

**Title** Cutting shape, film and storage temperature in fresh-cut pumpkin affecting shelf-life  
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### Abstract

Pumpkins (*Cucurbita* spp. L.) can be used in large scale in the fresh-cut sector, due to their spread consumption in many communities. Processing operations include peeling, portioning and packaging. The research aimed to study how cutting shape (slice and 2-cm dice), packaging permeance to O<sub>2</sub> (P1=1990; P2=750, P3=560 cm<sup>3</sup> m<sup>-2</sup> d<sup>-1</sup> bar<sup>-1</sup>) and storage temperature (4 °C; 8 °C) can affect the physiology and quality of fresh-cut Cinderella pumpkin (*Cucurbita maxima* L.) stored for a 8-day shelf-life. Gas composition (O<sub>2</sub> and CO<sub>2</sub>), pigments, Total Phenolic Content (TPC), Antioxidant Power (AP) and vitamin C were analyzed at processing and during shelf-life (5 and 8 days after packaging). Fresh weight loss was recorded daily. During shelf-life O<sub>2</sub> and CO<sub>2</sub> were dependent on cutting shape and temperature only. O<sub>2</sub> in the head space decreased significantly more at 8 °C than at 4 °C and more in bags containing pumpkin dices than in bags containing pumpkin slices, respectively. However, at d8 the O<sub>2</sub> levels were similar and not statistically different in bags containing either dices or slices and in bags either stored at 4 or at 8°C, respectively. CO<sub>2</sub> in the head space increased more in bags stored at 8 °C than in bags stored at 4 °C and in bags containing pumpkin dices than in bags containing pumpkin slices. Fresh weight was affected by film only until the second day, regardless of storage temperature with an increasing weight loss at decreasing O<sub>2</sub> permeance of the films and P3 gave significant weight loss compared to the higher permeances. From d6 up to d8 there was a significant interaction between film and shape: weight loss continued to increase by permeance decrease in pumpkin dices only, whereas it decreased permeance increase in pumpkin slices. Chlorophyll b, vitamin C and carotenoids were affected by the interaction film x shape at d5. All variables decreased by O<sub>2</sub> permeance increase in pumpkin dices while they were independent from O<sub>2</sub> permeance in pumpkin slices. At d8, chlorophyll b was not affected by treatments, vitamin C and carotenoids values were not affected by film and cutting shape whereas they were higher at 4 °C compared to 8 °C of storage. TPC were not affected by treatments. AP was affected by temperature x shape at d8 only; the AP decreased at O<sub>2</sub> permeance increase in pumpkin dices, while it increased at O<sub>2</sub> permeance increase in pumpkin slices.