

Title Predicting the occurrence of hollowness in watermelon by using acoustic based non-destructive technique

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Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Watermelon; non-destructive technique; acoustic

Abstract

A single lane non-destructive system was used to predict the occurrence of hollowness in watermelon. The system is based on measurement of an acoustic response resultant from the impact of rubber knocker. The system requires a single phase 240V AC 50 Hz power source and consists of electronic ripeness measuring device and the servo system that will control the movement of the watermelon to the knocking position. The knocker will hit the watermelon with a consistent force and the ripeness measuring device will record the strength of the sound in term of frequency (kHz). Correlation between the acoustic response and the occurrence of the hollow heart was analyzed. Weaker resonant indicated of the severe occurrence of the disorder. The score value of more than 21 kHz shows that the fruit is not fully ripe. The system has a great potential to be used as part of an integrated component in the grading system for commercial handling of watermelon.