Evaluation of graphical and statistical representation of analytical signals of spectrophotometric methods.

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Abstract

Simultaneous determination of miconazole (MIC), mometasone furaoate (MF), and gentamicin (GEN) in their pharmaceutical combination. Gentamicin determination is based on derivatization with of o-phthalaldehyde reagent (OPA) without any interference of other cited drugs, while the spectra of MIC and MF are resolved using both successive and progressive resolution techniques. The first derivative spectrum of MF is measured using constant multiplication or spectrum subtraction, while its recovered zero order spectrum is obtained using derivative transformation. Beside the application of constant value method. Zero order spectrum of MIC is obtained by derivative transformation after getting its first derivative spectrum by derivative subtraction method. The novel method namely, differential amplitude modulation is used to get the concentration of MF and MIC, while the novel graphical method namely, concentration value is used to get the concentration of MIC, MF, and GEN. Accuracy and precision testing of the developed methods show good results. Specificity of the methods is ensured and is successfully applied for the analysis of pharmaceutical formulation of the three drugs in combination. ICH guidelines are used for validation of the proposed methods. Statistical data are calculated, and the results are satisfactory revealing no significant difference regarding accuracy and precision.

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