

induced loss in body and liver weight and inhibited its elevation of serum alanine transaminase, aspartate transaminase, alkaline phosphatase, and bilirubin. Naringenin also increased serum albumin and total protein levels and reduced the hepatic level of malondialdehyde. Furthermore, naringenin suppressed the induction of hepatic fibrosis, as determined by histological evaluation and the immunohistochemical examination showed that naringenin reduced the number of alpha-smooth muscle actin positive hepatic stellate cells.

Our results demonstrate the protective effect against hepatotoxicity and fibrosis induced by DMN suggest that naringenin may be useful in the prevention of hepatic fibrosis development.

[PA4-11] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Effects of organic germanium and caffeic acid phenethyl ester on immune system of BALB/c mice following a 14-day oral exposure

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The present study was conducted to determine the effects of bis-carboxyethyl germanium sesquioxide(Ge-132) and caffeic acid phenethyl ester(CAPE) on immune system in female BALB/c mice. The mice were orally exposed continuously to Ge-132 (0, 50, 100, or 200mg/kg), or CAPE (0, 5, 10, or 20mg/kg) for 14 days. Immunomodulatory activity was evaluated by assessment of body and organ weight, lymphocytes blastogenesis, splenic cell plaque forming cells (PFC) assay and lymphocyte subpopulation by flowcytometry. Even though the significant change of body weight was not observed in both treated group, exposure to Ge-132 resulted in the increase of spleen weight and cellularity of spleen at the dose of 200mg/kg, whereas the treatment of CAPE resulted in the decrease of the thymus weight and/or cellularity of thymus and spleen at the all exposed group. Mitogen lipopolysaccharide (LPS) and concanavalin A (ConA) induced Lymphocyte blastogenesis was not affected by Ge-132 and CAPE, except B-lymphocyte blastogenesis was induced at the dose of Ge-132 100mg/kg. In the case of T and B cells subpopulation in spleen, CD3+ cells were increased and CD19+ cells were decreased at the dosage group of Ge-132 100mg/kg, there was not significant change in CAPE treated group. Also, CD4+ cells were decreased in exposure to Ge-132 but increased in exposure to CAPE. The IgM antibody response to sheep red blood cell (SRBC) measured by PFC was only increased in animals treated with more than 10mg/kg of CAPE treated groups. The results of this study suggest that Ge-132 and CAPE have an immunomodulatory activity in some cases and these used methods in this study are useful to evaluate the functional foods with immunomodulatory effect.

[PA4-12] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Investigation of potential estrogenic activity of bioallethrin in vitro and in vivo assays

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Many pesticides possess hormonal activity and have been thus classified as endocrine disruptors. Bioallethrin is one of the pyrethroids, synthetic derivatives of naturally occurring pyrethrins. These pyrethroids including bioallethrin have been developed as insecticides due to their high insecticidal potency and low mammalian toxicity. Currently, bioallethrin is used to