Quantitative determination of captopril and prednisolone in tablets by FT-Raman spectroscopy.

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Streszczenie

A procedure for the quantitative determination of captopril and prednisolone in commercial tablets based on partial least squares (PLS) and principal component regression (PCR) treatment of FT-Raman spectroscopic data is described. In the studied medicines active pharmaceutical ingredients (APIs) constitute 4.2-16.7% of the tablet mass. Results obtained from calibration models built using unnormalised spectra were compared with the values found when an internal standard was added to each sample and the spectra were normalised by its selected band intensity at maximum or integrated. To appraise the quality of the models the relative standard error of predictions (RSEPs) were calculated for calibration and testing data sets. For captopril determination these were 1.8-2.2% (2.1-2.3%) and 2.7-3.1% (2.7-3.6%), respectively for the different PLS (PCR) models. For prednisolone these errors amounted to 1.8-2.1% (2.6-3.5%) and 3.2-3.7% (3.7-5.9%), respectively. Three commercial preparations of captopril containing 12.5mg and one 25mg of API per tablet were quantified using developed models. Found captopril contents, calculated versus results of iodometric titration, was equal 99.2-101.2% (99.2-102.0%), for the different PLS (PCR) calibration models and the different preparations. Quantification of prednisolone tablets, declared content 5mg per tablet, on the basis of PLS (PCR) models gave API amount, calculated versus results of UV-vis method, in the 99.0-101.0% (98.0-102.0%) range.

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