포스터 33

Inhibitory Potential of Natural Compounds on the CYP2A6-Mediated Metabolism

Chen Heng

Inje University College of Medicine

Objective: Nicotine is one of the most important components of cigarette, and the key factor that smokers keep smoking behavior. Plenty researches have shown that CYP2A6 enzyme?s activity has great influence on development of smoking behavior and give up smoking. In present study, we investigated the inhibitory potential of herbal extracts and flavonoids on CYP2A6 activity.

Methods: In order to find inhibitors having strong inhibitory potential on CYP2A6 activity, we investigated the inhibitory potential of 240 herbal extracts and 34 flavonoids on CYP2A6 activity using human liver microsomal and cytosolic fractions. The incubation samples were analyzed by high performance liquid chromatography.

Result: Among herbal extracts tested, several herbs such as Cnidium monnieri, Psoraleae Semen; Psoralea corylifolia; Albizzia Julibrissin; Tanacetum vulgare and Angelicae Dahuricae Radix, showed strong inhibitory potential on CYP2A6-catalyzed coumarin 7-hydroxylase activity with an IC50 values of 0.7?0.1; 1.2?0.2; 1.20?0.30; 5.5?0.4; 2.7?0.7, and 4.0?0.6 ?g/ml, respectively. However, these herbal extracts showed weak inhibition on CYP2A6-catalyzed nicotine C-oxidase activity. In addition, we found strong inhibitory potential on nicotine C-oxidase activity from some flavonoids including datiscetin, eriodictyol, epicatechine, taxifolin, and 3,3',4'-Trihydroxyflavone. The inhibitory effects of these flavonoids are much stronger than those of daidzein and genistein, a well-known CYP2A6-catalyzed nicotine C-oxidase inhibitor, and the IC50 value of these flavonoids are 0.20, 0.48, 1.69, 2.15, 5.55, and 7.20 ?M, respectively.

Conclusions: Flavonoids show much strong inhibitory effects on nicotine c-oxidation than that of herbal extracts. These flavonoids may be used as smoking cessation agent. Further studies are remained to evaluate the inhibitory effect of flavonoids in vivo through animal study and clinical trial.