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Effects of Dioscorea daemona Roxb. (stem) extract on the inflammatory responses and antioxidant system

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This study was undertaken in order to investigate the effects of *Dioscorea daemona* stem on the inflammatory reactions and antioxidant system *in vivo*. The methanolic extract of *Dioscorea daemona* stem, administered by gavage at the dose of 0.2 μg/kg, showed anti-inflammatory and anti-allergic (typeⅣ) effects in different test models. We also showed that plasma antioxidant enzyme activities, lipid peroxidation and HDL cholesterol levels are affected by administration (0.2 μg/kg body weight, for 3 weeks) of *Dioscorea daemona* stem extract in rats. We also examined the inhibitory effects of methanol extract and subfractions obtained by chloroform, butanol from *Dioscorea daemona*stem against nitric oxide (NO), prostaglandin E_2 (PGE_2), tumor necrosis factor (TNF-α) and interleukin 6 (IL-6) productions in lipopolysaccharide (LPS)-induced mouse macrophages RAW264.7 cells *in vitro*. *Dioscorea daemona* stem methanolic extract and its fractions were found to inhibit NO production in LPS-activated RAW264.7 macrophages without an appreciable cytotoxic effect at 4~100 μg/ml. LPS-induced PGE_2 production was significantly ($p<0.05$) reduced only by chloroform fraction. In addition, *Dioscorea daemona* stem extract and its fractions significantly decreased the production of TNF-α and IL-6 ($p<0.05$). These results provide support for the use of *Dioscorea daemona* in relieving inflammation and its chloroform fraction inhibiting COX-2 and iNOS activities is warranted for further elucidation of active principles for development of new anti-inflammatory agents.

Key word: Dioscorea daemona anti-inflammatory activity; antioxidant activity cytokine