

Title Effect in the quality of intact and minimally processed leaves of collard greens stored at different temperatures

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Abstract

The storage of minimally processed vegetables at low temperatures, in association with proper packaging, represents one of the available technological solutions to mitigate the variations that hinder the quality of final products during storage. We studied the physicochemical variations that occur straight after minimal processing, as well as those that occur during the storage of minimally processed and intact leaves of collard greens (*Brassica oleracea* var. acephala), stored in 50- μ m thick polypropylene bags, with 810- μ m diameter perforations. Leaves were stored for 15 and 9 days, at 5 and 10 \pm 1 $^{\circ}$ C, respectively. There were losses of total chlorophyll, soluble sugars, starch, and soluble amino acids immediately after the minimal processing. The rates of degradation and/or use of chlorophyll, ascorbic acid, soluble sugars, and starch during storage were similar on minimally processed and intact leaves, independently of the storage temperature. On contrary, fresh mass loss was almost two fold larger in minimally processed leaves after nine days of storage, regardless of temperature. We also observed a transient increase in the content of soluble amino acids at the end of storage in minimally processed leaves. The increase in the storage temperature to 10 $^{\circ}$ C enhanced the chemical variations both in minimally processed and intact leaves. As consequence, the rates of degradation and/or use of chlorophyll, ascorbic acid, sugars and starch mounted, and the accumulation of soluble amino acids was stimulated. We concluded that it is necessary to keep on searching for alternative packaging for minimally processed collard greens, and to associate it with storage at low temperatures, but mimicking distribution and commercialization conditions of the cold-chain. Thus, we can succeed in adequately reducing the physicochemical variations that induce quality losses in minimally processed vegetables.