

Title Correlation of oxygen radical absorbance capacity (ORAC) value with anthocyanin and phenolic content of peaches

Author W. McGlynn and B.D. McCraw

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Abstract

The public increasingly makes food purchasing decisions based on a food's perceived health promoting characteristics. Small-scale fruit growers and processors may benefit from growing and marketing varieties with nutraceutical benefits, such as high antioxidant activity. The goal of this study was to measure oxygen radical absorbance capacity (ORAC) values in peaches with varying flesh colors and to correlate ORAC values with anthocyanin and total soluble phenolic contents. Ripe fruit samples of eight varieties of peaches were collected from the Oklahoma State Univ. Fruit Experiment Station in Perkins, OK. Samples were homogenized and extracted using a methanol: acetone: water: acetic acid (40:40:20:0.1) solvent. Total anthocyanins were quantified using the pH differential method. Antioxidant activity was measured using the ORAC assay as modified for a Perkin/ Elmer HT7000 microplate reader. Significant differences were seen in ORAC values, anthocyanin content, and total soluble phenolics among the peach varieties evaluated. ORAC values ranged from 3.90 to 5.02 μM Trolox equivalents per gram of fresh peach. The red fleshed variety tested had the highest average ORAC value observed. Yellow fleshed varieties were next while white fleshed varieties had the lowest measured average ORAC values. More variability was seen in anthocyanin content than in ORAC value or total soluble phenolic content. Overall, a good correlation (coefficient=0.845) was seen between ORAC value and phenolic content. However, no significant overall correlation was seen between ORAC values and anthocyanin content. These results show that antioxidant activity of peach varieties varies and the ORAC value correlates with total soluble phenolic content. This opens possibilities for screening peach varieties for antioxidant activity by measuring phenolic content. This may allow growers and processors to more readily include antioxidant activity as a criterion when judging peach varieties.