

An UHPLC (ultra high performance liquid chromatography) Method for the Simultaneous Determination of Norfloxacin, Metronidazole and Tinidazole using Monolithic Column-Stability Indicating Application

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Abstract

Abstract— Background: An UHPLC (ultra high performance liquid chromatography) method for the simultaneous determination of norfloxacin (NOR), metronidazole (MET) and tinidazole (TNZ) using monolithic column is presented. Purpose: The method is considered an environmentally friendly method with relatively low organic composition of the mobile phase.

Methods: The chromatographic separation was performed using Phenomenex® Onyx Monolithic C18 (50mmx 20mm) column. An elution program of mobile phase consisted of 0.5% aqueous phosphoric acid : methanol (85:15, v/v). Where elution of all drugs was completed within 3.5 min with 1µL injection volume. The UHPLC method was applied for the stability indication of NOR in presence of its acid degradation product ND.

Results: Retention times were 0.69, 1.19 and 3.23 min for MET, TNZ and NOR, respectively. While ND retention time was 1.06 min. Linearity, accuracy and precision were acceptable over the concentration range of 5-50µg mL⁻¹ for all drugs.

Conclusions: The method is simple, sensitive and suitable for the routine quality control and dosage form assay of the three drugs and can also be used for the stability indication of NOR in presence of its acid degradation product.

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