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°, 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°[1], Kim YuMi[1], Yang YouJong[1], Lee JaeJoon[1], Lee JungJoon[2], Lee MyungKoo[1]

[1]College of Pharmacy, and Reaserch center for Bioresource and Health, Chungbuk National University;[2]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

then exercise time was measured by forced swimming in the water-pool (50 cm in depth ; 32 ±2 ℃). The methanol extracts from *Acanthopanax senticosus* (KS) protected rats from fatigue induced by forced swimming stress. These results suggest that the methanol extracts from *Acanthopanax senticosus* partially inhibit immobilization stress-induced increases in serum catecholamine and cortisol content, and reduce forced swimming stress-induced fatigue. It is, therefore, proposed the possibility that the methanol extracts from *Acanthopanax senticosus* might be developed as the promising antistress agent.

[PA1-54] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

The anti-inflammatory activity of *Kalopanax pictus* bark extract (IV). Antirheumatic activity of kalopanaxsaponin A methyl ester

Li Da Wei○, Hyun Jin Ee, a) Jeong Choon Sik, Kim Yeong Shik, Lee Eun Bang

Natural Product Research Institute, Seoul National University, 110-460, Seoul; a) College of Pharmacy, Duksung Women's Univerisity, 132-714, Seoul

In the previous study, we isolated kalopanaxsaponin A and pictoside A from the EtOAc fraction of *Kalopanax pictus* extract. In the present study, the BuOH fraction of *K. pictus* extract was hydrolyzed by alkali and antirheumatic effect of the fraction was evaluated. It was found that the hydrolysate of the BuOH fraction showed inhibition of adjuvant-induced arthritis in rats. Of the EtOAc and BuOH fractions of the hydrolysate, only the former exhibited anti-arthritic activity. From the active fraction, kalopanaxsaponin A, kalopanaxsaponin I, and kalopanaxsaponin A methyl ester were isolated. Kalopanaxsaponin A methyl ester exhibited anti-arthritic activity at dose of 50 mg/kg for 7-10 days, given orally, in rats and mice.

[PA1-55] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Luteolin7-O-βD-glucuronopyranoside has the protective effect on gastritis and esophagitis in rats

Bae Ki Lyong○, Yim Sung Hyuk, Min Young Sil, Park Joon Hong, Choi Hee Jung, Ham In Hye, Hwang Wan Kyunn, Sohn Uy Dong

College of Pharmacy, Chung Ang University

It is well known that flavonoids are the inhibitory effects on inflammations. This study was designed to determine the anti-inflammatory effects of luteolin-7-O-βD-glucuronopyranoside (LGC), newly synthesized flavonoids, which was extracted from Salix gilgiana leaves. We investigated the protective action of LGC on reflux esophagitis and gastritis in rats. Esophagitis and gastritis were induced by surgical procedures and the exposure to indomethacin (50 mg/kg), respectively. LGC was injected intraduodenally immediately after the surgical procedures and the exposure to indomethacin. We evaluated the effects of LGC by measuring the index of ulcer, gastric volume, gastric pH, acid out put, thiobarbituric acid response substances (TBARS) and glutathione. In esophagitis, LGC was effective in reducing ulcer index and area, gastric volume, and acid output and elevating gastric pH. LGC is also comparable inhibitory effects on gastritis to esophagitis in ulcer index. Additionally, LGC increased the level of glutathione and reduced TBARS level in gastritis. These results suggest that LGC has the preventive action on the development of gastritis and esophagitis of rat models.

[PA1-56] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Evaluations on Anti-angiogenic, Antioxidant and Anti-inflammatory Activities of