

Stability Indicating Spectrophotometric Methods for Determination of Tazarotene in the Presence of its Alkaline Degradation Product by Derivative Spectrophotometric Techniques

Amr Mohamed Badawy, Amr M. Badawey, Abd EL-Aziz B. Abd El-Alim and Ahmed S. Saad

Professor of Analytical Chemistry

Abstract

The stability of tazarotene (TZ) was investigated and two stability-indicating methods—namely, first derivative and a derivative ratio spectrophotometric method—were used to determine tazarotene in the presence of its alkaline degradation product (HD) using methanol as a solvent. A linear relationship was obtained in the range 1–10 $\mu\text{g ml}^{-1}$ for both methods. By applying the proposed methods, it was possible to determine tazarotene in its pure powdered form with accuracy 99.35 ± 1.410 ($n = 10$) for the first derivative method and 99.45 ± 1.053 ($n = 10$) for the derivative ratio method. First derivative and derivative ratio methods were used for the analysis of laboratory-prepared mixtures containing different ratios of tazarotene and its degradation product and they were valid in the presence of up to 70% and 80% degradation product, respectively. The proposed methods were validated and found to be suitable as stability-indicating assay methods for tazarotene in pharmaceutical formulations. Copyright © 2010 John Wiley & Sons, Ltd

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