

Computation of geometric representation of novel spectrophotometric methods used for the analysis of minor components in pharmaceutical preparations

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Abstract

Novel spectrophotometric methods were applied for the determination of the minor component tetrazoline HCl (TZH) in its ternary mixture with ofloxacin (OFX) and prednisolone acetate (PA) in the ratio of (1:5:7.5), and in its binary mixture with sodium cromoglicate (SCG) in the ratio of (1:80). The novel spectrophotometric methods determined the minor component (TZH) successfully in the two selected mixtures by computing the geometrical relationship of either standard addition or subtraction. The novel spectrophotometric methods are: geometrical amplitude modulation (GAM), geometrical induced amplitude modulation (GIAM), ratio H-point standard addition method (RHPSAM) and compensated area under the curve (CAUC). The proposed methods were successfully applied for the determination of the minor component TZH below its concentration range. The methods were validated as per ICH guidelines where accuracy, repeatability, inter-day precision and robustness were found to be within the acceptable limits. The results obtained from the proposed methods were statistically compared with official ones where no significant difference was observed. No difference was observed between the obtained results when compared to the reported HPLC method, which proved that the developed methods could be alternative to HPLC techniques in quality control laboratories

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