

Title Quality changes of fresh-cut butterhead lettuce under sub- and superatmospheric oxygen condition

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Abstract

The effects of controlled atmospheres (CA) containing 5 kPa O₂ and 0 kPa CO₂, 5 kPa O₂ and 15 kPa CO₂, 75 kPa O₂ and 0 kPa CO₂, 75 kPa O₂ and 15 kPa CO₂, and 21 kPa O₂ and 0 kPa CO₂ (as control) on the respiration rates and visual appearance of fresh-cut butterhead lettuce (*Lactuca sativa* L. var. *capitata* L.) were studied. The fresh-cut lettuce was stored for 10 days at 7°C. During the same period and the same gas conditions browning was quantified on the lettuce stems using L*, chroma and hue values. This method has been previously applied for lettuce being L* the best parameter related with enzymatic browning. CA did not show a clear influence on the respiration rates of fresh-cut lettuce. Elevated CO₂ treatments decreased the browning on the lettuce stems. Color changes were also slightly delayed on the stems under high O₂ levels. CA with 5 kPa O₂ did not prevent browning. This O₂ level was probably high enough to allow enzymatic browning on the stems. At the end of storage, fresh-cut lettuce stored under superatmospheric (75 kPa) O₂ condition combined with 15 kPa CO₂ had the best visual appearance reducing the enzymatic browning.