

Title Respiration rate, ethylene production and shelf life of minimally processed cabbage under controlled atmosphere

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Abstract

The objective of this work was to evaluate the respiration rate and ethylene production of whole and minimally processed cabbage as well as the shelf life of minimally processed cabbage stored under controlled atmosphere (CA). Then, two sequential experiments were done. In the first one, the respiration rate and ethylene production of whole and minimally processed cabbage were evaluated in a closed system, at 5 °C and 10 °C. In the second experiment, the shelf life of minimally processed cabbage under CA was analyzed. The product was submitted to a continuous flow (1, 23 mL s⁻¹) of ternary gaseous mixtures, previously humidified, with concentrations of 2:3, 10:3, 2:10, 10:10, 2:6.5, 10:6.5, 6:3, 6:10 and 6:6.5 (O₂:CO₂, %), at 5 °C for 10 days. Atmospheric air was used as control. The respiration rates at 5 °C were 67.7 and 131.3 mg CO₂ kg⁻¹ h⁻¹ for whole and minimally processed cabbage, respectively, which were significantly lower than that at 10 °C, with 94.2 and 329.8 mg CO₂ kg⁻¹ h⁻¹ for whole and minimally processed cabbage, respectively. For both temperatures, the minimally processed cabbage presented higher respiration rates than the whole cabbage. Ethylene production was not detected by the method of analysis which was used. Compared to air CA did not prolong the shelf life, of 10 days for both conditions, of minimally processed cabbage kept in the studied gas concentrations.