A Comparative Study of the Novel Ratio Difference Method versus Conventional Spectrophotometric Techniques for the Analysis of Binary Mixture with Overlapped Spectra

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Abstract

The smart novel ratio difference spectrophotometric method was developed and validated for the determination of a binary mixture of Sodium cromoglicate (SCG) and Fluorometholone (FLU) in presence of benzalkonium chloride without prior separation. The results were compared to that of the conventional methods (dual wavelength and first derivative of ratio spectra). The suggested methods were validated in compliance with the ICH guidelines and were successfully applied for determination of SCG and FLU in their laboratory prepared mixtures and commercial ophthalmic solution. The novel method showed significant advantages over the conventional methods regarding simplicity, minimal data manipulation and maximum reproducibility and robustness; which enabled the analysis of binary mixtures with overlapped spectra for routine quality control testing with quite satisfactory results.

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