

Abstract

The effects of controlled atmospheres 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 growth of *Listeria innocua*, aerobic mesophilic bacteria, lactic acid bacteria and yeasts on fresh-cut butter lettuce at 7°C were studied. The gas composition did not show a clear influence on the growth of lactic acid bacteria and yeasts. High CO₂ conditions met eased the growth of *Listeria innocua*. No O₂ effect was found on the growth of *Listeria innocua*. However, when high O₂ and CO₂ conditions were combined, a reduction in the aerobic mesophilic count was observed. Growth of those bacteria was also slightly reduced in 75 kPa O₂ and 0 kPa CO₂ anti 5 kPa O₂ and 15 kPa CO₂. Therefore, a high O₂ condition alone could reduce the mesophilic count to the same extent as low O₂ combined with high. CO₂ levels while avoiding anaerobic fermentation reactions.