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Determination of Bupropion Hydrochloride in Rat Plasma by LC–MS/MS and Its Application to Pharmacokinetic Study

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SUMMARY. A selective and sensitive liquid chromatography-tandem mass spectrometry method was developed and validated for quantitation of bupropion hydrochloride in rat plasma using triazolam as an internal standard. Chromatographic separation was achieved on a SB-C18 column at 30 °C, with 50: 50 (v/v) acetonitrile-0.1 % formic acid in water as mobile phase. The flow rate was 0.3 mL/min. The determination of bupropion was performed in MRM mode, m/z 239.9 → 183.7 for bupropion and m/z 343.0 → 308.0 for triazolam (IS) and positive ion electrospray ionization interface. Calibration curve was linear over range of 1.2 to 480 ng/mL. The intra- and inter-run relative standard deviations of the assay were less than 10 %. The mean absolute recoveries determined at the concentrations of 2.4, 48 and 360 ng/mLwere 91.00%, 92.06%, 91.71%, respectively. The validated method is successfully used to analyze the drug in samples of rat plasma for pharmacokinetic study.

KEY WORDS: bupropion hydrochloride, LC-MS/MS, rat plasma
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