



UPLC-MS/MS Technology for Determination of Paeoniflorin in Beagle Dog Plasma and Pharmacokinetic Application

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SUMMARY. The aim of this study was to develop a reliable and simple UPLC-MS/MS method for determination of paeoniflorin in beagle dog plasma and study its pharmacokinetics. Ligustilide was used as the internal standard (ISTD), an Acquity UPLC BEH C18 column was used to separate paeoniflorin and ISTD. Acetonitrile and 0.1% formic acid aqueous solution were used as the mobile phase. The flow rate was 0.3 mL/min. A triple quadrupole tandem mass spectrometer equipped with ESI was used to monitor in positive mode by MRM of the transitions at m/z 498.2 \rightarrow 179.0 for paeoniflorin and m/z 191.1 \rightarrow 91.0 for ISTD, respectively. The linearity of paeoniflorin in beagle plasma was found within 1-200 ng/mL. The intra-day and inter-day precision (RSD %) were less than 10.37% and accuracy (RE %) was within \pm 2.08%. In short, A reliable and simple UPLC-MS/MS technology was developed and validated for determination of paeoniflorin in beagle dog plasma, and the pharmacokinetics investigation of paeoniflorin in beagle dogs was performed successfully.

RESUMEN. El objetivo de este estudio fue desarrollar un método UPLC-MS/MS confiable y simple para la determinación de paeoniflorina en plasma de perros beagle y estudiar su farmacocinética. Se usó ligustilida como estándar interno (ISTD), se usó una columna Acquity UPLC BEH C18 para separar paeoniflorina e ISTD. Como fase móvil se utilizó acetonitrilo y solución acuosa de ácido fórmico al 0,1%. El caudal fue de 0,3 mL/min. Se usó un espectrómetro de masas en tándem de triple cuadrupolo equipado con ESI para monitorear en modo positivo por MRM de las transiciones en m/z 498,2 \rightarrow 179,0 para paeoniflorin y m/z 191,1 \rightarrow 91,0 para ISTD, respectivamente. La linealidad de paeoniflorina en plasma beagle se encontró dentro de 1-200 ng/mL. La precisión intradiaria e interdiaria (% RSD) fue inferior al 10,37 % y la precisión (% RE) estuvo dentro de \pm 2,08 %. En resumen, se desarrolló y validó una tecnología UPLC-MS/MS confiable y simple para la determinación de paeoniflorina en plasma de perros beagle y se realizó con éxito la investigación farmacocinética de paeoniflorina en perros beagle.

KEY WORDS: Beagle dog, paeoniflorin, pharmacokinetics, UPLC-MS/MS.

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