

# Stability – Indicating Chemometric Methods for the Determination of Tazarotene

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## **Abstract**

Two multivariate calibration methods—principal component regression (PCR) and partial least square (PLS)—have been used to determine tazarotene in the presence of its degradation products. Both methods are useful in spectral analysis because of the simultaneous inclusion of many spectral wavelengths instead of the single wavelength used in derivative spectrophotometry. A great improvement in the precision and predictive abilities of these multivariate calibrations was observed. A calibration set was constructed for the mixture and the best model was used to predict the concentration of the selected drug. The proposed methods were applied successfully in the determination of tazarotene in laboratory-prepared mixtures and in commercial preparations. Tazarotene was analyzed with mean accuracies of  $100.006 \pm 0.695$  and  $100.007 \pm 0.690$  using the PCR and PLS methods, respectively. The validity of the proposed methods was assessed using the standard addition technique. The proposed methods were found to be rapid, simple and required no preliminary separation. They can therefore be used for the routine analysis of tazarotene in quality-control laboratories. Copyright © 2010 John Wiley & Sons, Ltd

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