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Cichorium intybus attenuates streptozotocin induced diabetic cardiomyopathy via inhibition of oxidative stress and inflammatory response in rats

Manju Sharma
Hamdard University, India

The aim of the present study was to investigate the effects of Cichorium intybus (CI) on lipid peroxidation, activities of both enzymatic and non-enzymatic antioxidants, inflammatory mediators, myocardial enzymes and histopathology of cardiac tissues in experimental diabetic cardiomyopathy (DCM). Diabetic cardiomyopathy was induced by single intraperitoneal injection of STZ (40mg/kg) combined with high energy intake in rats. CI (250mg and 500mg/kg) was administered orally once a day for 3 weeks. Phytochemical investigations of seed extract revealed the presence of some active ingredients such as alkaloids, tannins, saponin, phenols, glycosides, steroids, terpenoids and flavonoids. An elevation of the levels of aspartate aminotransferase (AST), blood glutathione (GSH), lactate dehydrogenase (LDH), superoxide dismutase (SOD), thiobarbituric acid reactive substances (TBARS), TNF-α and IL-6 and a reduction in the levels of catalase (CAT) was observed following the STZ treatment. Oxidative stress was accompanied by myocardial degeneration as evidenced by histopathological examination of cardiac tissues. Administration of CI reduced the lipid peroxides level in heart. Serum levels of AST, GSH, LDH and SOD were brought down to physiological levels by CI in STZ induced DCM rats. CI also markedly down-regulated serum TNF-α and IL-6 levels. Catalase that was reduced in serum was brought back to near normal level. The extensive necrotic changes of cardiac tissue by STZ were minimized to normal morphology upon CI administration. The study demonstrates the cardioprotective effect of CI via inhibition of oxidative stress and pro-inflammatory cytokines.

manju_sharma72@yahoo.com

Neuroprotective effect of a new peptide isolated from social wasp venom against neurodegeneration induced in the murine model of Parkinson's disease

Marcia Renata Mortari, Henrique Amaral and **Andreia Biolchi Mayer**
University of Brasília, Brazil

Parkinson's disease (PD) is the most common neurodegenerative disease related to movement, and affects 1% of the population over 60 years old. Chronic use of dopamine precursors causes strong side-effects, and the drugs used in the treatment does not modify disease progression. Therefore, it is necessary the development of more effective antiparkinsonian drugs. Wasp venoms are composed by a cocktail of bioactive molecules, with a high selectivity to CNS. Then, the objective was to isolate a new peptide of the wasp venom with neuroprotective activity in a model of PD. Fractionation was performed by HPLC and the peptide identified by mass spectrometry. Study procedures were approved by CEUA-UnB. The peptide fraction was injected one hour after lesion and during the next two days. One week after injury, the animals were tested and the rotatory behavior was observed after apomorphine, and the number of the viable neurons were counted. Treated group showed a decrease on the number of rotations in relation to the damaged group ($p<0.001$). Moreover, the peptide decreased the degeneration in the SN. This study revealed a promising peptide of the wasp venom that was able to prevent the progression of the neuronal loss in a model of PD.

mmortari@unb.br