



# NEW !!!

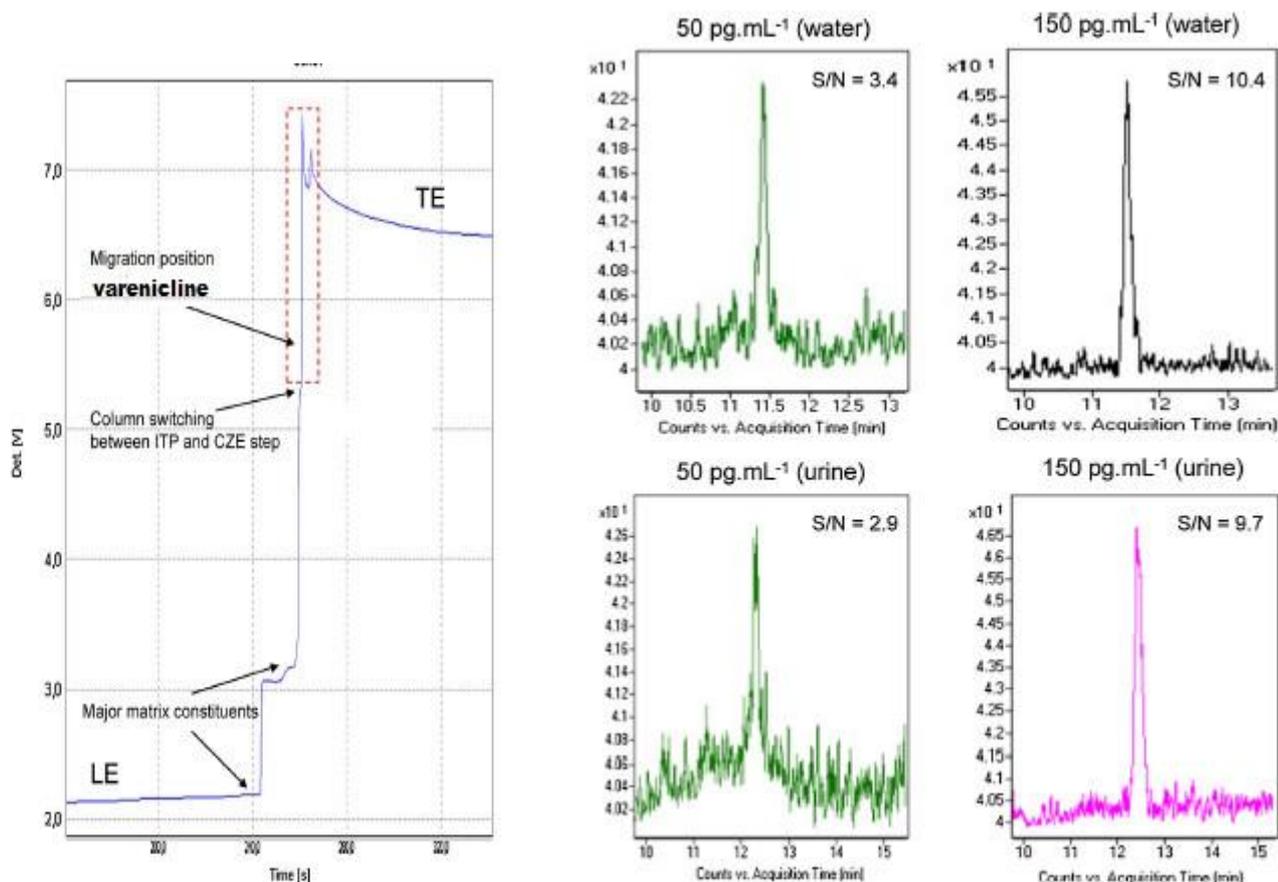
ITP – CZE - MS

## APPLICATION NOTE No. 37

### ITP-CZE-MS: LOD less than 0,1 ppb in human liquides: Vareniclin in human urine

#### MAIN FEATURES:

On-line combination of ITP-CZE-MS enable to analyse compounds in very complex mixtures as human liquides with LOD less than 0,1ppb. Patent pending ( lit.1) design of 2 column Electrophoretic Analyser EA 102 provides sampling large volume of sample ( even several tenths of microliters). The sample is in the first step ( in the first column) separated by ITP where trace constituents are concentrated into very short zones ( even 10 000x) and major constituents are removed from the separation process. In the second step only a part of the concentrated constituents are separated by CZE . On the end of the second column conductivity and UV/DAD detector are situated and after them special block enable to pump all zones into ESI- MS.



**Fig.1:** Left : Record of ITP analysis of human urine. Only dotted part were introduced into the CZE step (into second s column) .

