



## ANALYSIS OF THE FRUIT PULP OF *MANILKARA ZAPOTA*, BY INFRARED SPECTROSCOPY (FTIR)

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**Introduction.** *Manilkara zapota* (Sapotaceae) is commonly known as the sapodilla and is a long-lived, evergreen tree native to southern Mexico, Central America and the Caribbean [1]. In general it has some important properties, for example, bark is used as tonic and the decoction is given in diarrhea and paludism [2], it has high antioxidant capacity [3] and their seed embryo extract is a potent anthelmintic agent [4].

The present study shows the analysis of principal chemical functional groups contended in the *Manilkara zapota* by Fourier Transform Infrared Spectroscopy (FTIR). This technique is one of the most common techniques used to analyze organic and inorganic materials [5].

**Methods.** Several fruits of *Manilkara Zapota* were collected from Palo Gacho Veracruz, México. The samples were chosen with different maturity stages (1, 3, 5, 10 and 14 days). They were peeled and mashed and approximately 50 gr. of pulp was obtained for each sample. A FTIR spectrometer Bruker Vertex 70 in Attenuated Total Reflection (ATR) mode in the middle infrared (400-4000  $\text{cm}^{-1}$ ) range was used to analyze the absorption frequencies of the carbohydrates.

**Results.** Figure 1 shows the FTIR spectra of *Manilkara Zapota* pulp for several maturity grades. The depicted interval (800-1200  $\text{cm}^{-1}$ ) corresponds to the carbohydrates spectral region. A broad band at 1033  $\text{cm}^{-1}$  is associated to glucose, whereas the broad band at 1062  $\text{cm}^{-1}$  is associated to fructose. The most intense band at 1053  $\text{cm}^{-1}$ , along with others at 926 and 997 are associated to sucrose. Figure 2 shows the typical FTIR spectra these standards of carbohydrates for the same interval (800 -1200  $\text{cm}^{-1}$ ).

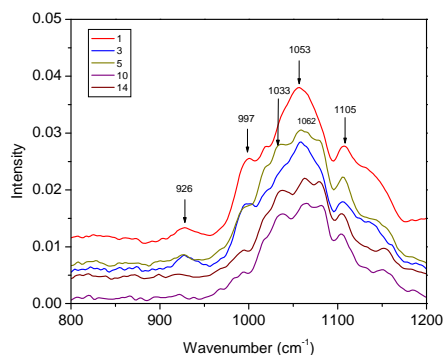


Fig.1 FTIR spectra of *Manilkara Zapota* pulp.

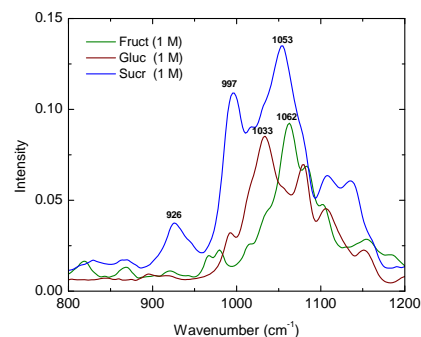


Fig.2 FTIR spectra of standards of carbohydrates.

### Conclusions.

FTIR spectroscopy allows determine and identify the vibrational frequencies associated to the main sugars present into the pulp of *Manilkara Zapota* (glucose, fructose and sucrose), by comparing the infrared absorption of the standards of these carbohydrates.

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