

High carbon-di-oxide modified atmospheric packaging on quality of ready-to-eat minimally processed fresh-cut iceberg lettuce

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Abstract

Fresh-cut lettuce is a very well-known salad for today's routines because it obliges minimal preparation to minimize the loss of health beneficial vitamins, minerals, antioxidants and other phytochemicals. It is a prodigious challenge to serve its consumers fresh. Quality of freshly processed lettuce under high CO₂ modified atmosphere packaging (MAP) has been investigated as a realistic alternative technique for its preservation. Storage under high CO₂ atmospheric treatments exhibited a significant impact in microbial development, electrolyte leakage, volatile metabolites and sensory quality of fresh-cut iceberg lettuce. This storage condition (MAP 1: 5 kPa O₂ and 20 kPa CO₂ balanced by N₂ at 7 °C for 6 days) inhibited the growth of mesophilic bacteria and yeasts; delayed the enzymatic browning (cut-edges and intact surface) of fresh-cut iceberg lettuce and overall visual quality was also in acceptance limit. The development of off-odors was perceived in high CO₂ MAP as a consequence of volatiles (ethanol and acetaldehyde) accumulation which was persisted at an inexcusable level during 6 days of storage periods.