

ABSTRACT

A method for measuring the ripeness and the texture of a fruit, the method comprising a step for applying a vibration having sequentially changing frequencies to a fruit to be measured, a step for measuring the intensity of the vibration applied to the fruit and the intensity of the vibration of the fruit, a step for measuring the weight of the fruit, a step for finding the transfer functional characteristic of the fruit by performing frequency analysis based on the intensity of the vibration applied to the fruit and the intensity of the vibration of the fruit, and computing the secondary resonance frequency f_0 (i.e., frequency of secondary resonance peak) of the fruit and the frequencies f_1 and f_2 which represent the resonance frequencies of the fruit, at which respective gains are 3dB lower than the gain at the frequency f_0 of the secondary resonance peak, based on the transfer functional characteristic of the fruit, a step for computing the damping ratio η and the elasticity value E of the fruit based on the weight of the fruit and the frequencies f_0 , f_1 and f_2 , a step for determining the ripeness of the fruit by using the elasticity value E when the elasticity value E is larger than a predetermined value, and by using the damping ratio η when the elasticity value E is not larger than the predetermined value, a step for computing the viscosity value c and the elasticity value E of the fruit based on the weight of the fruit and the frequencies f_0 , f_1 and f_2 , and a step for determining the texture and the ripeness of the fruit from the relation between the viscosity value c and the elasticity value E . The above method enables timely shipment of fruits to the market.

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