

# Application of three novel spectrophotometric methods manipulating ratio spectra for resolving a pharmaceutical mixture of Chlorphenoxamine hydrochloride and Caffeine

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## Abstract

Three spectrophotometric methods are presented for the determination of a binary mixture of Chlorphenoxaminehydrochloride (CPX) and Caffeine (CAF) in laboratory prepared mixture and pharmaceutical dosage form without prior separation. Method (I) is an extended ratio subtraction method (EXRSM) coupled with ratio subtraction method (RSM), which depends on subtraction of the plateau values from the ratio spectrum. Method (II) is a ratio difference spectrophotometric method (RDSM), which depends on the difference in value between two different wavelengths of the ratio spectrum. Method (III) is a mean centering of ratio spectra (MCR). Mathematical explanation of the three methods is illustrated. Calibration curves of the three methods are linear over the concentration ranges of 4-24 gml-1 and 2-24 gml-1 for CPX and CAF, respectively. The three methods proved to be simple, specific, accurate and precise. Solvent used is double distilled water. The three methods are validated as per the ICH guidelines where accuracy, precision, repeatability and robustness are found to be within the acceptable limits.

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