

## Instrument and method used in previous electropherograms:

**CE:** P/ACE MDQ with EDA accessory to connect to ESI interface (Beckman Coulter, Fullerton CA, USA)

**MS:** LCQ ion Trap (IT) (Thermo Finnigan, San Jose, CA)

**Pre-run rinse:** 1 min at 20 psi with buffer

**Electrolyte:** 100mM formic acid + accelerator + 1mM TFA

**Capillary:** Simplus™ brand bare fused silica, 75um x 93.5cm

**CE Voltage:** 30kV (- to +), built up in 1 min ramp

**CE Current:** 25uA

**Make up flow:** 2ul/min, methanol/Water (80/20 v/v) with 0.5% formic acid, daily degassed in an ultrasonic bath, provided by a syringe pump installed on the mass spectrometer.

**ESI needle voltage:** 5 kV (0 kV during injection and voltage build up)

**ESI spray current:** 19uA

**Sheath Gas:** 20 units, auxiliary gas: 0 units

**Scan Range:** 100-400 amu

Position CE-capillary outlet: equal to ESI needle

Test-mix was composed of Amphetamine, Ephedrine, Codeine, Salbutamol and Trazodone each at 2ug/ml.

## 5. References:

- [1] G. Vanhoenacker et al. J. Chromatogr. B799 (2004) 323-330
- [2] G. Vanhoenacker et al. Journal of Pharmaceutical and Biomedical analysis 34 (2004) 595-606.



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# Operating Instruction Manual

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# CElixirMS™

Kits for use with CE and Mass Spec

## Instructions for use.

### 1. Intended Use and Background:

This kit consists of a polycation and a polyanion solution that can be used for the preparation of volatile buffers for CE-MS. The polycation and polyanion will dynamically coat the inner surface of the capillary wall and produce a fast and consistent EOF (electro-osmotic flow). Patent 5,611,903

### 2. Contents:

CElixir-MS Initiator: 1.5ml of polycation in formic acid (100mM) as a ready to use reagent.

CElixir-MS Accelerator: 4ml of concentrated polyanion solution in water.

*Not included in this kit: separation buffers, bi-distilled water, NaOH 0.1M, capillary, vials and caps.*

### 3. Operating Instructions:

*This Operating Manual is written for the Beckman P/ACE MDQ—other instruments can be programmed differently.*

**3.1 Capillary for use:** Simplus™ or other brand, bare fused silica, 75µm x 80cm or suitable lengths for CE-MS

**3.2 Instrument:** CE-MS with external adaptor and MS Instrument with ESI Source.

**3.3 Separation Solution:** Prepare a suitable volatile electrolyte or buffer for CE-MS. To 24ml of this buffer, add 1ml of CElixir-MS Accelerator Solution. Also, prepare a suitable make-up solution.

**3.4 Initialize Capillary:** When using a new capillary, initialize it (when connected to the MS with an open ESI interface):

- Rinse the capillary with NaOH 0.1M for 1 minute at 20psi
- Rinse the capillary with CElixir-MS Initiator solution for 1 minute at 20 psi.

- Rinse the capillary with the separation solution for 2 minutes at 20 psi.
- Rinse the capillary with NaOH for 1 minute at 20 psi.
- Rinse the capillary with CElixir-MS Initiator solution for 1 minute at 20 psi.

*EOF should remain stable for approximately 20 runs.*

### 3.5 Separation:

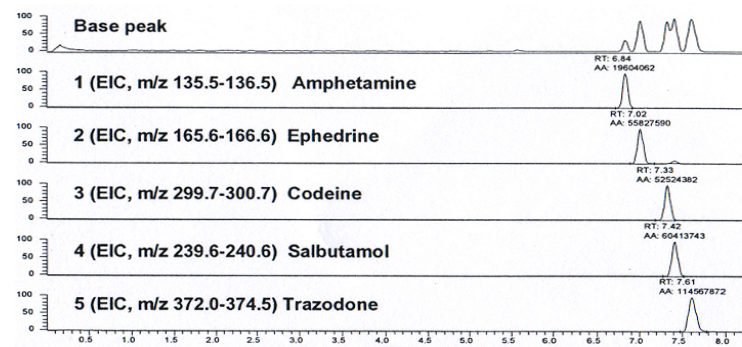
*Close the ESI interface and run the following separation program:*

- Rinse the capillary with the separation solution for 1 minute at 20 psi.
- Inject the sample, for example; 10 seconds at 0.5psi
- Separate at 25kV or 30kV with 1 minute ramping time for 15 to 20 minutes.
- Rinse the capillary with the separation solution for 1 minute at 20 psi.

*Note: during injection and current ramping time,*

- Put the ESI needle voltage to 0kV
- Use a separate vial for rinsing the capillary with the separation solution and f for the separation solution
- The dynamic coating will remain stable for about 20 runs. Coating can be applied again by re-initializing the capillary: See 3.4

### 4. Example E-grams:



**Figure.** CEMS analysis of a standard mixture of 5 basic drugs (2µg/ml each) with 100mM formic acid + CElixir-MS accelerator + 1mM TFA solution. Capillary 75µm ID x 93.5 cm L tot. CE Current: 25µmA, injection 5s at 2 psi spray current: 19µA, N2 gas flow: sheath 20 units/auxiliary 0 units [1].