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## **Comparison of three modes of fluorescence spectrometry to determine the enantiomeric composition of fluoxetine in tablets by multivariate calibration methods**

**Roman Polacek and Pavel Majek**  
Slovak University of Technology, Slovakia

Fluoxetine is a selective serotonin reuptake inhibitor in presynaptic neurons. It proves that stereospecific antidepressant drugs could have very high therapeutic and commercial potential. It is used to treat mental depression, obsessive compulsive disorder, premenstrual dysphoric disorder and nervous bulimia. The enantiomeric composition identification of biologically active chiral compound poses special challenges to scientist in the areas of environmental and pharmaceutical research. The new strategies of the enantiomers resolution include chiral analysis by non chiro-optical methods, such as molecular spectroscopy with chemometric evaluation of data. The rapidity and simplicity of these methods is appealing and reduces the analytical time and the cost of chiral analysis because there is no need of expensive chiral columns and large amount of solvents. The three modes of fluorescence spectrometry, emission, excitation and synchronous, were performed to obtain the data for determination of the enantiomeric composition of the fluoxetine in tablets. Multivariate calibration methods, namely principal component regression (PCR) and partial least square (PLS) were used to evaluation of the data and comparison of the fluorimetric modes. Chiral recognition of fluoxetine enantiomers in the presence of  $\hat{I}^2$ -CD was based on diastereomeric complexes. The smallest residuals between reference results and predicted values were achieved by PLS model constructed from synchronous fluorescence data. This conclusion is supported by calculated values of figure of merit.

### **Biography**

Roman Polacek graduated at Slovak University of Technology in June 2012 with a Master of Science degree in Analytical chemistry. He began post-gradual study at Institute of Analytical Chemistry with topic Chiral analysis by spectroscopic methods with multivariate calibration. He has great experience in the development and application of various spectroscopy techniques and multivariate calibration methods to determine enantiomeric composition of drug in pharmaceutical and biological samples. He has published five research papers in international journals.

[roman.polacek@stuba.sk](mailto:roman.polacek@stuba.sk)

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