



Development and Validation of Liquid Chromatography-Mass Spectrometry Method for Determination of Febuxostat in Rat Plasma and its Application

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SUMMARY. A selective liquid chromatography-mass spectrometry (LC-MS) method for determination of febuxostat in rat plasma was developed and validated. After addition of midazolam as internal standard (IS), protein precipitation by acetonitrile was used as sample preparation, and chromatography involved Agilent SB-C18 column (2.1 x150 mm, 5 μ m) using 0.1 % formic acid in water and acetonitrile as a mobile phase with gradient elution. Detection involved positive ion mode electrospray ionization (ESI), and selective ion monitoring (SIM) mode was used for quantification of target fragment ions m/z 317 for febuxostat and m/z 326 for midazolam (internal standard, IS). The assay was linear over the range of 10-2000 ng/mL for febuxostat, with a lower limit of quantitation (LLOQ) of 10 ng/mL for febuxostat. Intra- and inter-day RSDs were less than 15 % and the accuracies were in the range of 93.8-111.9 % for febuxostat. This developed method was successfully applied to determine of febuxostat in rat plasma for pharmacokinetic study.

KEY WORDS: LC-MS, Febuxostat, Pharmacokinetics, Rat plasma.

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