In vitro study of modulatory effects of extracts of Strobilanthes Crispus on human cDNA-expressed cytochrome P450 2A6 (CYP2A6) and CYP3A4

ABSTRACT

Aim: Cytochrome P450 (CYP) 2A6 and CYP3A4 play important roles in biotransformation of endogenous substances as well as xenobiotics. Strobilanthes crispus (L.) Blume (S. crispus) has been found to have anti-cancer activities and this was suggested to be due to inhibition of enzymes involved in metabolic activation of procarcinogens. The purpose of this study was to look into the potential inhibitory effects of various extracts (aqueous, hexane, chloroform, ethyl acetate, and methanol) of S. crispus from leaf and stem on human cDNA-expressed CYP2A6 and CYP3A4 activities. Methods: The activity of CYP2A6 was examined via a fluorescence-based 7-hydroxylase coumarin assay. Meanwhile, high performance liquid chromatography (HPLC)-based testosterone 6β-hydroxylase assay was established to assess CYP3A4 activity. Results: It was shown that none of the extracts from both leaf and stem potently inhibited CYP2A6 and CYP3A4 activities with IC_{50}values above 100µg/ml. Conclusion: The anticancer potency of S. crispus is unlikely due to the modulation of CYP2A6 and CYP3A4 activities, while other mechanisms might be involved and merits further investigation. On the other hand, potential drug-herb interactions occurring between CYP2A6 and CYP3A4 substrates and S. crispus preparations is relatively low, which requires further investigations via in vivo animal as well as clinical studies.

Keyword: CYP2A6; CYP3A4; Drug-herb interaction; Procarcinogen-activation; Strobilanthes crispus