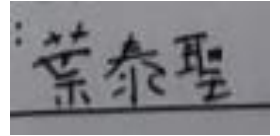


# Determination of Tomato Properties using Near Infrared Spectroscopy

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## Abstract

Nowadays, many researches have been accomplished on the attributed quality assessment of agricultural products. The nondestructive instrumental researches in the field of firmness assessment for fruit discussed. Therefore, the feasibility of near infrared (NIR) spectroscopy is a fast and economical tool to predict both the chemical and sensory properties of fruit. This technique is utilized to determine proximate chemical compositions (e.g., protein, dry matter, fat and fiber) of a wide range of food ingredients and products. These studies can be used for examining texture quality, predicting the right time to harvest fruits and classifying them according to the level of ripeness and detecting the apparent and internal defects of the fruit. Soluble solid content (SSC), fructose, glucose, titratable acidity (TA), ascorbic, and citric acid contents of different types of fresh tomatoes were analyzed with standard methods, and those values were correlated to spectral data by partial least squares regression (PLSR). The Partial Least Squares (PLS) models from spectra recorded from different kinds of tomato were built and using some algorithms and data analysis to solve and predict the quality of them. NIR spectroscopy is potentially useful for scanning large collections of samples to identify likely candidates to select for tomato quality.

**Keywords:** nondestructive, near infrared (NIR) spectroscopy, Soluble solid content (SSC), Partial Least Squares (PLS) models, tomato quality

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