

[PD2-61] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

The anti-inflammatory activity of *Kalopanax pictus* bark extract (II). Isolation of pictoside A, a new saponin

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In the previous study⁽¹⁾ we have reported that the anti-inflammatory component of kalopanaxsaponin A (1) was isolated from the secondary fraction (Fr. 8-2) of EtOAc fraction of *Kalopanax pictus* bark extract through an activity-guided isolation technique. In the present study a new saponin (2), named pictoside A, was isolated from another secondary fraction of Fr. 8-4 which showed inhibitory activity of vascular permeability at an oral dose of 50 mg/kg in mice. Its structure was elucidated as 3-O- α -L-arabinopyranosyl-(1 \rightarrow 2)- α -L-rhamnopyranosyl-16 α -hydroxyhederagenin by spectral analyses of 1D and 2D NMR and MS.

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[PD2-62] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Evaluation of the herbal extract mixture for the effects of Hair Re-growth

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The hair cycle consists of three phase, growth (anagen), involution (catagen) and quiescence (telogen) phases. Herbal extract mixture (STC-2) containing the extracts of *Polygonum multiflorum* radix, *Mori cortex radialis*, *Gingco biloba foilum*, Silk protein, *Cinnamomum camphora* and Pine bud have been subject to investigation with specific interest in hair growth activity. To make sure of the effects on hair re-growth by STC-2, we should evaluate the induction of the anagen phase and/or elongation of the anagen period. Morphological examination of the experimental group treated by STC-2 has shown more active than vehicle in hair re-growth. Enzyme activities as a biochemical marker of hair cycle were investigated in the third hair cycle period of C3H mice after depilation. gamma-Glutamyl transpeptidase (gamma-GT) and alkaline phosphatase activities correlated well with the hair growth cycle and gamma-GT activity changed significantly with the hair cycle of the mice. STC-2 treatment may cause an early initiation of anagen, but both the STC-2 and vehicle-treated group entered telogen at the same time. The activities of glutathione peroxidase (GSH-Px) and glutathione reductase (GSH-Rd) have no decisive effect on hair re-growth. In the effect of human hair follicle cell in vitro, STC-2 treated cells expressed more 2 times phospho-Erk1/2 than control cells.

[PD2-63] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Hypoglycemic effect of *Cordyceps militaris* Polymolecules in Streptozotocin-Induced Diabetic Rats.

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Cordyceps militaris(CM) has been used as a tonics traditionally. Recent research has shown the effect of

glucose metabolism, anticancer, endocrine and sexual functions of CM. This study was carried out to investigate the anti-diabetic activity of CM. Hot water extract of CM was fractionated into 3 parts : above 100,000(A), 100,000~20,000(B), below 20,000(C) in molecular weight using in molecular sieving. They showed significant glucose lowering activity in streptozotocin-induced diabetes rats by oral administration (50mg/kg). Decreasing rates of plasma glucose after 6 hours from A, B and C were 13.72%, 8.10% and 21.39% respectively.

[PD2-64] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Sulfuretin, an Antinociceptive and Antiinflammatory Flavonoid from *Rhus verniciflua*

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The heartwood of *Rhus verniciflua* has been known to be effective for alcohol intoxication and diabetes mellitus in traditional folk medicine in Korea. We have previously reported that antimutagenic effect of flavonoids derived from the extract of *R. verniciflua*, and sulfuretin was the active component. Further study was undertaken to evaluate the antinociceptive and antiinflammatory effects of the extract, its fractions and the two major components, sulfuretin and fustin. The MeOH extract, EtOAc fraction and sulfuretin showed significant antinociceptive activity in writhing and hot plate test assays and antiinflammatory effects in carrageenan-induced hind paw edema in rats. In particular, treatment of sulfuretin with 10 mg/kg dose (i.p.) reduced writhing frequency by 48.0% ($p < 0.05$) compared to that of a control group. Further, the treatment of sulfuretin (5, 10 mg/kg, i.p.) for 7 days significantly prevented the carrageenan-induced hind paw edema ($p < 0.05$). The antiinflammatory effect of sulfuretin was also confirmed by microscopic observation of mast cell numbers in knee. In addition, sulfuretin suppressed the cyclooxygenase-2 (COX-2) activity ($IC_{50} = 28.7 \mu M$) in lipopolysaccharide-activated macrophage cells. This result indicates that the inhibitory effect of sulfuretin on COX-2 may be one of mechanism of antinociceptive/antiinflammatory action with its unique antioxidative activity of the flavonoid.

[PD2-65] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Synergistic Antitumor Effect of Red Ginseng Acidic Polysaccharide(RGAP) and Paclitaxel(Taxol)

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We have recently reported that red ginseng acidic polysaccharide (RGAP) shows immunomodulating activities, mainly mediated by nitric oxide (NO) production of macrophages. This agent may be used in cancer therapy or in combination with other chemotherapeutic agents. Synergistic effect of RGAP and Taxol, diterpenoid anticancer drug isolated from *Taxus baccata*, was evaluated to develop new biological response modifier in cancer therapy. This present study demonstrated a synergistic antitumor effect of RGAP and Taxol in mice transplanted with sarcoma 180 and B16 melanoma. Combined treatment of Taxol (5 and 15 mg/kg) and RGAP (25 mg/kg) resulted in 28.6 and 42.8 % cure in ICR mice bearing sarcoma 180 tumor cells, while no obvious effect in taxol alone treatment. When Taxol (10 mg/kg) and RGAP (100 mg/kg) were treated to C57BL/6 mice implanted with B16 melanoma in combination, the tumor weight per mouse on day 20 also decreased by 76.3 %, suggesting RGAP to be an adjuvant in combination with Taxol.

The augmented antitumor effect of Taxol is supposed to be the result of immunostimulating effect of RGAP in tumor bearing murine. RGAP recovered reduced proliferation of splenocytes and polyclonal antibody-forming cell response by Taxol. Flow cytometry analysis of splenocytes in the mice treated