Inhibitory effects of a rice hull constituent on tumor necrosis factor, prostaglandin E2, and cyclooxygenase- 2 production in lipopolysaccharide- activated mouse macrophages.

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摘要.

Isovitexin, isolated from rice hull of Oryza sativa, has been characterized as a potent antioxidant. Its antioxidant activity, determined on the basis of inhibition of lipid peroxidation by the Fenton reaction, was comparable with that of -tocopherol, a well-established antioxidant. Isovitexin was able to reduce the amount of hydrogen peroxide production induced by lipopolysaccharide (LPS) in mouse macrophage RAW264.7 cells. In this study, we assessed its effects on the production of tumor necrosis factor (TNF-), prostaglandin E2 (PGE2), and the expression of cyclooxygenase-2 (COX-2) in LPS-activated RAW 264.7 macrophages. Isovitexin inhibited the release of TNF- , a proinflammatory cytokine, upon LPS activation with a 50% inhibitory concentration (IC50) of 78.6 M. Isovitexin markedly reduced LPS-stimulated PGE2 production in a concentration-dependent manner, with an IC50 of 80.0 M. The expression of COX-2 was also inhibited by isovitexin treatment. Our results suggest that suppression of ROS-mediated COX-2 expression by isovitexin is beneficial in reducing inflammation and carcinogenesis.