

NIRs technique development for kiwifruit flesh color evaluation

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Abstract

Kiwifruit is the imported temperate fruit cultivated in the highland area of Thailand. Yield and quality improvement have been continuously developed. Fruit color is a major factor which attracts customers with good impression and repeat purchase. The obstacle for marketing of Thai produced kiwifruit is the non-uniformity of fruit flesh color. Moreover, color evaluation method destroys consumable produce leading to income loss, especially in premium grade fruit. NIRs technique overcomes the problem and can be used to evaluate individual fruit within a short period. Fresh flesh color of two commercial cultivars; *Actinidia deliciosa* 'Bruno' and *A. chinensis* 'Yellow Joy' were evaluated at ripening period by NIRs machine in comparison with color meter. Total chlorophyll and carotenoid contents were measured with spectrophotometer. NIRs equation in wavelength 590-1,050 nm gave high R-value which showed good correlation between prediction group and validation group in terms of L^* , a^* , b^* . The R-value for L^* , a^* , b^* were 0.89, 0.89, 0.89 in 'Bruno' and 0.82, 0.86, and 0.85 in 'Yellow Joy', respectively. The changes of color appearance and pigment during ripening stage seem to have good correlation. Yellow color development of 'Yellow Joy' was caused by the chlorophyll degradation while steady level of chlorophyll resulted in green color on 'Bruno'. However, carotenoid content showed similarly pattern in both cultivars.