

Effect of *Hovenia dulcis* branches on Macrophage Activation and Macrophage Autophagy in RAW264.7 Cells

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Hovenia dulcis, one of the traditional medicinal plants, is currently being used as a functional ingredient for the development of health functional foods that protects the liver from alcohol damage in Korea. A variety of pharmacological effects of *Hovenia dulcis* have been reported so far, but studies on immune-enhancing activity are insufficient. Thus, in this study, we report that *Hovenia dulcis* branches (HDB) induce the activation of macrophages. HDB increased the production of immunostimulatory factors and phagocytosis in RAW264.7 cells. TLR4 inhibition blocked HDB-mediated production of immunostimulatory factors. In addition, the JNK inhibition reduced the HDB-mediated production of immunostimulatory factors, and the HDB-mediated JNK activation was blocked by the TLR4 inhibition. HDB increased the level of LC3-II and p62/SQSTM1. TLR4 inhibition blocked HDB-mediated increase in the level of LC3-II and p62/SQSTM1. These findings indicate that HDB may induce TLR4/JNK-dependent macrophage activation and TLR4-dependent macrophage autophagy.

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