GENISTEIN-8-C-GLUCOSIDE PROTECTS CHINESE HAMSTER OVARY CELLS FROM H_2O_2-INDUCED LIPID PEROXIDATION

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Protective role of isoflavones in particular genistein might result from their antioxidant activity in addition to their estrogenic properties. Genistein, a natural isoflavonoid phytoestrogen and major component of soybean, has been reported to possess anticancer and chemopreventive properties. Although, the exact molecular mechanisms involved in anticancerogenic action of these compounds are not fully understood, scavenging reactive oxygen species (ROS) is believed to be responsible, at least partially, for their anticancerogenic effects.

The objective of our study was to test the glycosylated derivative of genistein, genistein-8-C-glucoside (G8CG) isolated from the flowers of *Lupinus luteus L.* We investigated the effects of G8CG on H_2O_2-induced free radical reaction in cultured immortal Chinese hamster ovary cells. Thiobarbituric-acid-reactive species (TBARS) was measured after incubation of the cells with different concentrations of G8CG in the absence or presence of hydrogen peroxide and vitamin C for 1 h. The level of reactive oxygen species generated by H_2O_2 alone and in combination with G8CG was stimulated with fluorescence probes DCFH-DA by flow cytometry. Genistein-8-C-glucoside at 5, 7.5 and 10 μM significantly reduced the H_2O_2-induced TBARS, impying that G8CG has an inhibitory role in the hydrogen peroxide-induced lipid peroxidation. Also, G8CG (5, 7.5 and 10 μM) led to relatively reduced ROS level in H_2O_2 treatment. The findings imply that the antioxidative properties of genistein-8-C-glucoside are partly associated with its cell protective function.