A new approach of ofloxacin analysis method in human blood plasma using solid-phase extraction - high-performance liquid chromatography - ultra violet

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INTRODUCTION

Ofloxacin (OFX) is a second generation formula of quinolone broad spectrum antibiotics (Figure 1). OFX is widely used for infections of the eye, urinary tract, digestive tract, respiratory tract, skin and soft tissue, joints and bones, infections by pneumococcus resistant to beta-lactam antibiotics, and macrolides, as well as for treating diseases transmitted through intercourse. The working mechanism of OFX inhibits bacterial protein synthesis, which in turn arrests topoisomerase II enzyme with the enzyme DNA gyrase and IV.[¹]

Previous studies have investigated OFX in the biological fluid matrix, such as by the method of protein deposition in high-performance liquid chromatography (HPLC) ultraviolet (UV) detector. Ofloxacin (OFX) samples were prepared by SPE technique and analyzed using HPLC with phosphate buffer 0.025 M (pH 2.5) and acetonitrile (85.5:14.5) as mobile phase and a flow rate of 1.2 ml/min. UV detector was adjusted at 295 nm using internal standard ciprofloxacin. Results: Calibration curve was linear over the range of 0.1-6 µg/ml with correlation coefficient (r) = 0.9998-0.9999. The resolution was (Rs) > 1.5, and repeatability (% CV) <10%. Based on peak area and the peak height ratio of chromatogram, limit of detection and limit of quantification were 0.023 µg/ml and 0.076 µg/ml, respectively, and recovery of spiked OFX in human plasma was 94.32-100.45%. Conclusion: Based on the results of analysis, the analysis method was concluded as sensitive and valid for analysis of OFX in human plasma.

KEY WORDS: High-performance liquid chromatography, Human plasma, Ofloxacin, Solid phase extraction