

# Validated spectrophotometric methods for simultaneous determination of Omeprazole, Tinidazole and Doxycycline in their ternary mixture .

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## Abstract

A comparative study of smart spectrophotometric techniques for the simultaneous determination of Omeprazole (OMP), Tinidazole (TIN) and Doxycycline (DOX) without prior separation steps is developed. These techniques consist of several consecutive steps utilizing zero/or ratio/or derivative spectra. The proposed techniques adopt nine simple different methods, namely direct spectrophotometry, dual wavelength, first derivative-zero crossing, amplitude factor, spectrum subtraction, ratio subtraction, derivative ratio-zero crossing, constant center, and successive derivative ratio method. The calibration graphs are linear over the concentration range of 1–20 µg/mL, 5–40 µg/mL and 2–30 µg/mL for OMP, TIN and DOX, respectively. These methods are tested by analyzing synthetic mixtures of the above drugs and successfully applied to commercial pharmaceutical preparation. The methods that are validated according to the ICH guidelines, accuracy, precision, and repeatability, were found to be within the acceptable limits.

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