Stability-Indicating Methods for the Determination of Gemifloxacin in Presence of Its Acid Degradation Product

Amr Mohamed Badawy ,Ezzat M. Abdel-Moety, Amr M. Badawey, Hebatallah M. Essam and Fatma M. Aboul Alamine

Professor of Analytical Chemistry

Abstract

Brilliant, valid and simple five UV spectrophotometric stability indicating techniques are adopted for the determination of Gemifloxacin (GEM) in presence of its acid degradation products over a concentration range of 2-12 μg mL-1. The first method is an application of the first derivative (1D) spectrophotometry, that allows the determination of GEM without interference of its acid degradation products at zero crossing wavelength (254.6 nm). The second method depends on the first-derivative of the ratio spectra spectrophotometry (1DD) for determination of GEM in presence of its acid degradation products at a maximum of 273.0 nm and a minimum of 284.0 nm, While the third dual wavelength method offers a superior stability indicating procedures for the determination of GEM in the zero order spectra at the wavelength pair of 271.8 nm and 325.0 nm. The fourth method is the ratio difference one, with the advantages of minimal data processing and wide range of application. It is applied for the analysis of intact drug in presence of its acid degradation products by measuring the difference in the peak amplitude at the ratio spectra at 355.0 nm and 270.0 nm. The last method is based on the quantification of GEM through the bivariate calibration at 255.0 nm and 277.0 nm by adopting simple mathematic algorithm that provides simplicity and rapidity.

International Journal of Drug Development and - 2015, October