BrimA, Total Acidity and Total Soluble Solids Correlate to Total Carotenoid Content as Indicators of the Ripening Process of Six Thai Mango Fruit Cultivars

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ABSTRACT

This investigation was carried out to correlate BrimA values with total carotenoid content (TCC) in comparison to TSS (total soluble solid) / TA (total acidity) ratios and TA with TCC of six mango (Mangifera indica L.) cultivars: "Kaew," "Khew Sawoey," "Chok-Anan," "Nam Dok Mai," "Maha-Chanok," and "Nang Klangwan." Mature green mango fruits were selected based on having a specific gravity greater than 1.0 and then kept at 25±2°C with 70-80% RH. The sampling was carried out randomly on a daily basis until the mango fruits ripened. For all cultivars, the BrimA value, TSS/TA ratios, and TCC increased during the ripening process. The correlation coefficients (r^2) suggested that TCC was highly related to BrimA values rather than TSS/TA ratios and TA in some cultivars. The best corresponding r^2 values of BrimA and TCC were 0.88 and 0.99 for cv. Kaew and Nang Klangwan, respectively. Therefore, correlation between BrimA and TCC may be useful as an index for determining the ripening stage, flesh color, and sweetness of mango fruit.

Keywords: TSS/TA ratio, Ripening index, BrimA, Carotenoid content, Mango fruit

INTRODUCTION

Mangoes are grown in every part of Thailand and are an important economic fruit. The popular mango cultivars for export include cv. Kaew, Khew Sawoey, Chok-Anan, Nam Dok Mai, Maha-Chanok and Nang Klangwan. The main export markets are Malaysia, Japan, Indonesia, Singapore, China, and the European Union (Chomchalow, 2008). The quality and storage life of the mango fruit depend on the degree of maturity at the time of harvesting because harvesting the mango fruit at an immature stage leads to low quality and a short