

THE EFFECT OF QUERCETIN ON RAT THYMOCYTE MITOCHONDRIA TREATED WITH MANCOZEB

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Quercetin is one of the most commonly used flavonoids, which people continuously consume through food. This flavonoid has potent antioxidant and anti-inflammatory effect. In the current study, we evaluated the effect of Mancozeb (0.2, 2 i 5 µg/ml), Mancozeb and quercetin, only quercetin (10mM) on viability, apoptosis, ROS production and mitochondrial membrane potential (MMP) in rat thymocytes, in in vitro conditions. The application of Mancozeb resulted in dose-dependent reduction of cell viability, apoptosis induction, which was followed by increased ROS production and MMP reduction. Quercetin significantly reduced the cytotoxicity in cell cultures with 0.2 and 2µg/ml of Mancozeb, together with the reduction of ROS and MMP increase. Quercetin in cell cultures treated with 5µg/ml of Mancozeb failed to reduce toxicity but increased the total number of apoptotic cells. The obtained results show that ROS production, together with mitochondrial dysfunction, may represent a key factor in toxicity induced by Mancozeb. The application of quercetin reduces cell toxicity which is induced by lower Mancozeb concentrations, with a possibility to induce apoptosis and prevent necrosis, with final reduction of the development of secondary immunological consequences. *Acta Medica Medianae 2015;54(4):5-11.*

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