Validated Visible Spectrophotometry for Quantitative Analysis of Pirenoxine in The Presence of Paraben Preservatives in Eye Drop Preparations

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Abstract	The aim of this work were to develop and validate a visible spectrophotometry for quantitative analysis of pirenoxine in the presence of methylparaben and propylparaben. The proposed method was also applied for real samples of eye drop preparations. The developed method was validated in terms of linearity, range, accuracy, precision, limits of detection (LOD) and limits of quantification (LOQ) by using standard mixture solutions. Method validation was performed according to the United State Pharmacopeia (USP 36) and International Conference on Harmonization Q2(R1) guidelines for the analytical performance parameters. The results of validation illustrated good linearity with the squares of correlation coefficient (r(2)) greater than 0.99 in the concentration ranges of 2.0-10.0 mu g/mL. The method was accurate with average recovery was 100.6%. The relative standard deviation (RSD) of intra-day and inter-day precission were less than 2.00%. LOD and LOQ were found to be 0.40 mu g/mL and 1.2 mu g/mL, respectively. The visible spectrophotometric method was found to be precise, accurate, rapid, simple, and inexpensive. The developed and validated method was suitable for quantitation of pirenoxine in real samples of eye drop preparations and could be transferred to quality control laboratories.
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