Title Investigation of skin colour changes as non-destructive parameter of fruit ripeness of imported ¿HASS¿ avocado

Author M. Donetti and L.A. Terry

Citation ISHS ActaHorticulturae 945:189-196. 2012.

Keyword *Persea Americana* Mill.; firmness; hue angle; cyanidin 3-*O*-glucoside

Abstract

Skin colour change from green to deep purple in 'Hass' avocado fruit during shelf life is well documented and a possible tool for industry and consumers to identify fruit ripening stage. However, the influence of different fruit sources and maturity at harvest on postharvest colour changes is less reported in the literature. Here, the variability in the skin colour changes of 'Hass' avocados imported from different origins (South Africa and Spain) and maturity at harvest (early and middle season) was investigated during ripening (18 and 23°C of shelf life). The major pigments (carotenoids, chlorophylls, and cyanidin 3-*O*-glucoside) present in the peel were analysed. Results showed that fruit origin and maturity can influence postharvest changes in the composition of avocado peel. In detail, skin of imported fruit derived from South Africa contained higher concentrations of carotenoids (250.8 μg g^{-1} DW) and chlorophylls (1,031 μg g^{-1} DW) in fruit harvested early in the season whereas the cyanidin 3-*O*-glucoside content increased with fruit maturity. In contrast, less variability in pigment content was found in the skin composition of fruit from Spain from different harvest seasons. Moreover, shelf life temperature alone was not a predominant factor in the variation of carotenoid or chlorophyll content whereas temperature did substantially induce higher cyanidin 3-*O*-glucoside (mean of 1.88 and 4.79 μg mg^{-1} DW) and lower hue angle values (mean of 101.48 and 85.29 respectively at 18 and 23°C). This study gives further evidence of the predominant role of anthocyanins in the determination of peel colour in 'Hass' avocado fruit. Additionally, fruit origin and harvest season were significant factors influencing the relationship between parameters such as hue angle, cyanidin 3-*O*-glucoside and firmness. In conclusion, changes in skin colour can be used as ripening indicators although this does depend on the growing area and the stage at which the fruit was harvested.