Trade-off efficacy and data processing strategy in the power of spectral resolution of co-formulated antihypertensive pharmaceuticals

J c{c o "Nqvh{". Ognvg o ¨/vÃtm." I k/g o Vktku." PgxkpGtm." Uctc j "U0Ucngj.

Abstract

Versatile, extraction-free univariate spectrophotometric methods have been modified to get effective spectral resolution of mixtures in accordance with their feature challenges. The proposed methods have been applied and validated for analyzing some antihypertensive medicines in their co-formulated medicinal products. Two mixtures have been used: the first one [Mix I (OLM/ADB)] is composed of Olmesartan medoxomil (OLM) and Amlodipine besylate (ADB) with partly-overlapped spectra while the second [Mix II (TEL/HCT)] is made up Telmisartan (TEL) and Hydrochlorothiazide (HCT) with total-overlapped spectra. Induced dual wavelength, absorbance correction and ratio subtraction coupled with constant multiplication methods were applied to Mix I (OLM/ADB), while dual wavelength, advanced absorbance subtraction and constant center coupled with spectrum subtraction methods were applied to Mix II (TEL/HCT). Calibration graphs were established with good correlation coefficients. The methods exhibit significant advantages as simplicity, sensitivity, minimal data manipulation besides optimum robustness. Selectivity was inspected using lab-mixtures with diverse ratios. Accuracy, precision and repeatability were found to be within the acceptable limits. The proposed methods are good enough to be used for co-assay of analytes in combined forms without any interfering from excipients. Moreover, all results were estimated in accordance with ICH criteria and successfully compared with those of the reported methods applying t-test and F-test at 95% confidence level. Generally, these methods can be used efficiently for routine quality control testing.