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Compounds**

*Book of abstracts*



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## Session 2: *Method development*

Chairpersons: Prof. Gertrude Morlock and Prof. Teresa Kowalska

12:00 - 12:30 D. Obradović, S. Oljačić, K. Nikolić, D. Agbaba,  
*Investigation and prediction of retention characteristics for the selected set of the central nervous system active compounds on the mixed mode diol stationary phase*

12:30 - 13:00 M. Waksmundzka-Hajnos, A. Petruczynik, K. Wróblewski,  
*Selected problems in determination of basic drugs in biological fluids by HPLC*

13:00 - 13:30 P.P. Wieczorek,  
*Solid phase extraction and supported liquid membranes as useful sample preparation methods*

13:30 - 14:00 A. Poliwoda,  
*Capillary electrophoresis: is it better analytical technique than liquid chromatography?*

## Investigation and prediction of retention characteristics of selected set of central nervous system active compounds on mixed-mode diol stationary phase

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### Abstract

Investigation of the retention behavior of a wide range of analytes (43 nitrogen containing heterocyclic and guanidine derivatives such, as imidazoline and serotonin receptor ligands, or their related compounds) was performed on the mixed-mode stationary phase in the combined reversed-phase (RP) and hydrophilic interaction liquid chromatography (HILIC) modes. The imidazoline receptor ligands are the imidazoline or guanidine analogues with numerous therapeutic applications (such, as antihypertensives, diuretics, antiallergenics, antidiabetics, and antipsychotics), while the serotonin receptor ligands are the piperazine derivatives which exert an effect on positive and negative symptoms of schizophrenia, mania and mixed states of bipolar disorder.

On the mixed-mode stationary phase, the retention behaviour of investigated compounds was described as a function of the aqueous eluent volume fractions,  $\varphi(aq)$ , and total polarity of mobile phase ( $P_{tot}$ ). The turning point was discussed based on different mobile phase characteristics representing the shift between the HILIC and the RP chromatographic mode. The influence of molecular properties on the main retention characteristics (turning point and the extrapolated retention parameters) is going to be discussed.

### References

- [1] P. Jandera, T. Hajek, Mobile phase effects on the retention on polar columns with special attention to the dual hydrophilic interaction-reversed-phase liquid chromatography mechanism, *J. Sep. Sci.* 41 (2017) 145-162
- [2] D. Obradović, S. Oljačić, K. Nikolić, D. Agbaba, Investigation and prediction of retention characteristics of imidazoline and serotonin receptor ligands and their related compounds on mixed-mode stationary phase, *J. Chromatogr. A*, 1585 (2019) 92-104