Effect of bioactive compounds from beet leaf and stem extract on the prevention or reduction of LDL oxidation and oxidative DNA damage.


Abstract
The objective of this study was to evaluate the antioxidant potential of lyophilized beet leaves through biochemical tests in the prevention or reduction of LDL oxidation and DNA damage. The results of the present study showed that 100 ppm beet leaf extract protects LDL oxidation 100% and maintained HUVECs viability in 48 hours when treated with 1 ppm beet leaf extract and exposed to oxidized LDL. However as for DNA breakage, this protective effect was not observed.

Key words: Bioactive compound, beet, Reactive Oxygen Species (ROS).

Introduction
Obesity a few years ago became a disease with characteristics of subclinical inflammation associated with the condition of oxidative stress, which contributes to increase the individual's susceptibility to comorbidities. The bioactive compounds with antioxidant activity present in the food have the capacity to modulate the production of reactive oxygen species (ROS) in the body, having a protective action against oxidative damage and reduction of inflammation. Beet is described as containing a range of bioactive compounds with high antioxidant capacity and has been the subject of studies in the control of LDL oxidation. Thus, the objective of this study was to evaluate the antioxidant potential of lyophilized beet leaves, through biochemical tests, in the prevention or reduction of LDL oxidation and DNA damage.

Results and Discussion
After the preparation of the serial beet extract, the following analyzes were performed: Determination of Antioxidant Activity and Total Phenolic (figure1); Oxidation capacity of LDL (figure2); Cell viability of the HUVECs by the MTT test (figure 3); Ability of inhibition of free radical cleavage of supercoil plasmid DNA (figure 4).

Conclusions
Beet leaf extract at 100 ppm concentration protects LDL oxidation by 100%. In addition, it was observed that the 1 ppm beet extract maintained HUVECs viability in 48 hours when exposed to oxidized LDL. However, as for DNA breakage, this protective effect was not observed.

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