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Consumption of Cashew (*Anacardium occidentale* L.) Nuts Counteract Oxidative Stress and Tissue Inflammation in a Condition of Hyperhomocysteinemia in Rats

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Hyperhomocysteinemia (HHcy) is a disorder of methionine metabolism, leading to different inflammatory diseases. Homocysteine (Hcy) may be further metabolized by the sulphuration pathway to cysteine, or remethylated using either methyltetrahydrofolate or betaine. Experimental animal models of induced HHcy enable further investigation of the relationships between Hcy and different inflammatory disorders, including the possible actions underlying these relations. One of the mechanisms that are supposed to be involved in the pathogenesis of various damages caused by HHcy is oxidative stress. HHcy is more likely to be a disease involving the dysfunction of various organs, still little studied, such as kidney, liver or gut. Several observations indicate that the calibrated assumption of correct doses of vitamins such folate, vitamin B6, vitamin B12, and betaine may control HHcys-related conditions. Daily intake of nuts is acclaimed as a part of a healthy diet since they contain proteins and beneficial fatty acids together with essential nutrients. Consumption of natural antioxidants, such as polyphenol-rich foods, fresh fruits, and vegetables, could neutralize the oxidative degradation of ROS. Based on this, the aim of work was to evaluate the anti-inflammatory and antioxidant effects of cashew nuts in a condition of HHcy induced by oral methionine administration and examine the possible pathways involved. In particular, in HHcy rats, cashew nuts (100mg/kg orally) was able to counteract clinical biochemical changes, oxidative and nitrosative stress, reduced antioxidant enzyme levels, lipid peroxidation, proinflammatory cytokines release as well as histological tissue injuries and apoptosis in kidney, colon and liver. Thus, the results suggested that consumption of cashew nuts may be beneficial for the treatment of inflammatory conditions associated to HHcy.

Keywords: oxidative stress, injury, Hyperhomocysteinemia, inflammation, cashew nuts

Biography:

Daniela Impellizzeri is a Master's degree in Biological Sciences, PhD in "Experimental Medicine", Associate Professor in Clinical Biochemistry and Clinical Molecular Biology at Messina University, Dpt of Chemical, Biological, Pharmaceutical and Environmental Sciences. She has an important research background in the fields of inflammation, neuroinflammation, oxidative stress, pain, immunity in specific area of biochemistry, pharmacology and neuroscience. She has about 150 publications, in international peer-reviewed journals. She also participated at several national and international conferences.

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