

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*

Choi JongWon, Yoon ByungJae, Han YongNam, Lee SangKook, Lee KyungTae, Park HeeJuhn^o

College of Pharmacy, Kyungsoong University, Natural Products Research Institute, Seoul National University, College of Pharmacy, Ewha Womans University, College of Pharmacy, Kyung-Hee University, Division of Applied Plant Sciences, Sangji University

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)

Shin HanJae^{o*}, Kim YoungSook*, Park KyeongMee*, Nam KiYeul*, Kim YoungSang**, Park JongDae*

*Korea Ginseng and Tobacco Research Institute, Taejon, Korea. **Department of Biochemistry, Chungnam National University, Taejon, Korea

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

with Taxol showed a significant increase of CD11b+ cells including macrophages, indicating that Taxol has similar biological effect to lipopolysaccharide in primary macrophages. Additionally, synergistic effect of RGAP and Taxol was found to exhibit the increased tumoricidal activity of macrophages. These above results suggest that clinical trials of RGAP as an adjuvant in cancer chemotherapy of Taxol are highly feasible.

[PD2-66] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Antitumor and Immunoenhancing activities of Cambodian Phellinus linteus

Lee HyoJung^o, Han GyuYeon, Kim SungHoon

Graduate School of East-West Medical Science, Kyunghee university, 1 Seochunri, Kiheungeup, Yonin 449-701, South Korea

Phellinus linteus from Cambodia was confirmed to have a homologous DNA sequence to Phellinus linteus. Antitumor and immunomodulatory activities were evaluated with aqueous extract of Cambodian Phellinus linteus (CPL). CPL didn't show any significant cytotoxicity on HT1080, Sarcoma 180 and B16BL6, whereas it inhibited the relaxation of DNA topoisomerase I from the concentration of 250ug/ml. In the pulmonary colonization assay it inhibited pulmonary metastasis by B16BL6 in C57BL6 mice to 36%, 36.9% and 55.5% at various doses of 10 mg, 20 mg and 50 mg. From FACS analysis with splenocytes pretreated with PAE, it significantly increased CD3 and CD4 and induced production of IL-2. These results indicate Cambodian Phellinus linteus has antitumor and immunomodulatory activities still suggesting more study on its mechanism and effective compound in detail.

[PD2-67] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Hepatoprotective and Chologogic Effects of Tectorigenin Isolated from the Flower Extract of Pueraria thunbergiana

Park HeeJuhn^o, Jung HyunJu, Lee SangKook, Lee KyungTae, Park KunYoung, Choi JongWon

Division of Applied Plant Sciences, Sangji University, College of Pharmacy, Ewha Womans University, Department of Food and Nutrition, Pusan National University, College of Pharmacy, Kyung-Hee University, College of Pharmacy, Kyungsung University

The flower of Pueraria thunbergiana has been traditionally used for the treatment of alcohol intoxication and diabetes mellitus. We have previously reported that tectorigenin and kaikasaponin III have antimutagenic and antidiabetic activity and tectorigenin induces apoptosis and differentiation by signal transduction. In this study, the hepatoprotective effects of the MeOH extract, partitions of P. thunbergiana and tectorigenin were evaluated. The MeOH extract and BuOH fraction prevented the CCl₄- and D-galactosamine-induced hepatotoxicity in rats. In particular, the treatment of tectorigenin (10 mg/kg, i.p.) significantly prevented hepatotoxicity by 51% (p<0.05). The MeOH extract (250 mg/kg, p.o.), BuOH extract (250 mg/kg, p.o.) and tectorigenin (10 mg/kg, i.p.) also showed potent chologogic effects by measuring the amount of bile flow, total bilirubin and cholic acid. From this result, the hepatoprotective activity of the extract of flower of P. thunbergiana was confirmed, and tectorigenin is considered as one of active principles. The most active fraction, BuOH fraction, contained tectorigenin in glycosidic forms with other constituents, saponins and isoflavone glycosides.

[PD2-68] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Antioxidative activity of flavonoid compounds from leaves of *Salix hallaisanesis*