Abstract:

A new active modified atmosphere packaging (MAP) has been recently introduced in processing techniques which minimally affects fresh original product. The impact of superatmospheric O2 concentrations on the microbial (mesophilic and psychrophilic bacteria) and sensory quality (overall visual quality, texture, flavour, discoloration, translucency, off odours, and decay) of fresh processed 'Lollo Rosso' lettuce was evaluated. The product was packed into a polypropilene film of 25 μm thickness and filled with conventional passive modified atmosphere (MA) or superatmospheric O2 atmosphere of 80kPa O2 and 20kPa N2 (SOA), and stored up to 7 days at 5°C. Sensory and microbial qualities of lettuce pieces were evaluated throughout shelf life. The O2 and CO2 partial pressure changes within bags were monitored. When 'Lollo Rosso' pieces were stored under SOA from day 0 to day 6, in comparison to MA a reduction of mesophilic and psychrophilic bacteria growth was observed. Bags filled with SOA kept an O2 concentration higher than the O2 concentration in the regular air atmosphere. The CO2 concentrations generated in both MAP treatments were very similar along shelf life. For all monitored quality attributes, no significant differences between treatments were found.