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Determination of Astilbin in Rat Plasma and Application to a Pharmacokinetic Study by UPLC-MS/MS

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***SUMMARY*. Astilbin, one of major effective components derived from some herbal drugs including the rhizome of *Smilax glabra,* has been used for various medicinal purposes such as syphilis, leptospiriosis and acute or chronic nephritis. In this work, a simple and selective ultra-high performance liquid chromatography-tandem mass spectrometry (UPLC-MS/MS) method for determination of astilbin in rat plasma is developed. Analytes were extracted by liquid-liquid extraction with ethyl acetate after addition of internal standard (diazepam). Chromatographic separation was obtained on an Acquity UPLC BEH C18 column with a 0.1% formic acid and acetonitrile mobile phase. Multiple reactions monitoring (MRM) mode was used for quantification using target fragment ions m/z 451.1→70.9 for astilbin, and m/z 285.1→193.3 for IS. Calibration plots were linear over the range of 2-500 ng/mL for astilbin. Mean recoveries of astilbin in rat plasma were above 73.1% and the accuracy of the method was between 93.5 and 107.8%. RSD of intra-day and inter-day precision were both no more than 12%. The method was successfully applied to pharmacokinetic study of astilbin after oral administration in rats.**

RESUMEN. Astilbin, uno de los principales componentes derivados de algunas drogas a base de hierbas, incluido el rizoma de *Smilax glabra,* se ha utilizado para diversos fines medicinales, como la sífilis, la leptospirosis y la nefritis aguda o crónica. En este trabajo se desarrolla un método simple y selectivo de espectrometría de masas en tándem con cromatografía líquida de ultra-alta eficacia (UPLC-MS/MS) para la determinación de astilbina en plasma de rata. Los analitos se extrajeron mediante extracción líquido-líquido con acetato de etilo después de la adición del patrón interno (diazepam). La separación cromatográfica se obtuvo en una columna Acquity UPLC BEH C18 con una fase móvil de ácido fórmico al 0,1% y acetonitrilo. Se usó el modo de monitorización de reacciones múltiples (MRM) para la cuantificación usando iones de fragmentos diana m/z 451.1→70.9 para astilbina, y m/z 285.1→193.3 para IS. Los diagramas de calibración fueron lineales en el rango de 2-500 ng/mL para astilbina. Las recuperaciones medias de astilbina en plasma de rata fueron superiores al 73.1% y la precisión del método fue entre 93.5 y 107.8%. La precisión RSD de intradía e interdía no fue más del 12%. El método se aplicó con éxito al estudio farmacocinético de astilbina después de la administración oral en ratas.

KEY WORDS: astilbin, pharmacokinetics, plasma, UPLC-MS/MS.

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