

Phenolic Composition, Antioxidant Capacity, and α -Glucosidase Inhibition of Boiled Green Beans and Leaves from Chilean *Phaseolus vulgaris*

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Abstract

The tender green pods of the common bean (*Phaseolus vulgaris* L.) are marketed fresh, frozen or canned. The main bean accessions cultivated for green pods in central Chile are Arroz, Magnum, Peumo and the introduced Malibú. Little is known about the identity of phenolics in the processed pods or in the boiled bean leaves. Raw leaves from Chilean bean landraces showed a strong inhibition towards the enzyme α -glucosidase, associated with flavonoids and caffeoyl malic acid content. The aim of this work was to assess the phenolic composition, antioxidant capacity and activity towards α -glucosidase of boiled leaves and green pods from selected bean landraces. The study was performed with four green pods samples and six leaf accessions, respectively. The leaves included the continuous growth bean Ñuño (red seed and black seed). Antioxidant capacity and inhibition of α -glucosidase were measured. The main phenolics were identified by comparison with standards and were quantified using calibration curves. The extracts of most boiled green pods inhibited α -glucosidase while the leaves were inactive. The content of phenolics in the boiled pods is low, with rutin and quercetin 3-O-glucuronide as the main constituents. In boiled leaves, the main phenolics were quercetin 3-O-glucuronide and kaempferol 3-O-glucuronide. The main flavonoids and caffeoyl malic acid in leaves decreased after boiling. Boiling affected the phenolic profile, reducing antioxidant capacity and glucosidase inhibition, highlighting the importance of characterizing foods as they are ingested.