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Chronic nitrate supplementation on biochemical and hemodynamic parameters of individuals presenting risk factors for cardiovascular diseases

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D ietary nitrate has been associated with nitric oxide bioconversion and beneficial vascular effects. A beetroot-cereal bar enriched in nitrate and polyphenols were administered to patients presenting risk factors for the development of cardiovascular diseases (CDV). The effects of the chronic intake of these compounds on endothelial function and hemodynamic parameters were evaluated in a randomized controlled crossover 3-week supplementation trial with 9.5±0.05 mmol of nitrate on five patients service presenting three risk factors for developing CVD. Nitric oxide bioconversion in patient plasma and cardiovascular performance were evaluated. Plasmatic nitrate and nitrite increased ≈15 and ≈7 folds, respectively; endothelial function was improved, arterial stiffness was reduced and arterial blood pressures were decreased by ≈14.0 mm Hg SBP and ≈6.5 mm Hg DBP. The vascular outcomes correlated with NO3-, phenolic content and antioxidant activity bioaccessibility from the beetroot-cereal bar since 85% of dietary nitrate and 68% of phenolic compounds are available for intestinal uptake after in vitro gastrointestinal digestion. Increased dietary nitrate intake from the designed beetroot-cereal bar may be an effective strategy to improve cardiovascular parameters in patients presenting risk factors for the development of cardiovascular diseases.

Biography

Vânia Margaret Flosi Paschoalin is a full Professor of Biochemistry at the Federal University of Rio de Janeiro, Brazil. She is a Head of Graduate Studies at Chemistry Institute at the same university. She has a Bachelor's degree in Biological Sciences, and a Master's and Doctorate in Biochemistry (Brazil) and a Post-doctorate in Molecular Biology from the Cranfield University (UK). She has over 100 peer-reviewed journal articles and 12 invited book chapters. She has supervised 22 master students, 17 doctorate students and 8 post-doctorates. She is sponsored by the Scientist for Rio de Janeiro grant since 2008.

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