

[PD2-41] [10/17/2002 (Thr) 09:30 - 12:30 / Hall C]

Cytotoxicity and Antimutagenic Activity of the Thorns of *Gleditsia sinensis* Lam.

Choi HoGyu^o, Lee DongUng, Lim JaeChul, Park JongHee, Ryu ShiYong

Department of Biochemistry, Dongguk University, Gyeongju; College of Pharmacy, Pusan National University; Korea Research Institute of Chemical Technology

Gleditsia sinensis Lam. (Leguminosae) is a perennial shrub distributed in Gyeongju in Korea and throughout China. Its thorns called "Jo Gak Ja" (Korean name) or "Zao Jia Ye" (Chinese name) have been known to possess an antiinflammatory effect. Korean "Jo Gak Ja", a speciality of Gyeongju, is much longer and thicker than that of Chinese one. The extract and fractions of Korean *Gleditsia sinensis* were examined for their cytotoxicities against five cultured human tumor cell lines, i.e. A549 (non-small cell lung), SK-OV-3 (ovary), SK-MEL-2 (melanoma), XF498 (central nerve system) and HCY15 (colon), using the SRB (sulfrhodamine-B) method *in vitro* and their antigenotoxic and antimutagenic activities by Ames test with *Salmonella typhimurium* TA98 and TA100 and SOS chromotest with *E. coli* PQ37.

The present work introduces the inhibitory effects of the total extract and four fractions on the proliferation of each examined tumor cell line and demonstrates antimutagenic activities against the mutagens. NPD and sodium azide by Ames test and also activities against the mutagens, MNNG and NQO by SOS chromotest.

[PD2-42] [10/17/2002 (Thr) 09:30 - 12:30 / Hall C]

Free Radical Scavenging Compounds of *Polygoni Multiflori Ramulus*

Li Xun^o, Kim MiHee, Ko EunKyung, Jun JungYang, Oh MyungHun, Shin HwaWoo, Kim YounChul

MRRC and College of Pharmacy, Wonkwang University

There is now increasing evidence that free radicals and active oxygen species are involved in a variety of pathological events, often associated with ageing. Free radical-mediated cell damage and free radical attack on polyunsaturated fatty acids result in the formation of lipid radicals. These lipid radicals react readily with molecular oxygen to produce peroxy radicals responsible for initiating lipid peroxidation. The peroxidation of cellular membrane lipid can lead to cell necrosis and considered to be implicated in a number of pathophysiological conditions as well as in the toxicity of many xenobiotics. Therefore, substantial efforts have been made in recent years to identify both natural and synthetic antioxidants. In the course of screening for free radical scavenging activity from plants, the methanolic extract of *Polygoni multiflori Ramulus* was found to have a promising activity. Assay-guided fractionation of this extract has been furnished five phenolic compounds, four quercetin glycosides and catechin, with DPPH free radical scavenging effect.

[PD2-43] [10/17/2002 (Thr) 09:30 - 12:30 / Hall C]

Free radical scavenging phenolic compounds of the leaves of *Juglans sinensis*

Kim MiHee^o, Ko EunKyung, Jun JungYang, Li Xun, Oh MyungHun, An NyeonHyoung, Kim YounChul

MRRC and College of Pharmacy, Wonkwang University

Free radical-mediated cell damage and free radical attack on polyunsaturated fatty acids result in the formation of lipid radicals. These lipid radicals react readily with molecular oxygen to produce peroxy radicals responsible for initiating lipid peroxidation. The peroxidation of cellular membrane lipid can lead to cell necrosis and considered to be implicated in a number of pathophysiological conditions as well as in the toxicity of many xenobiotics. DPPH is known to abstract labile hydrogen and the ability to scavenge the DPPH radical is related to the inhibition of lipid peroxidation. In the course of screening for free radical scavenging activity from plants, the

methanolic extract of the leaves of *Juglans sinensis* was found to have a promising activity. Assay-guided fractionation of this extract has been furnished DPPH free radical scavenging flavonoids and stilbens.

