Three mistletoe lectins (ML-I, ML-IIU, ML-IIL) have been identified in Europe based on sugar specificities for galactose(Gal) and N-acetyl galactosamine(GalNAc). Korean mistletoe lectins have been known as mainly ML-II type. In previous results, we suggested that there are two lectins, 64 KDa and 60 KDa, in Korean mistletoe lectin (KML-C).
This paper describes a purification of two isolectins (referred to as KML-IIU, KML-IIL) from Korean mistletoe using immuno-affinity column generated from the KML-IIU-specific monoclonal antibody, biochemical and biological characterization of these proteins. Both lectins have two heterogeneous subunits and have carbohydrate-binding site that is specific for Gal/GalNAc but different in glycosylation, molecular weight and biological properties.
We found that the two lectins have similar amino acid compositions and similar level of affinity for galactose and N-acetylgalactosamine. However these lectins show different cytotoxic effects on various cells and different TNF-alpha inducing effects from macrophage.

[PC1-12] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Inhibition of lipopolysaccharide-induced inflammatory mediators NO, PGs, TNF-α expression by MeOH extract of Kochia scoparia in RAW264.7 cells.

Shin Kyungmin° Kim Yanghee Park Wansoo Lee Kyungtae Park Heejun Choi Jungwon

Biochemistry Lab, Colleage of Pharmacy, Kyunghee unv.

MeOH extract obtained from the Kochia scoparia (KS) was observed to inhibit tumor necrosis factor-alpha (TNF-alpha), prostaglandins (PGs) and nitric oxide(NO) production in a lipopolysaccharide (LPS)-stimulated murine macrophage cell line, RAW 264.7. These effects of MeOH-KS were based on modulation of iNOS and COX-2 level. Western blot analysis showed that MeOH-KS reduced the iNOS and COX-2 level in LPS activated macrophages, in a dose dependent manner without cNOS and COX-1 protein level. We also investigated RT-PCR to confirm the trancriptional regulation of iNOS and COX-2 mRNA by MeHO-KS.

[PC1-13] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Inhibitory effect of quercetin 3-O-β-(2"-galloyl)-rhamnopyranoside and its building moiety on the production of oxygen radicals in activated murine macrophages Raw264.7

Kim Byung Hak°, Min Kyung Rak, Kim Youngsoo

College of Pharmacy, Chungbuk National University, Cheongju 361-763, Korea

Reactive oxygen species play an important role in aging, carcinogenesis, and certain neurological disorders of human beings in addition to the host-defensive mechanism of inflammatory response. Murine macrophages Raw264.7 released superoxide anions via NADPH oxidase complex and nitric oxide (NO) via iNOS synthase when the cells were stimulated with unopsonized zymosan binding to complement receptor. Quercetin 3-O-β-(2"-galloyl)-rhamnopyranoside (QGR) showed dose-dependent inhibitory effects of 87% inhibition at 10 uM, 49% at 3 uM and 7% inhibition at 1 uM, and exhibited an IC50 value of 3 uM on the production of superoxide anions. Building moieties of QGR also showed inhibitory effects with IC50 values of 31 uM by quercitrin, 5 uM by quercetin and 22 uM by gallic acid on the unopsonized zymosan-induced production of superoxide anions. Murine macrophages Raw264.7 also released superoxide anions via NADPH oxidase complex when the cells were stimulated with phorbol myristate acetate (PMA) known as an activator of protein kinase C. QGR showed dose-dependent inhibitory effects of 86% inhibition at 30 uM, 67% at 10 uM, 45% at 3 uM and 23% at