

Title Antioxidant capacity and correlation with phenolic compounds and carotenoids in 40 horticultural commodities

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Abstract

The consumption of fresh fruits and vegetables has been correlated with better health and prevention of several illnesses. Fruits and vegetables contain many phytochemicals, such as phenolic compounds and carotenoids, many of are antioxidants. The objective of this work was to determine the antioxidant capacity (AC) of 40 horticultural commodities sampled from the markets in Queretaro, Mexico, and correlate it with their phenolic and carotenoid content. AC was determined by FRAP (ferric ion reducing antioxidant power) and DPPH (2,2 difenil-1-picril-hidrazil). Total carotenoids and total phenolic compounds were measured spectrophotometrically. Results showed great variations between the different commodities. Fruits that had the highest AC were red bell pepper, guava, Ataulfo mango, yellow bell pepper, Manila mango, green bell peppers, and soursop. Those that had the lowest AC were carrots, lettuce, black zapote, cucumbers, and celery. Hydrophilic extracts of most commodities had higher AC than the lipophilic extracts. Commodities that had the highest carotenoids content were carrots, celery, yellow and red bell peppers, and papaya. Commodities with the lowest carotenoid content were radish, prickly pear, pineapples, pears, anions, black zapote, banana and apples. Most commodities had high phenolic content. Those with low phenolic content were carrots, limes, and white anions. AC measured by FRAP correlated positively with total carotenoids content in red bell peppers, Red Delicious apples, limes, and guava, and correlated positively with total phenolic contents in avocados, soursop, tomato, Manila mango, papaya and pears. AC measured with DPPH correlated positively with total phenolic contents in hot peppers, limes, Tommy Atkins mangoes, melons, oranges, and papaya, and correlated positively with carotenoids content in guava, tomatoes, lettuce, limes, and yellow bell peppers.