

Abstract:

The effect of high CO₂ levels throughout 17 days at 2°C and 95% RH, followed by 2 days at 18°C and 70% RH in air for keeping strawberry quality attributes was studied. Innovative intermittent applications of high 20% CO₂ enriched air (CO₂ shocks) for 1 day a week, or conventional 5% O₂ and 10 or 15% CO₂ were assayed. Changes in soluble solids content (SSC), pH, titratable acidity, firmness, colour, flavour, weight loss and decay, were monitored. After shelf life in all CO₂ treatments, SSC decreased while acidity increased. Compared to the level at harvest in high CO₂ treated fruits no changes in firmness after shelf life were found. In all treatments after shelf-life L* and b* parameters didn't differ from values at harvest while a* decreased. No off-flavours were detected at any time. After shelf life weight losses in control was 6.5% and in CO₂ shocks and 10% CO₂ treatments were the lowest (less than 4%). After shelf life, all control strawberries decayed, mainly by *Botrytis cinerea*, while under high CO₂ decay was around 30%. CO₂ shocks could be an alternative to conventional controlled atmosphere storage of strawberries.