

**Title** Quality changes of passion fruit (*Passiflora edulis* Sims) during storage

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### **Abstract**

Tropical and sub-tropical fruits are attracting the interest of both consumers and researchers due to their novelty, attractive sensory properties, improved accessibility and possible beneficial health effects. Often these fruits have a shorter shelf life compared with temperate zone fruit and this poses problems for their economic storage and transportation to both local and export markets. This may be compounded by a lack of fundamental information about the products physiology and quality characteristics that is required to design and optimise packaging formats and storage regimes. Passion fruit (*Passiflora edulis* Sims) has been grown in New Zealand for many years and is currently exported to several markets. Passion fruit has a unique flavour ranging from tart to sweet when fully ripe. At full ripeness the fruit are often significantly shriveled but this is not necessarily a sign of decreasing quality. Nevertheless, a literature review revealed no reports on quality assessment for these fruit. Quantitative evidence is also needed to educate consumers regarding optimal eating quality of the fruit. The aim of this research was to obtain quantitative information regarding some of the basic quality measures used for temperate zone fruit when applied for passion fruit. Fruit were obtained from a commercial export orchard and respiration rate and ethylene production were measured at 10°C and 20°C. Half of the fruit were packaged in perforated plastic bags and half in unlined fiberboard boxes. All the fruit were stored for up to 34 days in air at 10°C. During this period weight loss, compression firmness, stiffness, skin colour, soluble solids content, acidity and pulp yield were determined weekly. The major changes noted during storage were an increase in soluble solids content and a decrease in acidity, which were independent of packaging. Weight loss and shriveling were not influenced by packaging, but softening was less in fruit packed in the perforated plastic bags.