

Title Assessing plum fruit quality attributes with an ultrasonic method
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Citation Food Research International, Volume 37, Issue 6 , July 2004, Pages 627-631
Keywords Ultrasonics; Plums; Firmness; Sugar content; Ripeness; Nondestructive; Quality

Abstract

A nondestructive ultrasonic method was used to determine the maturity and sugar content of plum fruits (cv. 'Royal Z') during storage. This method is based on measurement of acoustic wave attenuation in the fruit tissue, by means of ultrasonic probes in contact with the fruit peel. The differences in the acoustic signals transmitted through the tissue of fruits at different states of maturity were measured and analyzed. The fruits for measurement were transferred from storage to room temperature. Experiments were carried out at intervals throughout the storage period. The fruits were subjected to nondestructive ultrasonic tests as well as to destructive penetration measurements of firmness and sugar content, and the relationships between the ultrasonic attenuation measurements and the destructive measurements determine during the course of shelf life. The measured attenuation, the firmness, and sugar content were found to decrease in the course of shelf life. A link between the attenuation and the firmness could be observed from 78 h in shelf life until the end of the softening process. This suggests that this ultrasonic method might be used as a nondestructive technique for monitoring the firmness of plums during progressive stages in storage time. The changes in sugar content showed a decreasing trend with storage time in this study; this phenomenon is not clear yet and needs to be further investigated.