Leguminous flour of native Argentinean forest: their contribution to antioxidant defense

Silvina Generoso, Costa K, Rosas D, Lescano N and Macias S

National University of Santiago del Estero, Argentina

The oxygen-reactive species may generate oxidative stress, which could result in degenerative diseases. Antioxidant mechanisms usually act in a coordinated way, and they get together in two defense systems: enzymatic and non-enzymatic system. The enzymes Metallo-dependent of the organism and the natural substances present in legumes have the capacity to delay, decrease or inhibit the oxidative processes. This work aimed to evaluate the bio accessibility of zinc and bioactive compounds of flour obtained from Argentinean native forest fruits corresponding to the family of leguminous plants: white carob (Prosopis alba) and Chañar (Geoffroea decorticans), to use them in human food. The study was done on carob flour (AF) and chañar flour (CHF). The minerals were quantified by atomic absorption spectrometry. Bio accessibility (D%) was estimated by dialysate percentage after in vitro digestion. The potential contribution (AP) was calculated. Their phenolic concentrations were obtained using Folin-Ciocalteu's method and their antioxidant activity was evaluated in vitro using the radical DPPH (1,1-diphenyl-2-picrylhydrazyl) and expressed as the percentage of the trapping capacity against DPPH. AF and CHF presented contents of Zn 1.20 and 1.48 mg/100g; D% 24 and 28; AP 0.29 and 0.41 respectively. CHF contains 112±18.3mg EAG/100g of total phenols and AF 156±16.9 mg EAG/100g. The results showed that the antioxidant potential was higher in CHF 39.78% than FA: 16.4%, in preparations with 100 mg/l. The values for the discoloring percentage of DPPH radical were corrected as to quercetin fixed as the standard with a value of 100% antioxidant capacity. The samples under study are useful sources of Zn, the cofactor of the enzyme superoxide dismutase and of antioxidants, mainly of phenolic compounds. Therefore, these flours could be suitable for functional foods formulation.

Figure1. Fruit chanar and carob

Silvina Generoso has completed her Bachelor degree in Biochemistry from National University of Tucumán (UNT), Argentina and PhD from National University of Santiago del Estero, Argentina in 2005. Currently she is an Professor at the National University of Santiago del Estero (UNSE), Santiago del Estero, Argentina. She has coined more than 30 international publication, attended more than 65 national scientific meeting and a n about 30 International presentations.

generoso@unse.edu.ar