Title Effect of superatmospheric and low oxygen modified atmospheres on shelf-life extension of fresh-cut melon

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Abstract

The physiological, physicochemical and microbiological quality of fresh-cut 'Piel de Sapo' melon packaged under 2.5 kPa O_2 + 7 kPa CO_2, 21 kPa O_2 and 70 kPa O_2 atmospheres was studied. Initial low O_2 levels combined with moderate CO_2 concentrations reduced in-package ethylene concentration whereas high O_2 levels avoided anaerobic metabolism. Both 2.5 kPa O_2 + 7 kPa CO_2 and 70 kPa O_2 atmospheres significantly reduced the growth of microorganisms for 14 days of storage at 5 °C. *Rhodotorula mucilaginosa* was initially the dominant yeast, and prevailed during the subsequent storage of fresh-cut 'Piel de Sapo' melon although high O_2 levels as well as low O_2 and high CO_2 conditions were found to have a certain inhibitory effect on its growth. Therefore, a 70 kPa O_2 atmosphere prevented fermentation and significantly improved the quality of fresh-cut melon, while preserving its microbiological stability.