



Pharmacokinetic Study on the Main Active Components of Total Coumarins of *Cnidii monnieri* in Rats

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SUMMARY. *Cnidii Monnieri* [*Cnidium monnieri* (L.) Cusson] is one of the most common used herbal plants in the treatment of numerous ailments including reproductive diseases for hundred of years. Total coumarins of *Cnidii Monnieri* (TCCM) is a key ingredient. Osthole (Ost) and Imperatorin (Imp) are two main effective ingredients enriched in TCCM. The purpose of this study was to investigate the pharmacokinetics of the main active components of TCCM in rats and the interaction of multi-component in TCCM. The pharmacokinetics study on Ost and Imp in rat plasma was achieved by using an optimized HPLC technique. After intravenous injection and oral administration among TCCM, Ost and Imp separately, plasma concentration of Ost and Imp of male Sprague-Dawley rats were determined at different times (1, 3, 5, 10, 20, 40, 60, 120, and 240 min). When only Ost was given, the elimination of Ost was very fast, $t_{1/2}$ was only 38 min. When intravenous injection of TCCM was done, the elimination of Ost slowed down apparently, $t_{1/2}$ was prolonged to 109.849 ± 9.833 min. Similar behavior was observed with Ost, $t_{1/2}$ of Imp through oral administration was longer than intravenous injection of TCCM, which means that the elimination of Imp in TCCM is slower than using Imp separately. Ost and Imp could be absorbed quickly in rats, and arrived peak concentration in 1 h in plasma after oral administration. The bioavailability of Ost and Imp in rats was 45.491 and 52.244%, respectively, which showed that both components were well absorbed. These results indicated that the absorption of Ost and Imp were rapidly in rats, and the bioavailabilities of both two components were relatively high. The pharmacokinetic profiles of Ost and Imp were different from each other in two administration routes, and so does the using of TCCM while them separately. Other components in TCCM can slow down the elimination of Ost and Imp significantly in rats.

KEY WORDS: *Cnidii Monnieri* total coumarins, HPLC, Imperatorin, Osthole, Pharmacokinetics.

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