

In a continuity of our search for a novel angiogenesis inhibitor(s) for anticancer therapy from natural sources, we have screened a large number of Vietnamese medicinal plants. It was found that seven out of fifty-eight of methanol extracts of Vietnamese medicinal plant materials showed strong to moderate antiangiogenic activity in vitro angiogenesis assay using HUVEC model. These plants include *Ephedra sinica* (herba), *Ceiba pentandra* (stem), *Ceiba pentandra* (leaves), *Coix lachryma jobi* (semen), *Drynaria fortunei* (rhizoma), *Illicium verum* (fructus), *Illicium verum* (stem), and *Bombax ceiba* (stem). Of these, the methanol (MeOH) extracts of *Ephedrae sinicae* herba, *Ceibae pentandrae* stem exhibited the strongest inhibitory effects on in vitro tube formation (inhibition ratios of 89.12 and 87.54 % at 30, and 100 ug/mL, respectively).

[PD1-27] [ 10/20/2000 (Fri) 11:30 - 12:30 / [Hall B] ]

### Study of the Amyloid Precursor Protein(APP) Changes in Transmembrane Domain Using Cellular Automata(CAs)

Song YW<sup>o\*</sup>, Kim SW\*, Shim MJ

Dept. of Life Sci., University of Seoul, \*Dept. of Chem. Eng., University of Seoul

Alzheimer's disease is caused by the penetration, aggregation and deposition of  $\beta$ -amyloid peptide( $\beta$ AP). An  $\beta$ AP has the characteristics of amphiphilic peptide with a hydrophilic and a hydrophobic segment. This hydrophobic segment is C-terminus domain, which interacts with lipid membrane. The segment is located at the transmembrane domain of the amyloid precursor protein (APP). A  $\beta$ AP is formed after mutations and cleavages of an APP those are occurred in transmembrane. For this reason, the mutations and cleavages of an APP are very significant. In this study, we studied structure characteristics of an APP. Structural changes of an APP and formation of a  $\beta$ AP were simulated using cellular automata(CAs). In CAs simulation, large extracellular domain, transmembrane domain, and cytoplasmic tail were depicted by different colors. The mutation and cleavages were shown by other colors, also. From the results, it seems that CAs effectively simulated the phenomena in transmembrane domain.

[PD2-1] [ 10/20/2000 (Fri) 11:30 - 12:30 / [Hall B] ]

### A Simple and Sensitive Enzyme-linked Immunosorbent Assay for the Determination of Ginsenoside F1

Jung DW<sup>o</sup>, Choi EJ, Lee JM, Sung CK

Lab. of Pharmacognosy, College of Pharmacy, Chonnam National University, Kwangju 500-757, Korea

*Panax ginseng* C. A. Meyer contains many kinds of glucosides of dammarane type triterpenes, protopanaxadiol (PPD) and protopanaxatriol (PPT), as main constituents. Ginsenoside F<sub>1</sub> (G-F<sub>1</sub>), a PPT type saponin, was isolated from the leaves of this plant. In order to evaluate the quality of commercial ginseng extracts, a specific and highly sensitive ELISA of G-F<sub>1</sub> was explored. High titer polyclonal antibodies were raised against G-F<sub>1</sub>-BSA conjugate. The optimum antibody dilution for the assay was found to be 80,000-fold and 6  $\mu$  g/ml of G-F<sub>1</sub>-ovalbumin was used for solid phase coating. The working range of this assay is 1.25 pg/well ~ 125 pg/well. Cross reactivity of the antibody was investigated to determine its specificity. As a result, the antibodies showed 34.79% of cross-reactivity with PPT, the aglycone of G-F<sub>1</sub>.

However, they exhibited minor or even no cross-reactivities with PPD (0.11%) and other ginsenosides tested (G-Re: 0.85%; G-Rg<sub>1</sub>: 0.51%; G-Rb<sub>1</sub>: <0.01%; IH-901: 0.03%). The ELISA was compared with HPLC; there was a good correlation (r=0.959). Therefore, this ELISA method can be a very useful tool for measuring trace amounts of G-F<sub>1</sub>.

[PD2-2] [ 10/20/2000 (Fri) 11:30 - 12:30 / [Hall B] ]

**Three oligosaccharides from the roots of *Rhododendron yedoense* var. *poukhanense***

Park HJ<sup>o</sup>, Woo MH

Department of Pharmacy, College of Pharmacy, Catholic University of Daegu-Hyosung

The research about hair-growing agents has been an exciting subject since a long time ago. After the side effect, hirsuties, of minoxidil that was developed as depressant had been used treating the depilation, the studies of hair-growing agents have been taken an increasing interest. *Rhododendron yedoense* Max. et Regel var. *poukhanense* Nakai (Ericaceae) is a deciduous and latifoliate shrub growing in Korea and Japan. The roots of this plant have been known to be effective as hair-growing agents in the traditional medicine. But the phytochemical studies as well as hair growth effect of this plant have never been reported. To inquire into the constituents of this plant, the roots were extracted with 95% MeOH and MeOH Ext. was subsequently fractionated into four parts: chloroform, ethylacetate, n-butanol and water fractions. Chromatographic separation of the n-butanol fraction has yielded three oligosaccharides. Their structures were elucidated by chemical and spectral evidences.

[PD2-3] [ 10/20/2000 (Fri) 11:30 - 12:30 / [Hall B] ]

**Annoline, Gonionenin and Xylomaticin: A novel and two known bioactive mono-tetrahydrofuran acetogenins from *Annona cherimolia* seeds**

Kim DH<sup>o</sup>, Woo MH

Department of Pharmacy, College of Pharmacy, Catholic University of Taegu-Hyosung

The large number of research works on acetogenins from the Annonaceae is due to their broad range of potential biological rules, for example, cytotoxic, antitumor, antiparasitic, pesticidal, antimicrobial, and immunosuppressive activities. Currently, their number is more than 350. *Annona cherimolia* (Annonaceae) is a tree native of tropical south America (Peru), now cultivated for its edible fruits ("cherimoya") in a small pseudo-tropical area in the south of Spain. Our previous works on the seeds extract resulted in the isolation of nine novel and seven known acetogenins. Through further fractionation work, directed by the brine shrimp lethality test (BST), we have now isolated a novel (annoline) and two known (gonionenin and xylomaticin) bioactive acetogenins. All of the compounds are acetogenins of annonacin type. Annoline and gonionenin have a mono-THF ring with two flanking hydroxyls and possesses a double bond in their molecules. The structure of gonionenin and xylomaticin were known but were newly isolated from this plant.

[PD2-4] [ 10/20/2000 (Fri) 11:30 - 12:30 / [Hall B] ]

**Pyrrrole derivatives from *Lycium chinense***