[PD2-44] [10/17/2002 (Thr) 09:30 ~ 12:30 / Hall C]

Screening of monocyte chemoattractant protein-1-induced chemotaxis inhibitors from medicinal herbs

Lee SeungWoong^o, Kwon OhEok, Lee JeongHyun, Kim YoungHo, Rho Mun-Chual, Lee HyunSun, Kim YoungKook

Laboratory of Lipid Metabolism, Korea Research Institute of Bioscience and Biotechnology, P.O. Box 115, Yusong, Taejeon 305-600, College of Pharmacy, Chungnam National University, Taejeon 305-764, Korea

Blood monocytes are the precursors for the lipid-laden foam cells of early atherosclerotic lesions. Monocyte chemoattractant protein-1 (MCP-1), a CC chemokine, and chemokine receptor 2 (CCR2) play a crucial role in the recruitment of monocytes to the vascular lesion. Using the human monocyte THP-1 cell line, we investigated the inhibitory effects of methanol extracts of 127 medicinal herbs on MCP-1-induced chemotaxis. Seven kinds of methanol extracts of medicinal herbs showed above 40% inhibitory effect with the concentration of 25 $\mu\text{g/ml}$. Butanol extract of *Juncus effusus* and CHCl_3 extract of *Clematis mandshurica* showed significant inhibitory activities (above 50% inhibition) at the same concentration.

[PD2-45] [10/17/2002 (Thr) 09:30 ~ 12:30 / Hall C]

Tyrosinase and melanin biosynthesis inhibitory activities of crude drugs

Jun JungYang^o, Ko EunKyung, Kim MiHee, Li Xun, Park SungUk*, Kim YounChul

MRRC and College of Pharmacy, Wonkwang University, *Spela Co. Ltd., Seocho-dong, Seocho-gu, Seoul

Melanin biosynthesis inhibitors are useful not only for the materials used in cosmetics as skin-whitening agents but also for the remedy of hyperpigmentation. In order to find the new skin-whitening compounds from the natural products, screening of tyrosinase and melanin biosynthesis inhibitory activities in vitro has been carried out. The MeOH extracts and/or fractions of *Polygoni multiflori Radix*, *Dalbergiae odoriferae Lignum*, *Solnani nigri Herba*, *Polygoni cuspidati Radix*, *Polygoni multiflori Ramulus*, *Salviae Radix* showed tyrosinase inhibitory effects. Four methanolic extracts also showed melanin biosynthesis inhibitory effects in B-16 melanoma cell line.

[PD2-46] [10/17/2002 (Thr) 09:30 ~ 12:30 / Hall C]

Inhibitory Effects of Natural Plant extracts on ICAM-1/LFA-1 Mediated Adhesion of HL-60 Cells

Kwon OhEok^o, Lee SeungWoong, Chung MiYeon, Kim YoungHo, Rho Mun-Chual, Lee HyunSun, Kim YoungKook

Laboratory of Lipid Metabolism, Korea Research Institute of Bioscience and Biotechnology, Taejeon, 305-333; College of Pharmacy, Chungnam National University, Taejeon, 305-764, Korea

Atherosclerosis is a progressive disease characterized by the accumulation of lipids and fibrous elements in the arteries. Monocytes/macrophages are involved in many aspects of the development of atherosclerotic plaques. It is known that the intercellular adhesion molecule-1 (ICAM-1) expressed preferentially on endothelial cells of atherosclerotic plaque, promotes local adhesion and transendothelial migration of monocytes, neutrophils, and lymphocytes. Using the human promyelocytic leukemia HL-60 cell line, we investigated the inhibitory effects of methanol extracts of 175 plants on ICAM-1/LFA-1 mediated cell adhesion. Eight kinds of methanol extracts of tested plants inhibited PMA-induced homotypic aggregation of HL-60 cells without cytotoxicity at the concentration of 6.25 $\mu\text{g/ml}$. CHCl_3 extracts (1.0 $\mu\text{g/ml}$) of *Saururus chinensis* and *Chloranthus japonicus* significantly inhibited aggregation of HL-60 cells without cytotoxicity.