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Spectrophotometric methods for simultaneous determination of rivaroxaban and clopidogrel in their binary mixture**M Sharaf El-Din, F Ibrahim, Sh Shalan and Heba Abd El-Aziz**
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Three rapid, accurate and very simple derivative spectrophotometric methods for RIV and CLP assay in their binary mixture and tablet dosage forms were developed. Method (I) is first derivative spectrophotometric method, derivative amplitudes were measured at the zero crossing wavelength of 289 and 249.5 nm for determination of RIV and CLP, respectively. The calibration curve is rectilinear over the range 2.0-20.0 µg/ml for RIV and 5.0-60.0 µg/ml for CLP with LOD of 0.211 and 0.361 µg mL⁻¹ and LOQ of 0.641 and 1.095 µg mL⁻¹ for RIV and CLP, respectively. Method (II) is ratio derivative spectrophotometric method. The ratio spectra of each drug were derived by dividing its spectra on a constant concentration of the other drug as a divisor. Derivative amplitudes were measured at 256 nm for RIV and at 214.5 nm for CLP over the same concentration range as the first method with LOD of 0.137 and 0.485 µg mL⁻¹ and LOQ of 0.417 and 1.471 µg mL⁻¹ for RIV and CLP, respectively. Method (III) is absorbance ratio method, absorbance of both drugs were recorded at two wavelengths λ_1 (232) iso-absorptive point and λ_2 (249) λ_{\max} of RIV. The final concentrations were obtained by applying the Q equations. The method was linear over the same concentration range as the first method with LOD of 0.272 and 0.485 µg mL⁻¹ and LOQ of 0.826 and 1.471 µg mL⁻¹ for RIV and CLP, respectively. The proposed methods were validated as per International Conference of Harmonization guidelines. The proposed methods were successfully applied to both drugs analysis in their laboratory prepared co-formulated tablet. Statistical comparison of the results with those of the reference method illustrate good agreement and confirm that there were no significant difference in the accuracy and precision between the proposed and reference one respectively.

Biography

Professor Dr Mohie Sharaf El Din has completed his PhD at the age of 32 years from Bonn -University – Germany 1982 and post-doctoral studies from Graz Institute of pharmaceutical chemistry and biochemistry 1986 - Austria. He was the Dean of Faculty of Pharmacy – Heliopolis University – Cairo-Egypt 2015, Head of Analytical chemistry Department, Faculty of Pharmacy, and Mansoura University – Mansoura – Egypt 1997 -2004. He has published more than 100 papers in reputed journals and has been serving as an editorial board member of repute. (as an editorial board member of Mansoura Journal of pharmaceutical Science, Faculty of Pharmacy - Mansoura – Egypt, as the chair/co-chair for the session of many conferences and workshops).

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