



Pharmacokinetic Study of Acacetin in Rat by Ultra-Performance Liquid Chromatography Tandem Mass Spectrometry

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SUMMARY. Acacetin (5,7-dihydroxy-4-methoxyflavone), is a common O-methylated flavonoid. Modern research has shown that acacetin has anticancer activity against many types of cancer including T-cell leukemia, prostate, lung, and breast cancer and have important medicinal value. In this work, six Sprague-Dawley (SD) rats were selected and administered of acacetin by sublingual injection. A rapid, sensitive and selective ultra-performance liquid chromatography tandem mass spectrometry (UPLC-MS/MS) method was developed for determination and pharmacokinetic investigation of acacetin in rat plasma. The relative standard deviation (RSD, %) of the intra-day and inter-day precisions of acacetin in rat plasma were both < 11%, which were within the acceptable limits. The accuracy was within the range from 96.0 to 106.2% and the recovery was above 64.5%. The matrix effect ranged from 91.1 to 106.4%. The method developed in this study is rapid, sensitive, reliable and precise and can be successfully applied to pharmacokinetic study of acacetin in rat plasma.

RESUMEN. La acacetina (5,7-dihidroxi-4-metoxiflavona) es un flavonoide O-metilado común. La investigación moderna ha demostrado que la acacetina tiene actividad anticancerígena contra muchos tipos de cáncer, incluida la leucemia de células T, la próstata, el pulmón y el cáncer de mama, y tiene un importante valor medicinal. En este trabajo, seis ratas Sprague-Dawley (SD) fueron seleccionadas y administradas con acacetina por inyección sublingual. Se desarrolló un método rápido, sensible y selectivo de cromatografía líquida con espectrometría de masas en tándem (UPLC-MS/MS) para la determinación y la investigación farmacocinética de acacetina en plasma de rata. La desviación estándar relativa (RSD, %) de las precisiones intra-día e inter-día de acacetina en plasma de rata fue < 11%, que se encontraban dentro de los límites aceptables. La precisión estuvo dentro del rango de 96.0 a 106.2% y la recuperación estuvo por encima de 64.5%. El efecto matriz osciló entre 91.1 y 106.4%. El método desarrollado en este estudio es rápido, sensible, confiable y preciso y puede aplicarse con éxito al estudio farmacocinético de acacetina en plasma de rata.

KEY WORDS: acacetin, apigenin, rat plasma, UPLC-MS/MS.

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