

# Induced mathematical filtration as an innovative strategy for discrimination and estimation of glycemic control drugs in fixed dose combination

*Hayam Lotfy ,Ekram H.Mohamed*

## Abstract

An innovative strategy was developed for the estimation of a fixed dose combination containing Alogliptin (ALO) and pioglitazone (PIO) using induced concept for resolving the overlapped spectra, lacking isoabsorptive point. This strategy is based on coupling factors as numerical values or ratios as spectrum form with the recorded signals leading to induced mathematical filtration of the drug of interest and complete elimination of the interfering one in the combination without prior physical separation. The calculated factors were factor of equality in induced dual wavelength (IDW) or absorptivity factor in induced concentration subtraction method (ICS) while absorptivity ratio spectrum for induced amplitude modulation method (IAM). The calibration curves displayed linearity within 1.0-16.0" g/mL for ALO and 2.0-22.0" g/mL for PIO with good correlation coefficients. The induced methods specificity was also assured through the assaying different synthetic mixtures prepared to contain the two drugs in ratios approaching the ratio actually found in the marketed dosage form. The methods were applicable and suitable for estimating ALO and PIO in both bulk form and their fixed dose combination. Induced methods have been extensively validated in accordance with ICH guidelines and results demonstrated the accuracy and reproducibility in comparison to the reported method.

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