

(3,4-dihydro-4-hydroxy-6-methoxy-2H-1-benzopyran) and (-)-balanophonin.

[PD2-4] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Production of Polyclonal Antibodies against Ginsenoside Rg₃-Bovine Serum Albumin Conjugate

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In order to establish enzyme-linked immunosorbent assay for the determination of protopanaxadiol, polyclonal antibodies were raised from rabbits using ginsenoside Rg₃ (GRg₃)-bovine serum albumin (BSA) conjugate as immunogen.

GRg₃ was conjugated with BSA by periodate oxidation method through its glucose moiety. 2 mg GRg₃-BSA conjugate were dissolved in 1 ml saline and emulsified with the same volume of complete Freund's adjuvant. 1 ml emulsion was then injected twice at a biweekly interval into each rabbit subcutaneously and intramuscularly at multiple sites on the back and legs. The same dose of the conjugate emulsified with incomplete Freund's adjuvant in the same ratio was used as a booster, and given intramuscularly on the legs once every 2 weeks. Blood was obtained from a marginal ear vein 11 days after the booster injections.

Both GRg₃ and protopanaxadiol competitively inhibited the antibody binding to GRg₃-ovalbumin on solid phase, a coated antigen on the well. Further characterization of the antibody is under investigation.

[PD2-5] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Study of constituents from head of *Panax ginseng* and the evaluation of its antigastritic and antiulcerative effects

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Head of *Panax ginseng* C. A. Meyer indicates its growth number of years and it has been widely used for supplying energy to weak person. However the underlying mechanisms are not sufficiently reported so far.

We previously reported the antigastritic and antiulcerative effect of the head of *Panax ginseng* methanol extract and butanol fraction on several gastritis and ulcer models in rats.

It is generally known that gastritis is induced by imbalance between aggressive factors and protective factors. Nowadays, as the roles of inflammatory response and free radicals are emerged, the components that have free radical scavenging effects are highlighted.

Thus, the present study deals with the protein ratio, free radical scavenging effect, effect on gastritis model in rats and separation of the head of *Panax ginseng*. Butanol fraction was separated into 6 subfractions by silica gel chromatography with chloroform: methanol(10-50% gradient). Among 6 fractions, fr.5 was significantly effective on HCl-ethanol gastritis model in rats. Fr.5 was separated into six sub-subfractions with chloroform: methanol: water (20.3: 10.7: 2.3), and three of sub-subfractions (fr.5-2, 5-3, 5-4) showed the most significant effectiveness.

[PD2-6] [10/19/2001 (Fri) 14:00 – 17:00 / Hall D]

Identification and Analysis of Astragalosides from Adventitious Root Cultures of *Astragalus mongholicus*

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This study was carried out to analysis of astragalosides from the adventitious root of *in vitro* cultures of *Astragalus mongholicus*(Leguminosae). Adventitious roots of *Astragalus mongholicus* was cultured in Gamborg B5 basal medium containing 3% sucrose at 25°C in the dark at 100rpm. During culture periods from 0 to 42 days, the adventitious roots were harvested at intervals of 7 days. Astragalosides were extracted from dried adventitious roots of *Astragalus mongholicus* by reflux with 70%EtOH. After filtration, the extracts were combined and the solvent was evaporated. The residue was partitioned between *n*-BuOH and H₂O. *n*-BuOH fraction was evaporated to dryness and dissolved in MeOH.

As a result, the patterns of growth curve of fresh weight mass and dry weight mass showed almost same pattern. that is, they showed the highest after 28 days, 2.47g/100ml flask and 0.27g/100ml flask of dry weight, respectively. Astragalosides from adventitious roots were identified by TLC(silica gel RP-18, MeOH:H₂O=4:1) and their contents are being measured.

[PD2-7] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Production of Dammarane Sapogenins in Hairy Root Culture of *Panax ginseng* Following Elicitation

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in order to investigate effects of elicitation on the production of dammarane-type triterpenes, methyl jasmonate (MeJ) was added to hairy root cultures of *Panax ginseng*.

At the beginning of a culture cycle, the hairy roots were treated with MeJ and cultured in half-strength Murashige & Skoog medium at 25 °C in the dark with shaking (100 rpm). At culture day 0, 7, and 14, the roots were harvested and extracted with acetone by ultra sonication. The contents of protopanaxadiol (PPD) and protopanaxatriol (PPT) were analyzed respectively using enzyme-linked immunosorbent assays.

As a result, MeJ in the range 5 μM-125 μM strongly improved PPD production in a dose-dependent manner. Whereas the effects of MeJ on PPT production were much weaker than those on PPD production. Higher than 125 μM, MeJ decreased PPT production in *P. ginseng* hairy roots. It was also found that MeJ treatments inhibited the growth of *P. ginseng* hairy roots.

This study could be useful for the elucidation of the biosynthetic pathway of dammarane saponins and their aglycones in *P. ginseng*.

[PD2-8] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

New Angiogenesis Inhibitors from Marine Invertebrates

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In the course of our search for signal transduction inhibitor of endothelial cells, we have investigated the anti-angiogenic activity of Japanese marine invertebrates. Among them, the EtOH extracts of the bryozoan *Dakaria subovoidea*, the sponge *Amphimedon paraviridis*, and the sponge *Chondrosia chucalla*