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Determination of Triptophenolide in Rat Plasma by UPLC-MS/MS and its Pharmacokinetics

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***SUMMARY*. Triptophenolide, one of the main components extracted from *Tripterygium wilfordii* Hook. f. (TWHF), is a diterpenoid with strong inhibitory activity on tumor. In this paper, UPLC-MS/MS method was used to determine the triptophenolide in rat plasma and for the subsequent pharmacokinetics after intravenous administration. The rat plasma samples were treated by precipitating proteins using acetonitrile with hirsutine as internal standard. A good linearity (0.995) for triptophenolide in rat plasma was found at a concentration rang of 1-1500 ng/mL. The limit of quantitation was 1.0 ng/mL. Relative Standard Deviation (RSD) values for intra-day and inter-day were <7% and <11% respectively. The accuracy was between 97.9 and 106.7%, recovery was higher than 73.8%, and matrix effects were between 92.5 and 107.1 %. This analytical method showed to be fast, sensitive and selective, being successfully applied to the pharmacokinetic study of triptophenolide.**

RESUMEN. El triptofenólido, uno de los principales componentes extraídos de *Tripterygium wilfordii* Hook. f. (TWHF), es un diterpenoide con una fuerte actividad inhibidora sobre los tumores. En este trabajo se utilizó el método UPLC-MS/MS para determinar el triptofenólido en plasma de rata y para la farmacocinética posterior después de la administración intravenosa. Las muestras de plasma de rata se trataron precipitando proteínas utilizando acetonitrilo con hirsutina como patrón interno. Se encontró una buena linealidad (0,995) para triptofenólido en plasma de rata a una concentración de 1-1500 ng/mL. El límite de cuantificación fue de 1.0 ng/mL. Los valores relativos de desviación estándar (RSD) para intradía e interdía fueron <7% y <11%, respectivamente. La precisión estuvo entre 97.9 y 106.7%, la recuperación fue mayor que 73.8% y los efectos de la matriz fueron entre 92.5 y 107.1%. Este método analítico mostró ser rápido, sensible y selectivo, y se aplicó con éxito al estudio farmacocinético del triptofenólido.

KEY WORDS: pharmacokinetics, plasma, triptophenolide, UPLC-MS/MS,

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