# The role of ethylene and abscisic acid in kiwifruit ripening during postharvest dehydration

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## Abstract

Kiwifruit may be stored for prolonged periods at low temperatures during which time the fruit continue to ripen slowly and dehydration occurs. Abscisic acid (ABA) plays important roles in both fruit ripening and environmental stress response, including dehydration. To investigate the inter-relationships among postharvest dehydration, ethylene production, ABA and fruit ripening, two independent experiments were undertaken with 'Hayward' kiwifruit. Water loss was manipulated by holding fruit in three environments of different humidities at 20 °C for up to 6 d, and at 0 °C for up to 16 weeks. The impacts of the treatments over time after harvest were investigated on fruit softening, ABA content and ethylene production, and on the expression of genes of the ABA biosynthetic pathway and ethylene metabolism. Water loss induced earlier ethylene production and accelerated softening late in storage. However, these changes were not directly related to increased ABA content. The strongest association seen was between tissue ABA content and fruit firmness, irrespective of the degree of water loss. In conclusion, it is suggested that the accelerated softening of 'Hayward' kiwifruit caused by dehydration may be mediated via ethylene, but that the precise role for ABA, either directly or indirectly, is as yet difficult to ascribe.