



Determination of Myricetin in Rat and Rabbit Plasma by UPLC-MS/MS and Application to Pharmacokinetic Study

Xiao-jun CAI, Qiu-jie YANG, Da-hui CHEN, Shu-ping HU, Jing ZHENG, Jia-qi SHEN & Zheng XIANG*

*School of Pharmaceutical Sciences,
Wenzhou Medical University, Wenzhou 325035, China*

SUMMARY. Myricetin is a member of the flavonoid class of polyphenolic compounds, with antioxidant properties. An ultra-performance liquid chromatography with tandem mass spectrometry (UPLC - MS/MS) method was established for the determination of myricetin in rat and rabbit plasma. Myricetin was administered by sublingual intravenous and ear-vein in rats and rabbits, respectively. The plasma samples from the rats and rabbits were extracted by ethyl acetate. Chromatographic separation was achieved on a HSS T3 column and the analytes were detected by using electrospray ionization (ESI) source with a positive ion mode. The pharmacokinetic parameters were analyzed by drug and statistic software (DAS). The result showed the good linearity in the concentration range of 1-1000 ng/mL for rat and 5-1000 ng/mL for rabbit, respectively. The intra- and inter-day precision was within 7.8 % and the accuracy ranged from 85.0 % to 91.1 %. The simple, sensitive and rapid UPLC-MS/MS method was successfully applied to the pharmacokinetic study of myricetin in rat and rabbit.

RESUMEN. La miricetina es un flavonoide con propiedades antioxidantes. Se desarrolló un método de cromatografía líquida de ultra rendimiento con espectrometría de masas (UPLC MS/MS) para la determinación de miricetina en plasma de rata y conejo. La miricetina se administró por vía intravenosa sublingual en ratas y en oreja de conejos, respectivamente. Las muestras de plasma de las ratas y conejos se extrajeron con acetato de etilo. La separación cromatográfica se logró en una columna de HSS T3 y los analitos se detectaron mediante el uso de una fuente de ionización con electrospray (ESI) en modo de ion positivo. Los parámetros farmacocinéticos fueron analizados por el software DAS. El resultado mostró buena linealidad en el intervalo de concentración de 1-1000 ng/mL para rata y 5-1000 ng mL para conejo, respectivamente. La precisión intra- e inter-día estuvo dentro del 7.8% y la exactitud varió de 85,0 a 91,1%. El método UPLC-MS/MS es simple, sensible y rápido y fue aplicado con éxito para el estudio farmacocinético de miricetina, en plasma de rata y de conejo.

KEY WORDS: Myricetin, UPLC-MS/MS, Pharmacokinetics

* Author to whom correspondence should be addressed. *E-mail:* XZH0077@126.com