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Immune-Enhancing Effect and Anti-Obesity Activit of *Kadsura japonica* Fruits

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Under the COVID-19 pandemic, interest in immune enhancement and anti-obesity is increasing. Thus, in this study, we investigated whether *Kadsura japonica* fruits (KJF) exhibits immunostimulatory activity and anti-obesity activity. KJF increased the production of immunostimulatory factors and phagocytosis in RAW264.7 cells. Inhibition of TLR2 and TLR4 blocked KJF-mediated production of immunostimulatory factors in RAW264.7 cells. In addition, the inhibition of MAPK and PI3K/AKT signaling pathway reduced KJF-mediated production of immunostimulatory factors, and the activation of MAPK and PI3K/AKT signaling pathway by KJF suppressed the inhibition of TLR2/4. KJF attenuated the lipid accumulation and the protein expression such as CEBPα, PPARγ, perilipin-1, adiponectin, and FABP4 related to the lipid accumulation in 3T3-L1 cells. In addition, KJF inhibited excessive proliferation of 3T3-L1 cells and protein expressions such as β-catenin and cyclin D1 related to cell growth. These findings indicate that KJF may have immunostimulatory activity and anti-obesity activity.

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