

var. angustata

Hyoung Ja Kim^{0*}, Ji Sun Lee, Yeon Gyu Yu, Hokoon Park and Yong Sup Lee

Division of Life Sciences, Korea Institute of Science and Technology

Fraxinus sieboldiana var. *angustata* Nakai (Oleaceae) is one of the native plants of *Fraxinus* sp. in Korea. The bark of this plant called as "Gin Pi" has diverse pharmacological activities such as soothing, expectorant and anti-inflammatory activity. The isolations of hydroxycoumarins (e.g. esculin, fraxin, fraxetin, fraxinol, isofraxetin and esculetin) have been reported from several research groups over the past two decades.

By means of HIV gp-41 binding affinity directed chromatographic fractionation, three phenylpropanoid glycosides, calceolarinoside A (1), calceolarinoside B (2) and acteoside (3), along with four hydroxycoumarins (esculin, fraxin, fraxetin and esculetin) were isolated from *Fraxinus sieboldiana* var. *angustata*. The structures of these compounds were elucidated on the basis of spectroscopic methods. Three phenylpropanoid glycosides were isolated for the first time from this plant.

[OD-7] [04/20/2001 (Fri) 15:00 – 15:15 / Room 3]

Cytotoxic Acetylenes and a Pyridinium Alkaloid from the Stony Coral *Montipora* sp.

Alam N, Bae BH, Hong JK, Lee C-O, Kim ND, Song J I, Im K S and Jung JH*

Pusan National University, Korea Basic Science Institute, Korea Research Institute of Chemical Technology, Ewha Womans University

Stony corals have been found to contain interesting secondary metabolites, and the genus *Montipora* is especially rich in acetylenic compounds. Our continuing search for the cytotoxic constituents of the marine organisms has resulted in the isolation of a series of diacetylene derivatives from *Montipora* sp. All these acetylenes are either 2,4- or 5,7-diacetylenes and most of them have shown a significant cytotoxicity against a small panel of human solid tumor cell lines (A549, SK-OV-3, SK-MEL-2, XF-498, and HCT15). Montiporyne A has been found to induce apoptosis in human colon cells (HCT116). A new pyridinium alkaloid has also been isolated. The structures were elucidated based on combined spectroscopic data.

Reference:

1. Bae, B. H.; Im, K. S.; Choi, W. C.; Hong, J.-K.; Lee, C.-O.; Choi, J. S.; Son, B. W.; Song, J.-I.; Jung, J. H., *J. Nat. Prod.* 2000, 63, 1511-1514.

[OD-8] [04/20/2001 (Fri) 15:15 – 15:30 / Room 3]

A RAPID, ACCURATE, AND NONDESTRUCTIVE METHOD FOR THE DETERMINATION OF FAT, LACTOSE, PROTEIN, AND TOTAL SOLIDS IN RAW MILK USING NEAR-INFRARED TRANSMITTANCE SPECTROSCOPY

Woo YA, Sumio Kawano, Fuminori Terada*

National Food Research Institute, Tsukuba 305-8642, Japan, National Institute of Animal Industry, Inashiki 305-0910, Japan*

Near-infrared (NIR) transmittance spectroscopy has been applied to determine rapidly and nondestructively the content of fat, lactose, protein and total solids in raw milk. The spectral range

over 700 to 1100 nm was used to develop a calibration model. The milk samples from milking cow were measured without homogenization. The transmittance spectra were collected by using glass test tubes. The calibration model was developed and predicted by using partial least squares (PLS) algorithm. In order to reduce the scattering effect from fat globules in NIR milk spectra, multiple scattering correction was carried out and the scattering effect was successfully reduced. Accurate determination of milk composition was performed, showing the potential use of this method for real time on-line monitoring in a milking process.

Oral Presentations – Field E

[E1. Pharmaceutics] [E2. Pharmacokinetics] [E3. Physical Pharmacy]

[OE-1] [04/20/2001 (Fri) 13:30 – 13:45 / Room 4]

Processing Pharmaceuticals using Supercritical Fluids

Youn-Woo Lee^o

Supercritical Fluid Research Lab., Korea Institute of Science and Technology 39-1 Haweolkok-dong, Sungbuk-ku, Seoul 136-791 Korea

The application of dense gases for the processing of pharmaceuticals has attracted considerable interest in recent years. Supercritical anti-solvent (SAS) recrystallization process is considered a promising technology for the production of micron or submicron particles for pharmaceuticals. In this process, carbon dioxide is used as antisolvent for the solute, which is initially solubilized in a conventional solvent. Upon CO₂ addition, the dissolving power of the initial solution is reduced, and solute precipitation is triggered. Drugs are rapidly precipitated from organic solvents and resulting in the production of micro or submicro-particles with narrow particle size distribution. We have developed a continuous flow type apparatus for the process of Solution Enhanced Dispersion by Supercritical fluids (SEDS) and demonstrated that supercritical techniques are suitable for producing polymeric micro-particles such as poly(lactide-co-glycolide) (PLGA), poly(L-lactic acid) (PLLA) and polyglycolide (PGA) and submicro-particles of model proteins such as lysozyme and albumin. It is found that supercritical fluid process gives fine-tuning of particle size and particle size distribution by simple manipulations of the process parameters. We are able to produce large amount of pharmaceutical micro-particles continuously without any residual solvents. The proposed method will be applied as the basis of a new process for the preparation of drug delivery system.

[OE-2] [04/20/2001 (Fri) 13:45 – 14:00 / Room 4]

Adsorption of cyclosporin A during permeability study using Caco-2 cell monolayers

Lee DH^o, Han YH, Cui Y, Rhee YS, Park ES, Chi SC

성균관대학교 약제학연구소

The concentration of cyclosporin A (CsA) in diffusion cells was known to decrease significantly during transport across Caco-2 cell monolayers due to the adsorption of the drug onto the material of the diffusion cells. To find out the extent of adsorption of CsA, the adsorbed amounts of CsA on glassware and diffusion cells were determined. When 0.5 μ M–10 μ M CsA solutions were filled in 100ml