

Effect of Antioxidant-rich fruit Extract Intake on Oxidative Stress, Hemodynamic Profile and Insulin Resistance in Hypertensive Patients

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Abstract

Diets high in antioxidant substances (polyphenols) may reduce the risk of cardiovascular events. Low consumption of fruits and vegetables is involved in oxidative stress, hypertension and insulin resistance. Although the consumption of fresh fruit or juice is the best way to acquire its nutritional components, the use of capsules containing fruit extracts has the advantage of being easily consumed and lasting longer. Therefore, studies are needed to support antioxidant supplementation in the form of encapsulated fruit extracts and to verify if the protective properties of these fruits remain after the processing that generates the extracts. Thus, the objectives of this study are: 1) To determine the phenolic content and antioxidant capacity of cranberry, blueberry and pomegranate extracts; 2) Perform evaluation of oxidative stress markers, markers of inflammatory activity, together with hemodynamic assessment. For this, a placebo-controlled clinical trial was conducted with hypertensive and normotensive subjects who received the fruit extract capsules (blueberry, cranberry and pomegranate) for 4 weeks. Hemodynamic, inflammatory mediators, insulin resistance, and plasma antioxidant activity evaluations were performed. Biochemical analysis of fruit extracts showed that the antioxidant activity of phenolic components remains in the capsules. The HOMA-IR index, that discloses insulin resistance, decreased significantly after capsule consumption. Although there were no hemodynamic changes, there was a decrease in lipid peroxidation after capsule consumption and an increase in catalase activity. The results of this study suggest that supplementation with cranberry, blueberry and pomegranate capsules can reverse oxidative damage and reduce insulin resistance in hypertensive patients.

Biography:

Elia Garcia Caldini has completed her PhD in Experimental and Comparative Pathology at University of São Paulo (Brazil) and postdoctoral studies from Bologna University (Italy). She is the Professor at Pathology Department and director of the Medical Research Laboratory for Cell Biology at University of São Paulo School of Medicine. She has published more than 70 papers in journals with a strong editorial policy.



Speaker Publications:

1. Mary Anne Kowal Olm, Elia Garcia Caldini, Thais Mauad; Diagnosis of primary ciliary dyskinesia; University of Sao Paulo School of Medicine, Brazil; DOI: 10.1590/S1806-3713201500004447.

2. Juliana Tiyaki Ito, Daniela Aparecida de Brito Cervilha, Juliana Dias Lourenço, Natália Gomes Gonçalves, Rildo Aparecido Volpini, Elia Garcia Caldini and Gilles Landman, University of Sao Paulo School of Medicine, Brazil; Th17/Treg imbalance in COPD progression: A temporal analysis using a CS-induced model; <https://doi.org/10.1371/journal.pone.0209351>.

[19th International Conference on Diabetes, Endocrinology and Obesity](#) August 21-22, 2020- Webinar.

Abstract Citation:

Elia Garcia Caldini, Effect of Antioxidant-rich fruit Extract Intake on Oxidative Stress, Hemodynamic Profile and Insulin Resistance in Hypertensive Patients, Diabetes Europe 2020, 19th International Conference on Diabetes, Endocrinology and Obesity, August 21-22, 2020, Webinar.

(<https://worldobesity.conferenceseries.com/abstract/2020/effect-of-antioxidant-rich-fruit-extract-intake-on-oxidative-stress-hemodynamic-profile-and-insulin-resistance-in-hypertensive-patients>).

