Determination of the difference on color changes of watermelons by laser light backscattering imaging

ABSTRACT

The potential of laser light backscattering imaging was investigated for monitoring color parameters of seeded and seedless watermelons during storage. Two watermelon cultivars were harvested and stored for 3 weeks with seven measuring storage days (0, 4, 8, 12, 15, 18, and 21). The color parameters of watermelons were monitored using the conventional colorimetric methods (L*, a*, b*, C*, H*, and ΔE*) and laser light backscattering imaging system. A laser diode emitting at 658 nm and 30 mW power was used as a light source to obtain the backscattering image. The backscattering images were evaluated by the extraction of backscattering parameters based on the mean pixel values. The results showed that a good color prediction was achieved by the seedless watermelon with the R2 are all above 0.900. Thus, the application of the laser light backscattering imaging can be used for evaluating the color parameters of watermelons during the storage period.

Keyword: Laser light; Backscattering imaging; Watermelon; Color changes; Storage