Magnolol Nanosuspension Increased the Oral Bioavailability of Magnolol and its Metabolites in Rats

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Magnolol, a water-insoluble polyphenol, was isolated from Magnolia officinalis. Although it was reported to possess many beneficial pharmacological activities including anti-oxidation, anti-inflammation and antibacterial effect, the low bioavailability of magnolol would limit its application in clinic. To improve the drawback, we made an attempt to prepare nanosuspension of magnolol by nanoprecipitation method with polyvinylpyrrolidone k-30. The pharmacokinetic studies in rats were used to assess the performance of the new dosage form. After orally administered with 50 mg/kg of the three kinds of dosage form (magnolol, solid dispersion and nanosuspension), respectively, blood samples were withdrawn via cardiopuncture at designated time. The serum concentrations of magnolol and its metabolites were determind by HPLC before and after hydrolysis with sulfatase/glucuronidase. The results showed that the Cmax and AUC of magnolol and its metabolites were significantly increased after oral administration of the nanosuspension preparation. In conclusion, the nanosuspension of magnolol was in compliance with the speculation, showing significant increase on the bioavailability of magnolol in rats.

Key words: Nanosuspension, magnolol, bioavailability