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Suppressive effects of pinosylvin on prostaglandin E_2 and nitric oxide production in lipopolysaccharide-stimulated RAW 264.7 cells

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The inhibitors of prostaglandin biosynthesis and nitric oxide production by corresponding inducible isozyme have been considered as potential anti-inflammatory and cancer chemopreventive agents. In our continuous search for cancer chemopreventive agents from natural products, we have evaluated the inhibitory potential of PGE_2 and NO production in lipopolysaccharide (LPS)-induced mouse macrophage RAW264.7 cells. As a result, pinosylvin (3,5-dihydroxy-*trans*-stilbene), a stilbenoid, mainly found from the heartwood and leaves of the *Pinus sylvestris*, showed potential inhibitory activity of LPS-induced PGE_2 and NO production in a dose-dependent manner. Pinosylvin also suppressed the LPS-induced iNOS protein expression. Further study revealed that pinosylvin exhibited antioxidant activity by the DPPH free radical scavenging potential and inhibitory effect of xanthine oxidase activity. In addition, pinosylvin inhibited COX-2 overexpressed human colon cancer cell (HT-29) growth in a time- and dose-dependent manner. These findings suggest that pinosylvin might be a promising candidate for developing cancer chemopreventive agent .