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Czech J. Food Sci.

**Wang H., Martin M.W.,
Yin S.:**

The synergistic effect of daidzein and α -tocopherol or ascorbic acid on microsome and LDL oxidation

Czech J. Food Sci., 28 (2010): 385-391

Isoflavone daidzein brings potential health benefits. Its antioxidant properties are considered to be responsible in part for its protective effects. We investigated the antioxidant effects of daidzein and its interactive effects with α -tocopherol or ascorbic acid on Fe^{2+} /ascorbate-induced oxidation of rat liver microsomes and copper-induced human low-density lipoprotein (LDL) oxidation. Although the inhibitory effect of daidzein on lipid peroxidation in microsome was weak, it effectively prevented LDL against oxidative modification by prolonging the lag time, decreasing the propagating rate, and suppressing malonaldehyde (MDA) and carbonyls formation. When daidzein was combined with α -tocopherol in

microsomes oxidation and with ascorbic acid in LDL oxidation, the protection was significantly greater than the calculated additive effect of the two individual actions. Thus, daidzein can protect LDL from oxidative modification, and its combination with nutrients may be superior to the action of it alone. These results can help to get a better understanding of the interactions of different antioxidants *in vivo*.

Keywords:

antioxidant effects; synergism; daidzein; ascorbic acid; α -tocopherol; LDL; microsome

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