

Comparison of Mean Centering of Ratio Spectra Based Spectrophotometric Approach and HPLC Method for Quantitative Determination of Pirenoxine in the Presence of Methylparaben and Propylparaben

Publons ID	19694714
Wos ID	WOS:000435146200014
Doi	10.5530/ijper.52.2.33
Title	Comparison of Mean Centering of Ratio Spectra Based Spectrophotometric Approach and HPLC Method for Quantitative Determination of Pirenoxine in the Presence of Methylparaben and Propylparaben
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Publish Date	APR-JUN 2018
Journal Name	INDIAN JOURNAL OF PHARMACEUTICAL EDUCATION AND RESEARCH
Citation	2
Abstract	Objective: The mean centering of ratio spectra method (MCR) was developed for determination of pirenoxine in the presence of methylparaben and propylparaben. Background: The UV spectrum of pirenoxine was suffered from spectra overlapping of methylparaben and propylparaben, the preservatives used in the eye drop formulation. Since, MCR method was introduced to overcome this limitation. Methods: The developed MCR method was performed using 39 synthetic mixtures of pirenoxine, methylparaben and propylparaben. The amplitudes at 320 nm of the second ratio spectra were used to construct a calibration model for pirenoxine. Performance characteristics of the method such as linearity, accuracy and precision, were calculated. A high-performance liquid chromatography (HPLC) method was also developed and validated. Then, two methods were used to determine a set of commercial eye drop samples for comparison. Results: The developed and validated MCR method was simple, rapid, accurate, and precise and could be applied to determine pirenoxine in eye drop samples. Measurement of pirenoxine in eye drop samples by MCR and HPLC methods were not significantly different (P-value = 0.21).
Publish Type	Journal
Publish Year	2018
Page Begin	284
Page End	292
Issn	0019-5464
Eissn	
Url	https://www.webofscience.com/wos/woscc/full-record/WOS:000435146200014
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