

Quantification of active ingredients in suppositories by FT-Raman spectroscopy.

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Streszczenie

An efficient method for the quantitative determination of acetaminophen (AAP) and diclofenac sodium (DS) in commercial suppositories based on partial least squares (PLS) treatment of FT-Raman spectra is described. The relative standard errors of prediction (RSEP) were calculated for calibration and validation data sets to evaluate the quality of the constructed models. In the case of DS determination, RSEP error values of 1.9 % and 2.3 % for the calibration and validation data sets, respectively, were found. For AAP these errors amounted to 1.6-2.3 % and 1.8-2.8 %, respectively, for the different calibration models. Four commercial preparations containing 5, 12.5, 16.7 and 33.3 % (w/w) AAP and one containing 5 % (w/w) DS were successfully quantified using the developed models. Concentrations derived from the developed models correlated strongly with the declared values and yielded recoveries of 99.4-100.2 % and 99.6 % for AAP and DS, respectively. The proposed procedure can be used as a fast, economic and reliable method for quantification of the active pharmaceutical ingredients in suppositories.

Słowa kluczowe

paracetamol, diclofenac sodium, suppository, Raman spectroscopy, partial least squares, quantitative analysis

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