Poster

Development and fine-tuning of an artificial organoleptic analysis method for virgin olive oil using an electronic olfactory system

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ABSTRACT

Motivation: The catalogation of olive oil by organoleptic parameters has a high grade of subjection because of human factor. A new system of electronic tasting is used as a reliable, fast and cheap method. The use of an electronic olfatory system (EOS), which consist of an array of electonic sensors and a mechanism for pattern recognition, requires of a previous training process like a human olfatory system. The training is one of the most relevant and delicated phase, as this process involves the creation of a complete database that the instrument uses as a reference for the subsequent sample recognition.

Methods: A set of samples of different olive oils were analysed by three official panel tests before using the EOS. The instrument is composed of a chamber with five metal oxide semiconductor based sensors. During the analysis, each sensor is maintained at a specific temperature showing a different response for a certain sample, which implies a reduction in the sensors resistance. For the measurement, volatile compounds were directed to the sensor chamber by the carrier gas (dry air). Principal component analyses to interpret the datasets from the EOS is employed in order to assess the classification of the measurements.A database was created through the analysis of a set of samples which should be representative of differents aromas to be recognized.

Conclusions: The main conclussion is the high variability between the official panel tests which could be reduced by the EOS. From the database that was created we can analyse an olive oil with unknown catalogation and classify into Extra Virgin, virgin or lampante.On-line detection of the different categories, during the oil industrial process, could have a notable economical impact.

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