

Title Response of 'Fuyu' persimmons to ethylene exposure before and during storage
Author Cristina Besada, Richard C. Jackman, Shane Olsson and Allan B. Woolf
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Abstract

In the export of 'Fuyu' persimmon, fruit are airfreighted at ambient temperatures, or seafreighted at low temperatures using modified atmosphere (MA) packaging. Since persimmons are climacteric and ethylene sensitive, exposure to exogenous ethylene may accelerate natural softening at ambient temperature (e.g. airfreight) as well as aggravate chilling injury during coolstorage (e.g. seafreight). In the present work, the response of this cultivar to exogenous ethylene exposure was studied in four critical handling scenarios that might occur in a commercial chain. Non-packed fruit exposed to ethylene and then held at 20 °C (simulated airfreight) showed the greatest sensitivity to ethylene; fruit firmness and colour during shelf life were affected by even 1 d of exposure to 0.2 $\mu\text{L L}^{-1}$ ethylene. Lower sensitivity was observed when fruit were stored at 0 °C under MA conditions after ethylene exposure at 20 °C (simulated pre-packing exposure-seafreight), where fruit quality was not affected by exposures of 1 d at $\leq 1 \mu\text{L L}^{-1}$, and only slightly by 2 d at $< 0.5 \mu\text{L L}^{-1}$. When ethylene exposure was carried out at 0 °C after sealing fruit in MA bags (simulated post-packing exposure-seafreight), fruit showed the lowest sensitivity to ethylene, with only slight decrease of firmness with ethylene exposure at the end of the storage period, and no significant effect on exposure at the beginning of the storage period. Influence of the temperature of storage, temperature of exposure to ethylene, use of MA and timing of exposure during coolstorage in the response of the fruit to exogenous ethylene are discussed.