Title Effects of controlled atmosphere storage on Hayward kiwifruits harvested at different TSS levels

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Abstract

The objective of this study was to evaluate the effects of controlled atmosphere (CA) storage ethylene production, fruit flesh firmness (FFF) and total soluble solids (TSS) of kiwifruit harvested at different ripeness. 'Hayward' kiwifruits were harvested at 4.5-5.5, 5.6-6.5 and 6.6-7.5 TSS and stored for 5 months at 0°C and 85-90% RH in either air or CA (5% CO_2 + 2% O_2) storage. Samples were removed monthly for assessment of FFF (N), TSS (%) and ethylene production ($\mu l C_2H_4$/kg.h). Storage atmosphere was the main factors affecting FFF, TSS content and ethylene production at 0°C during storage. FFF was negatively correlated during storage and ripening of fruits in air than CA. On the other hand fruits TSS were increased. CA nearly kept harvest FFF in all picks during the storage. Ethylene production increased in all picks following the first month. However the rate of ethylene production was critically suppressed by CA storage. Fruits harvested at 4.5-5.5% and 5.6-6.5% TSS had lower ethylene production at harvest and remained firmer at the end of storage than later harvested fruits. The results suggest that kiwifruit should be harvested when TSS was 5.5-6.5% and stored in CA to optimize quality.