

Pharmacokinetics and Tissue Distribution of Resveratrol and Emodin in Rats after Intake of *Polygonum cuspidatum*

Yu-Chi Hou¹, Shiuan-Pey Lin¹, Chung-Ping Yu¹, Chi-Sheng Shia¹,
Miau-Hwa Ko², Meng-Hao Wu³, Hsueh-Jung Liu⁴, Shang-Yuan Tsai¹

¹School of Pharmacy, China Medical University, ²School of
Pharmaceutical Sciences and Chinese Medicine Resources, China
Medical University, Taichung, Taiwan, R.O.C.

Abstract

The rhizome of *Polygonum cuspidatum* (PC) contains polyphenols such as resveratrol and emodin. In order to understand the pharmacokinetics and tissue distribution of polyphenols in PC, rats were given water extracts of PC. At predetermined time points, blood samples were withdrawn via cardiopuncture. In addition, after 7 doses of PC (2 g/kg), the brain, liver, lung, kidney, and heart were collected. The concentrations of resveratrol and emodin as well as their metabolites in plasma and tissues were assayed by using HPLC. The results showed that the major forms in plasma were glucuronides/sulfates of resveratrol and glucuronides of emodin, whereas no free forms were detected. In the studied organs, the conjugated metabolites of resveratrol and emodin

were the major molecules, except emodin present mainly as free form in liver. In conclusion, conjugated metabolites of resveratrol and emodin are predominant in the circulation and most organs after intake of PC.