ABSTRACT

A RP-HPLC and UV-visible spectrophotometric for simultaneous estimation of Mefenamic acid and Paracetamol in marketed tablet formulation were developed and validated.

A RP-HPLC method was developed for simultaneous estimation of Mefenamic acid and Paracetamol tablet formulation using Phenomenex Luna C_{18} column (250 mm × 4.6 mm id, 5 µm particle size) and a mobile phase of acetonitrile : water (70:30 v/v), at flow rate 1.0 ml/min with UV detection at 268 nm. The retention time (t_R) of Mefenamic acid and Paracetamol found to be 4.09 and 2.66 min respectively. The proposed method was validated for system suitability, specificity, linearity, accuracy, precision, LOD, LOQ and robustness. All parameters were found to be within the acceptance limit. Linearity over the concentration range 5-30 µg/ml for both Mefenamic acid and Paracetamol with regression coefficient (r^2) 0.9999 and 0.9999 respectively. Limit of detection (LOD) found to be 0.0059 µg/ml and 0.008 µg/ml whereas limit of quantitation (LOQ) found to be 0.018 µg/ml and 0.026 µg/ml for Mefenamic acid and Paracetamol respectively. The accuracy of the proposed method was determined by recovery studies and found to be 99.96%-100.62% and 99.12%-100.2% for Mefenamic acid and Paracetamol respectively.

A UV-visible spectrophotometric method was developed for simultaneous estimation of Mefenamic acid and Paracetamol in marketed tablet formulation using methanol as solvent. The method involved Q-absorbance ratio method based on the measurement of absorbance at two wavelengths, i.e. λ_{max} of Paracetamol (248 nm) and iso-absorptive point of both drugs (268 nm). Linearity found over the concentration range of 2-10 µg/ml

for both Mefenamic acid and Paracetamol with regression coefficient (r^2) 0.9991 and 0.9995 respectively at 248 nm and 0.9992 at 268 nm. LOQ for Mefenamic acid and Paracetamol found to be 0.33 µg/ml and 0.10 µg/ml at 248 nm respectively and 0.28 at 268 nm whereas LOD found to be 0.11 µg/ml and 0.034 µg/ml at 248 nm respectively and 0.092 at 268 nm. The proposed method was validated for linearity, accuracy, precision, LOD and LOQ. All parameters were found to be within the acceptance limit. The accuracy of the proposed method was determined by recovery studies and found to be 100.56%-102.5% and 100.22%-101.03% for Mefenamic acid and Paracetamol respectively.

The proposed methods are simple, accurate, precise and suitable for analysis of marketed tablet formulation containing Mefenamic acid and Paracetamol.