Spectrophotometric Determination of Chlorpheniramine Maleate Via Redox Reaction Using Iron (III) 0-Phenanthroline with a Comparative Kinetic Study

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Abstract

This paper describes three sensitive, accurate and precise chemometric spectrophotometric methods for the simultaneous determination of chlorpheniramine maleate (CPM) and etilefrine hydrochloride (ETF) in bulk powder and capsules without prior separation. Multivariate calibration chemometric methods are proposed for simultaneous determination of CPM and ETF. The chemometric methods applied are classical least squares (CLS), principal component regression (PCR) and partial least squares (PLS). These approaches are successfully applied to quantify both drugs using the information included in the absorption spectra of appropriate solutions. In these multivariate methods, calibration sets of standard samples composed of different mixtures of CPM and ETF have been designed. The methods were validated according to the International Conference on Harmonization (ICH) guidelines. The specificity of the proposed methods was tested using laboratory-prepared mixtures. The developed methods were successfully applied for the determination of CPM and ETF in bulk powder and dosage form combination.

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