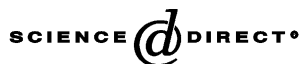




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Skin colour and pigment changes during ripening of ‘Hass’ avocado fruit

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Abstract

Skin of ‘Hass’ avocados (*Persea americana* Mill.) changes colour from green to purple/black as fruit ripen. This colour change is important as an indicator of ripeness for both industry and consumers. We sought to characterise pigment changes during ripening of ‘Hass’ avocados. Skin colour and changes in chlorophyll and anthocyanin concentrations in relation to fruit firmness at three ripening temperatures (15, 20 and 25 °C) were studied. As fruit ripened, skin colour changed from green, to purple, to black, which was observed as a decrease in *L*, chroma and hue. Total anthocyanins in skin tissue increased during ripening, but this increase was due almost entirely to a single anthocyanin; cyanidin 3-*O*-glucoside. Cyanidin 3-*O*-glucoside concentration increased after 3–6 days postharvest (depending on ripening temperature), and levels increased earlier, and were higher, with higher ripening temperature. Chlorophyll a and b levels decreased until 4–5 days after harvest, but did not change significantly thereafter. No significant differences in chlorophyll concentration were observed among the three ripening temperatures. Fruit harvested directly from the tree (unripe) with skin darkening showed similar pigments changes to that during ripening (reduced chlorophyll and increased cyanidin 3-*O*-glucoside). Colour change in ‘Hass’ avocados from green to purple, then black, results from an initial decrease in chlorophyll content, followed by an increase in the levels of the anthocyanin, cyanidin 3-*O*-glucoside. © 2003 Elsevier B.V. All rights reserved.

Keywords: *Persea americana*; Anthocyanins; Cyanidin 3-*O*-glucoside; Chlorophyll; Ripening temperature; Fruit firmness
