

Quantitative Nuclear Magnetic Resonance Spectroscopic Analysis of Two Commonly Used Gastrointestinal Tract Drug

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Abstract

Two fast and precise quantitative nuclear magnetic resonance spectroscopic methods (qNMR) were established and evaluated for the determination of ondansetron (OND) and omeprazole (OMP) in bulk drugs and their pharmaceutical dosage forms. NMR spectra were established using dimethylsulfoxide (DMSO-d₆) as a solvent and phloroglucinol as the internal standard. Proton NMR signals at 3.743, 3.811, and 5.670 ppm were used for quantitative monitoring purposes corresponding to OND, OMP, and phloroglucinol, respectively. In this study, the methods linearity, accuracy, limit of quantification, limit of detection, stability, and precision were validated as per International Conference on Harmonization (ICH) guidelines. Linearity ranges were 0.3-10 mg for OND and 1-10 mg for OMP. The student t-test and F-test were used for statistical evaluation. Herein, the proposed methods are useful and can be a successful practical appliance for OND and OMP determination in drug substances and their dosage forms.

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