

The fruits of various *Actinidia* species are known to be used as a folk remedy for treatment of various inflammatory and analgesic ailments. Effects of the ethanol extracts and fractions from the fruits of *Actinidia polygama* (Sieb. et Zucc.) Maxim (Actinidiaceae) were studied using various in vivo and in vitro models of inflammation in mice and rats. In this study, we have evaluated the anti-inflammatory effects using acetic acid-induced vascular permeability and the carrageenin-induced rat paw edema and the analgesic activity using the formalin test, tail flick test and writhing assays. In addition, to clarify chronic effect, we performed the swelling and toxicity test in the Freund's complete adjuvant (FCA)-induced rheumatoid rat model. We also investigated the hypouricemic effect of AP on hyperuricemia induced by administration of the uricase inhibitor, potassium oxonate (250 mg/kg s.c., 1 h before the test drugs), and measured the plasma and urine urate in rats. 70 % ethanol extract of AP showed significant analgesic and anti-inflammatory activities in dose dependent fashion. In addition, AP ethanol extract also ameliorated the hyperuricemic state at a dose of 1000 mg/kg, though hypouricemic action of AP was inferior to that of either probenecid or allopurinol.

[PA1-50] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Effect of the Extract of Cultured Ginseng Roots on Hyperlipidemia in Rats

Yi Eun Jeong<sup>01</sup>, ZHAO HALIN<sup>1</sup>, Li Da Wei<sup>1</sup>, Paek Kee Yeoup<sup>2</sup>, Kim Jong Hoon<sup>3</sup>, Kim Yeong Shik<sup>1</sup>

<sup>1</sup>Natural Product Research Institute, Seoul National University; <sup>2</sup>Research Center for the Development of Advanced Horticultural Technology, Chungbuk National University; <sup>3</sup>EE WOO YANG HAENG Co.Ltd

We have investigated the effect of MeOH extract of cultured ginseng roots on hyperlipidemic rats induced by fat-rich diet. We also analyzed and compared ginsenosides of cultured ginsengs by HPLC. After oral administration of the extract to hyperlipidemic rats for four weeks, the variables including body weight, cholesterol, HDL, LDL, and triglyceride levels in serum were measured. One of the cultured ginseng roots (CBN3) decreased cholesterol and LDL-cholesterol and increased HDL-cholesterol levels in serum. HPLC analysis demonstrated that CBN3 contains more Rb1 and Rd ginsenosines than any other cultured ginsengs and cultivated ginseng. These results suggest that CBN3 with high contents of Rb1 and Rd may be useful in lowering blood cholesterol.

[PA1-51] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Antidiabetic effect and mechanisms of SPH-1 in db/db mice

1Kang KwiMan<sup>0</sup>, 2Cho HeeJae, 1Chung SungHyun

1School of Pharmacy, Kyung Hee University, Seoul 130-701, Korea; 2Institute of Science and technology, CJ corp., Kyunggi - Do, Korea

SPH-1 is a herbal medicine composing oriental prescription. We have studied the antidiabetic effect and mechanism of SPH-1 in insulin-resistant diabetic db/db mice. Mice were grouped and treated for 3 weeks as follows: control group was administrated with tap water orally; treated group was administrated with SPH-1 orally at dose of 500 mg/kg. SPH-1 lowered plasma glucose level by 67% as compared to the diabetic control. Total cholesterol, triglyceride and free fatty acid were all reduced in SPH-1 treated group. The control group showed hyperinsulinemia, whereas SPH-1 treatment decreased insulin level by 72% as compared to the diabetic control at the end of treatment. SPH-1 treated mice also exhibited low urinary glucose and albumin level as compared to the diabetic control, in parallel to the plasma glucose concentration. In the mechanism study, PPAR $\gamma$  mRNA expression in epididymal fat were increased in SPH-1 treated group. GLUT4 mRNA expressions in skeletal muscle was also increased in SPH-1 treated group. We have also investigated glucose-6-phosphatase,

phosphoenolpyruvate carboxykinase, and glucokinase activities in liver. There were significant differences between control and treatment group in these parameters. From these result we may conclude that SPH-1 showed the excellent antidiabetic activity probably due to improvement of insulin resistance.

