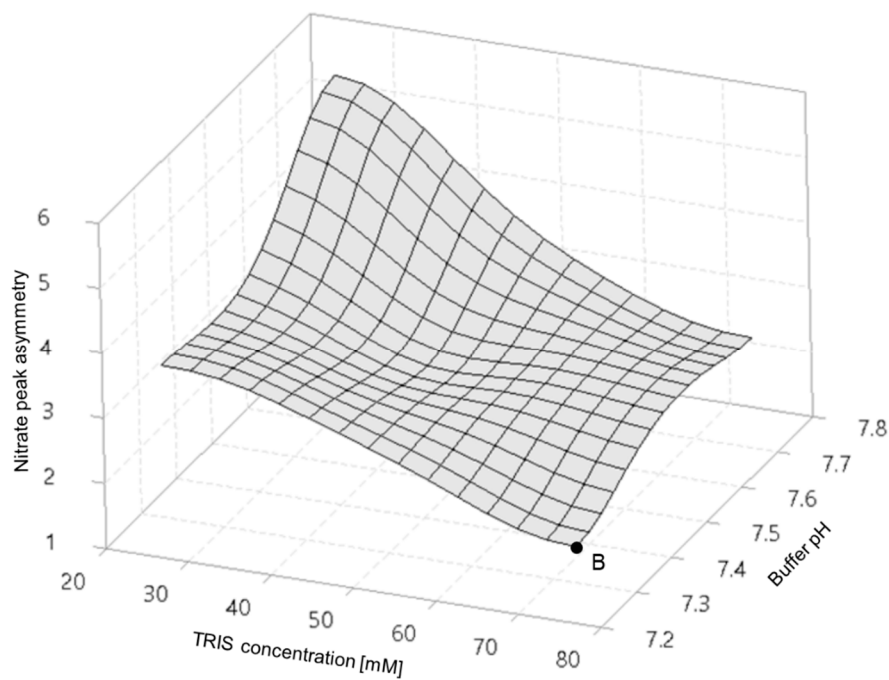


Figure S3. Nitrate peak asymmetry in the function of TRIS concentration and pH of the separation buffer. Point B denotes the parameter combination resulted in the most symmetric peak. Separation conditions: same as in S1 except noted else.

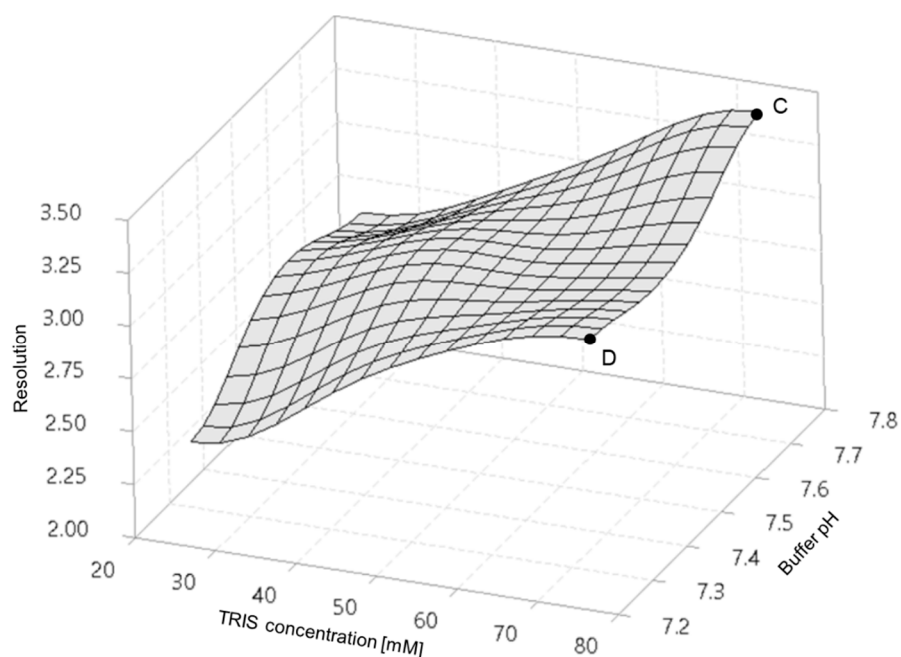


Figure S4. Nitrate and nitrite peak resolution in the function of TRIS concentration and pH of the separation buffer. Point C denotes the highest resolution, however, resolution of point D is also satisfactory. Considering the findings of Figure 1, S2 and S3, 75 mM TRIS-HCl BGE at pH = 7.25 was chosen. Separation conditions: same as in S1 except noted else.

