Effect of Dihydromyricetin on Cytochrome P450 Isoforms CYP1A2, CYP2C9 and CYP3A4 in Rats

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SUMMARY. The purpose of this study was to find out whether dihydromyricetin (DMY) influences the effect on rat cytochrome P450 (CYP) enzymes (CYP1A2, CYP2C9 and CYP3A4) by using cocktail probe drugs in vivo. A cocktail solution at a dose of 5 mL/kg, which contained phenacetin (20 mg/kg), tolbutamide (5 mg/kg) and midazolam (10 mg/kg), was given as oral administration to rats treated with 14 days oral administration of DMY. Blood samples were collected at a series of time-points and the concentrations of probe drugs in plasma were determined by HPLC-MS/MS. The corresponding pharmacokinetic parameters were calculated by the software DAS 2.0. Our study showed that treatment with multiple doses of DMY had no effect on rat CYP1A2. However, DMY had significant inhibition effect on CYP2C9, and CYP3A4 enzyme activity was induced after multiple doses of DMY treatment. DMY can either inhibit or induce activities of CYP2C9 and CYP3A4. Therefore, caution is needed when DMY is co-administration with some CYP substrates in clinic, which may result in herb-drug interactions.