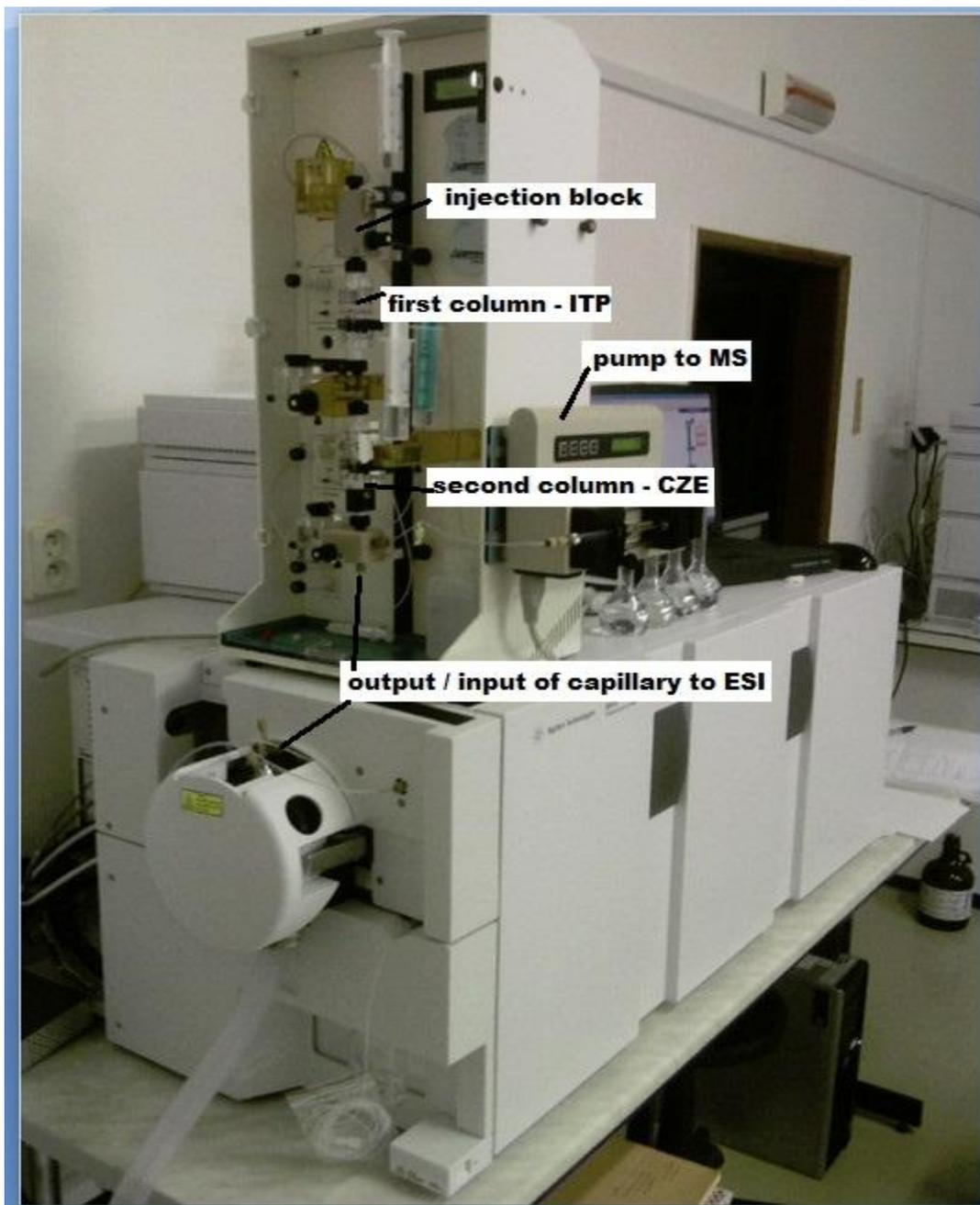
Right: LOD and LOQ of vareniclin in urine. The same amount of vareniclin were added to the water and urine to show that effect of matrix is negligible.

V = 10 ul 100 x diluted urine, no sample pretreatment

Conditions: ITP stage: Leading electrolyte (LE):10 mM NH<sub>4</sub>acetate + 20 mM acetic acid  
Terminating electrolyte (TE) : 10 mM acetic acid

CZE stage: 10 mM acetic acid

More about conditions see lit.2



**Fig.2.:** Electrophoretic Analyser EA 102 connected to ESI-MS Agilent 6410.

Literature:

1. Foret F., Tomas R., Koval M., Czech patent 304 777.
2. Piestansky J, Marakova K., Veizerova L., Galba J., Mikuš J., *Analytica Chimica Acta*, 826 (2014) 84-93.

**CZE and ITP instruments are produced by:**  
**Villa Labeco s.r.o., Chrapčiakova 1, 052 01 Spišská Nová Ves, Slovakia**  
**[www.villalabeco.sk](http://www.villalabeco.sk)**

