



## **RAMAN SPECTROSCOPY FOR CHARACTERIZATION OF PLANT BIOACTIVE COMPONENTS USED AS NUTRACEUTICALS**

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Infrared (IR) and Raman spectroscopy are complementary vibrational spectroscopy techniques, which may provide important composition-related information of complex plant/food samples. Generally, vibrational measurements can be performed directly on plant tissues or on samples isolated from the plant material by distillation or extraction. Evaluation of biological tissues without extraction, which can lead to degradation of the bioactive components (ex., antioxidants), short time of analysis, a high degree of precision, use in order to perform fast quality checks of raw materials or continuous controlling of the production, are advances of application of Raman spectroscopy to analysis of nutraceutical compounds. This technique allows to obtain spectra (Raman fingerprints) which present characteristic key Raman bands of individual bioactive components. These bands provide information about the chemical composition of the investigated samples as primary (proteins and amino acids, lipids and fatty acids, carbohydrates) and secondary metabolites (flavonoids, polyphenols, and other phenolic substances, terpenoids (mono-, sesqui-, and tetraterpenes), alkaloids, nitrile compounds, iridoids) present. The ability for rapid monitoring of various plant bioactive components makes Raman spectroscopy one of the techniques with future more wide application in the nutraceutical field. As the existed demand to solve complex issues of nutraceuticals is increased recently, by using multidisciplinary approach, Raman spectroscopy can play important role in it.

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