[PA1-52] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Antidiabetic Effect of Ginseng Radix Alba(GRA) and Mori Folium(MF) on Multiple Low Dose Streptozotocin-induced Diabetic Rats

Kim SoYoung<sup>0</sup>, Yoon SeoHyun, Chung SungHyun

School of Pharmacy, Kyung Hee University, Seoul 130-701, Korea

We studied to compare hypoglycemic effect of GRA and MF in multiple low dose streptozotocin(STZ)-induced diabetic rats. 25 mg/kg of STZ in 100 mM citrate buffer(pH 4.5) was injected intraperitoneally for 5 consecutive days. SD rats were randomly divided into diabetic control and treatment groups. Treatment groups were administered with either 500 mg/kg of GRA, 500 mg/kg of MF, 250 mg/kg of GRA + 250 mg/kg of MF(GM 250) or 500 mg/kg of GRA + 500 mg/kg of MF(GM 500) for 3 weeks. Blood glucose and body weight were measured every 5th day. At the second and the third week of the treatment, food and water intakes were determined and plasma insulin was measured at the last week. Rats were sacrificed at the end of the treatment, kidney was removed and index of kidney hypertrophy was measured. Pancreas was also removed for Hematoxylin-Eosin staining. GM 500 delayed the development of STZ-induced diabetes. Hypoglycemic effect and weight gain were found in all of treatment groups, especially GM 500. Food and water intakes were significantly decreased in all of treatment groups. Blood insulin level was recovered by treatment with GRA. From the data we obtained, we may conclude that GRA and MF alone may prevent or delay the development of diabetes, however, synergistic hypoglycemic activity was not be seen in groups treated with mixed formula composed of GRA and MF when compared to GRA or MF alone.

[PA1-53] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### The pharmacological effect of the methanol extracts from *Acanthopanax senticosus* after immobilized and chronic swimming stresses in rats

Park HeeDong<sup>01</sup>, Kim YuMi<sup>1</sup>, Yang YouJong<sup>1</sup>, Lee JaeJoon<sup>1</sup>, Lee JungJoon<sup>2</sup>, Lee MyungKoo<sup>1</sup>

<sup>1</sup>College of Pharmacy, and Reaserch center for Bioresource and Health, Chungbuk National University;<sup>2</sup>Korea Reseach Institute of Bioscience and Biotechnology

*Acanthopanax senticosus* has been used clinically as tonic, anti-rheumatic and prophylactic purpose for chronic bronchitis, hypertension, ischemic heart disease, and gastric ulcer. We investigated the effects of methanol extracts from *Acanthopanax senticosus* (KS, KR, MS, MR, HS, HR, SS and SR) on catecholamine and cortisol content of serum after immobilization and on the exercise time to exhaustion in chronic swimming stressed rats. To assess the effects on the acute stress response, rats were given an oral administration of 500 mg/kg of methanol extracts from *Acanthopanax senticosus* and immobilization stressed for 30 min. Serum norepinephrine, 140-160 pmol/ml, in control rat was increased to 220 pmol/ml by immobilization and the stress-induced rise in serum norepinephrine was partially blocked by the methanol extracts from *Acanthopanax senticosus* (KS, KR, MS, SR, SS and HR). Serum cortisol level is also partially decreased by extracts (HS). KS, one of the methanol extracts from *Acanthopanax senticosus*, significantly reduced the stress-induced increases in plasma norepinephrine. In addition, to elucidate its anti-fatigue effects, the methanol extracts from *Acanthopanax senticosus* (500 mg/kg) was administrated per oral to rats once a day for 7 days and