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**TAL 797 – Seminário**

22/11/2017

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**Espectroscopia no Infravermelho com transformada de Fourier:  
princípios e aplicação em pesquisas com alimentos**

**Fourier Transform infrared spectroscopy: principles and application in food  
research**

Infrared spectroscopy is a technology used to measure the interaction of the light from infrared region with the matter, analyzing the energy levels of atoms or molecules. This technique is widespread in food research and is applied to monitor and evaluate the composition and quality of food products. In order to exhibit absorption in the infrared region, the molecules must present a variation in the dipole moment due to their bonding vibration. Among the equipment used to obtain the infrared spectrum, the infrared spectrophotometer with Fourier transform (FT-IR) is the most used. The FT-IR uses the interferometric method to generate infrared spectra, which allows greater sensitivity and higher signal-to-noise ratio, being that the main advantage in relation to the dispersion spectrophotometer. The most used techniques to obtain IR spectra involve transmission or reflectance. Among these techniques, the reflectance is useful for complex solid and/or liquid samples, including foods. FT-IR has been applied not only to analyze several types of materials, such as plastic films, papers, resins, coatings, nanoparticles and their interaction with polymeric matrices, but also to identify contamination, frauds and organic and inorganic compounds. However, the analysis of the generated spectra requires prior knowledge of the sample and the frequencies in which the functional groups absorb, requiring some time to identify the present compounds. Nowadays a wide variety of infrared spectral catalogs and electronic databases can be used for comparison purposes. In addition, several equipment manufacturers also provide infrared spectrum libraries that can be searched with specific software that can facilitate the interpretation of the data.

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