

## Studies on Anti-inflammatory effect of Clerodendron trichotomum Thunberg Leaves

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The leaves of Clerodendron trichotomum Thunberg(CTL) is used in Chinese folk medicine for anti-inflammatory properties. We studied on the anti-inflammatory effects of CTL extracts in rat, mouse and Raw 264.7cell. 1mg/kg of 30%, 60% methanol fraction of CTL and 1mg/kg of indomethacin as the standard anti-inflammatory drug were administrated into rats, respectively. Carrageenan was injected subcutaneously to induce hind paw edema in rats. The result of carrageenan-induced rat paw edema showed that 1mg/kg of 30%, 60% methanol fraction of CTL and 1mg/kg of indomethacin inhibited hind paw edema by 19.5%, 23% and 20.5%, respectively. The effect of CTL against inflammation in mice using a capillary permeability assay was examined by detection of Evans blue leakage from the capillaries after intraperitoneal injection of acetic acid, a potent inflammatory stimulus. 60% methanol fraction of CTL inhibited Evans blue dye leakage by 47% that was 10% higher inhibition than 1mg/kg of indomethacin. Also, 60% methanol fraction of CTL suppressed prostaglandin E2(PGE2) generation in RAW 264.7 macrophage cell as much as indomethacin after treatment of lipopolysaccharide, leading to the synthesis of PGE2 by COX-2 induction. The inhibition of the carrageenan-induced rat paw edema, vascular permeability and PGE2 generation demonstrates that 60% methanol fraction of CTL contains a strong anti-inflammatory activity.

[PA1-46] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Hypoglycemic Effect of Ginseng Radix alba(GRA) in Multiple Low Dose Streptozotocin-induced Diabetic Rats

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Purpose: Hypoglycemic effect of GRA was examined in multiple low dose(MLD) streptozotocin(STZ)-induced diabetic rats with regard to time of administration.

Experimental methods: 20 mg/kg of STZ in 100 mM citrate buffer(pH 4.5) was injected intraperitoneally for 5 consecutive days. In co-treatment groups, GRA was administered intraperitoneally for 3 weeks at dose of 150 or 300 mg/kg. After induction of hyperglycemia, post treatment groups were also recieved GRA(150 or 300 mg/kg) intraperitoneally for 3 weeks. Blood glucose and body weight were measured every 3 day. At 3 weeks of treatment, plasma insulin was determined. Rats were sacrificed at the end of treatment, kidney was removed and index of kidney hypertrophy was calculated. Pancreas was also picked out and then immunohistochemistry for insulin content was also performed.

Results: GRA delayed or prevented developments of STZ-induced diabetes in co-treatment groups. A hypoglycemic effect was displayed in all of GRA-treated groups. Blood insulin level was recovered by treatment with GRA. Kidney hypertrophy in MLD STZ-induced diabetes was improved by GRA. Taken together, we may conclude that GRA showed significant hypoglycemic activity in the post-treatment groups as well as preventing development of diabetes in co-treatment groups. In addition, no more than 150 mg/kg of GRA may be required to improve hyperglycemia.

[PA1-47] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Immunosuppressive activity of Allergina

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The herbal combination *allergina* has been used for the treatment of inflammatory diseases in South Korea. In this study, we investigated the immunosuppressive activities of *allergina* in more detail. Acute graft-versus-host disease (GVHD) is a major cause of morbidity and mortality in patients undergoing allogeneic bone marrow transplantation. Administration of *allergina* into Balb/c mice given total body irradiation followed by transplantation of bone marrow and spleen cells from C57BL/6 mice markedly reduced the mortality. In addition to systemic GVHD, *allergina* also showed therapeutic activity in local GVHD, in which *allergina* reduced lymph node weight of B6C3F1 mice transplanted of spleen cells from C3H mice. This herbal medicine also inhibited delayed-type hypersensitivity in which mice were intradermally injected with sheep red blood cells into the left footpad and were given *allergina* orally, suggesting that *allergina* inhibited cell-mediated immunity. *Allergina* also inhibited collagen-induced arthritis in DBA/1 mice, which were immunized with type II collagen, complete Freund adjuvant, and LPS. These results suggest that *allergina* could be a potent therapeutic agent for the treatment of immune-related diseases such as graft rejection, hypersensitivity, and autoimmune arthritis.

[PA1-48] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Comparisons of thermogenic activity among Ginseng Radix Alba (GRA), Ginseng Radix Rubra (GRR), and Panax Quinquefolii Radix (PQR)

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Uncoupling proteins (UCPs) are transmembrane proton transporters present in the mitochondria. In UCPs, UCP1 and UCP3 play an important role in adaptive thermogenesis by uncoupling mitochondrial oxidation of substrates from ATP synthesis.

PPAR $\gamma$  coactivator 1 (PGC-1) regulates transcriptional activity of PPAR $\gamma$  and other nuclear receptors and controls the expression of UCPs. We compared the adaptive thermogenic activity in ICR mouse treated with either GRA, GRR or PQR under the condition of either room (25 $\rightarrow$ ) or cold temperature (4 $\rightarrow$ ) by measuring rectal temperature, non-esterified fatty acid (NEFA), and glycerol. In addition, we investigated gene expressions of UCP1, UCP3 and PGC-1 in intrascapular brown adipose tissue, and gastrocnemius muscle using RT-PCR. Under of cold temperature, rectal temperature was increased to the level of room temperature by treatment. NEFA and glycerol decreased remarkably. In the mechanism study, expressions of UCPs and PGC-1 was upregulated by treatment. From these results, we may conclude that up-regulation of UCPs with treatment cause rectal temperature recovery under the cold temperature.

[PA1-49] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Anti-inflammatory, analgesic, and hypouricemic effect of *Actinidia polygama*(AP)

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