
**Development and Validation of Analytical Method for
Simultaneous Estimation of Alprazolam and Imipramine HCl in
bulk and in tablet Dosage Form**

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ABSTRACT

The present research work aims to develop a simple, sensitive, accurate and reproducible method for the simultaneous estimation of Alprazolam and Imipramine HCl by two different spectroscopic methods viz, Simultaneous equation Method (Method-A) and Q-Absorption method (Method-B). Absorbance maxima for Alprazolam and Imipramine HCl were found to be at 221 nm and 251 nm respectively for method-A, and Iso-absorptive point for both drugs was found to be 232 nm for method-B by using Methanol as a solvent. Absorption maxima of Imipramine HCl at 251 nm, was taken as second wavelength for determination by method-B. Linearity for both the methods were observed in concentration range of 1-5 μ g/ml and 5-30 μ g/ml for Alprazolam and Imipramine HCl respectively. The correlation coefficients for both the methods obtained were nearer to 0.998. The accuracy of both methods was evaluated by

recovery studies and recovery results were obtained from 98 % to 102%. Proposed methods can estimate Alprazolam and Imipramine HCl simultaneously in combined dosage form. A simple RP-HPLC method was also been developed and subsequently validated for simultaneous determination of Alprazolam and Imipramine HCl in combination. The separation was carried out using a mobile phase consisting of acetonitrile and water, pH adjusted to 4.0 with O- phosphoric acid in the ratio of 70 : 30 (%v/v).The column was used enable C18, (250x 4.6 mm, 5 μ m i.d.) with flow rate of 1.0ml/min using UV detection at 232nm. The described method was linear over the range of 4-9 μ g/ml and 400-900 μ g/ml for Alprazolam & Imipramine HCl respectively. The retention time of Alprazolam & Imipramine HCl were found to be 2.347 and 3.936 min respectively. Both the methods show percentage recovery between 98-102%. The method was found to be rapid, specific, precise and accurate and can be applied for routine analysis of Alprazolam and Imipramine HCl in tablet dosage form.

Key words: Alprazolam, Imipramine HCl, Simultaneous equation method, Q-absorption method