

Title Effect of precooling and CO₂ treatment using small temperature controlled chambers on storage in 'Maehyang' strawberries

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Abstract

In order to increase marketability of fresh strawberries harvested during the high temperature summer season, the effect of precooling and CO₂ treatment applied in small low temperature chambers (2.2x1.7x1.7m) were examined. Fruit temperature at harvest was 16°C and half cooling time was 1.5 hrs when cooled in a 2°C room. Fruit were exposed to 20 to 40% CO₂ after cooling. Treated fruits were exposed to 4°C for 3 hrs as simulated domestic transport and placed at 20-25°C to simulate the retail market. Firmness of fruit with 80% coloration of fruit skin was 240.2 g/ø5mm and 255.1 g/ø5mm when treated with 20% and 40% CO₂ respectively. A similar result occurred in fully colored fruits. 7 days after harvest gray mold infected 50% of fruit in untreated controls, 36.4% and 30.3% in 20% to 40% CO₂ treatment respectively. Lower soluble solids and higher acidity were found in CO₂ treated fruits compared with untreated controls. Market life of fully colored control fruit was 2 days after harvest, but the 20% CO₂ treatment retained market life. During the high temperature season (March to April in Korea), market life is very short (about 1 day) because of rapid maturation. Rapid cooling and CO₂ treatment effectively increased the marketability of strawberries even during the high temperature season. This postharvest treatment using small scaled low temperature chambers will be practical option for strawberry producers.