

Title Improved keeping quality of minimally fresh processed celery sticks by modified atmosphere packaging

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### Abstract

Recommended storage conditions of green celery sticks are 4 °C for 10 days, but there are no reports about optimal modified atmosphere packaging (MAP) conditions to preserve them longer. The objective of this research was to describe the gas composition of MAP generated by two polymeric films and its effects on chemical, sensorial and microbial quality, and physiological disorders of celery sticks stored at 4 °C for 15 days. Green sticks of 15-cm length of 'Trinova' cv. were placed in hermetically sealed plastic bags: low-density polyethylene, oriented polypropylene (OPP) and polyethylene-perforated bags as control (air). The O<sub>2</sub> and CO<sub>2</sub> concentrations, soluble solid content, pH, titratable acidity, colour, sensorial quality and sugar and organic acids contents were monitored. Compared to the control, both MAP treatments improved the sensory quality, avoided the loss of green colour, decreased the development of pithiness and retarded the growth of microorganisms. In any treatment neither off-odours nor off-flavours were detected. After 15 days at 4 °C within the OPP bags a steady-state atmosphere of 6 kPa O<sub>2</sub>+7 kPa CO<sub>2</sub> was reached and celery sticks stored under these bags showed the best quality.