Ⅱ-73

In vitro anti-inflammatory effects of ethanol extract from *Sorbus commixta*

School of Bioscience and Biotechnology, Kangwon National University
Tao Yu, Ting Shen, Dae Sung Yoo, Min Ho Kim, and Jae Youl Cho *

Objectives

Sorbus commixta has long been used in field of traditional herbal medicine as a tonic for the treatment of many disease. The purpose of this study is to examine its modulatory effects on the functional activation of macrophages under lipopolysaccharide (LPS) treatment. In this study, the 70% ethanol extract of *Sorbus commixta* was prepared and some inflammatory parameters were tested.

Materials and Methods

○ Materials

The ethanol extract of *Sorbus commixta*(L7) *is prepared by conventional method.* 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT), Griess reagents, and lipopolysaccharide (LPS, E. coli 0111:B4) were purchased from Sigma (St. Louis, MO). RAW264.7 cells were obtained from ATCC (Rockville, MD, USA). Fetal bovine serum (FBS) was obtained from Hyclone (Hyclone, South Logan, UT, USA). All other chemicals were Sigma grade.

○ Methods

To do these experiments, macrophage-mediated immunological functions such as cytokine production, nitric oxide(NO), tumor necrosis factor (TNF-α) and prostaglandin E_2(PGE_2) production, cell-cell adhesion and RT-PCR were tested according to previous methods using murine macrophage cell line (RAW264.7 and U937 cells).

Results

Sorbus commixta strongly blocked the production of proinflammatory mediators (nitric oxide [NO], tumor necrosis factor [TNF-α]) and prostaglandin E_2[PGE_2])(Fig.1) in the RAW264.7 cells, stimulated by lipopolysaccharide (LPS, 2 μg/ml). Moreover, the mRNA expression levels of iNOS, TNF-α and cyclooxygenase (COX)-2 were also decreased after treatment of *Sorbus commixta* extract(Fig.2). The *Sorbus commixta* extracts also down-regulated the functional activation of β1- integrins(CD29) assessed by U937 homotypic aggregation(Fig.3). Therefore, these data suggest that *Sorbus commixta* may be able to modulate macrophage-mediated responses and that some of the activities may contribute to expand its therapeutic usage.

This Study was supported by Technology Development Program for Agriculture and Forestry, Ministry for Agriculture, Forestry and Fisheries, Republic of Korea.

Corresponding autho : 조재열 E-mail : jaecho@kangwon.ac.kr Tel : 033-250-6488

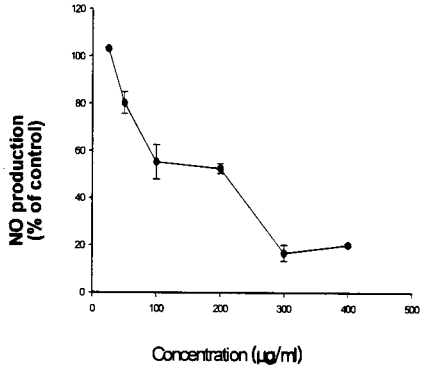

Fig.1A Effect on NO production

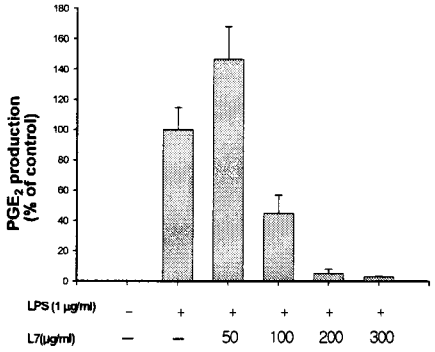

Fig.1B Effect on PGE2 production

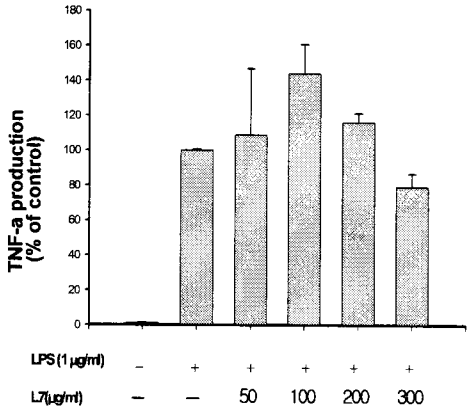

Fig.1C Effect on TNF-a production

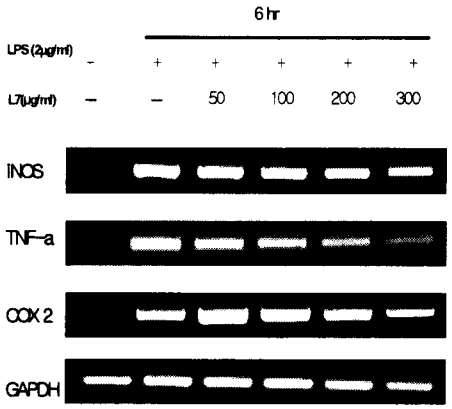

Fig.2 Effect on cytokine production

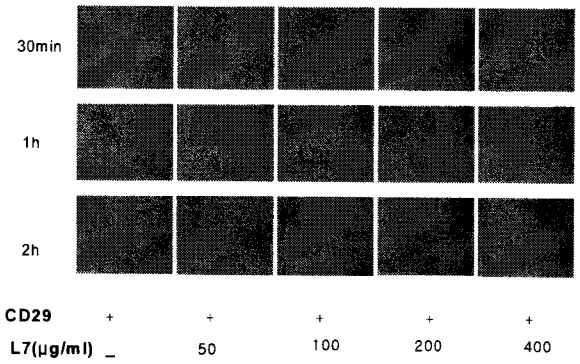

Fig.3 Effect on cell-cell adhesion