

Analysis of drugs in complex matrices by on-line sample pretreatment coupled with LC



Sena CAGLAR ANDAC
Istanbul University, TURKEY

Abstract

Biological matrices consisting of high molecular weight matrices i.e. endogenous substances, metabolites, proteins, blood cells and coexisting drugs are often difficult to handle for chromatographic analysis. To purify and enrich the target analytes and drugs in this complex matrices an effective sample pretreatment step is essential. Biological sample pretreatment has always been a forgotten part of the biopharmaceutical analysis. Among the sample pretreatment techniques traditional off-line sample processing like liquid-liquid extraction, protein precipitation and solid phase extraction are gradually becoming a limiting bottleneck in the chromatographic analysis. As an on-line and fully automated technique, coupling SPE column with HPLC so called on-line SPE-LC, leads to complete automation improving the analytical quality due to enhanced reproducibility, elimination of human errors and the possibility of multiple step elutions for clean-up of complex samples, reducing the cost and analysis time required (1–5).

In this presentation, importance of sample pretreatment in chromatography, requirements of coupling SPE to LC, chromatographic method development steps and achievement of complete depletion of matrix components will be discussed. Some applications of this technique to drug determination in complex bio-fluids will be presented in consideration of current publications. Also, different applications for LC systems equipped with MS/MS and UV detectors and examples of two and multidimensional separations will be shown, obtained results will be presented.

BioSeparation. She is now working as Associate Professor at Istanbul University, Faculty of Pharmacy. She has researches published in liquid chromatography mass spectrometry for biological fluid analysis of drugs, on-line solid phase extraction coupled liquid chromatography, determination of drugs and degradation studies by high performance liquid chromatography, spectrophotometry, spectrofluorimetry.

Speaker Publications:

1. Shinozuka, T., Terada, M., Tanaka, E.; Solid-phase extraction and analysis of 20 antidepressant drugs in human plasma by LC/MS with SSI method; Forensic Science International, (2006); 162: 108–112.
2. Castro, A., Fernandez, M.M.R., Laloup, M., Samyn, N., Boeck, G., Wood, M.; High-throughput on-line solid-phase extraction-liquid chromatography-tandem mass spectrometry method for the simultaneous analysis of 14 antidepressants and their metabolites in plasma; Journal of Chromatography A , (2007); 1160: 3–12.
3. Peng, J., Fang, T., et al., New techniques of on-line biological sample processing and their application in the field of biopharmaceutical analysis, Acta Pharmaceutica Sinica B, (2016); 6 :540-551.
4. Andac SC, Determination of Drugs by Online Column-Switching Liquid Chromatography Journal of Chromatographic Science, 2016, 54, 9 :1641–1647
5. Caglar S, Morello R, Boos K-S (2015) Development and validation of an on-line multidimensional SPE-LC–MS/MS method for the quantitation of Tetrandrine in blood samples, Journal of Chromatography B, 988: 25–32

[10th World Congress on Chromatography](#); April 16-17, 2020 -Webinar

Abstract Citation:

Sena CAGLAR ANDAC, Analysis of drugs in complex matrices by on-line sample pretreatment coupled with LC, Chromatography 2020, 10th World Congress on Chromatography; April 16-17,2020- Webinar

<https://chromatography.conferenceseries.com/abstract/2020/analysis-of-drugs-in-complex-matrices-by-on-line-sample-pretreatment-coupled-with-lc>)



Biography:

Sena CAGLAR ANDAC has completed her PhD at the age of 29 years from Istanbul University and postdoctoral studies from Medical Center of Munich University, Laboratory of