

## 고추나무 잎의 면역증진 활성

**정진부\***

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### Immune-Enhancing Activity of *Staphylea bumalda* Leave

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The leaves of *Staphylea bumalda* (*S. bumalda*) as a deciduous tree distributed in Korea, China and Japan are used to treat respiratory diseases or inflammation. However, there is no scientific research on the immune-enhancing activity of *S. bumalda* leaves. Thus, in this study, we investigated the effect of water extracts from *S. bumalda* leaves (SBL) on the macrophage activity using mouse macrophage cells, RAW264.7. SBL increased production of immunomodulators such as NO, iNOS, IL-1 $\beta$ , IL-6, TNF- $\alpha$  and MCP-1 in RAW264.7 cells and activated phagocytic activity of RAW264.7 cells. Inhibition of TLR2 and TLR4 blocked SBL-mediated production of immunomodulators in RAW264.7 cells. In addition, SBL-mediated production of immunomodulators was attenuated by JNK inhibition in RAW264.7 cells. SBL increased JNK phosphorylation, while Inhibition of TLR2 and TLR4 blocked SBL-mediated JNK phosphorylation in RAW264.7 cells. These results are thought to be evidence that SBL activates JNK through stimulation of TLR2 and TLR4 in macrophage to induce the production of immunomodulators. In LPS-stimulated RAW264.7 cells, SBL inhibited over-production of immunomodulators. Summarizing the results, SBL showed immunostimulatory activity under normal conditions and immunosuppressive activity under LPS-induced excessive immune response conditions.

**Key words:** Macrophage activation; Immune-enhancement; Immunity; *Staphylea bumalda*

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