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산수국 잎의 대식세포 활성화를 통한 면역증진활성

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Immune-Enhancing Activity of *Hydrangea macrophylla* subsp. *serrata* Leaves through Macrophage Activation

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In this study, we investigated the immune-enhancing activity of water extracts from *Hydrangea macrophylla* subsp. *serrata* (WE-HML). WE-HML increased cell viability and production of immunomodulators, which contributed to activating phagocytic activity in RAW264.7 cells. Inhibition of JNK and NF-κB reduced the production of immunomodulators by WE-HML. ROS inhibition suppressed the production of immunomodulators, and the activation of JNK and NF-κB signaling by WE-HML. TLR4 inhibition attenuated the production of immunomodulators, and activation of JNK and NF-κB signaling by WE-HML. In the immunosuppressed mouse model, WE-HML increased the spleen index, the levels of the cytokines, the numbers of white blood cells, lymphocytes, and neutrophils. However, WE-HML inhibited LPS-mediated overproduction of pro-inflammatory mediators in RAW264.7 cells, which indicated that WE-HML may have anti-inflammatory activity under excessive inflammatory conditions. Taken together, WE-HML may be considered to have immune-enhancing activity and expected to be used as a potential immune-enhancing agent.

Key words: Hydrangea; *Hydrangea macrophylla* subsp. *serrata*; Immune enhancement

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