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# Suppression effects of caffeoyl-4-dihydrocaffeoyl quinic acid on the expression of cyclooxygenase-2 in macrophages and in a mice model of inflammation.

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Inducible cyclooxygenase-2 (COX-2) has been implicated in the processes of inflammation and carcinogenesis. Thus, the potential COX-2 inhibitors have been considered as anti-inflammatory or cancer chemopreventive agents. In this study, we investigated the effect of caffeoyl-4-dihydrocaffeoyl quinic acid (CDCQ) isolated from *Salicornia herbacea* on the expression of COX-2 in lipopolysaccharide (LPS)-activated RAW 264.7 macrophages. When CDCQ was treated with LPS, the prostaglandin E2 production and COX-2 gene expression induced by LPS were markedly reduced in a dose-dependent manner. Also, we examined the effectof CDCQon the inflammatory response induced by carrageenan in the mice. Air pouches were induced subcutaneously on the backs of mice and injected with carrageenan. The mice were treated with either vehicle or CDCQ at a dose of 1-10 mg/kg/ml one hour before carrageenan challenge. Twenty-four hour after carrageenan challenge, the air pouches were removed and analyzed. The volume, protein amounts and cell counts in the exudation obtained from the CDCQ-treated animals were significantly reduced compared to those from vehicle-treated animals. The contents of PGE2, TNF-alpha and the mRNA for COX-2 were also suppressed in these mice.This study suggests that down-regulation of COX-2 expression by CDCQ may be important in the prevention of carcinogenesis and inflammation.

Key Words; caffeoyl-4-dihydrocaffeoyl quinic acid, cyclooxygenase-2, inflammation