

# ADVANCED ANALYTICS SERVICE THROUGH NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

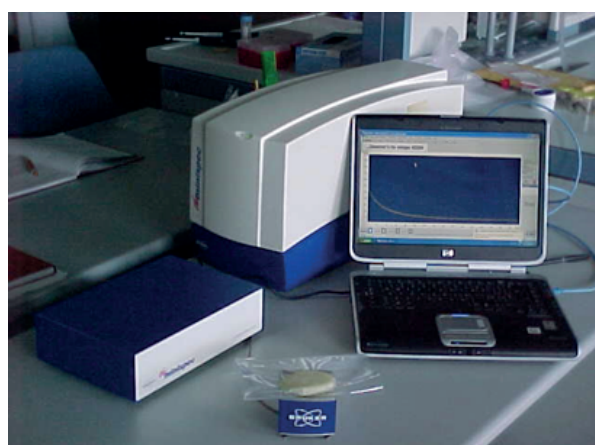
**Innovations and Benefits** - The Nuclear Magnetic Resonance (NMR) is a spectroscopic technique with high selectivity, versatility and sometimes speed of analysis. It makes it possible to deal with complex analytical problems by providing chemical, structural and dynamic information on materials of different nature and physical state. It applies to the analysis of complex mixtures, to the study of the structure of small and medium-sized molecules, to the kinetics of chemical and physical reactions, to metabolic profiling, to the study of the structure and dynamics of heterogeneous matrices and crystalline solids

## Use -

Chemical-physical characterization of food products, new materials, soils and compost. Analysis of organic and inorganic substances (polymers, nano-composites, porous systems, biomaterials, drugs, cosmetics, hydrogels etc.). Characterization of materials in contact with food, determination of the biological and territorial origin of bio-products and plant matrices, including food. Characterization of building materials and preservation of cultural heritage. Non-invasive diagnostic analyzes of artefacts of historical and cultural interest. Gel analysis for the controlled release of drugs, for cosmetics and for biomedical applications.

## Applications and ongoing Activities -

Geographical and botanical origin of plant species. Mixture analysis. Study of the release of active substances in materials in contact with food. Characterization of traditional, active and biodegradable packaging. Study of solid state polysaccharides. Hydrogel characterization. Characterization of organic-inorganic composite materials. Degradation chemical reactions of organic materials including food even in the presence of specific enzymes and microorganisms.



NMR Instrumentation (NMR Bruker 600 e Mini SPEC NMR) at research Centre of Trisaia (MT)

## Characteristics:

**CUSTOM** Thanks to its flexibility, the Service can be adjusted to different needs and contexts