Abstract:

This study was conducted to develop a method for estimation of CA storage condition by measuring respiration characteristics of fresh products and subjecting the experimental data to statistical analysis. It is possible that respiration characteristics of fresh products (CO_2 evolution, O_2 consumption and ethanol accumulation, etc.) are fitted to a polynomial equation used in the Response Surface Methodology (RSM). Cherry tomatoes were selected as samples to test the estimation method, which used statistical analysis of respiration characteristics for determining CA storage conditions. The regression equations fitted well with the experimental data of the respiration characteristics having a coefficient of determination R2>0.8. In cherry tomatoes, the CA storage condition was estimated and carried out using the developed method. The effective CA conditions for cherry tomatoes were estimated at 4 ~ 6% O_2 and 3.5 ~ 10% CO_2. Under these conditions, the storage quality and sensory evaluation of cherry tomatoes were satisfactory. The CA storage of cherry tomatoes was successfully conducted without gas injury and occurrence of off-flavors.