

Sensory Functionality of Extra-virgin Olive Oil

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Current methods used to classify extra-virgin olive oils into sensory quality categories involve evaluations of oils on their own and thus do not take into account the actual conditions that consumers often experience when consuming olive oil (i.e. mixed with other food). Assessing the sensory functionality, defined as the ability to impact on the sensory profile and on the acceptability of the food matrix with which it is combined, should be an appropriate approach for evaluating the performance of an ingredient from an applicative perspective of food development and marketing.

In this work the sensory functionality of three extra-virgin olive oils with different sensory profiles was investigated in a tomato sauce. The following experimental plan was adopted: **1.** Describing oil sensory profiles and assessing consumer liking. **2.** Defining the differential concentration level for each oil sample in tomato sauce (i.e the minimum concentration level needed to induce perceivable differences among tomato sauce samples containing different amount of the same oil). **3.** Defining the concentration level needed to induce perceivable differences among tomato sauces combined with the three different oils. **4.** Assessing consumer liking for tomato sauce combined with different oils at different concentration levels. **5.** Investigating the sensory properties and aroma head space components of tomato sauce combined with different oils at different concentration levels.

The amount of oil needed to induce perceivable differences in combination resulted different for the three oils and was not necessarily related to the intensity of sensations induced by oils evaluated by their own. Modifications of the sensory properties of tomato sauce induced by oils affected consumers' liking for combinations. Weak relationships have been found between oils and their combinations for sensory properties, consumer liking and aroma head space composition. Results suggest caution in selecting index of olive oil quality categories based on chemical and sensory data from oil evaluated alone. Furthermore, the need of a systematic and rigorous approach to sensory functionality investigation is highlighted. Information about conditions of use that allow an oil to express its best sensory potential would greatly help in optimizing both production and market positioning strategies for this ingredient.