Title Evaluation of peach and plum genotypes based on antioxidant content

Author M. Vizzotto, L. Cisneros-Zevallos and D.H. Byme

Citation Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.

Keyword peach; plum; antioxidant

Abstract

Stone fruits are known to play an important role in human health due to the range of phenolic compounds and carotenoids they contain. One approach to increase the intake of these beneficial compounds is to increase its concentration inside the fruits by breeding and selection. Our objective was to evaluate different peach and plum genotypes based on antioxidant concentration and antioxidant activity. Twenty-two peach varieties and fifty-three plum varieties with different flesh and skin color were analyzer for their antioxidant content and antioxidant activity. Total phenolics, anthocyanins, carotenoids were analyzed spectrophotometrically. Antioxidant activity was evaluated with 2,2-diphenyl-1-picrylhydrazylradical (DPPH). Anthocyanin and phenolic contents were higher in red-flesh than in white or yellow-flesh peaches. Carotenoid content was higher in yellow-flesh (2-3 mg β-carotene / 100 g fresh weight) than in white or red-flesh peaches (0.01-1.8 mg β-carotene / 100 g fresh weight). Antioxidant activity was about 2-fold higher in red-flesh varieties than in white and yellow-flesh varieties. Among the peaches, the antioxidant activity was well correlated with both phenolic and anthocyanin content. Among the plums, the anthocyanin content increased with the red color intensity. Although the plums varied widely in phenolic content, the red/ purple-flesh plums generally had higher phenolic (400-500 mg Chlorogenic acid/ 100 g fresh weight) than the other plums. Carotenoid content in plums was similar for all varieties (0.2-2 mg β-carotene/ 100g fresh weight). Antioxidant activity was higher in red/ purple-flesh varieties. This antioxidant activity was well correlated with the phenolic content in light colored flesh plums but not among the red/ purple flesh plums. These results suggest that red-flesh peach varieties have a greater potential health benefit based on antioxidant content and antioxidant activity as compared to the white and yellow-flesh varieties. This trend is not clear on plum varieties; however red/ purple-flesh plums usually have higher antioxidant content and antioxidant activity.