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Erdal Dinç, Zehra Ceren Ertekin, Eda Büker

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MULTIWAY ANALYSIS METHODS APPLIED TO THE FLUORESCENCE EXCITATION-EMISSION DATASET FOR THE SIMULTANEOUS QUANTIFICATION OF VALSARTAN AND AMLODIPINE IN TABLETS

Erdal Dinç*, Zehra Ceren Ertekin, Eda Büker

Ankara University, Faculty of Pharmacy, Department of Analytical Chemistry,

06100 Tandoğan, Ankara, Turkey

ABSTRACT

In this study, excitation-emission matrix datasets, which have strong overlapping bands, were processed by using four different chemometric calibration algorithms consisting of parallel factor analysis, Tucker3, three-way partial least squares and unfolded partial least squares for the simultaneous quantitative estimation of valsartan and amlodipine besylate in tablets. In analyses, preliminary separation step was not used before the application of parallel factor analysis Tucker3, three-way partial least squares and unfolded partial least squares approaches for the analysis of the related drug substances in samples. Three-way excitation-emission matrix data array was obtained by concatenating excitation-emission matrices of the calibration set, validation set, and commercial tablet samples. The excitation-emission matrix data array was used to get parallel factor analysis, Tucker3, three-way partial least squares and unfolded partial least squares calibrations and to predict the amounts of valsartan and amlodipine besylate in samples. For all the methods, calibration and prediction of valsartan and amlodipine besylate were performed in the working concentration ranges of 0.25-4.50 μg/mL. The validity and the performance of all the proposed methods were checked by using the validation parameters. From