

Accepted Manuscript

Analytical investigation of different mathematical approaches utilizing manipulation of ratio spectra

Essam Eldin A. Osman

PII: S1386-1425(17)30583-8
DOI: doi: [10.1016/j.saa.2017.07.024](https://doi.org/10.1016/j.saa.2017.07.024)
Reference: SAA 15311

To appear in: *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*

Received date: 28 August 2016
Revised date: 12 July 2017
Accepted date: 18 July 2017

Please cite this article as: Essam Eldin A. Osman , Analytical investigation of different mathematical approaches utilizing manipulation of ratio spectra, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* (2016), doi: [10.1016/j.saa.2017.07.024](https://doi.org/10.1016/j.saa.2017.07.024)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Analytical Investigation of Different Mathematical Approaches Utilizing Manipulation of Ratio Spectra

Essam Eldin A. Osman

Pharmaceutical Chemistry Department, Faculty of Pharmacy, Cairo University, Kasr-El Aini Street, 11562 Cairo, Egypt.

Abstract

This work represents a comparative study of different approaches of manipulating ratio spectra, applied on a binary mixture of ciprofloxacin HCl and dexamethasone sodium phosphate co-formulated as ear drops. The proposed new spectrophotometric methods are: ratio difference spectrophotometric method (RDSM), amplitude center method (ACM), first derivative of the ratio spectra (¹DD) and mean centering of ratio spectra (MCR). The proposed methods were checked using laboratory-prepared mixtures and were successfully applied for the analysis of pharmaceutical formulation containing the cited drugs. The proposed methods were validated according to the ICH guidelines. A comparative study was conducted between those methods regarding simplicity, limitations and sensitivity. The obtained results were statistically compared with those obtained from the reported HPLC method, showing no significant difference with respect to accuracy and precision.

Keywords: Ciprofloxacin; dexamethasone; ratio difference; constant center; derivative of ratio spectra; mean centering.

Download English Version:

<https://daneshyari.com/en/article/5139508>

Download Persian Version:

<https://daneshyari.com/article/5139508>

[Daneshyari.com](https://daneshyari.com)