Comparative study of novel spectrophotometric methods manipulating ratio spectra: An application on pharmaceutical ternary mixture of omeprazole, tinidazole and clarithromycin

Hayam Lotfy, Mahmoud Lotfy · Maha Abdel-Monem Hagazy

Professor of Analytical Chemistry

Abstract

Three simple, specific, accurate and precise spectrophotometric methods manipulating ratio spectra are developed for simultaneous determination of omeprazole (OM), tinidazole (TN) and clarithromycin (CL) in tablets. Method A, is an extended ratio subtraction one (EXRSM). Method B is a ratio difference spectrophotometric one (RDSM), while method C is mean centering of ratio spectra (MCR). The calibration curves are linear over the concentration range of 1-20μg/mL, 10-60μg/mL and 0.25-1.0mg/mL for OM, TN and CL, respectively. The specificity of the developed methods is investigated by analyzing laboratory prepared mixtures of the three drugs and their combined dosage form. Standard deviation values are less than 1.5 in the assay of raw materials and tablets. The three methods are validated as per ICH guidelines and accuracy, precision, repeatability and robustness are found to be within the acceptable limits.

Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy - 2012, April