

Universidad Miguel Hernández: “Sensory Evaluation of dried vegetables, hydroSOS products and food with geographical indication”

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Drying is an ancient and unparalleled physical procedure of food preservation used for direct preparation of food products as well as for further processing in the food industry. It has always been a valuable and common practice of conservation, ensuring the availability of food out-of-season. The main advantages of drying as a preservation technique are: (i) free of chemical treatments, (ii) reduction of mass of volume for better storage and/or shipping and (iii) possibility of concentration of solids rich in valuable compounds. On the other hand, several disadvantages have been reported, such as: (i) it does not allow to control the physico-chemical alterations and (ii) it requires high energy consumption. To take a decision on whether drying is the best option, it is necessary to make a full sensory profile (which will influence consumer willingness to buy) and the energy consumption of the different drying techniques and conditions.

Although most of the Mediterranean trees were traditionally rain-fed, some years ago periodic irrigation was implemented in these crops because of the intensification of agriculture. However, climate change is limiting water availability in this geographical region, and water efficiency must be optimized. Regulated deficit irrigation (RDI) is a watering technique that is widely studied and many studies have concluded that different RDI treatments can affect phenolic composition, antioxidant activity, fatty acids composition, and volatile compounds of most of the Mediterranean crops. RDI edible products can be protected under a brand named **hydroSOSustainable products**, which are characterized by having unique characteristics: (i) high intensity of some key sensorial attributes, (ii) high content of some nutritional and functional components, and (iii) reduced use of water, which is a benefit for both farmers (economic benefit) and for the environment (water sustainability).

European countries, including Spain, have a wide range of **protected products**, which have (i) a very strong link with their origin (Protected Designation of Origin, PDO), (ii) a certain quality or characteristics that can be attributed to their geographical origin (Protected Geographical Indication, PGI), and (iii) traditional aspects, such as the way the product is made or its composition, without being linked to a specific geographic area.

One of the most relevant aims of our research group “Food Quality and Safety” is to promote the use of sensory evaluation as an extra tool in the food sector (including departments of quality control, Research and Development, etc.). We will present some case studies about how our group is using “scientific” sensory evaluation to help in objectively characterizing: (i) dried vegetables, (ii) hydroSOS products, and (iii) protected food items. The

most frequently used sensory evaluation techniques will be briefly presented together with some critical aspects, such as assessor selection, attribute generation, and context effects. In summary, some examples of previous research will be show-cased to demonstrate what types of research questions can be answered by using sensory evaluation and which could be the best tests to be selected.