

## RAMAN SPECTROSCOPY IN FOOD ANALYSIS

I. H. Boyacı\*

Hacettepe University, Food Research Center,  
Beytepe 06800 Ankara, Turkey

Nowadays, customers have become more concerned about food quality information and the use of quality determinative methods in food has increased. Therefore, all steps in food production such as the composition or quality of the products, their origin and how they have been handled, processed and stored have gained importance. Various types of methods, including microbial methods, sensory analysis, biochemical and physicochemical methods are used in food analysis. However, there remains a need for rapid, sensitive and reliable methods. At this point, Raman spectroscopy is distinguished by its numerous advantages. A fingerprint spectrum can be achieved for a target molecule using Raman technology, as specific signals are obtained for chemical bonds in the target. In this way, food components, changes in components during processing, food additives and numerous food contaminants, such as microorganisms, chemicals and toxins, can also be determined with the help of chemometric methods. These studies show that Raman spectroscopy is a promising technique for use in various food analyses, and this review aims to bring together Raman studies about food raw materials, components and contaminants and detection of adulteration.

Keywords: Raman spectroscopy, fingerprint spectrum, food analysis

---

\* Corresponding author: [ihb@hacettepe.edu.tr](mailto:ihb@hacettepe.edu.tr)