# 2012 年臺灣國際科學展覽會

# 優勝作品專輯

**國家：New Zealand**

**編號：030038**

作品名稱

**Fig Preservation**

得獎獎項

**三等獎**

作者姓名

**Nicola Kerr**

# Abstract

Figs have become an expanding industry here in New Zealand and are a current export fruit which could potentially provide a large amount of profit to both growers and the New Zealand market as a whole. Nicola's family has about 10 acres of fig trees. They sell the figs locally and as an export. They generally sell for about $13 per kilogram here in New Zealand and $26 in the USA. However, figs only have a shelf life of about 7 days. This is because at present there is no proven pre or post-harvest treatment or method of storage that helps to decrease the rate of decay of the fig fruit. After researching post-harvest treatments for figs, Nicola found a report which claimed to have developed treatments that increased the shelf life of figs by about 5 weeks. With this kind of increase, it would be possible to transport, store and export figs over longer periods of time without running the risk of losing large amounts of produce, or delivering unsatisfactory fruit to customers.

Nicola developed 7 different post-harvest treatments based on the ones that had shown promise in earlier research. These were hot-water baths of different temperatures, both with and without different bleach concentrations. To test these on the fruit she set up four experiments – a dry matter test, a firmness test (using a penetrometer), a colour test and observation of detrimental features of the fig. She tested these treatments at 0, 7, 14, 21 and 28 days from harvest.

Nicola found that after 7 days, the firmness of all of the figs that had been treated had decreased to a large degree. The only figs that did not have a massive decrease were the untreated fruit. However after about 14 days, the firmness of all of the fruit became about the same and after this 14 day mark, she would not have considered any of the

figs to be edible. However, in the appearance tests, it seemed that the treated figs that had the least amount of mould and rot were the ones that had been treated with higher levels of bleach such as the 55 degree Celsius water bath with 0.003L of bleach to every litre of water, and the 35 degree Celsius water bath with the same concentration of bleach.

Overall, Nicola's results showed that the hot water bath, and hot water bath and bleach post-harvest treatments did not slow the decay of the fruit in the earlier weeks after picking. In effect, Nicola's research showed that the information she had relied on to help plan her study had claimed too much and that the treatments were less effective than had been stated. More research will be needed to find a more reliable way to improve the shelf life of figs.

# 評語

A nice, clean, compact ″short″ research article (presentation on the ″Fig Preservation″ − successful treated by hot water bath(~55℃), and hot water bath with bleach ($OCl^-$ oxidant) post-harvest treatment.)

Unfortunately, not much ″chemistry″ is involved in this study and the afterward ″derivation's″ and ″discussion″.

本研究簡單明瞭，且有實用價值。可惜″化學″成分少之可憐!? 似乎是一篇″經濟實惠″的″專利″經濟學。