

**Title** Effects of base removal and heat treatment on visual and nutritional quality of minimally processed leeks

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#### **Abstract**

Freshly harvested leeks (*Allium ampeloprasum* L. var. *porrum*) were trimmed (leaf tips, roots), had the decayed leaves removed, washed with tap water, cut at 50 cm length and subjected to heat treatment at 55 °C for 0 and 17.5 min. They were then trimmed at the root base and leaves to produce stalks 22 cm in length with or without removal of a 2 cm portion of the base. Minimally processed leeks were tray-packaged, wrapped with 16 µm stretch film and stored at 10 °C for 7 days to determine the effects of base removal and heat treatment on visual (leaf growth, fresh weight loss and discoloration) and nutritional quality after storage. CO<sub>2</sub> and ethylene concentrations of packages containing minimally processed leeks showed a wound-induced pattern typical of other fresh cut vegetable tissues. Base removal did not significantly affect respiration but increased ethylene production, while heat treatment increased respiration rate and suppressed ethylene production. Storage of minimally processed leeks at 10 °C for 7 days resulted in a slight decrease of chroma and hue angle of base cross section as well as a decrease of chroma of the upper cross section. Heat treatment prevented the decrease of chroma of the base and upper cross section. Base removal reduced, but did not totally control leaf growth of stored minimally processed leeks. Moreover, it resulted in a decrease of dry matter, soluble solids, total soluble phenols, antioxidant capacity and total thiosulfinates at the end of the storage. A combination of base removal and heat treatment efficiently controlled leaf growth, but these treatments resulted in increased fresh weight and total thiosulfinate loss.