Different Strategies for the Evaluation and Extension of the Shelf-life of Different Foods

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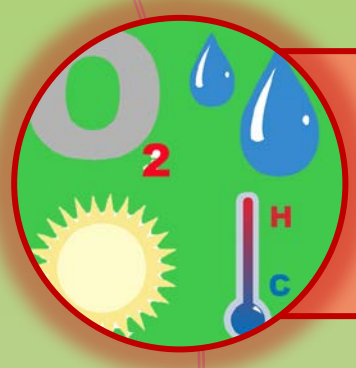
This PhD research project concerns **the development of combined methods**, for the shelf-life of different food matrices, using an approach based both on chemical-physical and sensory analyses and innovative non-destructive analyses with specific sensors. The aim will be the **optimization of the parameters for the extension of product shelf-life**, both to improve its stability but also to preserve its nutraceutical and sensory qualities.

WHY IS IT IMPORTANT TO EXTEND/MEASURE FOOD SHELF-LIFE?

The shelf-life prediction can contribute to the reduction of food waste and carbon dioxide emissions together with the increase in food quality



THE FACTORS THAT AFFECT FOOD SHELF-LIFE

Stability tests may be applied to identify the critical quality descriptors and the acceptability limit for each products during the storage conditions (Conte et al., 2020)

INNOVATIVE METHODS TO MEASURE SHELF-LIFE

Novel analytical tools are needed for monitoring the storage phases and have the potential to provide accurate in real time estimations of the shelf-life (Karami et al., 2020)

SOLUTIONS TO EXTEND FOOD SHELF-LIFE

Identification of technological solutions addressed to extend product stability (e.g. different packaging, raw materials, food formulation, atmosphere conservation..) (Taglieri et al., 2020)

Evaluation of shelf-life

- *Definition of critical parameters*
- *Evaluation of the combinations of storage parameters*

Innovative Methods for the shelf-life

- *Non-destructive analyses under real-time storage conditions with sensors*
- *Correlation between destructive analyses*

Extension of shelf-life

- *Setup of different food formulations*
- *Validation of the storage conditions*

Activity	Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A1	***Evaluation of shelf-life***																								
	1) Definition of critical parameters related to the shelf-life																								
	2) Evaluation of the combinations of storage parameters																								
	3) Non-destructive analyses under real-time storage conditions																								
A2	***Extension of shelf-life***																								
	1) Validation of the storage conditions																								
	2) Setup of different food formulations																								
A3	***Thesis and Paper Preparation***																								