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Determining the Time of Flight and Speed of Sound on Different types of Edible Oil (Conference Paper)

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Abstract

View references (11)

Edible oil is most often plant-based oils that have been extracted from various seeds. There are cases where the fully virgin edible oil was found to be a fraud. The adulterated edible oil indicates the intentional, fraudulent addition of extraneous, improper or cheaper ingredients puts into the oil or the dilution or removal of some valuable ingredient of the oil in order to increase profits. Hence, decrease the reliability of the Malaysian food product quality. This research was done by using the method of time of flight obtained using the Texas Instrument board, TDC1000-TDC7200 EVM connected to an ultrasonic transducer with 1 MHz frequency. The authors measured the time of flight and temperatures controlled from 20°C to 40°C of five vegetable oils (olive oil, sunflower oil, corn oil, coconut oil, and mustard oil). The value is observed and compared with other research from the literature review. From the study, time of flight values decreases exponentially while speed of sound value increases. This relationship will be useful in spectrum unfolding method to investigate the adulteration in different type of edible oil.This research outcome is to investigate the quality value of the different type of edible oil while eliminates the issues where the quality of Malaysian food product is not reliable. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms: Acoustic wave velocity, Olive oil, Seed, Sunflower oil, Ultrasonic transducers, Vegetable oils

Compendex keywords: Coconut oil, Literature reviews, Mustard oil, Quality value, Research outcome, Spectrum unfolding, Texas Instruments, Time of flight

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