Abstract:

The ‘Pinkerton’ avocado was introduced into South Africa as a high yielding green skin cultivar. However, the susceptibility of this cultivar to mesocarp discoloration after storage has threatened its export. The disorder was suspected to be cold injury. In this study, fruit from areas varying in mesocarp discoloration intensity were subjected to storage at 8 °C, 5.5 °C or 2 °C for 30 days. Comparisons were made with fruit allowed to ripen at 20 °C. Fruit quality and membrane stability evaluations were made after harvest, after storage and after softening. Fruit softness and carbon dioxide (CO2) evolution were monitored daily. Results of CO2 evolution showed that the number of days to the climacteric peak was similar throughout the harvesting season. However, fruit harvested later in the season had a higher evolution rate than the less mature fruit picked earlier in the season. The difference in respiration rate between temperature treatments was minimal. Higher storage temperatures caused higher discoloration ratings, and this was correlated with poorer membrane stability. Fruit stored at the lowest temperature had the least damage indicating that the disorder is not entirely cold injury. Throughout the study, mesocarp discoloration was found to be site related indicating that the disorder does not develop solely postharvest, but rather that preharvest conditions play an important role.