

USING A MULTIANALYTICAL APPROACH TO STUDY STRUCTURAL AND FUNCTIONAL PROPERTIES IN MINIMAL PROCESSED FOODS

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Minimal processing is going to become a worldwide approach to offer new categories of food products with added value as fruit and vegetables derivatives with fresh-like quality and attractive sensory and functional properties as well as convenience but also food from animal origin (e.g. poultry meat) with increased functionality and properties to give more sustainability to the food value chain. Partial dewatering / vacuum impregnation with use of mild technology like non-thermal treatments are processes able to obtain more stable foods with increased functionality even without strong sanitation technologies.

In this context, to study the effect of processing and pre-treatments with mild and non-thermal technologies on structural aspects, the use of combining different analytical techniques like Differential Scanning Calorimetry (DSC), Nuclear Magnetic Resonance (NMR), Isothermal calorimetry and fluorescence microscopy can offer different but complementary viewpoints in studying the water status, the compartmentalization in different food systems and the influence on those aspects on functionality.

The comparison of the results obtained using different analytical techniques in a joint laboratory research showed to be effective in order to evaluate the mass transfer phenomena, water state and cellular compartment modifications in mild technologies application.