



Gradient Elution LC-MS/MS Determination of Gefitinib in Rat Plasma and its Pharmacokinetic Study

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SUMMARY. A sensitive and simple liquid chromatography/electrospray mass spectrometry (LC-MS/MS) method for determination of gefitinib in rat plasma using one-step protein precipitation was developed. After addition of estazolam as internal standard (IS), protein precipitation by acetonitrile was used as sample preparation. Chromatographic separation was achieved on an SB-C18 (2.1 mm × 50 mm, 3.5 μm) column with methanol-0.1 % formic acid as mobile phase with gradient elution. Electrospray ionization (ESI) source was applied and operated in positive ion mode; multiple reaction monitoring (MRM) mode was used to quantification using target fragment ions m/z 447.0→127.7 for gefitinib and m/z 294.7→266.8 for the IS. Calibration plots were linear over the range of 5-2000 ng/mL for gefitinib in rat plasma. Lower limit of quantification (LLOQ) for gefitinib was 5 ng/mL. Mean recovery of gefitinib from plasma was in the range 78.6-93.0 %. RSD of intra-day and inter-day precision were both less than 15 %. This developed method is successfully used in pharmacokinetic study of gefitinib in rats.

KEY WORDS: Gefitinib, Gradient elution, LC-ESI-MS, Rat plasma.

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