



Determination of Dextromethorphan in Rabbit Plasma by LC-MS/MS and Its Application to Pharmacokinetic Study

Lufeng HU¹, Xianqin WANG², Haiyan JIANG³, Xuegu XU³, Ren-ai XU³ & Guanyang LIN^{1*}

¹ Department of Pharmacy of the First Affiliated Hospital of Wenzhou Medical College,
Fuxue Lane 2, Lucheng District, Wenzhou, 325000, China

² Analytical and Testing Center & ³ Department of Pharmacology,
Wenzhou Medical College, Wenzhou, 325035, China

SUMMARY. A highly sensitive liquid chromatographic tandem mass spectrometric (LC-MS/MS) method for determination of dextromethorphan in rabbit plasma using triazolam as the internal standard (IS) was developed. Plasma samples were extracted with ethyl acetate and separated on a SB-C18 column with a mobile phase of acetonitrile-water 60:40 (v/v) at a flow of 0.3 mL/min. Detection is carried out by multiple reaction monitoring (MRM) on a ion-trap LC-MS/MS system with an electrospray ionization interface. The lower limit of quantification (LLOQ) was 1 ng/mL. After intravenous administration of a single dose of dextromethorphan 2 mg/kg, the main pharmacokinetic parameters were as follows: $AUC_{0 \rightarrow t}$ 636.13 ± 47.13 (ng/mL·h); CL 2.60 ± 0.24 (L/h), C_{max} 874 ± 67.16 (ng/mL), V_z 1.58 ± 0.11 (L/kg), $T_{1/2}$ 2.41 ± 0.35 (h), MRT 1.26 ± 0.08 (h).

KEY WORDS: Dextromethorphan, LC-MS/MS, Determination, Rabbit, Pharmacokinetic

* Author to whom correspondence should be addressed. E-mail: linguanyang@yahoo.cn