Thermal and/or nonthermal technology as a tool to increase the health functionality of bioactive compounds in fruit-based food

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Different mechanisms involving enzyme catalyzed and breakdown reactions can take place during processing depending on the processing parameters (T, pH, etc) and the type of food treated.

The project **Thermal and/or non-thermal technology as a tool to increase the health functionality of bioactive compounds in fruit-based food** (PN-II-ID-PCE-2012-4-0509, Project number: 8/30.08.2013), was developed between 2015 and 2017 by the „Dunărea de Jos" University of Galati and UEFISCDI (www.uefiscdi.ro) (EXPLORATORY RESEARCH PROJECTS).

The main objective of the project was to study the mechanisms and kinetics of biological active compounds in plums and cherries during thermal treatments. The overall impact on fruits products quality was characterized by analyzing a wide range of quality attributes, including specific (micro)nutrients (polyphenols, anthocyanins, sugars, organic acids), process-induced contaminants (5-hydroxymethylfurfural, acrylamide), enzyme activities (polyphenoloxidase, peroxidase and pectin methylesterase) and other relevant quality aspects (texture, dry matter content and color).

Therefore, the project aimed:

- To isolate and characterize of endogenous enzymes stability as a function of intrinsic and extrinsic processing parameters.
- To evaluate the stability of bioactive compounds and the related resulting products due to enzymatic/nonenzymatic reactions as a function of intrinsic and extrinsic processing parameters in model system.
- To evaluate the bioactive compounds behavior as a function of intrinsic and extrinsic processing conditions in real system.
- To evaluate the processed fruits and fruit products quality.

The kinetic information was used as a basis for predictive modeling which allowed evaluating, estimating and optimizing the effect of processing both on the health functionality and on the food quality and safety.

More details on the project results: http://biostab.ugal.ro/