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Comet assay has been applied to the detection of DNA damage due to environmental toxic materials. In particular, this assay is a novel method to assess DNA single-strand breaks. Four weeks old ICR male mice were irradiated with 3.5 Gy of γ-ray five days after oral administration of antioxidants such as ascorbic acid and cysteine and were sacrificed 3 days later to prepare splenocytes. The tail moment of DNA single-strand breaks in the splenocytes was evaluated by the comet assay. The treatment of the antioxidants reduced the tail moment in the comets compared with that of the irradiated control group. This result indicates that antioxidants like ascorbic acid and cysteine have radioprotective effects on the splenocyte DNA when assessed by the comet assay.

[PA3-9] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Effects of Leucocyanidin on Acetaminophen-induced Hepatotoxicity nd the Mechanism

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To examine the protective effect of Leucocyanidins (LC) on the liver injury, mice were pretreated orally with LC (50, 100 and 150mg/kg/day) for 7days and then injected intraperitoneally with 400mg/kr AA. LC pretreatment (100 and 150mg/kg/day) markedly decreased the incidence and severity of hepatic necrosis in mice given AA. In mice pretreated with LC, the mortality dose-dependently decreased compared to that of mice given AA. These results indicate that LC pretreatment has a protective effect on AA-induced hepatotoxicity.
After treatment with LC (50 and 100mg/kg/day, p.o.) for 7days, the enzyme activities of cytochrome P450 monooxygenases, UDP-glucoronyl transferase (UDP-GT), phenol sulfotransferase (PST), glutathione S-transferase (GST) were measured in SD-rat livers. Also, antioxidant enzyme activities, e.g., superoxide dismutase, catalase and glutathione peroxidase were measured after LC treatment. Treatment with 100mg/kg/day LC markedly decreased the activities of P4501A1, P4501A2, P4502B1, P4503A4, except P4502E1. In contrast, the activities of GST and PST were significantly increased in rats treated with 100mg/kg/day LC. The antioxidant enzyme activities were not decreases the activities of certain P450 isozymes, which are responsible for bioactivation of AA (e.g., P4501A2 and P4503A4) and elevates the activities of PST and GST, which are related to the elimination of AA. Moreover, the protective effects against AA toxicity by LC pretreatment may be related to these regulations of LC on xenobiotic metabolizing enzymes.

[PA3-10] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Polymethoxyflavonoids from Vitex rotundifolia inhibit proliferation by inducing apoptosis in human myeloid leukemia cells

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Three polymethoxyflavonoids from the fruit of Vitex rotundifolia, namely 2',3',5-trihydroxy-3,6,7-trimethoxyflavone (Vx-1), vitexicarpin (Vx-5) and artemetin (Vx-6), were tested for their antiproliferative activity in human myeloid leukemia HL-60 cells. They showed a dose-dependent decrease in the growth of HL-60 cells. The concentrations required for 50% inhibition of the growth (IC50) after 96 h were 4.03 ?M, 0.12 ?M and 30.98 ?M for Vx-1, Vx-5 and Vx-6, respectively.