

An Advanced Analytical Technique for the Estimation of Oxcarbazepine and Olanzapine in Bulk and Pharmaceutical Dosage form by Using UPLC and Its Degradants are Characterised by Mass Spectrophotometry

Sadakar Tungapati

Vignan's Foundation for Science, Technology & Research (Deemed to be University), Andhra Pradesh, India

Abstract:

A simple, accurate, and precise method was developed for the simultaneous estimation of Oxcarbazepine and Olanzapine in pharmaceutical dosage forms. Chromatographic separation was carried out on a Agilent Eclipse Plus C18 (50x4.6 mm, 2.1 μ m) using a mobile phase consisting of Tri fluoro acetic acid and acetonitrile in a 70:30 v/v ratio, with a flow rate of 0.5 mL/min. The retention times of Oxcarbazepine and Olanzapine were 0.945 minutes and 1.622 minutes respectively, and the total run time for the method was 2.50 minutes. The method exhibited good linearity with correlation coefficients (R^2) of 0.999 for both drugs over the concentration ranges of 37.5–225 μ g/mL for Oxcarbazepine and 2.5–15 μ g/mL for Olanzapine. The optimized method demonstrated good recovery results for both drugs, confirming its accuracy and precision. The method was validated for specificity, linearity, accuracy, precision, robustness, and degradation according to ICH guidelines. In degradation the formed degradants were characterized by using LC-MS/MS. The results indicate that the method is suitable for routine quality control analysis of Oxcarbazepine and Olanzapine in pharmaceutical formulations.

Keywords:

Oxcarbazepine, Olanzapine, Development, UPLC.