

## Acoustic Study Of Mangosteene (*Gracinia mangostana* L) By Using Ultrasonic Wave

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### Abstract

*The wave used to study the acoustic properties of mangosteen is ultrasonic wave. Ultrasonic wave with frequency of 50 KHz was used to determine acoustic properties of mangosteen. The main wave properties were the attenuation, impedance of acoustic and acoustic velocity at mangosteen. Others have been evaluated were the correlation of attenuation and acoustic velocity at parts of mangosteen with its intact mangosteen. The acoustic parameters were related to the physic-chemical parameters of the fruit (TDS and hardness). This relationship was used to study mangosteen properties and quality. Because of mangosteen structure and its pores (saw with low density), acoustic wave in mangosteen have low amplitude signal. It was saw with spectrum and FFT signal mangosteen and reference medium / air (1.4:2.3).*

*The fruit with increasing maturity mount (from color index 2 to 5) will experience hardness degradation, improvement of TDS, which are related to degradation of acoustic attenuation, improvement of acoustic speed and impedance. Multiple regression method was used to get empiric equation of wave in mixture of flesh-seed, husk and mangosteen (parts of mangosteen with its intact mangosteen). That saw in equation 1 and 2. the velocity and attenuation of ultrasonic wave in mixture of flesh & seed have higher effect equation on mangosteen than husk. It means that acoustic properties of mixture of flesh & seed has more contribution than husk.*

**Key word:** attenuation, velocity, impedance, ultrasonic, mangosteen