Pharmacokinetics, tissue distribution and excretion of gallic acid and protocatechuic acid after oral administration of *Polygonum capitatum* extract in rats

A sensitive, reliable and accurate HPLC-MS-MS method was developed and validated for the quantification of Gallic Acid (GA) and Protocatechuic Acid (PCA) in rat plasma, tissue and excretion. A single-step protein precipitation by acidic acetonitrile was used to prepare samples. GA, PCA and bergenin (internal standard, IS) were separated by using a C18 column and a mobile phase consisted of acetonitrile and water containing 0.1% formic acid running at a flow rate of 0.2 ml/min for 10 min. Detection and quantification were performed using a mass spectrometer by the Multiple-Reaction Monitoring (MRM) in positive electrospray ionization mode. The optimized mass transition ion pairs (m/z) for quantitation were [M+H]+ 169.181→125.268 (GA), 152.918→109.244 (PCA) and 326.922→192.167 (IS), respectively. After oral administration of 0.36, 1.08 and 2.16 g•kg\textsuperscript{-1} of *Polygonum capitatum* extract, respective values of pharmacokinetic parameters for GA and PCA were: t\textsubscript{1/2} 1128.52/42.81, 93.72/90.15 and 114.70/49.80 min, C\textsubscript{max} 245.98/11.90, 477.20/24.66 and 805.76/31.04 ng•ml\textsuperscript{-1}. Linear pharmacokinetics was established based on high correlation coefficients (γ> 0.90) of pharmacokinetic parameters. The results of tissue distribution showed that GA mainly distributed in kidney, lung and liver, while PCA mainly distributed in kidney and lung. Less than 23.08% and 19.39% prototype of GA and PCA, respectively, were excreted from urine and feces path indicating that GA and PCA are extensively metabolized in rat.

Biography

Xin Zhou has completed her PhD from West China School of Pharmacy, Sichuan University. She is currently the Director of Guizhou Engineering Laboratory for Quality Control & Evaluation Technology of Medicine, a premier herbal medicine quality control service organization. She has published more than 150 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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