Choi JW, Han YN*, Lee KT**, Park HJ°***

College of Pharmacy, Kyungsung University, *Natural Products Research Institutue, Seoul National University, **College of Pharmacy, Kyung-Hee University, ***Division of Applied Plant Sciences, Sangji University

In our continuous studies on antimutagenic, anti-lipid peroxidative and anti-rheumatoidal activities of the stem bark of Kalopanax pictus, it was hypothesized that this crude drug may have anti-carcinogenic activity. In addition, it has been also reported that an active constituent, kalopanaxsaponin A (KPS-A), has the possibility for an anti-cancer chemopreventive. In this experiment, the KPS-A -pretreated (i.p., 7 day) effects on hepatic drug-metabolizing enzymes were investigated in bromobenzene-induced rats. The only treatment with bromobenzene increased hepatic aminopyrine N-demethylase belonged to cytochrome P450 enzymes but considerably inhibited epoxide hydrolase indicating the effects associated with carcinogen. Seven-day pretreatment with KPS-A (10-30 mg/kg) significantly inhibited this carcinogenic effect of bromobenzne. Based on this observation, it was suggested that most biological activities of KPS-A such as antimutagenic, anti-lipid peroxidative and anti-carcinogenic might share the same progresses on hepatic cells.

[PD2-41] [04/20/2001 (Fri) 13:30 - 14:30 / Hall 4]

Toxicological Aspects of Eugenol Isolated from the Essential Oil of Eugenia caryophyllata

Park HJ°1, Park HS1, Jung WT2, Choi JW3, Lee KT4

1 Division of Applied Plant Sciences, Sangji University, 2 Central Research Institute, Il-Yang Pharmaceutical Co., 3 College of Pharmacy, Kyungsung University, 4 College of Pharmacy, Kyung-Hee University

The essential oil (EC-oil) was obtained from the buds of Eugenia caryophyllata to examine the free radical-scavenging activity, cytotoxicity and the in vivo toxicity. The major component, eugenol, was isolated from EC-oil using silica gel column chromatography. Eugenol was chemically transformed to methyleugenol in order to elucidate structure-activity relationship. GC-MS analysis of EC-oil led to the identification of a major volatile component, eugenol, and a minor one, isoeugenol, and to no finding of other noticeable peaks. The cytotoxicity of eugenol and EC-oil was greatly attenuated by sulfhydryl-contaning N-acetylcysteine (NAC), suggesting that exomethylene of allyl group is susceptible to the nucleophilic sulfhydryl. However, eugenol showed potent free radical-scavenging activity where this activity is a direct antioxidant activity, not anti-lipid peroxidation activity. In normal rats, treatment of EC-oil and eugenol considerably increased malodialdehyde (MDA) but decreased glutathione content and glutathione S-transferase (GST), respectively, suggesting that they are the substances causing lipid peroxidation and glutathione conjugation. Overall properties of EC-oil and eugenol on the hepatic drug-metabolizing system resembled those of xenobiotics. The structure of eugenol well represented the toxicological aspects.

[PD2-42] [04/20/2001 (Fri) 13:30 - 14:30 / Hall 4]

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