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### The processing mechanism of traditional Chinese medicine radix polygoni multiflori based on pharmacokinetics study *in vivo*

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The processing of Traditional Chinese Medicine (TCM) is a unique processing technology. In this study, it proposed a scientific hypothesis that the processing of TCM might mainly enhance/reduce absorption of effective ingredients *in vivo* for the purpose of enhancing efficacy and reducing toxicity. Radix polygoni multiflori was selected as an example. The liquid chromatography-mass spectrometry (LC-ESI-MS/MS) analysis method was successfully developed and validated to determine five active ingredients including gallic acid, polydatin, 2,3,5,4'-tetrahydroxystilbene-2-O- $\beta$ -D-glucosid (PM-SG), resveratrol and emodin after oral administration of the raw radix polygoni multiflori (R-RPM) extract (3.3 g·kg<sup>-1</sup>) and processed radix polygoni multiflori (P-RPM) extract (1.7 g·kg<sup>-1</sup>). The influence of processing on the absorption of five active ingredients in rats was been studied. The results demonstrated that C<sub>max</sub> and AUC of gallic acid were increased, but C<sub>max</sub> and AUC of PM-SG were decreased. AUC of polydatin and emodin were similar with that of PM-SG. Meanwhile, the effects of dose on the absorption of four typical constituents were also studied. The results showed that the absorption proportion of four typical constituents has positively correlated with the dose ratio. These results demonstrated that influence of the processing could improve the bioavailability of gallic acid and reduce the absorption of PM-SG, polydatin and emodin in rats. The LC-MS/MS method could be used to evaluate the effect of processing on pharmacokinetic of typical constituents in radix polygoni multiflori after oral administration.

#### Biography

Yan-xu Chang, now is Associate Professor of Institute of Traditional Chinese Medicine, Tianjin University of Traditional Chinese Medicine, the gainer of Program for "131" Excellent Talents Tianjin and young talents of Tianjin plans for promoting science and technology innovation talents. He got his BSc in biology science, MSc in medicine plant at inner Mongolian University, Doctor Degree in pharmaceutical analysis at China Pharmaceutical University. He was a Postdoctorate at Tianjin University of Traditional Chinese Medicine and Jiangsu Kanion Pharmaceutical Co. Ltd., China from 2010 to 2014, Academic Visitor of Imperial College London from 2012.10 to 2013.01. He is well experienced in the field of pharmacognosy and phytochemistry. He has developed and validated bioanalytical and analytical methods for herbal medicine and its metabolites to support drug discovery and development. He has published more than 50 papers in reputed journals.

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