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In *in vitro* analysis of cytotoxic activity using RAW 264.7 murine tumor cells, dichloromethane extract of Korean mistletoe (*Viscum album var. coloratum*) showed significant activity against tumor cells. An active compound, which was designated as VD-3, was isolated from the extract by repeated silicagel chromatography and recrystallization. VD-3 exhibited strong cytotoxicity against RAW 264.7 as well as Colon 26-M3.1, NIH-3T3 and B16-BL6 tumor cells while it was not cytotoxic to normal cells (murine splenocytes). Tumor cells treated with VD-3 showed typical patterns of apoptotic cell death, such as apparent morphological changes and DNA fragmentation. In addition, it was shown that VD-3 enhanced the activity of caspase-3 cytosolic enzyme of tumor cells during apoptosis induction. VD-3 was identified as *epi*-oleanolic acid by spectral data and it was confirmed by chemical synthesis. These results indicated that Korean mistletoe contains a highly cytotoxic compound against tumor cells, and the most responsible low-molecular compound for the activity is *epi*-oleanolic acid.

[PD2-20] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Phospholipids from Domestic Bombycis corpus

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Bombycis corpus is a silkworm larvae killed by inoculation of the fungi, *Beauberia bassiana*. It is a traditional medicine to treat palsy, headache, convulsion, stroke induced speech problem and tremor.[1] Several sterols were reported from *Bombycis corpus*.[2] To search for bioactive compounds from domestic *Bombycis corpus*, Dried and powdered material was extracted with methanol and resultant methanol extract followed by successive solvent partition with hexane, chloroform and butanol. The repeated column chromatographic separation of the butanol soluble portion led to the isolation of three diacylglycerophosphatidylcholines and three aromatic amines. Their structures were determined by physicochemical and spectroscopic method.

1) Shanghai Science and Technologic Publisher and Shougakukan, The Dictionary of Chinese Drugs, Shougakukan, Tokyo, pp.2238-2240 (1985)
2) Cheng, K.P., Nagano, H., Bang, L., Ourisson, G., Beck, J.P. *Journal of Chemical Research* (S), 217 (1977)

[PD2-21] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Neuraminidase inhibitors isolated from Reynoutria elliptica

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Influenza is an important disease with high levels of mortality and morbidity each season. Influenza virus neuraminidase(NA) catalyses the cleavage of sialic acid residues terminally linked to glycoprotein and plays an important role in the replication of the virus.
In the course of screening NA inhibitors from oriental medicine, *Reynoutria elliptica* exhibited a high inhibitory activity against NA. Four active compounds were isolated from the ethyl acetate soluble

fraction by consecutive purification using sillica gel, Sephadex LH-20 chromatography and recrystallization.
The chemical structures of these compounds were identified as 1,8-dihydroxy-3-methoxy-6-methyl-9,10-anthraquinone(emodin 3-methyl ether), 1,3,8-trihydroxy-6-methyl-9,10-anthraquinone(emodin), 1,3,8-trihydroxy-6-hydoxymethyl-9,10-anthraquinone(ω-hydroxyemodin), and 3,5,4'-trihydroxystilbene (*trans*-resvertrol) by spectral data including GC-MS, ^{1}H-and ^{13}C-NMR. The IC_{50} values of emodin, emodin 3-methyl ether, ω-hydroxyemodin, and *trans*-resvertrol were 74.07, 2.81, 10.49, and 8.77μM, respectively.
These compounds are expected to be useful for preventing and curing of Influenza disease.

[PD2-22] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Four new sphingolipids from Bombycis corpus 101A and their neurotrophic effects

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Bombycis corpus is a silkworm larvae killed by inoculation of the fungi, *Beauveria bassiana* and a Korean traditional medicine to treat palsy, headache, convulsion, stroke induced speech problem and tremor.[1] *Bombycis corpus* 101A was developed at National Institute of Agricultural Science and Technology in Korea and inoculated by homogeneous fungi, *Beauveria bassiana* 101A. Several sterols were reported from Bombycis corpus.[2] In the course of searching for bioactive compounds from Korean traditional medicine, we have isolated two cytotoxic sterols and two cyclodepsipeptides from a methanolic extract of *Bombycis corpus* 101A[3,4]. In continuation of our research of this source, four new sphingolipids (1 ~ 4) were isolated from the hexane soluble fraction. On the basis of spectroscopic data, their structures have been elucidated as (4*E*, 2*S*, 3*R*)-2-*N*-octadecanoyl-4-tetradecasphingenine (1), (4*E*, 6*E*, 2*S*, 3*R*)-2-*N*-eicosanoyl-4,6-tetradecasphingadienine (2), (4*E*, 2*S*, 3*R*)-2-*N*-eicosanoyl-4-tetradecasphingenine (3), (4*E*, 6*E*, 2*S*, 3*R*)-2-*N*-docosanoyl-4,6-tetradecasphingadienine (4). Neurotrophic effects of isolated sphingolipids were evaluated by microscopically monitoring their potency to induce neurite outgrowth in PC12 cells and showed processes with lengths equivalent to two diameters of the cell body in 10mM.

1) Shanghai Science and Technologic Publisher and Shougakukan, The Dictionary of Chinese Drugs, Shougakukan, Tokyo, pp.2238-2240 (1985)
2) Cheng, K.P., Nagano, H., Bang, L., Ourisson, G., Beck, J.P. *Journal of Chemical Research* (S), 217 (1977)
3) Kwon, H.C., Moon, H.I., Choi, S.H., Lee, J.O., Cho, S.Y., Jung, I.Y., Kim, S.Y., Lee, K.R., *Yakhak Hoeji* 43, 169-172 (1999)
4) Kwon, H.C., Bang, E.J., Choi, S.U., Lee, W.C., Cho, S.Y., Jung, I.Y., Kim, S.Y., Lee, K.R., *Yakhak Hoeji* 44, 115-118 (2000)

[PD2-23] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

New Hydroperoxides from Aster oharai

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Aster oharai Nakai (Compositae), a perennial herb, is distributed mainly in the eastern part of South