



A Comparative Pharmacokinetic Study of Seven Active Components after Oral Administration of an *Eucommia ulmoides* Barks Extract in Normal Rats and SHR

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SUMMARY. *Eucommia ulmoides* Oliv. is a rare nourishing medicinal herb in China, which alone or in combination with other herbs has a good effect in the treatment of hypertension. In this study, we analyzed the pharmacokinetics of seven active components in the rat plasma after oral administration of an *E. ulmoides* barks extract to normal and spontaneously hypertensive rats (SHRs). First, a HPLC-ESI-MS/MS method was developed and used to simultaneously determine the levels of these seven components in the rat plasma. Then the results of normal rats and SHR were compared and analyzed. The results showed that the AUC_{0-t} and $V_{d/F}$ of GA in SHR were decreased. On the contrary, the AUC_{0-t} of PCA, CCA, PDG, and PG in SHR were significantly higher than in normal rats. In addition, the $T_{1/2}$, MRT_{0-t} of PCA and PG were increased. Therefore, our results suggest that spontaneous hypertension can significantly alter the pharmacokinetics of the mentioned active components of the *E. ulmoides* extract.

RESUMEN. *Eucommia ulmoides* Oliv. Es una hierba medicinal nutritiva rara en China, que sola o en combinación con otras hierbas tiene un buen efecto en el tratamiento de la hipertensión. En este estudio analizamos la farmacocinética de siete componentes activos en el plasma de ratas después de la administración oral de un extracto de corteza de *E. ulmoides* a ratas normales y espontáneamente hipertensas (SHR). Primero, se desarrolló un método HPLC-ESI-MS/MS y se usó para determinar simultáneamente los niveles de estos siete componentes en el plasma de rata. Luego, se compararon y analizaron los resultados de ratas normales y SHR. Los resultados mostraron que el AUC_{0-t} y $V_{d/F}$ de GA en SHR disminuyeron. Por el contrario, el AUC_{0-t} de PCA, CCA, PDG y PG en SHR fue significativamente mayor que en ratas normales. Además, aumentaron $T_{1/2}$, MRT_{0-t} de PCA y PG. Por lo tanto, nuestros resultados sugieren que la hipertensión espontánea puede alterar significativamente la farmacocinética de los componentes activos mencionados del extracto de *E. ulmoides*.

KEY WORDS: comparative pharmacokinetics, *E. ulmoides* extract, genipinic acid, spontaneously hypertensive rats, (+)-pinoselinol di-*O*- β -D-glucopyranoside.

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