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Determination of Tetramethylpyrazine in Rat Plasma by Liquid Chromatography/electrospray Mass Spectrometry

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SUMMARY. **A sensitive and selective liquid chromatography/electrospray mass spectrometry (LC-ESI-MS) method for determination of tetramethylpyrazine in rat plasma was developed. After addition of phenacetin as internal standard, protein precipitation by acetonitrile was used as sample preparation. Chromatographic separation was achieved on a Zorbax SB-C18 (2.1 mm×150 mm, 5 μm) column with (40:60, *v/v)* acetonitrile-water containing 0.1 % formic acid as mobile phase. Electrospray ionization (ESI) source was applied and operated in positive ion mode; selected ion monitoring (SIM) mode was used to quantify tetramethylpyrazine using target fragment ions *m/z* 136.9 for tetramethylpyrazine and *m/z* 179.8 for the IS. Calibration plots were linear over the range of 20-4000 ng/mL for tetramethylpyrazine in plasma. Lower limit of quantitation (LLOQ) for tetramethylpyrazine was 20 ng/mL. Mean recovery of tetramethylpyrazine from plasma was in the range 95.4-97.2 %. RSD of intra-day and inter-day precision were less than 9 %, respectively. This method is simple, sensitive and fast enough to be used in pharmacokinetic research for determination of tetramethylpyrazine in rat plasma.**

KEY WORDS: LC-ESI-MS, Rat plasma, Tetramethylpyrazine.

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