this study, we assayed the preventive and therapeutic effects of aqueous extract from the roots of Platycodon grandilflorum A. DC, Changil (CK) in human microvessel endothelial cell-1 (HMEC-1) angiogenesis. CK inhibited cell migration and in the presence of CK proliferation of HMEC-1 was inhibited in a dose-dependent manner. CK also inhibited the tube formation in a dose-dependent manner. In these assays, 40% inhibition was showed in high does of CK (800 ug/ml). These results demonstrated that prevention of angiogenesis by CK was mediated by inhibition of proliferation and migration of endothelial cells.

[PA4-15] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Hepatoprotective Effects of the Acteoside on Carbon tetrachloride ?Induced Liver Damage in Mice

Oh DeukHee°1, Lee KyungJin 1, Woo EunRhan1 Choi ChulYung 2, Jeong HyeGwang 1

1Department of Pharmacy, College of Pharmacy, Research Center for Proteineous Materials, Chosun University, Kwangju, Korea. 2Division of Food Science, Jinju International University, Jinju, Korea

The protective effects of acteoside, a phenylethanoid glycoside, on carbon tetrachloride-induced hepatotoxicity and the possible mechanisms involved in this protection were investigated in mice. Pretreatment with acteoside prior to the administration of carbon tetrachloride significantly prevented the increased serum enzymatic activities of alanine and aspartate aminotransferase in a dose-dependent manner. In addition, pretreatment with acteoside also significantly prevented the elevation of hepatic malondialdehyde formation and the depletion of reduced glutathione content in the liver of carbon tetrachloride?intoxicated mice. However, hepatic reduced glutathione levels and glutathione-S-transferase activities were not affected by treatment with acteoside alone. Carbon tetrachloride?induced hepatotoxicity was also essentially prevented, as indicated by a liver histopathologic study. The effects of acteoside on the cytochrome P450 (P450) 2E1, the major isozyme involved in carbon tetrachloride bioactivation were also investigated. Treatment of mice with acteoside resulted in a significant decrease of P450 2E1-dependent p-nitrophenol and aniline hydroxylation in a dose-dependent manner. Consistent with these observations, the P450 2E1 expressions were also decreased, as determined by immunoblot analysis. Acteoside showed anti-oxidant effects in FeCl2?ascorbate induced lipid peroxidation in mice liver homogenate and in superoxide radical scavenging activity. These results suggest that the protective effects of acteoside against carbon tetrachloride-induced hepatotoxicity possibly involve mechanisms related to its ability to block P450-mediated carbon tetrachloride bioactivation and free radical scavenging effects.

[PA4-16] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Effects of Platycodi Radix on Hepatic Fibrosis in Rats

Lee KyungJin°1, Kim YoungSup2, Ryu SiYung2, Chung YoungChul3, Choi ChulYung3, Cho YoungSoo4, Jeong HyeGwang1

1DepartmentofPharmacy,CollegeofPharmacy,ResearchCenterforProteineousMaterials,ChosunUni., 2KoreaResearchInstituteofChemicalTechnology,Taejon, 3DivisionofFoodScience,JinjuInternationalUni.,Jinju. 4DepartmentofR&D,JangsaengDorajiCo.Ltd.Jinju

Herbal medicines are increasingly being utilized to treat a wide variety of disease processes. We previously reported that aqueous extract from the roots of Platycodon grandiflorum A. DC (Campanulaceae), Changkil (CK), had hepatoprotective effects against acetaminophen induced

liver injury. In the present study, we assayed the preventive and therapeutic effects of CK on experimental hepatic fibrosis induced by dimethylnitrosamine or carbon tetrachloride in rats. Rats were given a single intraperitoneal injection of 20 mg/kg dimethylnitrosamine or 0.5 ml/kg carbon tetrachloride twice weekly for 4 weeks. In each model, CK was given orally at 10-200 mg/kg daily for 4 weeks. CK reduced the hepatic levels of malondialdehyde, a production of lipid peroxidation and partially prevented the marked decrease in body weight and reduced the mortality rate. The degree of fibrosis was evaluated by image analysis and also by measurements of collagen and hydroxyproline content in the liver. CK treatment significantly decreased the dimethylnitrosamine- or carbon tetrachloride-induced collagen and hydroxyproline contents. Immunohistochemical examination showed that CK reduced the deposition of type I and III collagen and the expression of a-smooth muscle actin in the liver in a dose-dependent manner. These findings indicate that CK suppress the induction of hepatic fibrosis and suggest that CK might be useful therapeutically in hepatic fibrosis/cirrhosis.

[PA4-17] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Inhibition of hepatic stellate cell collagen synthesis by an aqueous extract isolated from Platycodon grandiflorum

Lee KyungJin°, Jeong HyeGwang

Department of Pharmacy, College of Pharmacy, Research Center for Proteineous Materials, Chosun University, Kwangju, Korea

The protective effects on hepatic fibrosis of an aqueous extract from the roots of Platycodon grandiflorum A. DC (Campanulaceae), Changkil (CK), in hepatic stellate cell line, CFSC-2G. The increased deposition of extracellular matrix by hepatic stellate cells following liver injury in a process known as activation is considered a key mechanism for increased collagen content of liver during the development of liver fibrosis. We report that CK reduces the accumulation of collagen in a rat model of liver injury and fibrosis. The accumulation and synthesis of collagen were measured by Marson-Trichrom stain and pulse-labeling with [3H]-proline, respectively. As the results, CK inhibited collagen accumulation in a dose dependent manner. Furthermore, CK selectively inhibited the incorporation of proline in CFSC-2G. In vivo, oral administration of CK to rats significantly reduced the hepatic collagen accumulation in response to dimethylnitrosamine (DMN)-induced liver injury. The effect of CK on collagen accumulation and expression of alpha-smooth muscle actin (a-SMA) in vivo was evaluated utilizing a rat model of hepatic fibrosis. CK reduced collagen contents and a-SMA expressions compared with the. These results suggested that the protective effects of CK on the hepatic fibrosis in stellate cell line may, at least in part, be due to its ability to reduce the accumulation of collagen and blocked activation of stellate cells in DMN-induced liver fibrosis.

[PA4-18] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Suppressive Mechanism of Platycodi Radix in B16F10 Melanoma Cell Metastasis

Lee KyungJin°, Jeong HyeGwang

Department of Pharmacy, College of Pharmacy, Research Center for Proteineous Materials, Chosun University, Kwangju, Korea.

Herbal medicines are increasingly being utilized to treat a wide variety of disease processes. In this study, we assayed the preventive and therapeutic effects of aqueous extract from the roots of Platycodon grandilflorum A. DC, Changil (CK) on experimental metastasis induced by melanoma cell (B16F10) in C56BL6 mice. The functional specificity of CK was investigated in