# Stability Indicating HPLC Method for the Simultaneous Determination of Ciprofloxacin

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**Abstract**

A stability indicating HPLC method for the simultaneous determination of ciprofloxacin HCl (CIP) and metronidazole (MET) in presence of ciprofloxacin acid degradation product (DEG) is presented (Method I, MI). The present study is concerned with the development and validation of an environmentally friendly method with relatively low organic composition of the mobile phase. The chromatographic separation of the two drugs was performed using Kromasil 100-5C18 (150 mm x 4.6 mm) with UV detection at 280 nm and flow rate of 1 mLmin-1. The mobile phase consisted of 0.5% aqueous phosphoric acid and acetonitrile (90:10 v/v) MI. In addition, another HPLC method (MII) for the separation of the same binary mixture using 0.5% aqueous phosphoric acid and acetonitrile (80:20 v/v) was presented. Retention times were 2.40, 3.10 & 22.94 min for MET, DEG and CIP, respectively, MI. On the other hand, the retention times were 2.03 and 4.00 min for MET and CIP, respectively MII. However, the relatively low organic composition of the mobile phase of 10% in MI was advantageous regarding green analytical procedure concept. Linearity, accuracy and precision were acceptable over the concentration range of 1-65 εgmL-1 for both drugs MI, and 1-80 εgmL-1 MII. The method is new, simple , sensitive and suitable for the routine quality control and dosage form assay of both drugs in the presence of the acid degradation product of ciprofloxacin. The method showed sufficient accuracy with a mobile phase of only 10% organic composition showing advantage and trying to approach green chromatographic conditions.

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