



Development and Validation of LC-MS/MS Method for Determination of Ondansetron in rat Plasma and its Application

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SUMMARY. A selective and sensitive liquid chromatography-mass spectrometry (LC-MS) method for determination of ondansetron 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 x 150 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 multiple reaction monitoring (MRM) mode was used for quantification of target fragment ions m/z 294.0 \rightarrow 169.7 for ondansetron and m/z 326.0 \rightarrow 291.0 for midazolam (internal standard, IS). The assay was linear over the range of 5–1000 ng/mL for ondansetron, with a lower limit of quantitation (LLOQ) of 5 ng/mL for ondansetron. Intra- and inter-day precisions were less than 14 % and the accuracies were in the range of 94.7-113.5 % for ondansetron. This developed method was successfully applied for the determination of ondansetron in rat plasma for pharmacokinetic study.

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

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