MAGIFERA INDICA EXTRACT (VIMANG) PREVENTS MITOCHONDRIAL PERMEABILITY TRANSITION IN ATHEROSCLEROSIS-PRONE MOUSE

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We have recently shown (FASEB J. 2005;19(2): 278-80) that liver mitochondria isolated from atherosclerosis-prone, hypercholesterolemic LDL receptor knockout mice (K/o mice) presented lower capacity to sustain a reduced state of matrix NADPH, which is oxidized to support an elevated cholesterol synthesis. Since NADPH is the main redox source for mitochondrial antioxidant defense system against reactive oxygen species (ROS), these mitochondria presented higher susceptibility to membrane permeability transition (MPT). Here, we show that oral supplementation with *Mangifera indica L* extract (Vimang) and mangiferin (the extract most abundant polyphenol) at a daily dose of 250 and 40 mg/Kg, respectively, inhibited Ca^{2+}-induced permeability transition in K/o mice. These effects were independent on alterations in the levels of plasma cholesterol. Vimang and in lesser extent mangiferin, also reduced almost to the control levels the net ROS generation/accumulation by isolated liver mitochondria and spleen lymphocytes, and prevented matrix mitochondrial NADPH spontaneous oxidation. These findings suggest that Vimang/mangiferin inhibited MPT through an antioxidant effect.

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