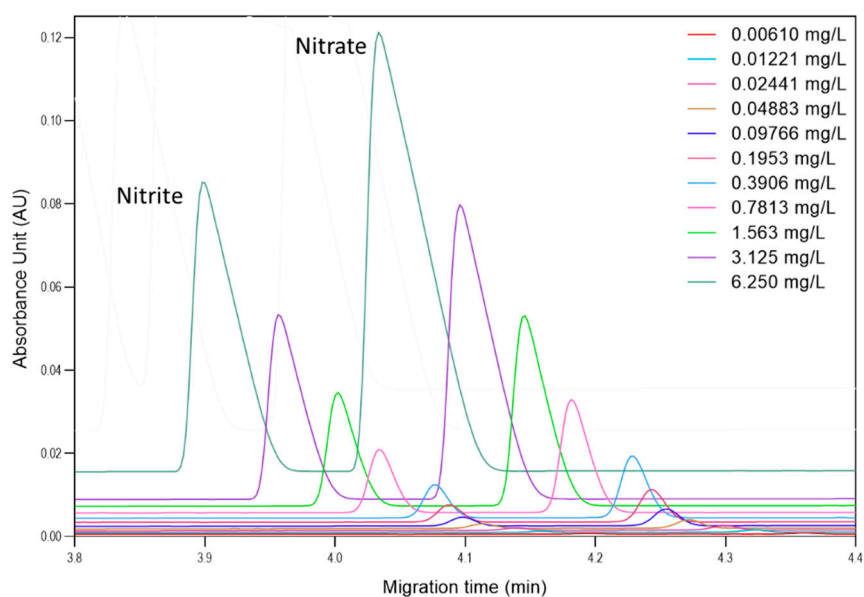


Figure S5. Separate nitrate and nitrite CE runs used for the setup of the calibration functions. Separation conditions: same as in S1 except noted else.

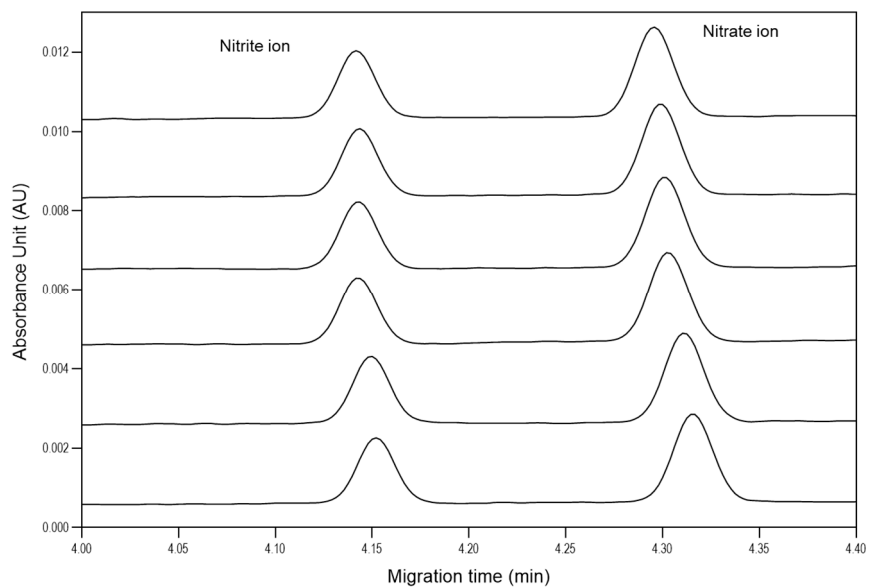


Figure S6. Electropherograms of the repeated separations for the reproducibility test. Separation conditions: identical as in SI.

Table SI. Statistical evaluation of the repeated ($n = 6$) separations for the reproducibility test.

Compound	Peak area						Mean	Variation	RSD%
NO_2^-	2439	2409	2364	2388	2423	2472	2416	38.408	1.58
NO_3^-	3244	3336	3352	3314	3280	3274	3300	41.01	1.24