



## Determination of Bupropion and Hydroxybupropion by LC-MS/MS in Rat and its Application to Assessment of CYP2B6 Activity

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**SUMMARY.** A selective and sensitive liquid chromatography-tandem mass spectrometry method was developed and validated for quantitation of bupropion (BUP) and its metabolite hydroxybupropion (HBUP) in rat plasma and urine using carbamazepine as an internal standard. Chromatographic separation was achieved on a SB-C18 column at 30 °C, using the gradient elution of 0.1 % formic acid in water and acetonitrile. Calibration plots were linear over range of 10-2000 ng/mL for BUP and 5-1000 ng/mL for HBUP in rat plasma. The intra- and inter-run relative standard deviations of the assay were less than 10 % for both BUP and HBUP. The effects of tolbutamide on cytochrome P450-mediated metabolism of BUP were studied by the validated method above. The results revealed that tolbutamide had significantly decreased the rate of BUP hydroxylation.

**KEY WORDS:** Bupropion, Cytochrome P450 enzymes, Hydroxybupropion, LC-MS/MS, Rat plasma.

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