

Hwang-Chil, a natural resources of Korea, doesn't have a side effects and has excellent bone cell proliferation. We will be able to use Hwang-Chil to cure and develop various disease that require tissue regeneration, such as osteoporosis and bone fracture and be used in the orthopedic area. In this study, we observed the effect of Hwang-Chil extract and concentration on osteoblast proliferation, alkaline phosphatase(ALP) activity and calcification. For the study, after getting methanol extracts of Hwang-Chil, according to polarity degree, we separated and condensed it sequentially into hexane, chloroform, methanol and water fraction in powder form. And it was prepared by Mg-63, osteoblast-like cell line from human osteomatomoid. In order to observe the effect of Hwang-Chil on cell proliferation, we made three concentrations of 0.001mg/ml, 0.01mg/ml, 0.1mg/ml with Hwang-Chil fraction. In the process of cultivating MG-63 cell line, drugs were added, and they were cultivated for 72 hours. Then, cell proliferation was examined by measuring optical density at 540nm. To measure alkaline phosphatase(ALP) activity, cultivated MG-63 cell line was made into cell lysate with drug in media, and substrate was prepared by dissolving 200mM alanine, 2mM α -keto glutaric acid in 0.1M phosphate buffer, and 2,4-dinitrophenylhydrazine was added, and measured at 540nm. Among Hwang-Chil extracts, hexane, chloroform extracts did not affect the proliferation in concentration of 0.001mg/ml, 0.01mg/ml, and has toxic effect in concentration of 0.1mg/ml. In methanol extracts, proliferation was observed to have the highest in all concentration. When the concentration of fraction the multiplication rate was high, ALP activity appeared to be highest and also ALP activity was diminished when multiplication rate was low. These results suggested that methanol/water fraction could exert stimulatory effect on osteoblast proliferation in addition to enhancing effect on proliferation differentiation, we learned that Hwang-Chil methanol/water fraction has osteoblastogenesis ability.

[PA3-10] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Protection of Paeoniae radix from H₂O₂-induced oxidative DNA damage

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Paeoniae radix is commonly used for various woman's health problems in traditional Korean medicine. In order to develop new antioxidant for woman use, the ethanolic extracts of paeoniae radix (PRE) were prepared and various biological activities were evaluated. PRE showed potent free radical scavenging activity and moderate antioxidative activity in vitro, and also showed the protective effect on H₂O₂-induced DNA damage in mammalian cell. The major constituents such paeonol, paeoniflorin, oxypaeoniflorin, benzoyl paeoniflorin, gallic acid and methyl gallate were isolated from paeoniae radix. Among them, gallic acid and methyl gallate showed strong activities on free radical scavenging and antioxidative effect without any prooxidant effect, whereas paeoniflorin, oxypaeoniflorin, and benzoyl paeoniflorin did not reveal. Gallic acid and methyl gallate also showed the protective effect on H₂O₂-induced DNA damage. Results from the present study demonstrated that Paeoniae radix may be a potential agent for use in the prevention of oxidative stress.

[PA3-11] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Chemopreventive effect of Ginkgo biloba extract on breast cancer: Regulation of estrogen level

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In situ and circulating estrogen is the most important endocrine hormone that promotes the growth of hormone-dependent breast cancer. Consequently, decrease of estrogen on in situ and circulation can inhibit breast cancer. Estrogen is mainly produced by the ovary in premenopausal women and by peripheral tissues such as adipose tissues in postmenopausal women. The cytochrome p450 (CYP19), aromatase, is a key enzyme in the synthesis of estrogen hormones. Estrogen is metabolized hydroxylated estrogen by cytochrome P450 enzymes, which are expressed in the mammary gland, uterus, brain and other target tissues for estrogen action. Ginkgo biloba extract (GBE) is the active ingredients, which is extracted from the dried, tow-lobed fan-shaped leaves of the Ginkgo biloba tree. This contain in 24 % flavonoid glycosides and 6% terpene lactones. It has reported that some of flavonoids inhibit estrogen synthesis and stimulate E₂ metabolism. Therefore, GBE containing in flavonoids is possible to regulate estrogen level, which has important role of breast cancer. However, little is

known about these effects of GBE and its major flavonoids (quercetin, kaempferol and isorhamnetin). In order to evaluate action of GBE and its major components as chemopreventive agents in breast cancer, we measured the effects of these compounds on estrogen synthesis (aromatase activity) and metabolism. The aromatase activity was determined by measuring the [3H] H₂O released upon the conversion of [1 β -3H] androstenedion to estrone in JEG-3, human choriocarcinoma cell. E2 metabolism was investigated using the radiometric analysis in MCF-7 human breast cancer cell. In these results, GBE and its major metabolites inhibited aromatase activity and stimulated E2 metabolism. Consequently, these results demonstrated that down regulation of E2 level by these compounds may be the important role that prevents breast cancer.

[PA3-12] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Studies on the protective effect of Cheju and Brazil pectin on the male reproductive system damaged by 2,3,7,8-tetrachlorodibenzo-P-dioxin

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The adverse health effects on humans and domestic and wildlife species by exposing to environmental contaminants, which interact with the endocrine system, have been treated as an important issue without hesitation throughout the 1990s. The chemicals with practical and/or potential interfering actions with the endocrine system functions are called endocrine disrupting chemicals (EDCs). Amongst these chemicals, 2,3,7,8-tetrachlorodibenzo-P-dioxin (TCDD) have been linked to unwanted consequences in endocrine function particularly when the exposure occurs during the development period in animal models. In humans, the consequences of prenatal exposure to TCDD on the reproductive tract of both females and males have been identified and developmental neurological problems of TCDD in children are well known. Furthermore, many articles indicating declines in the quality and quantity of sperm production in humans over the last four decades, and increases in certain endocrine-related cancers have given speculation about environmental etiologies and development of protective agents against EDCs.

With all these reasons, this study focused on investigating the protective effects of pectin, Cheju and Brazil mandarin extract, on 2,3,7,8-tetrachlorodibenzo-P-dioxin (TCDD) induced male reproductive system damages, such as reduction of sperm motility, organ (seminal vesicle, prostate, testis) to body weight index in animal model by performing Hershberger assay. The results of this investigation suggested that the pectins extracted both from Cheju and Brazil mandarin peel showed similar protective effects giving possibility of developing as functional food.

[PA3-13] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Levels of organochlorine pesticides and PCB congeners in Korean human tissues

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Organochlorine pesticides and polychlorinated biphenyls (PCBs) have been used intensively in agriculture and industry for a long time. They belong to a group of contaminants whose occurrence in the environment is a serious concern to environmental chemists and toxicologists due to their resistance to degradation in the environment as well as their potential toxicity. Also, the lipophilic characteristics of these substances are responsible for their ability to bioaccumulate in tissues and organs rich in lipids of men and animals through food chain. Therefore, the measure of the levels of organochlorine pesticides and PCBs in human tissues are good markers in determining the extent of exposure and evaluating the hazards. This study was performed to compare concentrations of organochlorine pesticides (α -BHC, β -BHC, γ -BHC, δ -BHC, p,p'-DDT, p,p'-DDD, p,p'-DDE, endrin, dieldrin, aldrin) and seven marker PCBs (PCB nos. 28, 52, 101, 118, 138, 153, 180) in liver, kidney cortex, lung blood and adipose tissue collected at autopsies of 10 men and 10 women using gas chromatography equipped with electron capture detector to express the data on a lipid adjusted basis. From the results, the significant differences in the levels of organochlorines or PCBs between sexes, districts where they had lived and ages were also investigated.