Methyl bromide and inorganic bromide residues in avocados after fumigation and storage

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Abstract
Methyl bromide and inorganic bromide residues were determined in hard green (preclimacteric) and ripe (climacteric) fruits of Fuerte and Hass cultivars of avocados at 0.02, 1, 2 and 5 d after fumigation with 32 g/m3 methyl bromide for 2 and 4 h at 20¦C. Methyl bromide was readily detectable after 0.02 (immediately after aeration) and 1 d, but after 2 d residues were not detected except in green fruit of the Fuerte cultivar. Generally, residues did not exceed the 0.5 ¦g/g maximum residue limit recommended by the Australian National Health and Medical Research Council. Inorganic bromide residues in stored fruit were well within the National Health and Medical Research Council maximum residue limit of 75 ¦g/g. Fumigation for 4 h produced higher residues than for 2 h but the quantity was not proportional to time of exposure. Average skin thickness, oil and protein content were determined, and the effect of variety, maturity and compositional factors on bromide residues was determined. Fuerte, which has a higher oil content than Hass, absorbed more methyl bromide, suggesting that methyl bromide absorption in avocados depends on oil content rather than skin thickness or protein content. The relative proportion of absorbed methyl bromide that is converted to inorganic bromide during storage at ambient temperatures ranged from about 21-36% in Fuerte and 56-70% in Hass.

1982. Australian Journal of Experimental Agriculture and Animal Husbandry 22(117) 343 - 347