Quantitative analysis of topical gels and ointments by FT-Raman spectroscopy.

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A method for quantitative determination of ibuprofen (IBU), naproxen (NAP), methyl salicylate (MES) and menthol (MNT) in commercial topical gels and ointments using partial least squares (PLS) models based on FT-Raman spectra is described. The calculated relative standard errors of prediction (RSEP) were found to be in the range of 2.1–3.2% for the calibration and validation data sets. Two commercial topical gels containing 5.0% of IBU and 10% of NAP (w/w), as well as one ointment containing 15% of MES and 10% of MNT (w/w) as active pharmaceutical ingredients (APIs), were successfully quantified using the developed models with recoveries in the 99.2–101.5% range. The proposed procedure can be used as a fast, reliable and economic method for the quantification of APIs in topical gels and ointments.

Słowa kluczowe

Topical gel, Ointment, Raman spectroscopy, quantitative analysis, multivariate calibration

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