

Title Innovative active modified atmosphere packaging improves overall quality of fresh-cut red chard baby leaves

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Abstract

The antimicrobial effects and quality changes of O₂, He, N₂ or N₂O-enriched active modified atmosphere packaging -MAP- (100 kPa initial gas partial pressure) compared to a chlorinated —100 mg L⁻¹ NaClO- passive MAP (control) in fresh-cut Red Chard baby leaves up to 8 days at 5 °C were studied. High O₂ MAP (>85 kPa O₂) inhibited natural microflora growth during 7 days at 5 °C. Regarding control treatment, no differences for He and N₂O-enriched MAPs on microbial growth were found although control samples were previously disinfected. Initial total phenolics content (613 mg ChAE kg⁻¹ fw) increased up to 61–93% after 6 days at 5 °C under O₂, He, and N₂-enriched MAPs. Vitamin C content decreased up to 67% after shelf life in control samples while lower decreases were monitored in samples stored under non-conventional MAPs. He-enriched MAP preserved the total chlorophylls content throughout shelf life. After 8 days at 5 °C the overall sensory quality of all treatments showed a moderate decrease while still being scored at the limit of usability. In conclusion, He and O₂-enriched MAPs are useful tools in the preservation of fresh-cut Red Chard quality.