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Section A: Food Biotechnology

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Antioxidant Activity and α-glucosidase Inhibitory Potential of Five Varieties of Dry Beans (*Phaseolus vulgaris* L.)

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Abstract: The functional properties of aqueous extract from five cultivars of raw beans (Black, Pinto, Flor de mayo, Bayo and Mayocoba) including scavenging activity toward $NO^{\cdot}$ (nitric oxide) and $^{\cdot}O_2^-$ (superoxide) and inhibitory effects on α-glucosidase were investigated. The total phenolics content ranged from 4.1 to 7.1 mg/100 g, the anthocyanin content ranged from 0.47 to 2.7 mg/100 g and flavonoids from 4.8 to 11.4 mg/100 g. The crude extracts from black variety were higher in antioxidant activity against nitric oxide, superoxide and α-glucosidase inhibition (59, 37 and 88 % respectively). The antioxidant activity of each extract against $NO^{\cdot}$ and $^{\cdot}O_2^-$ could be attributable to the phenolic content compounds. The extract form black variety yielded the most effective antioxidant and inhibitory activity. All beans extracts also exhibited α-glucosidase inhibition in a dose-dependent response. The effectiveness in antioxidant activity and inhibition of α-glucosidase correlate with total phenolics content and with the nature of the pigmentation among the varieties of raw beans evaluated suggesting that phenolic compounds may be involved.

Keywords: α-glucosidase, angiotensin-converting enzyme, antioxidant activity, raw beans, total phenolic compounds

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