



Determination of Fluoxetine and Norfluoxetine by UFLC- MS/MS in Human Plasma and its Application to Pharmacokinetic Study

Jing MA, Ran LIU, Chunxiao LV, Huihong QI, Ruoxi FAN, Kaishun BI, Qing LI *

School of Pharmacy, Shenyang Pharmaceutical University, 103 Wenhua Road, Shenyang 110016, China

SUMMARY. A simple and robust method based on ultra fast liquid chromatography-tandem mass spectrometry for the simultaneous determination of fluoxetine and norfluoxetine in plasma samples has been established. After the addition of diphenhydramine (IS), ethyl acetate-isopropanol was used to produce a single-step liquid-liquid extraction under basic condition. The analytes were separated on a Shimadzu Shim-pack XR-ODS C18 column (75 × 3.0 mm, 2.2 μm) within 2.5 min, using a gradient elution system. Detection was performed on a triple quadrupole tandem mass spectrometer with TurboIonSpray source in the positive ion ionization and multiple reaction-monitoring mode. The calibration curves were linear ($r^2 > 0.99$) over the range of 0.1004–40.16 ng/mL for fluoxetine and 0.1060–42.40 ng/mL for norfluoxetine. After being fully validated, the method was successfully applied to the pharmacokinetic study of fluoxetine and norfluoxetine after oral administration of fluoxetine hydrochloride dispersible tablets to Chinese volunteers.

KEY WORDS: Fluoxetine, Norfluoxetine, Pharmacokinetic study, UFLC-MS/MS.

* Author to whom correspondence should be addressed. *E-mail:* lqyxm@hotmail.com