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Solanum nigrum L. Extract Inhibits Inflammation in Lipopolysaccharide-stimulated Raw 264.7 and BV2 Cells

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Solanum nigrum L. (SNL), generally known as black nightshade, is traditionally used as medicine to reduce inflammation caused by several diseases like asthma, chronic bronchitis and liver cirrhosis. In this study, anti-inflammatory effects of SNL extract were examined and possible molecular mechanisms of the anti-inflammatory effects were investigated. The inhibitory effects of SNL extract on nitric oxide (NO), pro-inflammatory cytokines (TNF-α, IL-6) and Matrix metallopeptidase 9 (MMP-9) productions were dissected using lipopolysaccharide (LPS) stimulated murine macrophage-like cell line Raw264.7 cells and human microglial cell line BV2 cells. We further investigated whether SNL extract could suppress the phosphorylation of ERK1/2, JNK, and p38 and the nuclear expression of nuclear factor NF-κB p65 in LPS-stimulated Raw264.7 cells and BV2 cells. As a result, we showed that the SNL extract significantly decreased the production of pro-inflammatory cytokines, NO, and MMP-9. In addition, the SNL strongly inhibited the phosphorylation of ERK1/2, JNK, p38 and nuclear translocation of NF-κB p65 in activated cells. We confirmed that the extracts of SNL effectively inhibits the anti-inflammatory and may be used as a therapeutic to various inflammatory diseases.

Key words: *Solanum nigrum L.*, Inflammation, LPS