

Evaluation of antigenotoxicity effects of umbelliprenin on human peripheral lymphocytes exposed to oxidative stress

Soltani, F.^{ab}, Mosaffa, F.^{ab}, Iranshahi, M.^{ab}, Karimi, G.^{cd}, Malekaneh, M.^e, Haghghi, F.^f, Behravan, J.^{ab}

^a Biotechnology Research Center, **Mashhad University of Medical Sciences, Mashhad, Iran**

^b Department of Pharmacognosy and Biotechnology, School of Pharmacy, **Mashhad University of Medical Sciences, P. O. Box 91775-1360, Mashhad, Iran**

^c Department of Pharmacodynamics and Toxicology, School of Pharmacy, **Mashhad University of Medical Sciences, Mashhad, Iran**

^d **Medical Toxicology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran**

^e Department of Clinical Biochemistry, Birjand **University of Medical Sciences, Birjand, Iran**

^f Department of Pathology, Birjand **University of Medical Sciences, Birjand, Iran**

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Abstract

The protective properties of a prenylated coumarin, umbelliprenin (UMB), on the human lymphocytes DNA lesions were tested. Lymphocytes were isolated from blood samples taken from healthy volunteers. DNA breaks and resistance to H₂O₂-induced damage were measured using a single-cell microgel electrophoresis technique under alkaline conditions (comet assay). Human lymphocytes were incubated in UMB (10, 20, 50, 100, 200, and 400 μM) alone or a combination of different concentrations of UMB (10, 20, 50, 100, 200, and 400 μM) and 20 μM H₂O₂. Untreated cells, ascorbic acid (AA; 20, 50, 100, 200, and 400 μM) and H₂O₂ (20 μM) were considered as negative control, positive control, and the standard antioxidant agent for our study, respectively. Single cells were analyzed with "TriTek Cometscore version 1.0" software. The DNA damage was expressed as percent tail DNA. UMB exhibited a concentration-dependent increase in protection activity against DNA damage induced by 20 μM H₂O₂ (from 67.2% to 29.1%). The antigenotoxic activity of AA, in the range 20-400 μM, was greater than that of UMB. However, no significant difference (p > 0.05) in the protective activity was found between UMB and AA at concentrations of approximately higher than 50 μM. © 2008 Springer Science+Business Media B.V.

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Indexed Keywords

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Medline is the source for the MeSH terms of this document.

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