[PD2-19] [ 04/19/2002 (Fri) 10:00 - 13:00 / Hall E ]

## Phytochemical Constituents of Cirsium setidens

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*Cirsium setidens* (Compositae), a perennial herb, is distributed mainly in Kangwon province[1], and its aerial parts have been used to treat edema, bleeding and hemoptysis[2,3]. Literature survey of *Cirsium setidens* revealed that no phytochemical and pharmacological studies have been performed. As part of our systematic study for Korean Compositae medicinal plants, *Cirsium setidens* was extracted with methylene chloride and the repeated column chromatographic separation of the extract resulted in the isolation of 15 compounds , four terpenoids, two sterol glycosides, three lipidglycosyl sitosterols and two diacylgalactosyl glycerols, three fatty acids and tocopherol. Their structures were established on the basis of spectroscopic data. The pharmacological research of the isolated compounds are under study.

1) Lee. T.B. (1985) Illustrated Flora of Korea, HyangMun Publications, Seoul, p. 769.
2) Lee, S.J. (1966) Korean Folk Medicine, Seoul National University Press, Seoul, pp. 145-146.
3) Kim, J.G. (1984) Illustrated Natural Drugs Encyclopedia (Color Edition) (Vol. 1), Nam San Dang, Seoul, p.37.

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## Antimutagenic Effect of the Extract Complex of Korean Anti-thirst Crude Drugs

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The three crude drugs of the *Kalopanax pictus* (Araliaceae) roots (K), *Pueraria thunbergiana* (Leguminosae) flowers (P), and the *Rhus verniciflua* (Anacardiaceae) heartwood (R) were extracted with MeOH, respectively, and the fractionation of the extract produced EtOAc extract. Artificial mixture was also prepared to compare the antimutagenicity in Ames test. In N-methyl-N'-nitro-N-nitrosoguanidine (MNNG, 0.4 ㎍/plate)-induced test, the activities of artificial complex were observed between the highest antimutagenic K extract and the lowest P extract. In aflatoxin ($AFB_1$, 1 ㎍/plate)-induced test, the EtOAc complex (K:P:R=1:1:3) labeled as E-113 decreased the revertants of *Salmonella typhimurium* TA100 by 95%, which activity were more potent than any other extract or complex. Solvent fractionation mostly increased the antimutagenicity.

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## Flavonoids from the Leaves of Litsea japonica and their Anti-complement Activity

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Four known flavonoids, epicatechin (1), afzelin (2), astragalin 7-*O*-coumaric acid (3), and quercetin (4), were isolated from an EtOAc-soluble fraction of the leaves of *Litsea japonica* (Lauraceae). The structures

were identified by comparison with the chemical and spectral data reported.
The flavonoids (1-4) isolated from *L. japonica* were tested for their anti-complement activity against classical pathway complement system. Afzelin (2), astragalin 7-*O*-coumaric acid (3), and quercetin (4) showed inhibitory activity with 50% inhibitory concentrations ($IC_{50}$) values of 208, 161, and 237 μg/ml, respectively, while epicatechin (1) was only weak activity.

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## Antirheumatoid Arthritis Effect of the Kochia scoparia Fruits and Structure-Activity Relationship between Momordin Ic, its Prosapogenin and Sapogenin

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MeOH extract of *Kochia scoparia* was fractionated into $CHCl_3$, EtOAc and BuOH fractions and the last fraction were hydrolyzed by 3%-NaOH (MeOH-$H_2O$) to compare the bioactivities on antinociceptive and anti-inflammatory effects. Silica gel column chromatography of BuOH fraction afforded a large amount of 3-O-β-D-xylopyranosyl (1-3)-β-D-glucuronopyranosyl oleanolic acid (momordin Ic, 4) and that of acid hydrolysate of BuOH fraction gave 3-O-β-D-glucuronopyranosyl oleanolic acid (momordin Ib, 3), its 6'-O methylester (2) and oleanolic acid (1). Silica gel column chromatography of alkaline hydrolysate afforded a large amount of 4. MeOH extract and both EtOAc and BuOH fractions were active in the rheumatoidal rat induced Freund's complete adjuvant reagent (FCA) whereas $CHCl_3$ fraction was inactive. Compound 1 and 4 showed significant activities in the same assay but oleanolic acid 3-O-glucuronopyranoside (3) showed no activity. These trends were also observed in carrageenan-induced edema of the rat and in the antinociceptive activity tests undertaken in hot plate and writhing methods. These results suggest that momordin Ic and its aglycone, oleanolic acid, could be active principles for rheumatoid arthritis.

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## A Polyacetylene and Flavonoid Glycosides from Cirsium rhinoceros Nakai

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*Cirsium rhinoceros* Nakai (Compositae) is a herbaceous perennial which grows indigenously in Jeju Island, Korea. This plant has been used in folklore medicine for hematemesis, hematuria and hemorrhage. Although several plants of the *Cirsium* genus have been examined for thier chemical constituents, *C. rhinoceros* has not been investigated in detail on phytochemical analysis.
*C. rhinoceros* was extracted by a standardized extraction method. Its *n*-hexane and BuOH extracts were fractionated by chromatography to provide a polyacetylene and three flavonoid glycosides.

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## Jacaranone and its derivatives from Ternstroemia japonica

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*Ternstroemia japonica* is a native plant in southern part of Korea, and its fruits have been used for chest pain and numbness in traditional Japanese medicine. In our search for antioxidative compounds from the fruits of *T. japonica*, jacaranone and its three derivatives were isolated along with three known triterpenes,