Thummar Kashyap, J Women's Health Care 2018, Volume 7
DOI: 10.4172/2167-0420-C4-017

Analysis of some antiepileptic drugs and their stability study in human plasma using LC-MS/MS

Thummar Kashyap
Gujarat Technological University, India

Introduction: The present research is aimed for the development and validation of simple, accurate, precise, rapid and sensitive LC-MS/MS method for the estimation of AEDs from the human plasma.

Method: The LC-MS/MS instrument was selected for the bio analytical method development and validation of anti-epileptic drugs. The individual method was developed for different selected anti-epileptic drugs and clinically tested. The AEDs and internal standard were separated on analytical C18 column/s using different mobile phase composition for individual drugs. The more ionization takes place by ESI interface than APCI and therefore employed. The mass spectrometric conditions were optimized to increase sensitivity and specificity of the method. The MS/MS conditions were optimized to obtain the best possible sensitivity. Multiple reactions monitoring mode was used to monitor precursor to product ion, for individual drugs, which could reduce interference and enhance selectivity. The methods were optimized to obtain best possible sensitivity..

Result: The chromatographic conditions were optimized to look for better sensitivity, peak shape and chromatographic run time. The selection of mobile phase was preformed taking into account the symmetric peak shape with a shorter run time that further leads to low consumption of organic solvent altogether making the method cost-effective. Moreover, this method offers significant advantages over those previously reported methods in the biologic matrix, in terms of highly efficient liquid-liquid extraction, shorter run time, better sensitivity and simple methods. In addition, the absence of matrix effect and stable under routine handling and processing conditions leads to a reproducible and rugged method for quantification of AEDs in human plasma. The indicative results of the bench-top stability, freeze-thaw stability, dry extract stability, auto-sampler stability and long term stability in human plasma as the percentage mean stability of the calculated vs. theoretical concentration. No significant deviations were observed compared to theoretical concentration, indicating that AEDs were stable under all tested conditions. Therefore, the method has been proved to be applicable for routine analysis.

Biography

Kashyap Thummar has his expertise in handling various sophisticated analytical instruments mainly HPTLC, GC-MS/MS and LC-MS/MS. He also extended his works on analytical work to find out prevalence of phthalates metabolite in human and their relation to established male infertility. His research interests include therapeutic drug monitoring, impurity profiling and bioautography.

kasu_patel5@yahoo.co.in

Notes: