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Effect of ethephon and acetylene treatments on chlorophylls and carotenoids pigments in banana (*Musa acuminata*, AAB)

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The present study was conducted to analyze the effects of selected induce ripening agents on major pigments in peel and flesh of *Ambul* banana (*Musa acuminata*, AAB). Freshly harvested mature green banana obtained from Dankotuwa, Sri Lanka which are in same maturity stage were subjected to 1000 ppm ethephon and 1000 ppm acetylene and kept at 20 °C, 80-85% RH for ripening. Chlorophyll a, chlorophyll b and β -carotene were analyzed in peel while β -carotene and lutein were analyzed in flesh at fully yellow stage (Stage 6) using spectrophotometric methods. Analytical standards of each pigment was used for quantification. Peel colour was measured using $L^*a^*b^*$ scale. According to the results obtained chlorophyll a in banana peel at stage 6 were 0.64 ± 0.01 , 0.64 ± 0.00 and 0.86 ± 0.03 $\mu\text{g}/\text{cm}^2$ respectively in naturally ripened, acetylene and ethephon treated samples while Chlorophyll b levels were 1.09 ± 0.02 , 1.34 ± 0.04 and 1.47 ± 0.00 $\mu\text{g}/\text{cm}^2$ respectively in those samples. Higher values of chlorophylls in ethephon treated samples at stage 6, corresponds with significantly lower value of a^* (1.93 ± 0.03) of those samples. The highest β -carotene levels in both peel and flesh were recorded in naturally ripened samples where those values were 553.70 ± 52.04 and 314.89 ± 1.75 $\mu\text{g}/100\text{g}$ respectively. β -carotene and lutein contents were significantly low ($P < 0.05$) in flesh of ethephon treated banana where the recorded values were 146.74 ± 0.72 and 189.87 ± 2.27 $\mu\text{g}/100\text{g}$ respectively. Lutein content was significantly ($P < 0.05$) high in flesh of naturally ripened banana comparing to treated banana. Ethephon and acetylene treatments can significantly affect the pigment content in banana peel and flesh.

Keywords: Induce ripening, Artificial ripening, *Ambul* banana

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