

**Title** The correlation between some nutritional components with total antioxidant capacity (measured with six different assays) in eight horticultural commodities

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### Abstract

The contents of total soluble phenolics (TSP), vitamin C, vitamin E,  $\beta$ -carotene and total carotenoids (TC) in eight fruits have been correlated with the antioxidant capacity (AC) of hydrophilic and lipophilic extracts measured by six different antioxidant assays (DMPD, DPPH, FRAP, ORAC, TEAC, TOSC). Guava had the highest TSP content, followed by black zapote, strawberry, prickly pear cladodes (nopal), avocado, prickly pear fruit, and papaya. Guava fruit had the highest vitamin C content, whereas the lower levels were found in black zapote and nopal. Ascorbic acid was the main contributor to the total vitamin C content (>85%), with exception of nopal and avocado. Evaluated fruits showed significant differences in vitamin E content, with the exception of mango and strawberry, without differences between them, and the highest content was in black zapote, followed by avocado, guava, nopal, mango, strawberry, papaya and prickly pear fruit. Mango had the highest  $\beta$ -carotene and TC, and prickly pear fruit, guava, and strawberry had the lowest TC. In relation with AC, values of hydrophilic extracts ranged from 78.9 to 6230.61  $\mu\text{mol}$  of trolox equivalents TF/100 g with DPPH assay; 798.4 to 15420.4  $\mu\text{mol}$  TF/100 g with DMPD assay; 257.1 to 7482.9  $\mu\text{mol}$  TF/100 g with FRAP assay; 330.4 to 859  $\mu\text{mol}$  TF/100 g with ORAC assay; 222.1 to 2243.8  $\mu\text{mol}$  TF/100 g with TEAC assay; and from 2055.5 to 8235.6  $\mu\text{mol}$  TF/100 g with TOSC assay. Lipophilic values ranged from 0 to 91.2  $\mu\text{mol}$  TF/100 g with DPPH assay; 0 to 145.2  $\mu\text{mol}$  TF/100 g with DMPD assay; 8.4 to 31.8  $\mu\text{mol}$  TF/100 g with TEAC assay; and from 13.7 to 61  $\mu\text{mol}$  TF/100 g with TOSC assay. In general, lipophilic values were <5% of the hydrophilic values except for a very few samples. The hydrophilic extract of guava had the major value when evaluated with DMPD, DPPH, FRAP, TEAC and TOSC assays; whereas with the ORAC assay, black zapote was the major one. On the other hand, the hydrophilic extracts of papaya and prickly pear fruit presented the lowest values of AC with all used assays. Regression analysis revealed that the content of TPS and vitamin C were highly correlated with the AC of hydrophilic extracts evaluated by the six assays. On the other hand, only the AC of the lipophilic extracts, evaluated by the DMPD assay, was highly correlated with the content of  $\beta$ -carotene and TC.