Spectrophotometric Determination of Selected Fluoroquinolones in Drug Formulations Using Flow Injection Analysis

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Abstract


A new method for the determination of fluoroquinolones using flow injection analysis is introduced. In this method, a flow injection system consisting of two lines is used. Where hydrochloric acid solution is passed through the first tube as a carrier and ferric ion solution is passed through the second tube.

The proposed method is based upon the injection of the sample in hydrochloric acid then ferric ion solution is added in a confluence manner to form a red complex that could be measured spectrophotometrically at 440 nm. The method had shown its validity for the determination of norfloxacin and ciprofloxacin and was successfully applied to synthetic and real samples. The detection limit for both drugs is 1.025 ppm.

A high performance liquid chromatographic procedure was developed during this work in order to compare the results of the FIA method. The mobile phase used in this method was consisting of 30:70% v/v acetonitrile: H₃PO₄ that is already adjusted to pH=5.0. Naphazolin nitrate was used in this study as an internal standard. No significant
differences between the results of the FIA and HPLC methods were observed.

FIA method was found to be sensitive, rapid, accurate, reproducible and require minimum amounts of samples and reagents and the results were in consistence with the HPLC results.