



## ANTIOXIDANT ACTIVITY OF METHANOLIC EXTRACTS FROM JAMAPA AND ZACATECAS BLACK BEAN (*Phaseolus vulgaris* L.)

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**Introduction.** Free radicals molecules are created by the process of oxidation. They are very oxidative and unstable molecules that can damage an organism and can be the cause of degenerative disease. Antioxidants are compounds that inhibit or catch these molecules, making them stable and avoiding their oxidation process (1). Black beans are considered as a functional food because they have some bioactive compounds involved in modulation process of therapeutic functions. Some of these bioactive compounds are polyphenols and tannins, molecules with antioxidant activity. In phenolics compounds, this activity is related with the ability of suppress free radicals formation (2). The aim of this work was to determine the antioxidant activity of methanolic extracts from Jamapa and Zacatecas black bean (*P. vulgaris* L.) by the DPPH<sup>+</sup> methodology.

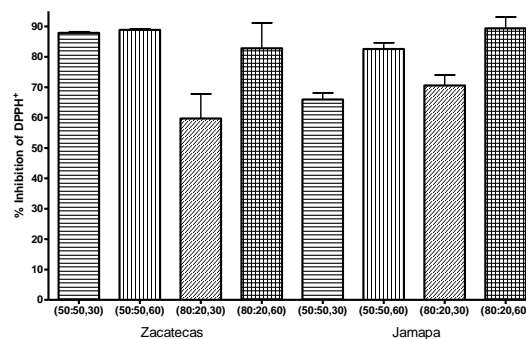
**Methods.** Raw material from two black bean varieties: Jamapa (J) and Zacatecas (Z) were used. These seeds were grinded and extracted with a 50, 80 and 100 % methanolic solution by 24 h at room temperature. After this process the extract was filtrated. Antioxidant activity (AA) was determined by inhibition of 0.1 mM DPPH<sup>+</sup> free radical in 30 and 60 min of reaction, at 515 nm and calculated as:

$$AA(\%) = \frac{Abs\ DPPH^+ - Abs\ X}{Abs\ DPPH^+} \times 100$$

Results were compared to Trolox 0-1.2 mM to obtain the Trolox Equivalent Antioxidant Capacity (TEAC). An ANOVA and Duncan test ( $p < 0.05$ ) were used to analyze the data.

**Results.** It had been reported that black bean seeds contains tannins and phenolic compounds which had antioxidant activity (3).

TEAC obtained for Z(50:50,60), Z(80:20,60), J(50:50,60) and J(80:20,60) were 11.06, 2.47, 8.67 and 10.68 respectively; in a previous work TEAC of 10.09 mmol L<sup>-1</sup> mg<sup>-1</sup> protein was determined for different *P. vulgaris* L. seeds (4).



**Fig 1.** *P. vulgaris* extracts antioxidant activity (%). Results are defined as (methanol:agua concentration, reaction time) by each black bean variety.

**Conclusions.** The highest antioxidant activity for Zacatecas (82.81 %) and Jamapa (89.41 %) was determined at 60 min of reaction time with de 50: 50 methanolic extract.

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