

Title Change in the radical-scavenging activity of shredded vegetables during storage
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Abstract

Vegetables contain a wide variety of free radical-scavenging antioxidants such as ascorbic acid and polyphenols. Epidemiological studies have shown that vegetable consumption is associated with a reduced risk of life-style related diseases. Therefore, antioxidants in vegetables have received considerable attention in recent years for their role in human health. However, the specific antioxidant activity normally present in fresh vegetables may be lost by methods of processing and cooking. In this work, the changes in radical-scavenging activity of shredded vegetables during storage were determined as well as ascorbic acid and polyphenol contents. Several kinds of vegetables, such as cabbage, lettuce, bell pepper, radish, and carrot, were shredded to 1-mm width by a food processor. Then, shredded vegetables were stored at 0-10 °C for 0-7 d in the presence or absence of oxygen. Radical-scavenging activity was determined by 1,1-diphenyl-2-picrylhydrazyl (DPPH)- HPLC method. Ascorbic acid and polyphenol contents were determined by HPLC and Folin-Ciocalteu methods, respectively. Effects of washing with water or sodium hypochlorite solution and drying were also examined. Radical-scavenging activity of red and green cabbage leaves remained unchanged at 10 °C for 7 d in the presence and absence of oxygen. Ascorbic acid and polyphenol contents also remained for 7 d. However, flavor and appearance were better in the absence of oxygen. In other vegetables, radical-scavenging components slightly decreased in the presence of oxygen. These results demonstrate that shredded vegetable retain radical-scavenging activity and active components after 7 d storage, which indicate that shredded vegetables have the same functional value as whole vegetables.