

Title Antioxidant phytochemicals in fresh-cut carrot disks as affected by peeling method
Author Olive Kenny and David O'Beirne
Citation Postharvest Biology and Technology, Volume 58, Issue 3, December 2010, Pages 247-253
Keywords Antioxidant; Phytochemical; Fresh-cut; Minimally processed; Fruit; Vegetable

Abstract

In order to investigate the effects of process severity, the influence of peeling methods of different severities on the retention of antioxidant phytochemicals in carrot disks was examined. Carrots were abrasion peeled using either fine or coarse carborundum plates or peeled manually using a hand-held peeler. They were subsequently cut into disks, packaged and stored for 8 d at 4 °C. Vitamin C (ascorbic acid and dehydroascorbic acid), total phenols, total antioxidants, total carotenoids, colour and pH were measured on production day and throughout the storage period. Antioxidants differed in their response to severity of processing. Initially, machine peeling resulted in a greater accumulation of phenolic compounds and increased total antioxidant activity compared to hand peeled carrot disks. However, at the end of storage no significant ($P > 0.05$) effects of peeling method were observed on the levels of total phenolics and total antioxidants. Total carotenoids were also significantly affected by peeling method with hand peeled carrot disks having significantly ($P \leq 0.05$) higher levels of total carotenoids than coarse peeled carrot disks throughout the storage period. Ascorbic acid was the antioxidant most affected by severity of peeling method. As severity increased there was greater loss of ascorbic acid.