the correlation with in vivo hypoglycemic activity
Experimental methods: In vitro screening methods were established based on antidiabetic mechanisms dissected as follows, inhibition of intestine α-glycosidase, inhibition of hepatic Glucose 6-phosphatase (Glc6Pase) and/or phosphoenolpyruvate carboxykinase(PEPCK), stimulation of pancreatic β-cell and over- or downexpression of peroxisome proliferator activated receptor-γ(PPAR-γ) and resistin in adipocytes. All experiments were performed with aqueous extracts of thirteen herbs at dose of 1 mg/ml.
Results: There wasn't any herbal medicine that had markedly inhibitory effect on α-glycosidase. LR and MC had about 52% and 50% of inhibitory effects on Glc6Pase. PS had about 45% of inhibitory effects on PEPCK. CS and AP had stimulated the secretion of insulin in HIT-T15 cell by 4 times and 3 times. AR, AP, MC and CS increased expression of PPAR-γ.

[PA1-34] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Comparisons of antidiabetic activity between ethanol extract of white ginseng root and IH901 in streptozotocin-induced diabetic rats

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Purpose: Antidiabetic activities between ethanol extract of white ginseng root (WGRE) and IH901, intestinal metabolite of ginsenoside Rb1, were compared in streptozotocin (STZ)-induced diabetic rats.
Experimental methods: WGRE or IH901 were coadministered with STZ on Day 1 at the dose of 100 and 300 mg or 10 and 30 mg, respectively, and continually administered for 16 days. STZ dissolved in citrate buffer was injected peritoneally at the dose of 20 mg/kg for 5 consecutive days. During the experiment, plasma glucose level and body weight were determined every 4th day. Food and water intakes were evaluated once a week and compared between groups.
Results: WGRE and IH901 both significantly reduced the plasma glucose levels on Day 16 as compared with the diabetic control group, but blood glucose lowering activities were not dose-dependent in both groups. In the meantime, food and water intakes in WGRE- and IH901-treated groups were significantly improved in dose dependent fashion as compared with the diabetic control group. Taken together, WGRE and IH901 showed the comparable antidiabetic activities at the corresponding doses we used in this experiment.

[PA1-35] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Renoprotective activity of water extract of Acanthopanax radix (ARWE) in streptozotocin-induced diabetic rats

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Purpose: Renoprotective activity of ARWE was examined in streptozotocin-induced diabetic nephropathic rats with regard to functional and immunohistochemical aspects.
Experimental methods: 20 mg/kg body weight of STZ in citrate buffer was injected intraperitoneally for 5 consecutive days. 20% of ARWE solution was given orally or subcutaneously for 2 weeks. STZ and ARWE were coadministrated for 5 days at the begin of study. Blood glucose and body weight were measured every 3 day. Urine glucose, albumin and creatinine clearance were determined at 2nd and 3rd week. Rats were sacrificed at 2nd and 3rd week of treatment, kidneys were removed. Then western blots for TGFβ1, ERK1, JNK2 and PAS staining of kidney tissue were also performed.
Results: A subcutaneous(SC) injection of ARWE prevented increase of blood glucose significantly. A SC injection of ARWE markedly prevented or delayed the development of diabetes induced by multiple low-dose STZ injection. A SC injection of ARWE also significantly lowered urine albumin and glucose. From the data we obtained, we may conclude ARWE has a renoprotective activity in STZ-induced nephropathic rats, and a discrepancy in renoprotective activity between oral and subcutaneous administration may be ascribed to dose administered.